



TUCKER®
DESIGNED FOR THE PRO

**Tucker® Fill N Go
4-Stage RO/DI & Truck Mount
Tank System User Manual**

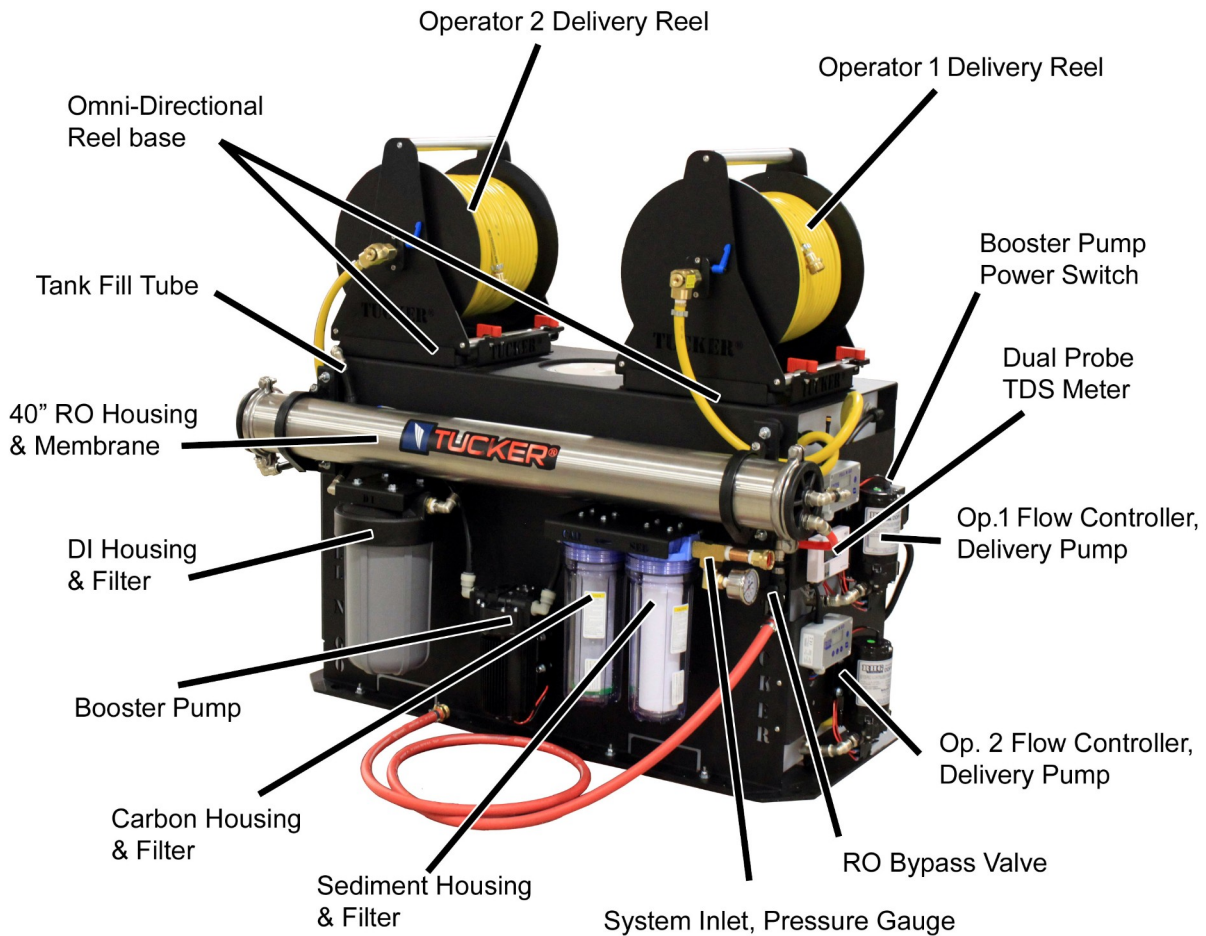
RHG Products Company

www.rhgproducts.com

303-663-1779

TUCKER FILL 'N' GO

System Features & Layout
(Dual User model shown)



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General Purpose and Use

The Tucker® Fill 'N' Go is an all-in-one vehicle mounted pure water window cleaning system to be used with a water-fed window cleaning pole. Fill 'N' Go systems are available in Single and Dual operator models. Stored water is shared between operators. The system purifies water to a 100% pure deionized state and stores the pure water in a 52 gallon holding tank.

The system will purify water without the aid of the on-board booster pump. Boosting pressure to the purification side of the system will increase water production rate as well as increase the efficiency of the RO membrane.

Water is drawn from the tank with the use of 12v delivery pumps and delivered through the included hose reels, which are attached to water-fed cleaning equipment.

Purification

Tap water filtered through your Fill 'N' Go system goes through 4-stages of purification.

1. **Sediment Pre-Filtration:** Sediment filters remove heavy particulate impurities from your source water.
2. **Carbon Pre-Filtration:** Carbon filters remove chlorine and water disinfection agents from your source water, protecting your RO membrane.
3. **Reverse Osmosis Purification:** RO Membranes reject solids from your pre-filtered water, creating a waste stream. Solids removed from the water flow out of your bypass valve at all times during filtration. A significantly more pure water stream is passed on to your DI filter, extending your DI media life.
4. **Deionization Purification:** Your RO permeate water is filtered through a DI Mixed Media Bed. New DI media produces 100% pure water. DI media is consumed in this process. The purified water is now fed into your holding tank.

Delivery

Pure water is delivered from your holding tank to a water-fed pole through on board 150' x 3/8" I.D. hose reels. The water is drawn from the tank by 1.4GPM 12v delivery pumps, operated by a pump controller.

The pump controller serves two purposes. First is to allow adjustment of flow to your pole. Lower flows conserve your reserve water, and allow the water to better cascade down the glass during rinsing. Second, the controllers allow the pumps to shut off if you close a valve on your pole hose line before reaching their max pressure, 90psi, which will trigger the mechanical pressure switch on the pump, forcing shut-off. This extends the life of delivery pumps.

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New Machine Setup Procedure

Unpack unit and inspect for any damage that may have occurred during shipping. Any damage or missing components must be reported within 24 hours to the supplier of your system.

Your Fill N Go system requires a 12v deep cycle battery. For single user units, a battery box is mounted to the system frame. This will accommodate a battery of 12" max width. Metal straps are fixed to the frame inside the box. To install, unscrew the wing nuts at the top of each metal strap arm, remove plastic adjustable strap, and place battery into box. Reinstall strap top.

For dual user units, you must mount your battery or battery bank elsewhere in your vehicle. An approximately 6' long wire lead is included on the Operator One delivery panel. Connect wire leads to battery terminals to power system. *Be sure to observe proper polarity.* Red(+), Black(-). Reversing polarity will blow controller fuses, or if the fuse has been bypassed, destroy flow controllers.

Battery selection

You will need to purchase separately a deep cycle marine grade battery. Larger battery capacity, measured in aH (amp-hours) will allow you to work longer with your system in between charges.

Your controllers also have a built-in low voltage protection. Read more about this in the included flow controller documentation. Frequently operating with under-charged batteries can be both damaging to the battery and the controller.

Your delivery pumps will generally draw between 5-8 amps during normal use. Your booster pump will always draw 18-20 amps. You can determine how much use you can expect out of a full charge by dividing the amps during use into the total aH provided by your battery.

You will need to purchase a 12v battery charger. Make sure the charger includes over-charge protection to prevent an over current condition in the controllers. A trickle charger like a Battery Tender or a faster charger like a Battery Genius is suitable.

Pure Water Hose

Hose and reels are included with the system. 150' x 3/8" I.D. hose per operator. Flow and volume are controlled independently. Each hose terminates in a 3/4" MGHT fitting, for attachment to your pole hose quick connect. 5/16" I.D. pole hose of appropriate length and quick connects are supplied with Tucker® poles.

Fill N Go Systems ship fully assembled.

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Your Fill N Go must be secured into a vehicle via hardware of your choosing through the mounting holes in the base of the system frame.

Operation Instructions

1. (Optional) Connect a length of garden hose to the waste hose to divert waste water away from system and work area.
2. Fully open bypass waste valve.
3. Attach a garden hose to the inlet of your system.
4. Turn tap water supply on.
5. On first use, allow system to flush for 15 minutes, then slowly close the bypass valve all the way. Although the valve is fully closed, water will still flow out of it. This is normal. Water will begin to flow into the tank under tap pressure.
6. It will take a few minutes for all of the air to purge out of your system. Only turn on pumps after air has been purged.
7. After the initial 'air purge' you will not need to purge air again unless you replace a filter.
8. You are now ready to fill your holding tank.

Electric Motor Operation

Fill N Go RO/DI systems come with 12v pumps to boost RO water production into the tank as well as deliver water to your pole. An on/off switch is mounted to the face of the systems to control the booster pump. The delivery pump is controlled with the use of a controller. The controller will likely require calibration.

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Operating Warnings

Adjust your flow settings carefully. Repeated false dead-end detection indicates that the Cal value should be increased (less sensitive).

For absolute safety always wire through the pump pressure switch. (The pressure switch can be bypassed if absolutely necessary - the unit will protect itself under normal conditions.)

This is a WATER PUMP controller: it will not work with air in the system. Always prime your system before starting work. If air in the system causes false dead-end detection, increase Cal value (less sensitive).

Do not set the Cal value too high. Setting it higher than necessary places extra strain on both the pump and the controller in a dead end situation. This can result in damage to both the pump and your controller.

Specification	Value
Supply Voltage	11 - 14 VDC
Maximum Current	10A
Typical Drive Current	4-5A
Voltmeter Accuracy	+/- 100mV
Enclosure Material	ABS
Water Resistance	IP65
Dimensions	115 x 65 x 40(mm)
Working Temperature	0 to 40 Deg C

* Your battery is at risk of permanent damage if you disable low battery cutoff and continue to use your controller for long periods when the battery voltage has fallen below +10.5V

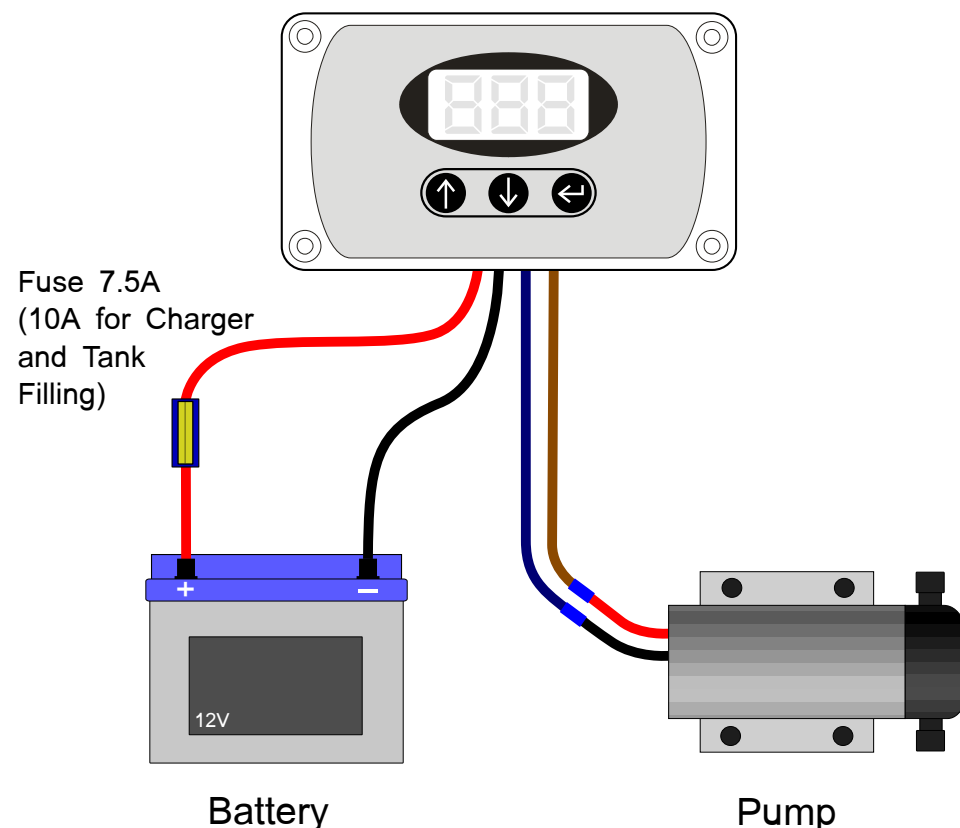
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Pump Controller - Quick Start

v11

Step 1. Wiring

Connect the pump controller following this diagram.
NOTE only fit the fuse once all connections are made.



Make sure correct fuse is fitted inline. Failure to do so will result in damage to the unit.
Observe correct battery polarity. Failure to do so will result in damage to the unit.

Step 2. Set Up - AutoCal

Connect your hose and brush to the pump.

Turn on the controller by pressing the up or down button. Keep the button held until the display lights up.

Press up until the display shows 30.



Press and hold up and enter to go into calibration.



Press down to select AutoCal, then enter to start.



After several moments the calculated Cal value will be displayed and the controller is ready to use.

Press enter to exit calibration.



The Cal value can be adjusted manually by following these steps and adjusting the Cal value using up and down, instead of using AutoCal.

To enable or disable the low battery cutoff (when battery is below 10.5V):



Step 3. Use

Press up or down to set a suitable flow of water.



Press enter to display the current battery voltage.



Press enter again to return to the current flow rate.



To turn the controller off, press and hold enter.

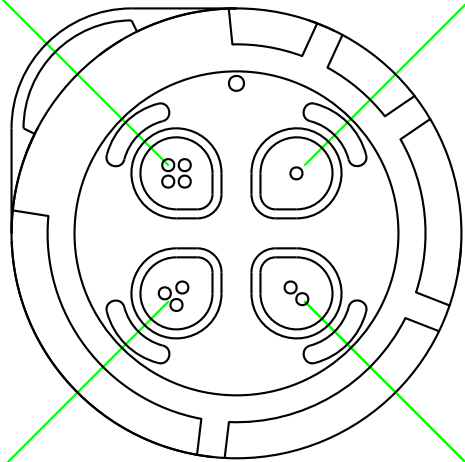
Message	Description
888	An error has occurred while using AutoCal. This will happen when the motor is not connected or the enter button has been pressed to cancel it.
885	Pressure switch activated or motor disconnected.
88E	A dead end has been detected. If this is not the case, try increasing the Cal value.
88E	This message will start to flash when the battery is low (<11.0V). If battery is below 10.5V the pump will be disabled to protect the battery. (Unless low battery cutoff is disabled*)

Step 1. Fob Overview

Before you can use your fob it must be paired with its controller. Please see step 3 for details.

Start/Stop

Press once to stop pump. Whole LED segment lights to indicate STP. Controller will show 'StP'. Press once to start pump. One LED lights to indicate pump has started.



Pump Decrease
Each press will reduce pump flow by 10. LED segments indicate this.

Auto-Calibrate

Press and hold until whole LED segment lights. One LED lights to indicate calibration has finished.

Pump Increase
Each press will increase pump flow by 10. LED segments indicate this.

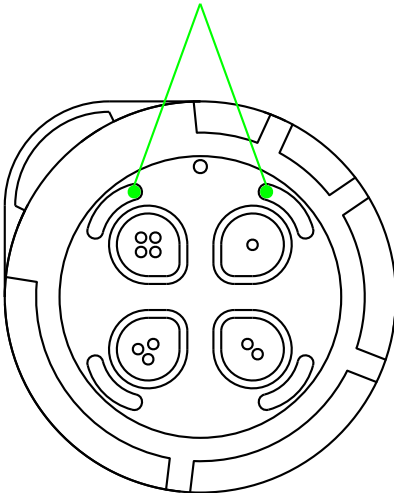
Specification	Value
Supply Voltage*	5 VDC
Enclosure Material	ABS
Water Resistance	IP61
Dimensions	75 x 16mm
Working Temperature	0 to 40 Deg C

* Charge only with micro USB phone chargers or similar micro USB adaptors.

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Step 2. Fob Charging

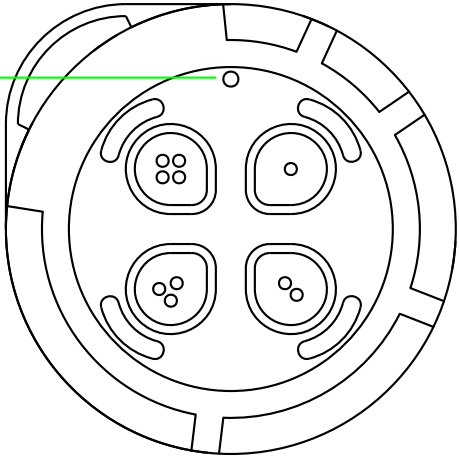
Your fob will indicate when it needs charging by lighting two LEDs.



To Charge
Plug in micro USB phone charger or similar to the charging connector. Charging LED is red ● when charging. Charging LED is green ● when charged.



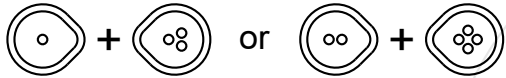
Charging LED



DO NOT IMMERSE FOB IN WATERr. Doing so will result in damage to the unit.
DO NOT LEAVE IN DIRECT SUNLIGHT. Doing so will result in damage to the unit.

Step 3. Pairing your fob

To begin using your fob you must first pair it with your controller. Ensure your controller is turned on. Press and hold two opposite buttons on the fob:



If the fob is charged and working, the LED segments will appear to circle around the fob. The controller will respond by displaying 'FOb'.

FOb

Now press ALL three buttons on the controller at the same time.



If the pairing is successful the fob LED segments will stop circling and the 'FOb' will disappear from the controller display. Your fob should now operate the controller as described in 1. Fob Overview.

If the pairing is unsuccessful turn the controller off for 30 seconds then on again and repeat the steps above.

Step 4. Use

Pressing this button reduces the flow setting by 10. The controller will indicate this reduction:

830 ► 820

Step 4. Use Cont'd



Pressing this button increases the flow setting by 10. The controller will indicate this increase:

820 ► 830



Pressing and holding this button will start an auto calibration on your controller. (Ensure flow is set to your desired value e.g. 50).

All LEDs on the segment light to show auto calibration has started, the controller will indicate 'AUT'.

AUT

When the controller has calibrated one LED on the segment will light to show this. 'CAL' will disappear from the controller display.



Pressing this button starts and stops the pump. If the pump is running press the button once to stop. All LEDs on the segment will light, the pump will stop and controller indicates 'StP'.

StP

If the pump is stopped press the button once to start. A single LED on the segment will light, the pump will start and controller indicates the current flow. e.g. '30'.

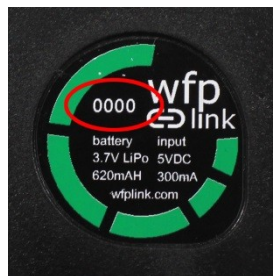
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For Tucker Fill N Go Systems with WFP Link Controllers:

This system features the WFP Link remote controlled pump controllers. All standard v11 controller functions remain, and you do not need to use the WFP Link fob to operate the system.

Please refer to the WFP Link Quick Start Guide for functions and use.

For dual user systems, if your controllers are labeled with a Fob Number, they have been paired at RHG. Check the back of your FOB for it's serial number.



If your controller is not responsive to the corresponding fob, please re-pair the fob by following the instructions in your Quick Start Guide.

To test the fob's pairing, your controller can be turned on using the Pump Decrease button (single dot).

Remember that though the controller may be turned all the way down to Zero using the fob, you should always power down your controller at the system after use with the Enter Button (left pointing arrow) to preserve system battery life.

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WARNING

DIGITAL FLOW CONTROLLERS ARE NOT WATERPROOF

FLOW CONTROLLERS CARRY

AN IP-65 Ingress Protection Rating:

Dust Proof, Resistant to Jetting Water.

Always add a valve to the end of on-board hose to prevent water from pooling on top of the flow controller.

Water ingress will irreparably damage controller circuitry.

**YOUR DELIVERY PUMP CONTROLLERS
HAVE BEEN FUSED BY RHG PRODUCTS.**

NO ADDITIONAL INLINE FUSES ARE NEEDED.

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Features and Maintenance

The 52 Gallon tank in your Fill N Go system fills with RO/DI water. Water quality during purification may be continuously monitored with the **Dual Probe TDS Meter** on Operator One delivery panel.

The **IN** reading shows water purity after RO purification, measured in Total Dissolved Solids, parts per million. A properly functioning RO should be rejecting greater than 90% of solids. Compare your RO TDS against your tap water to ensure proper performance. This is best done when changing DI.

The **OUT** reading measures water purity after DI filtration. A new DI should produce water of 0ppm TDS. This will slowly climb as the DI media is spent. You should be able to clean glass spot-free with water of up to 10ppm TDS.

Filter Replacement Schedule & Procedure

Your sediment filter protects your system from large particles and heavy soluble water impurities. Your carbon filter protects your system from damaging chlorine and water disinfection agents. It is recommended that you change your sediment and carbon filter cartridges together, every 5000 gallons. (Every 50th fill- keep in mind only ½ of the pre-filtered water makes it into the tank) Failure to do so will void your warranty. Order RHG #20025 & RHG #20026.

Your DI filter has a limited lifespan based on the amount of dissolved solids it is removing from the water. DI filter cartridges need to be replaced as needed for your cleaning application. Glass can typically be cleaned spot free with water up to 10ppm TDS. Non-glass surfaces may be cleaned with water up to 40ppm TDS. Order RHG #20027.

To remove these filters, slide the correctly sized provided plastic wrench over the filter housing from the bottom up. Once snug, turn the filter counter-clockwise (as viewed from the bottom of the filter) to break any seal that may have formed. Once the housing is loose, continue unthreading housing sump from the housing head. Remove spent filter and replace. Ensure the rubber washers provided with your replacement filter are correctly placed and aligned. All rubber seals, including the large diameter O-ring around the mouth of the housing, should be lubricated at this time. RHG/Tucker® uses Dow Molykote 111.

RO membranes have a much longer service life and in the experience of RHG may last the life of the system. However ROs are only warrantied for factory defect and may eventually diminish in performance or fail. If you experience a reduction in RO performance in your Fill N Go system, contact RHG directly to troubleshoot.

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STAINLESS RO HOUSING SERVICE

DISCONNECT PLUMBING FROM
SERVICE END



LOOSEN HEX BOLTS W/ 1/2" WRENCH
REMOVE RETAINING CLAMPS



REMOVE PRESSED IN CAP



REMOVE SPENT RO MEMBRANE



LUBRICATE REPLACEMENT RO AT PERMEATE TUBES BOTH ENDS.
REINSTALL RO AND REASSEMBLE HOUSING. BE SURE TO MAINTAIN
ORIGINAL PLUMBING CONFIGURATION.

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Shutdown Procedure

1. Open the bypass valve fully to flush the system and turn off the pump.
2. Flush the system for 4 to 5 minutes at the end of the each fill.
3. Turn off the water supply to the unit.
4. Disconnect the water supply.

It is important to always flush the system after each use. Failure to do so will decrease the filters life.

ANY ALTERATIONS TO THE SYSTEM WILL VOID THE WARRANTY

Storage

Long periods of disuse can be harmful to the filtration included on the Fill 'N' Go. Once wet, your carbon filter has a life of about 6 months regardless of use.

No part of the filtration system should be allowed to freeze with water in the filter or housings. While not always damaging to the filters themselves, ice in the housings will expand and crack the housings. Sediment, carbon, and DI housings can be drained of water. Some moisture should always be present in the DI filter. DI that has completely dried will no longer produce pure water. You can remove this filter and seal in a bucket or bag, and store in a location where it cannot freeze.

RO MEMBRANES SHOULD NOT BE ALLOWED TO DRY OR COLLECT STAGNANT WATER IN THE BOTTOM OF THE MEMBRANE. THIS WILL DIMINISH PERFORMANCE, POTENTIALLY TO THE POINT OF FAILURE. TO PREVENT THIS, ROs SHOULD BE RUN ON A REGULAR BASIS, AT LEAST EVERY TWO WEEKS, AFTER FIRST USE, EVEN DURING "OFF-SEASON". ALWAYS HAVE A CARBON FILTER IN PLACE WHEN RUNNING YOUR RO.

If you must store the system long term, or in freezing conditions, you may alternately use an RO preservative to winterize the system. Order RHG #20000. To store your Fill 'N' Go RO housing, remove all plumbing from the compression fittings in the housing by pressing the collet at the mouth of the fitting and pulling the tubing loose. Plug the fitting in the non-serviceable end first and stand the housing on end. Follow RO preserve instructions and plug the top two fittings. Specially designed ½" O.D. plugs are available for push-to-fit fittings are available, or ½" threaded plugs may be used.

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Troubleshooting

My new DI isn't making pure water.

RHG/Tucker® Supplies only Virgin Mixed Bed DI resin. Sometimes, chemical residues left over from the manufacturing process will show up on a TDS meter, but should not spot. Wash a test pane and check for spotting. The TDS should zero out shortly. If you have refilled your own DI, make sure the bed is tightly packed into the housing, leaving no air gaps for water to escape around the media.

My controllers will not turn on at all.

Behind each delivery panel, the controllers have been fused to protect from shorting or reversed polarity. The panels are attached from either side with 1/8" hex drive button head screws. Carefully remove the top four screws. Loosen the bottom two, so they can be used as a hinge to tilt out the panels. Check the 10A ATC blade fuses.



My pump stops running intermittently.

Check the controller for errors. A DE error is most likely. Recalibration is required. Follow instructions in Quick Start Guide. If you have recently changed a pole, this is the cause. If you use several different poles on the same delivery panel and reel, calibrate to the largest pole or the longest length of pole hose that you use. If you are getting a PS error, this indicates pressure switch activation. There is either a valve on your pole closed, a physical blockage in your line, or an interruption in power in between the controller and pump. Check the blue terminals at the bottom of the pump (pressure switch) and be sure they are snugly fit in place. The top and bottom terminal in the pump should be occupied, with the middle empty. If all seems to be in place, press ENTER on your controller to check for a low voltage condition.

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My pump runs, but does not deliver water.

The most likely cause for this is the pump failing to prime. This can happen if the pump has been run completely dry and the water on the head has evaporated as well. You can reach into the tank and grab one of the red siphon lines supplying the pump, and find a means to force water into the inlet side of the pump. The other cause could be that there is a vacuum leak on the inlet side. You will not be able to see air leaking into the plumbing feeding the pump as it is drawing it into the water with negative pressure. Again, forcing water into the siphon tube should produce a drip at the location of the leak, allowing you to service the leak.

My controller turns on, but does not respond.

First, check for a flashing BAT error. Controller is detecting lower than 10.5v – 11v. Controllers can require a hard reset following a low voltage shut off. Disconnect your system from power completely, removing the negative (black) wire from your battery for at least 30 seconds. Reconnect and reboot controllers.

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