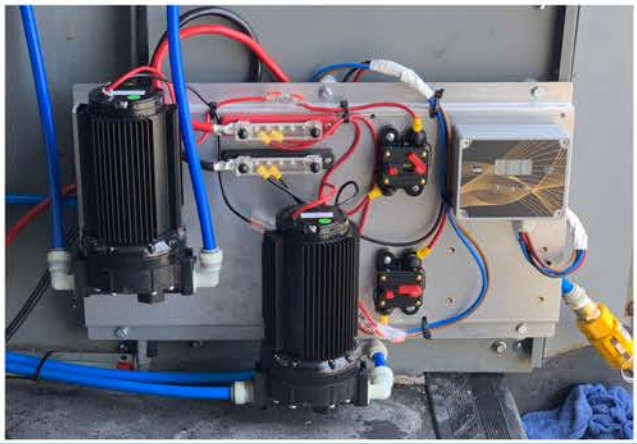
ProTool

WALL MOUNT INSTALLATION GUIDE

150-0531

WALL MOUNT RODI 2 PUMPS

- 2 RO MEMBRANES
- 3.6 GPM RO PRODUCTION
- 5200 GAL PER DAY
- 5 GPM PUMP
- 3.5 GPM DELIVERY AT 45 PSI
- PUMP CONTROLLER



WHAT'S INCLUDED

- Mounting Plates
- Housings
- Filters
- Fittings
- Hose
- Pumps
- All Electrical
- Tools Required
- Screws

WHAT'S NOT INCLUDED

- Mounting Bolts
  - 1/4" bolts to mount the plates to the wall/supports
- RO Holding Tank
  - 50-60 Gal vertical tank recommended
- 12V Battery
  - Type 31 battery recommended.
  - 100 aH capacity is ideal.
  - Lithium Ion larger capacity (200 aH) is a luxury.

1x Housing Plate

1x Pump and Electrical Plate

1x Inlet/Outlet Bracket kit

4 x 40" SS Housings

2 x 40" RO Filter

1 x 40" Carbon Filter

1 x 40" DI Filter

2 x 12V pump

1 x Controller

2 x Breaker Switches

1 x R/B Bus Bars

4 x Pump Fittings

2 x RO Fitting Kit

1 x Dual RO Waste Kit

2 x DI/Carbon Fit. Kit

1 x Hose Kit

1 x Pressure Gauge Kit

1 x Float Valve Kit

1 x Screw Kit

1 x Battery Cable Kit

1 x Screw Driver

2 x Nut Driver

1 x Wire Tool

SCREW KIT

WHAT'S INCLUDED

A –
10-32 x 3/4"

B –
10-32 jam
nuts

C –
10-32 x
1 – 1/4"

– D
8-32 x 3/4"

– E
#8 Terminals
(Bus Bars)

– F
1/4 terminals
(Breaker
Switches)

FILTER LOCATIONS

WHICH FILTER GOES IN WHICH HOUSINGS

RO FILTER #1

RO FILTER #2

CARBON FILTER

DI FILTER

STEP 1

Items Needed:

- Housing Plate
- 1/4" bolts/captive nuts (not included)

Steps:

1. Measure the length of bolts needed to get through the plate, wall/support beam and nut
2. Make sure the layout of the plate allows for both plates to be mounted securely.
3. Also allow room for the inserts to be added / removed from the housings.
4. The bottom two filters will need to be accessed frequently.
5. Bolt the plate to the wall / beam. Use 6-8 bolts in the provided clearance holes.

STEP 2

Items Needed:

- 8 qty Screw A
- 8 x rubber feet (inside housing)

Steps:

1. Line up the rubber feet with the center holes.
2. Screw in the rubber feet with bolts A into the center rivnuts.
3. Repeat 8 times for all 4 housings.

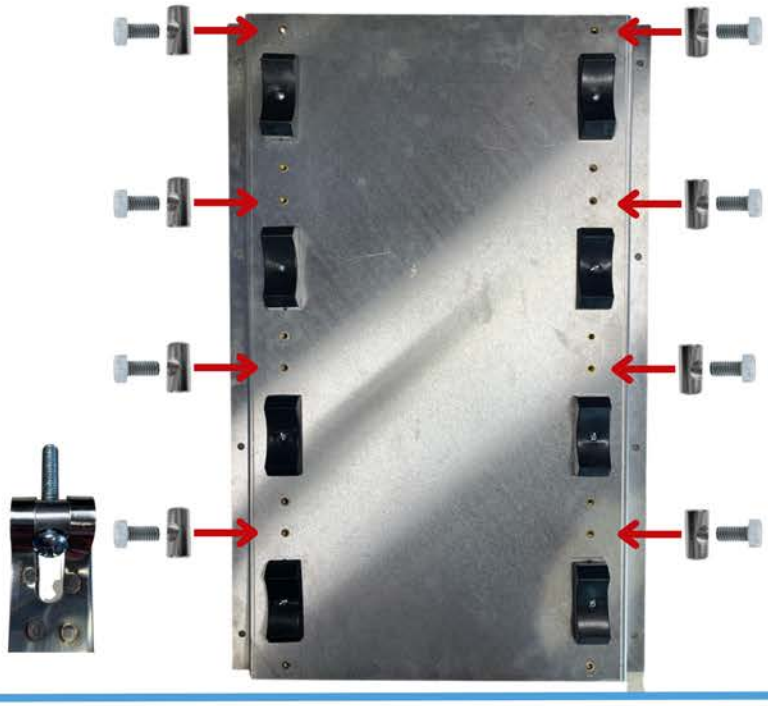
STEPS 3-5

Items Needed:

- 4 x SS Housings
- 16 qty = C (10-32 x 1-1/4")
- 8 x metal straps (inside housing)

Step 3:

1. Take the provided bolts out of the metal straps
2. Pass bolt C through the pivot nut and strap like this →



Step 4:

1. Work one housing at a time, either up or down
2. Attach one side of the strap above the rubber feet. Only get the bolt started, do not tighten.

Step 5:

1. Place an empty housing on the rubber feet
2. Guide the metal straps over the housing and line up the other side of the strap to the bottom hole below the rubber foot.
3. Screw in the bottom bolt on the other side.
4. Tighten all 4 corners evenly. Ensure housing is snug and does not rotate or slide sideways. These bolts only need to be snug, not all the way tight to the plate.
5. Repeat this for all 4 housings.

STEP 6

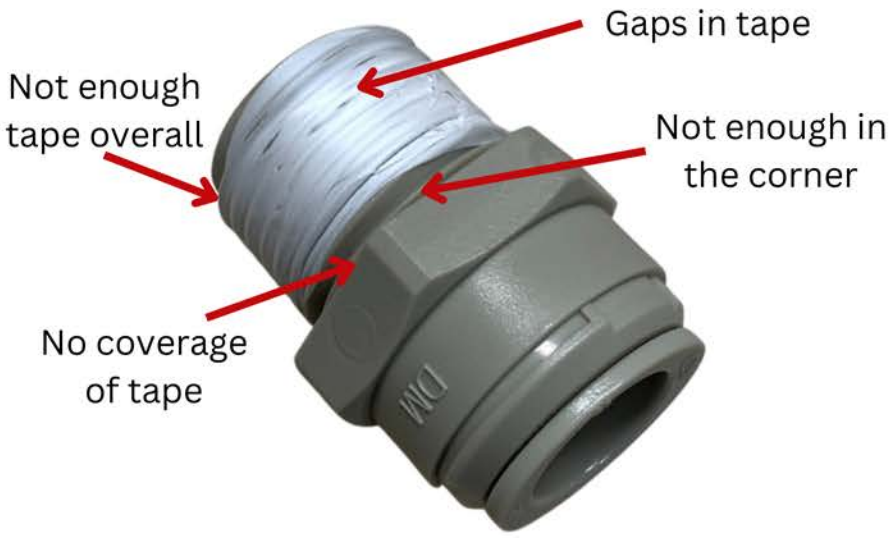
Items Needed:

- special note on water proof tape for fittings

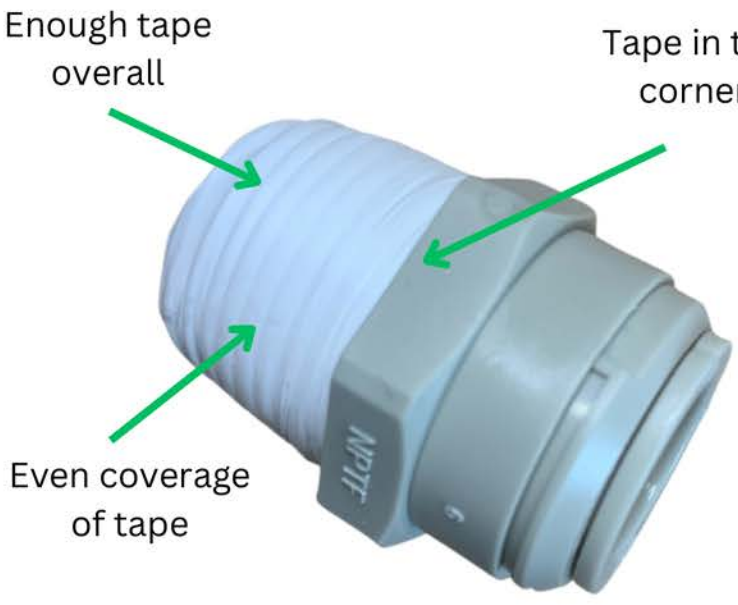
Steps:

1. Before moving forward, a quick note on waterproofing fittings.
2. Use provided sealant tape to tape ALL fittings with threads.
3. We recommend at least 8-9 wraps around plastic fittings to ensure a water proof fit.
4. Ensure tape covers corners of fittings.
5. Ensure an even coverage of tape without gaps.
6. If you have water seeping through the fitting and tape, there is not enough tape. Remove fitting and add tape on top of existing tape. Double check key points on the image to the right.

BAD



GOOD



STEP 7

Items Needed:

- 4 x Filter End Caps
- 2 x RO Fitting Kits

Steps:

1. Thread two push fit fittings into both ports of one end cap.
2. Repeat step 1 on a 2nd end cap.
3. Thread one push fit fitting on the side port of the third end cap.
4. Thread the grey plug into the center port.
5. Repeat steps 3-4 on a 2nd end cap.
6. You should have two end caps with two ports, and two end caps with one port and one plug.
7. NOTE: Elbows are optional, they can be used if desired.

STEP 8

Items Needed:

- 2 x Dual port end cap from step 7
- 2 x single port / plug end cap

Steps:

1. Add the two white o-rings to channels on the end cap with one plug and 1 port.
2. Repeat this for the second end cap
3. Add Magic lube and cover both o-rings completely
4. Repeat for both end caps
5. Slide the end cap into the left side of the top most housing.
6. Secure the end cap with the metal clamp.
7. Tighten the bolt with the nut driver. Bolt only needs to be snug.
8. Repeat for the second housing directly below.

STEP 9

Items Needed:

- 2 X RO end caps double port
- 2 x RO filters

Steps:

1. Slip the RO filter into the housing. Make sure to push all the way in. Arrow on the the label should point away from the housing.
2. Slide a double port end cap in.
3. Push the cap all the way in. This will be a tight fit.
4. Magic lube helps with fitting the end cap in as well as water tight seal.
5. If needed, remove the housing from the mount and push against the ground for extra leverage. Protect the fittings with something soft.
6. Secure the end cap with the metal clamps.
7. Repeat this on the 2nd RO.

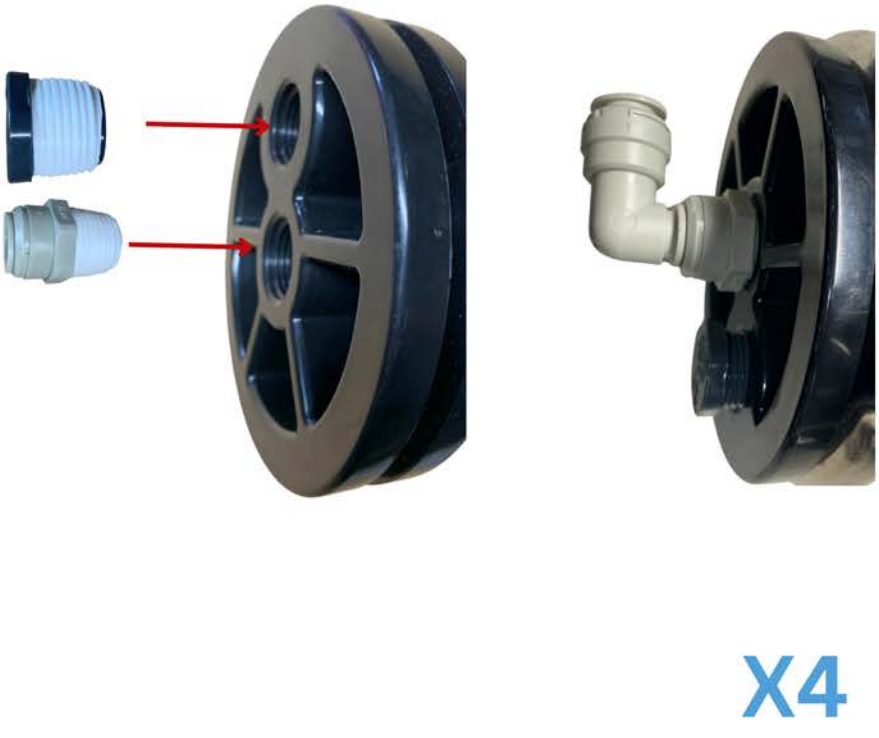
STEP 10

Items Needed:

- 4 x Filter End Caps
- 2 x Carbon/DI Fitting Kits

Steps:

1. Thread the push fit fitting into the center port of the end cap.
2. Add an elbow, to the push fit fitting.
3. Thread the plug in the side port.
4. Repeat this process 3 times to make 4 end caps like this. plug.



STEP 11

Items Needed:

- 4 x end caps with side port plug, center port elbow push fit

Steps:

1. Add the two white o-rings to channels on the end caps.
2. Repeat this for all 4 end caps.
3. Add Magic lube and cover both o-rings completely.
4. Repeat for all 4 end caps.
5. Slide an end cap into the left two sides of the bottom two housings.
6. Secure with the metal clamp and bolts.

STEP 12

Items Needed:

- 1 x Carbon filter insert
- 1 X DI filter insert
- 2 x brine seal

Steps:

1. Remove the white o-ring from the end cap of the DI and Carbon filter inserts. A pick may be helpful.
2. Replace with the provided thick black brine seal.
3. Ensure the brine seal sits in the channel properly and is not twisted anywhere around the end cap.
4. Repeat for both carbon and DI filter insert.

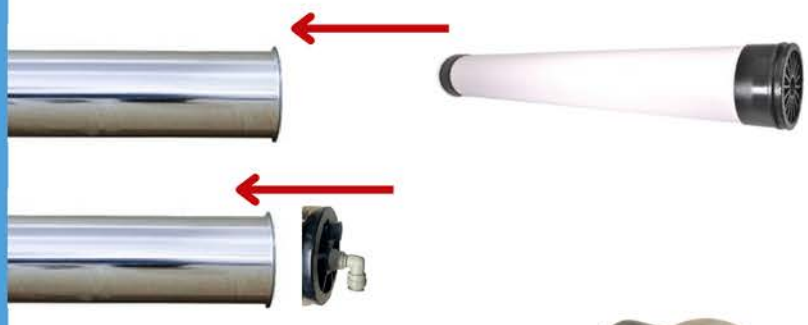
STEP 13

Items Needed:

- 1 x Carbon filter insert
- 1 X DI filter insert
- 2 x end caps

Steps:

1. Starting with the side with no brine seal, slide the Carbon insert into the 3rd housing.
2. The brine seal should be on the right, or open, side.
3. Slide an end cap over the top.
4. This may be a tight fit, but easier than the RO.
5. Secure the end cap with the metal clamp.
6. Repeat this step with the DI filter in housing #4, or the bottom housing.



STEP 14

Items Needed:

- Dual RO waste kit
- Black Hose
- Note: all hoses are the same, except color. Hoses are color coded for easy installation.

Steps:

1. Combine the two RO inlet hose into one line.
2. Cut two 3-6 inch hose pieces
3. Slip them into the side port of the RO end cap with a plug in it.
4. Add a elbow to the top hose.
5. Add a Tee fitting to the bottom hose.
6. Connect the elbow to the tee with a 6-10 inch hose. Make sure the hose is not pushing the elbow and tee fitting apart/pulling them together. Pressure on the collars in the fitting can cause leaks.

Direction of water flow. Hose will be added later.

STEP 15

Items Needed:

- Dual RO waste kit
- Red and Blue Hose
- Note: all hoses are the same, except color. Hoses are color coded for easy installation.

Steps:

1. This will be similar to step 14, but twice. One for the permeate (blue) and the other for the waste water (red) output.
2. Cut two red and blue hose to two different lengths. Does not matter which is longer or shorter.
3. Slip the red hose in to the side port of both RO housings.
4. Add an elbow to the top and a tee fitting to the the bottom.
5. Connect the two fittings with a short hose. Make sure to not push/pull the fittings apart/together.

Direction of water flow.
Hose will be added later.

STEP 16

Items Needed:

- Dual RO waste kit
- Red and Blue Hose
- Note: all hoses are the same, except color. Hoses are color coded for easy installation.

Steps:

1. Slip the blue hose into the center port of both RO housings.
2. Add an elbow to the top blue hose
3. Add a tee to the bottom blue hose.
4. Connect them together with a short blue hose.
5. Again, make sure the elbow and tee fit nicely. Do not push them apart or pull them together due to the incorrect size hose.

Direction of water flow.
Hose will be added later.

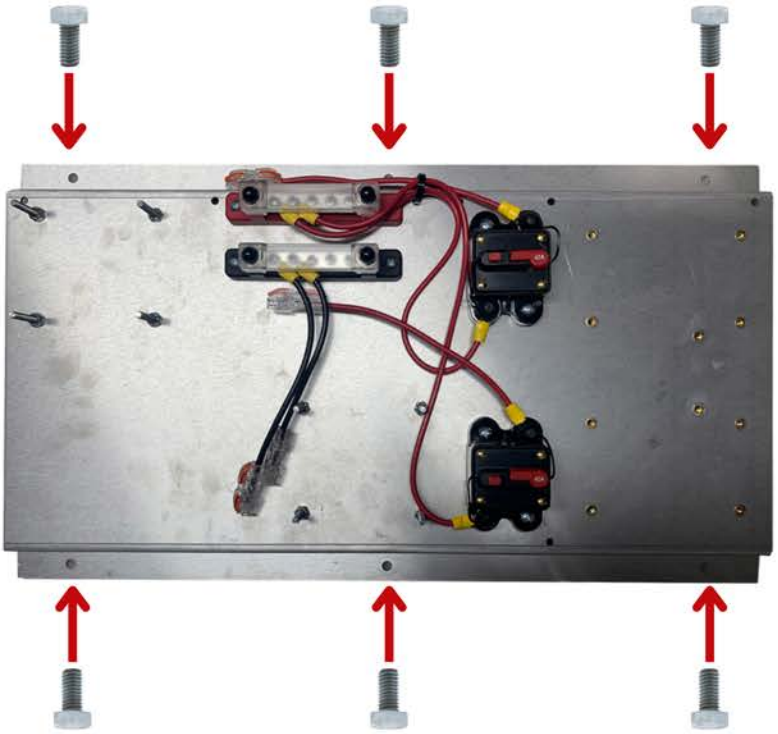
STEP 17

Items Needed:

- Pump Plate
- 1/4" bolts/captive nuts (not included)

Steps:

1. Measure the length of bolts needed to get through the plate, wall/support beam and nut.
2. Bolt the plate to the wall /beam. Use 6 bolts in the provided clearance holes.



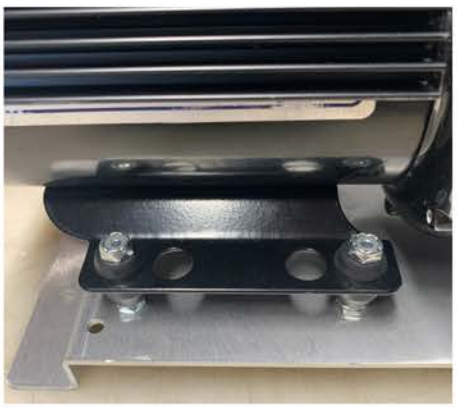
STEP 18

Items Needed:

- 2 pumps
- 8 jam nuts: "B" in the kit

Steps:

1. The pumps hand with the head pointed down. See bottom right picture.
2. Line up the rubber feet with the bolt post
3. Slip the pump over the posts
4. Secure the pump with jam nuts. You may need to slightly push on the pump to help thread the nut.
5. Use the nut driver to hand tighten the nuts. They do not need to be very tight. The jam nuts secure the pump themselves and do not rattle off.
6. Repeat for second pump



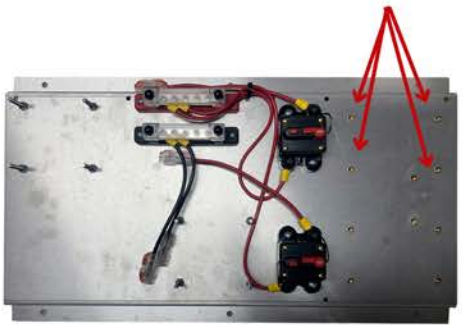
STEP 19

Items Needed:

- Pump controller
- 4 qty – D bolts

Steps:

1. Open up the controller face to access the mounting holes.
2. Push through a D bolt and line it up with a rivnut on the top right of the plate.
3. Either set of holes can be used. Depending on preference and mount location.
4. Secure all 4 corners
5. Replace the cover.



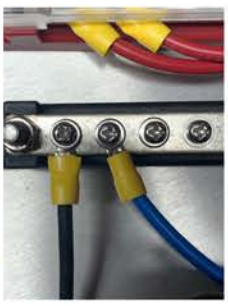
STEP 20

Items Needed:

- 2 x E – 1/4" Terminal Connector
- 2 x F – #8 Terminal connector

Steps:

1. Cut and strip the red and black wire from the controller. Make sure to leave extra wire incase of repairs later.
2. Crimp the larger E connector on the red wire controller.
3. Crimp the smaller F connector on the black wire of the controller.
4. Secure the red wire to the top right terminal on the breaker next to the controller.
5. Remove the cover to the black bus bar by removing the black caps.
6. Remove a screw from the bus bar and push it through the hole in the connector on the black wire.
7. Thread the screw hand tight.
8. Replace the cover to the black bus bar. Hand tighten the black caps.



STEP 21

Items Needed:

- 4 qty electrical quick connects

Steps:

1. Flip open the orange flap on a quick connect.
2. Slip the brown wire from the controller into one quick connect, and the blue wire into another.
3. Clamp the orange flap down.
4. Gently tug on the wire to ensure a good fit.
5. Slip the red wire from the top-left pump to quick connect with the brown wire.
6. Slip the black wire from the same pump to the quick connect with the blue wire.
7. Tuck/dress wires as desired.

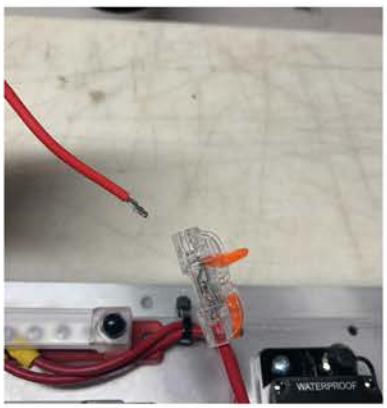
STEP 22

Items Needed:

- 2 x electrical quick connects

Steps:

1. Slip the red wire from the pump on the bottom-right to red wire quick connect on the bottom breaker switch. It is pre-attached.
2. Slip the black wire from the pump on the left to the black wire quick connect attached to the bus bar. It is pre-attached.
3. Tuck/dress wires as desired.



STEP 23

Items Needed:

- Pump Fittings

Steps:

1. Open the slide port on the pump head
2. Remove the red protector cap
3. Push in the double o-ring fitting into the port
4. slide the port closed.
5. Repeat for both sides on both pumps.

STEP 24

Items Needed:

- Black Hose
- Cutters

Steps:

1. Connect the black hose to the Carbon housing (#3 housing). This is the center port on the left side of the housing.
2. Route the black hose from here to toward the pump plate. Make sure to leave length to route safely/nicely.
3. Guide the black hose toward the bottom-right pump on the pump plate.
4. Connect the hose to the left fitting.
5. This is the RO booster pump.

STEP 25

Items Needed:

- Black Hose
- Scissors/Cutters

Steps:

1. Connect black hose to the other sider of the RO booster pump. (The right side)
2. Guide the black hose the RO filter inlet. Route it safely and securely.
3. Connect the hose to the bottom of the tee fitting.
4. This should be on the left side of the RO filter.

STEP 26

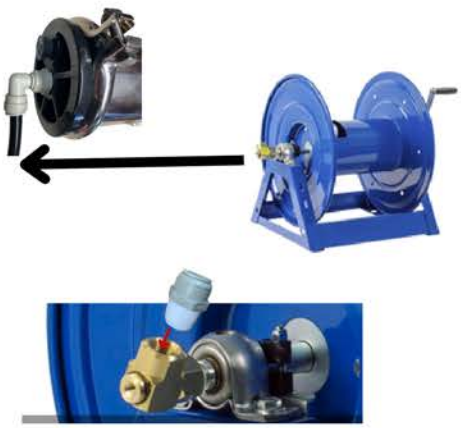
Items Needed:

- Black Hose
- Scissors/Cutters

Steps:

1. From tap water inlet route to the carbon filter.
2. Connect to the center port on the inlet side of the carbon filter housing .
3. Route safely and securely.
4. This is either a hose reel with a garden hose on it or the included small bracket to connect a loose garden hose.
5. Thread the push fit fitting through with a lock washer and tighten to the garden hose fitting.
6. Mount the bracket some where convenient.
7. OR, thread the push fit fitting into the inlet on your hose reel is using a hose reel for tap water.

Inlet hose reel:



STEP 27

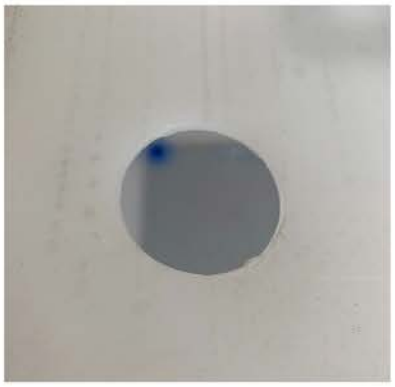
(IF USING YOUR OWN TANK)

Items Needed:

- Bulkhead Fitting
- Blue Hose
- Scissors/Cutters

Steps:

1. Thread the nipple into the bottom of the bulkhead fitting.
2. Drill a hole in the top of the tank where you can reach it from the inside.
3. Clear any debris.
4. Take the top half of the bulkhead and pass it through to the opening.
5. Pass the bottom half and the float valve through the cap in the tank.
6. Place the bottom half of the bulk head over the female thread on the float valve.
7. Thread the float valve into the bulkhead.
8. Tighten the bottom of the bulkhead – this is a reverse thread fitting.



STEP 28

Items Needed:

- Bulkhead Fitting
- Scissors/Cutters

Steps:

1. Thread the provided fitting into the bottom opening of the bulkhead.
2. Drill a hole in the top of the tank.
3. Clear any debris.
4. Pass the bulkhead through the hole.
5. Secure the bottom with the other side of the bulkhead. This is a reverse thread fit.
6. Connect a blue hose to the bottom of the bulkhead fitting inside of the tank. Make sure the hose reaches the bottom. Use an angle cut to prevent suction.
7. OPTIONAL: replace the hose with a PVC drop tube. Buy a PVC pipe and a PVC to 1/2' NPT male thread.
8. Use PVC glue to glue the fitting to the PVC pipe, cut the pipe to length using an angle cut. Thread it to the bulkhead.

NOTE:
There are two bulk head fittings. Step 27 refers to the RO water in with a float valve.
Step 28 refers to the RO water out with a drop tube.

STEP 29

Items Needed:

- Blue Hose
- Cutters/Scissors

Steps:

1. Thread the provided fitting into the bulkhead.
2. Connect an elbow if desired.
3. Add blue hose to the inlet bulkhead fitting in the tank. This is the fitting with the float valve.
4. Route the hose nicely and securely toward the blue output hose at the RO housings. Make sure there is plenty of slack and the hose is not pulling on fittings.
5. Connect the hose to the Tee fitting connect to the blue hose, or the center fittings in the RO filters.

STEP 30

Items Needed:

- Red Hose
- Scissors/Cutters
- Pressure Gauge
- RO Waste Valve

Steps:

1. Connect red hose to the tee fitting.
2. Route the red hose down and away from everything else. Toward an exit point in the vehicle/system.
3. Find a convenient spot to place a pressure gauge for easy reading and a waste valve to easily turn on/off.
4. Mount the pressure gauge in any way desired. Often two holes and a zip tie are used. Connect
5. Connect the red hose to the left side of the tee fitting on the pressure gauge.
6. Nearby, mount the waste valve in any way desired. Or with two holes and a zip tie.
7. Connect the other side of the pressure gauge into one side of the waste valve.
8. **This is your pressure reading for the RO and you flush/waste valve for maintaining the system.

STEP 31

Items Needed:

- Red Hose
- Inlet plate and fittings

Steps:

1. Connect red hose to the open side of the waste valve
2. Route this hose to the exit point of the vehicle or system. Often by a door in a van or a support beam on a flat bed truck.
3. **The remaining parts of this step can be modified for preference. **
4. Mount the inlet/outlet bracket somewhere convenient.
5. Connect a push-fit fitting through the backside pointing toward the red hose. Push it through a black collar.
6. On the other side thread a brass male garden hose fitting to the push fit fitting and secure with the black bracket.
7. Connect the red hose.
8. This is your waste outlet. This can be run to grass or a gutter/drain.
9. Use a short garden hose from this outlet for convenience.

STEP 32

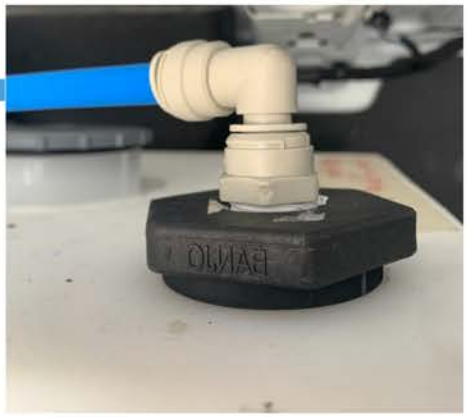
Items Needed:

- Blue Hose
- Scissors/Cutters

Steps:

1. Connect blue hose to the other bulk head fitting. This is the one with the drop tube. NOT the float valve.
2. Route the hose nicely and securely toward the pumps.
3. Use zip ties to secure and dress hose where you can.
4. Again, do not put pressure on fittings and leave some slack.
5. Cut to length and connect to the left fitting on the delivery pump. This is the top-left pump on the plate.

RO WATER TO DELIVERY PUMP



STEP 33

Items Needed:

- Blue Hose
- Three way valve kit.

Steps:

1. Connect blue hose from the tank to left side of the delivery pump
2. On the right side of the pump connect blue hose and route to the the three way valve. Connect to the inlet side of the three way valve.
3. On one side of the valve connect blue hose and route toward a reel.
4. Connect the other end of this to the provided Tee fitting.
5. On the remaining empty side of the three way valve, connect blue hose and route to the DI filter.
6. Connect to the right side of the DI filter.
7. On the left end of the DI Filter connect blue hose and run to the tee fitting.
8. On the end of the tee fitting, connect blue hose and route nicely/securely toward the hose reel.
9. This step allows you to use RO or DI water on demand. Simply turn the three way valve to choose. Pro Tip: label which side is which for easy control.

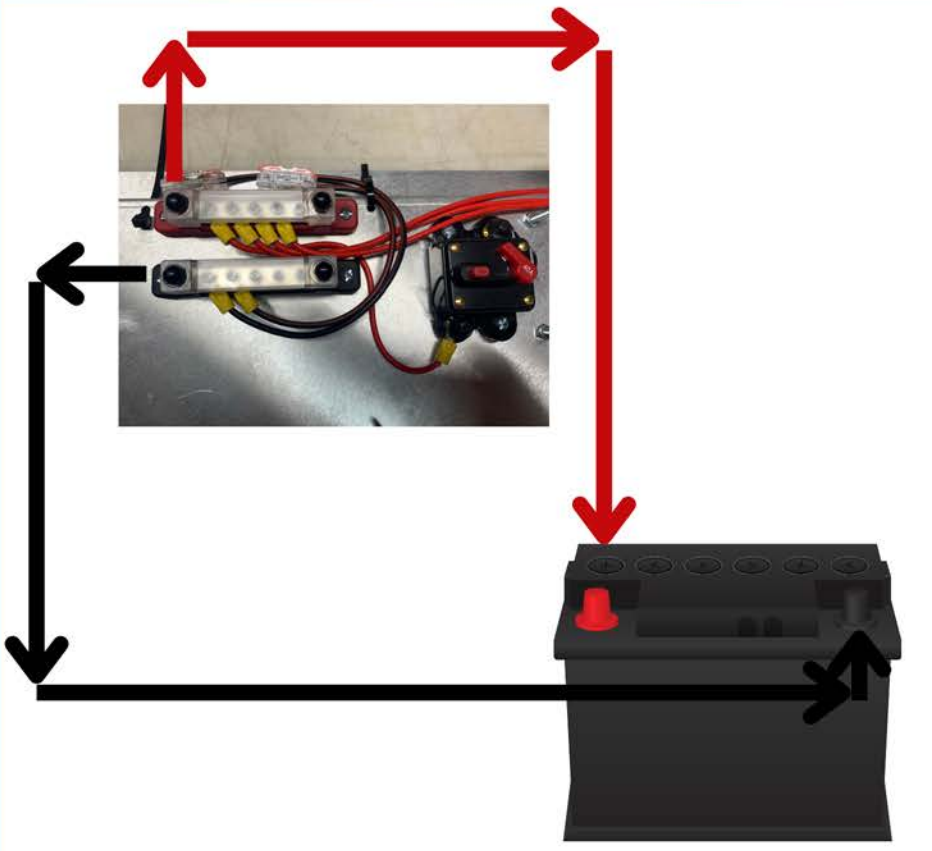
STEP 34

Items Needed:

- Battery
- Battery Wire Kit

Steps:

1. Remove the cover from the two bus bars.
2. Connect the red wire to red bus bar large terminal.
3. Connect the black wire to the black bus bars large terminal.
4. Replace the covers to the bars.
5. Route the cable safely and securely to the battery.
6. Make sure battery is in a battery box and secured.
7. Connect the red wire to the red terminal on the battery.
8. Connect the black wire to the black terminal on the battery.
9. **Electricity is now flowing to the pump plate.**



BEFORE YOU USE YOUR STYSTEM

We need to run a few tests:

1. Leak Test
2. Flush Carbon
3. Calibrate Controller
4. RO TDS Test
5. DI Test

LEAK TEST

1. Make sure to leak test your system with tap pressure only
   a. Connect tap water to the inlet hose reel or connection on the bracket.
   b. Turn on the water slowly
   c. Check for leak and tighten fittings or push fit connections
   d. Turn on the water at full flow.
   e. Check again.
   f. If no leaks proceed to step 2
2. Test with tap pressure and pumps
   a. Keep tap water on
   b. Turn on the RO pump (bottom right)
   c. Check for leaks
   d. Turn off RO pump
   e. Turn on delivery pump (top left)
   f. Check for leaks
   g. Turn off pump
3. If seeping, remove part and add more tap.
4. If no leaks, awesome! Your system is almost ready to use.

ON

Breaker is on, power is connected.

OFF

Breaker is off, power is NOT connected.

*The breaker switch works as an on/off switch manually, as well as a 40 amp fuse/breaker.

FLUSH CARBON

1. The carbon filter needs to be flushed before the first use.
2. If not, the charocal dust can damage the RO filter.
3. This only needs to be done once per filter.
4. DO this EVERYTIME you replace the carbon filter with a new one.
5. Steps:
    a. Disconnect the output line of the carbon. This is the left side of the carbon filter. Connect spare hose in to this port.
    b. Route the hose out and away or into a bucket.
    c. Turn on tap water.
    d. At first, dark colored water will shoot out.
    e. Once water returns to clear (approx 15s) disconnect the spare hose
    f. Reconnect the original hose to the pump.
    g. Carbon is now flushed and wont harm the RO filter.

CONTROLLER CALIBRATION

1. To calibrate the controller, follow directions on the right.
2. We recommend setting it to 99.
3. If using auto cal, make sure the hose is connected to a pole at max height intending to clean. Auto cal is more pricise, but can cause unintentional interruptions.

Connect your hose and pole + brush to the pump.
Turn on the controller by pressing the power button.

Press up until the display shows 30.

Press and hold the up and enter buttons to calibrate. CAL will be displayed.

Use the up and down arrows to change the calibration setting. We recommend setting the calibration high, even 99. Hit enter to set calibration and exit.

CONTROLLER OPERATION

1. Pressure the power button to turn on and off.
2. By default, the controller is on flow control.
3. Use up and down arrows to adjust flow rate.
4. The higher the flow rate, the more water flow and pressure at the brush/tip.
5. It also means more power draw and shorter battery life.
6. Manual is included at the end.

RO TDS TEST

1. To test the TDS, fill up the RO tank.
2. Open the tank tap.
3. Fill the TDS meter cap with RO water from the tank.
4. Check TDS reading.
5. The goal is 10% of the TDS remaining from the tap. (90% reduction).
6. IE: tap is 250, RO should be 20-30.
7. Repeat 2-3 times to ensure reading is accurate.
8. If reading is slightly high, it can be due to debris in the tank or the tank was slightly dirty.
9. Rinse the tank and clean out debris should solve this.
10. Avoid moving to the next step until the RO water TDS is low. High RO TDS will use more DI resin.

DI TDS TEST

1. Turn on the delivery pump via the controller.
2. Set flow rate low, around 10-30.
3. Fill the cap of the TDS meter.
4. Check reading on the meter. The goal is 0.
5. If the meter is reading 1-5, let the water flow for a few minutes and try again.
6. Sometimes the water needs to settle or the hose line needs to clear.
7. If at 0, your system is ready to clean.

Your system is ready to clean!

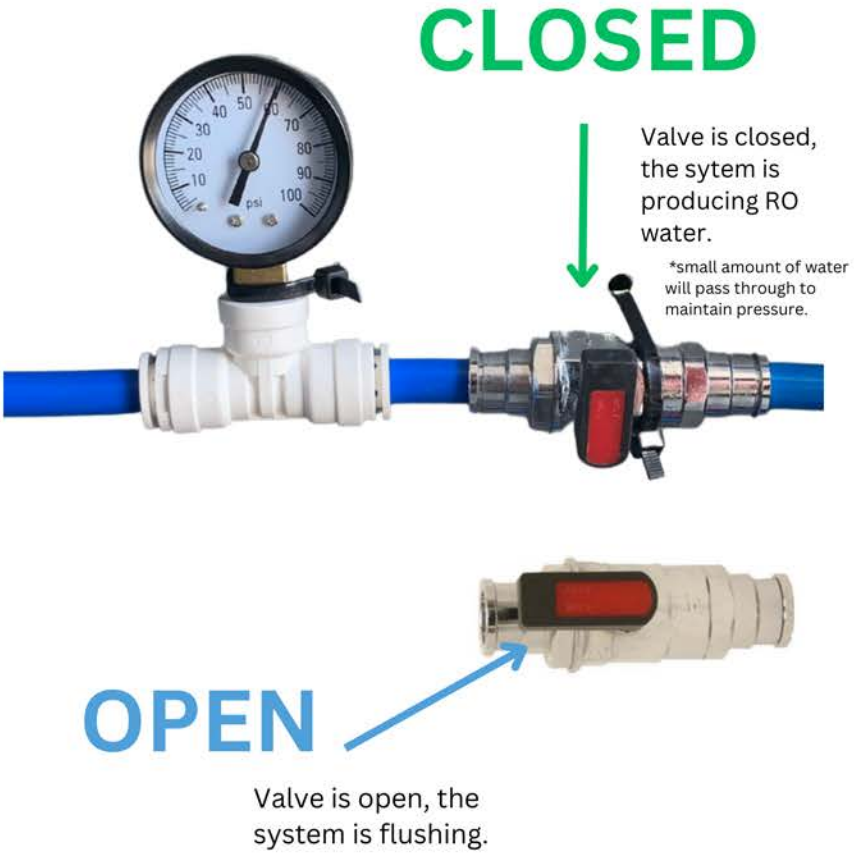
Remaining pages have some maintenance and operating tips.
Please read to ensure longevity of your system.

MAINTENANCE DIRECTIONS + TIPS

1. The most important thing is to keep the RO healthy.
   a. Replace the carbon filter
      i. Every 12 months minimum.
      ii. Every 6 months if you use this system everyday 6-8 hours a day.
   b. Flush your system
      i. When you begin RO production from the tap water, start by flushing the RO's for 30 seconds.
      ii. When you are done at the job, flush the RO filters for 2-3 minutes.
   c. Run water every two weeks.
      i. Do not let the system sit.
      ii. Make sure to run water for 10 minutes and flush the RO's for 2-3 mins least twice a month.
2. Stay ahead of filters replacements.
3. Keep a spare pump and DI filter incase of emergency.

TROUBLESHOOTING

1. No power to pumps
   a. A breaker switch could be flipped or the battery could be low voltage/dead.
   b. Check breakers and charge battery.
2. RO tank is not filling up fast enough.
   a. Check pressure gauge. Tap pressure should be at 60 PSI.
   b. Check pumps are on and working. Pumps should boost to around 80 PSI.
3. DI resin is being used too quickly.
   a. Run a RO TDS test again. Make sure the RO is removing 90% of the tap water TDs.
   b. Check tap water TDS. high areas will use more resin, even after RO.
   c. IE: 200 TDS vs 1000 TDS is 5 x more resin. (20 vs 100 RO).



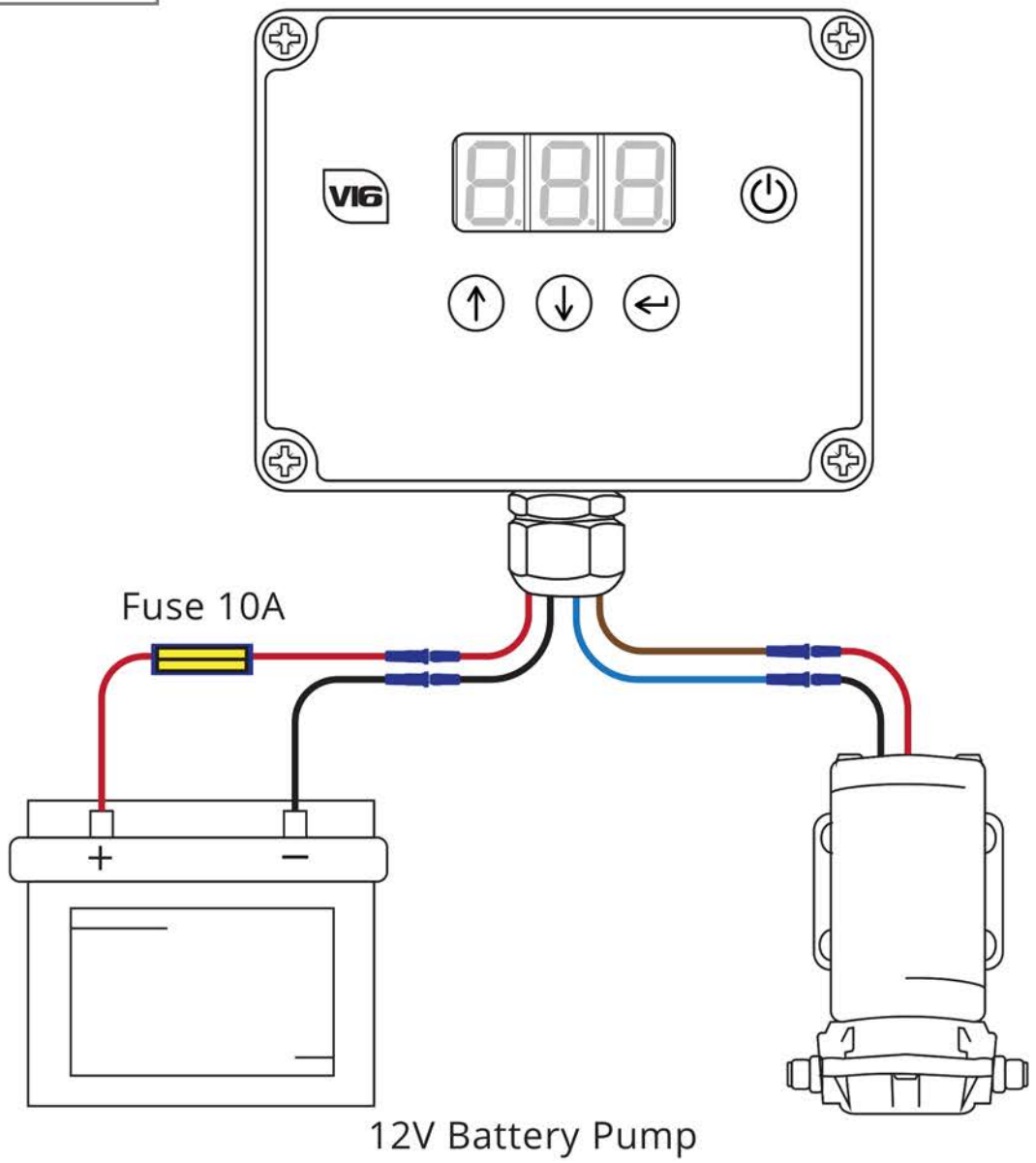
START OF JOB INSTRUCTIONS

1. Connect tap water.
2. Flush RO for 30 seconds.
3. Close valve and turn into production mode.
4. Turn on RO pump if needed.
5. Connect Water-fed pole / solar brush to hose.
6. Turn on Pump controller.
7. Ready to clean.

END OF JOB INSTRUCTIONS

1. Turn off pump controller.
2. Disconnect WFP or solar brush.
3. Open flush valve.
4. Wait 2-3 minutes.
5. Turn off RO pump (if on)
6. Turn off tap water
7. Put away/reel hoses.

Wiring



Connect the pump controller in accordance with this diagram.
NOTE: only fit the fuse once all connections are made.

The Fuse for this unit is a 10A Fuse. Make sure correct fuse is fitted inline, close to the battery end of the RED (positive) wire. Failure to do so will result in damage to the unit.

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

For safety 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 the system before starting work. If air in the system causes false dead-end detection, increase Cal value until air is removed.

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 - 15 VDC
Maximum Current	35A (Peak)
Typical Drive Current	15A
Voltmeter Accuracy	+- 100mV
Enclosure Material	Polycarbonate
Water Resistance	IP65
Dimensions	115 x 90 x 55 (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.**

For more information and videos on how to use Spring controllers please visit: www.springltd.co/videos

Connect your hose and pole + brush to the pump.
Turn on the controller by pressing the power button.

Press up until the display shows 30.

Press and hold the up and enter buttons to calibrate. CAL will be displayed.

To select Auto Cal continue to press the down button until AUt is displayed.
Press the enter button to start. Auto Cal starts from C99.

After several moments the calculated CAL value (e.g. C50) will be displayed and the controller is ready to use. Press enter to exit calibration.

The CAL value can be adjusted manually by following the same steps and adjusting the CAL value by pressing the up or down button instead of using AU

To enable or disable the low battery cut-off* (that stops your pump when the battery voltage is below 10.5V) press and hold the down and enter buttons.

Then use the up or down button to select ON or OFF. Press enter to save.

NOTE: ‘ON’ keeps your battery protected.

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 the power button.

Message	Description
	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.
	Pressure switch has activated or the motor is disconnected.
	A dead end has been detected. If this is not the case, try increasing the calibration value.
	This message will start to flash when the battery is low (<11.0V). If the battery is below 10.5V the pump will be disabled to protect the battery, unless low battery cutoff is disabled.*
	An over current has been detected, the controller has shut down the pump to protect itself. Lower the flow rate and check the hose for blockages.