

# ProTool

**PROTOOL**  
**HIFLO**  
**RODI**  
**CART**  
**STAINLESS**  
**STEEL**



**WATER POWERED**  
**12V/110V PUMP**  
**110V PUMP**



# FILTER LOCATIONS

## RO FILTER

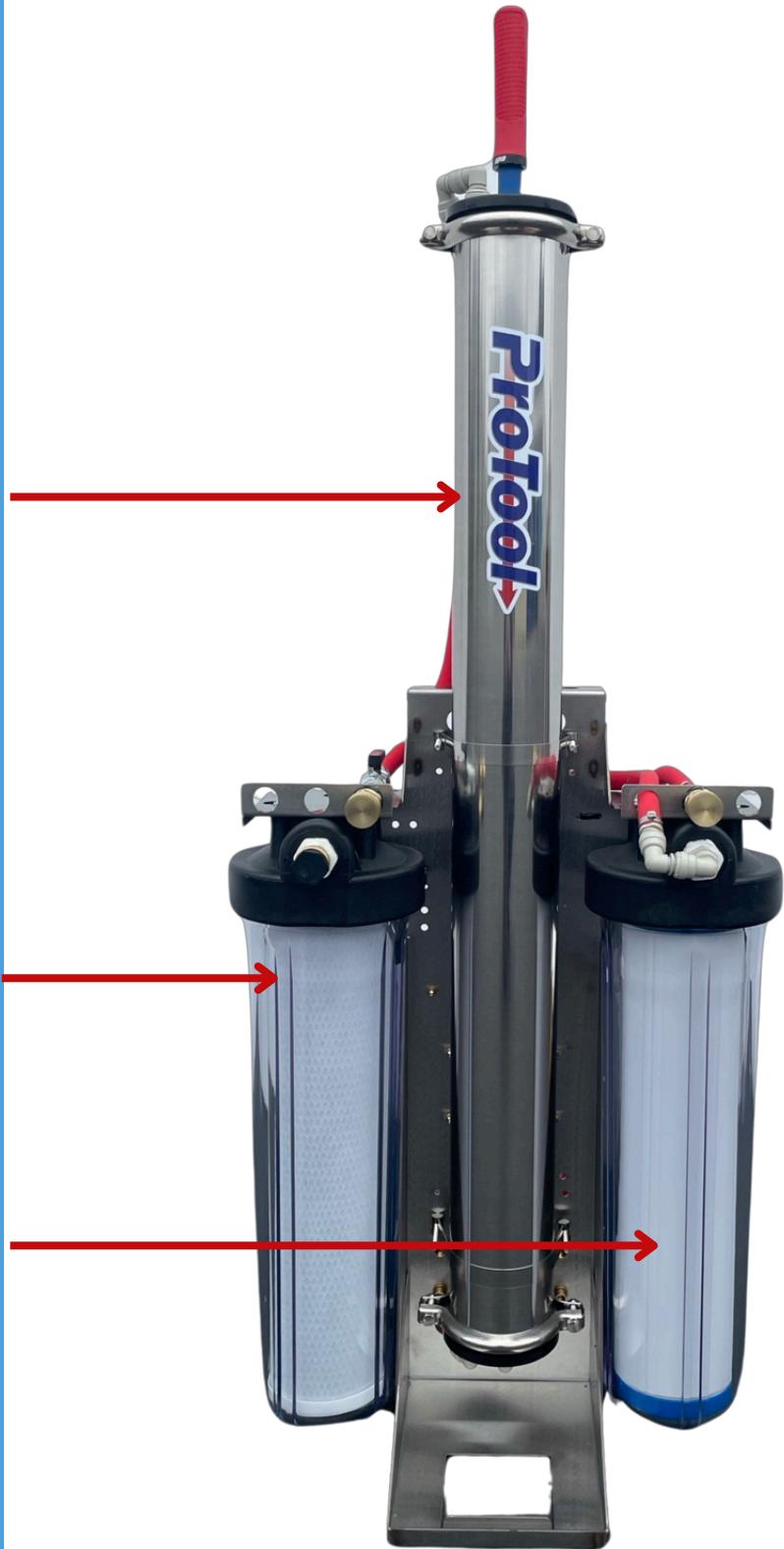
Life expectancy is 5 to 7 years, when the carbon filter is changed twice per year and RO Flushing is done at beginning and end of the job.

## CARBON FILTER

We recommend changing the filter twice per year

## DI FILTER

This filter should be changed when the TDS Meter is measuring RODI water output and the reading rises above 10 TDS



# WATER INLETS AND OUTLETS

## RO FLUSH VALVE

Open for 30 seconds plus  
at the beginning of use  
and at the end of the job

## WATER INLET INTO CARBON FILTER

Inlet water  
pressure should  
be greater than  
60psi, check the  
gauge

## WATER OUTLET

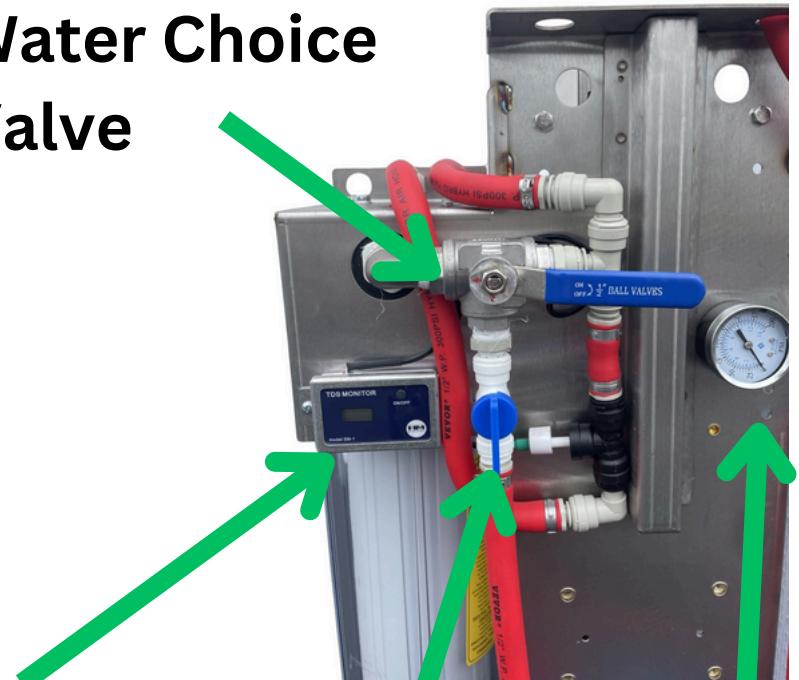
Will be RO Water  
or RODI Filtered  
depending on the  
choice valve



# OPERATOR CONTROLS

1. The RO Choice Valve is used to direct the RO permeate (filtered RO Water) away from the DI resin, in one direction and in the other, you are passing the RO Permeate water into the DI Resin Filter
2. The TDS meter is turned on with a push of the button and the readout will describe the Total Dissolved Solids (TDS) for the water output of the RO or RODI Choice valve
3. Water Out valve, stop the water from heading to your water fed pole or other destination
4. The Pressure gauge shows the water pressure after the carbon filter and on the way to the RO Membrane

## 1. RO or RO-DI Water Choice Valve



## 2. TDS Meter

## 3. Water Out On Off Valve

## 4. Pressure Gauge

# UNPACKING

## ATTACH the wheels and Handle

- Cart Handle
- 2 x Wheels
- 2 x E – Wheel Pins

### STEP 1

1. Line up the wheels with the posts on the wheel bracket.
2. Slip a wheel on the axle.
3. Slip the wheel pin E through the hole in the axle.
4. Repeat for the other wheel.



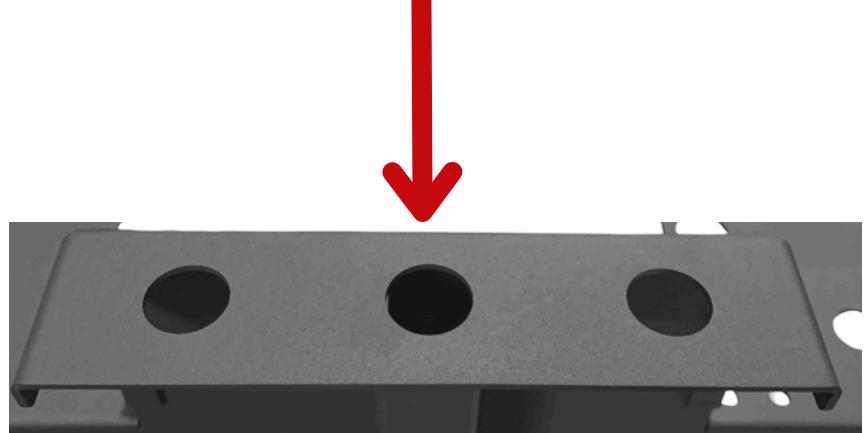
# STEP 2

## Items Needed:

- 1 x Cart Frame Handle

### Steps:

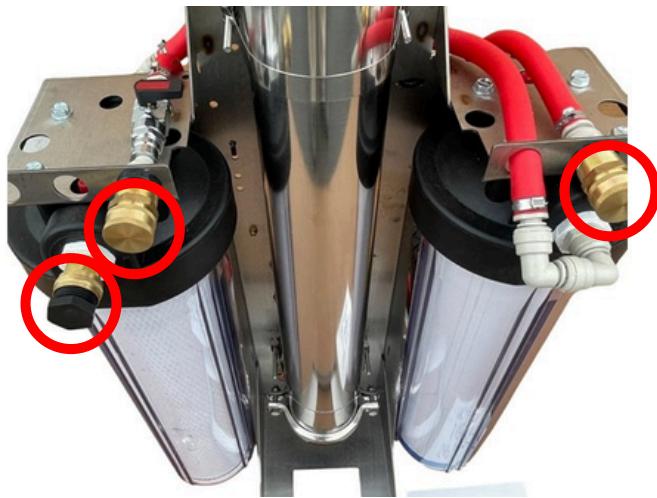
1. Remove the handle from the packaging.
2. The open end has a rivet nut embedded in the pole.
3. Slide this side through the center hole at the top of the cart.
4. Dont Push down very hard!
5. Rotate the pole as you slide it down.
6. Ensure the pole is all the way in and threaded to the rivet nut.
7. It will no longer rotate clockwise once tightened.





**Your system is  
ready to clean!**

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



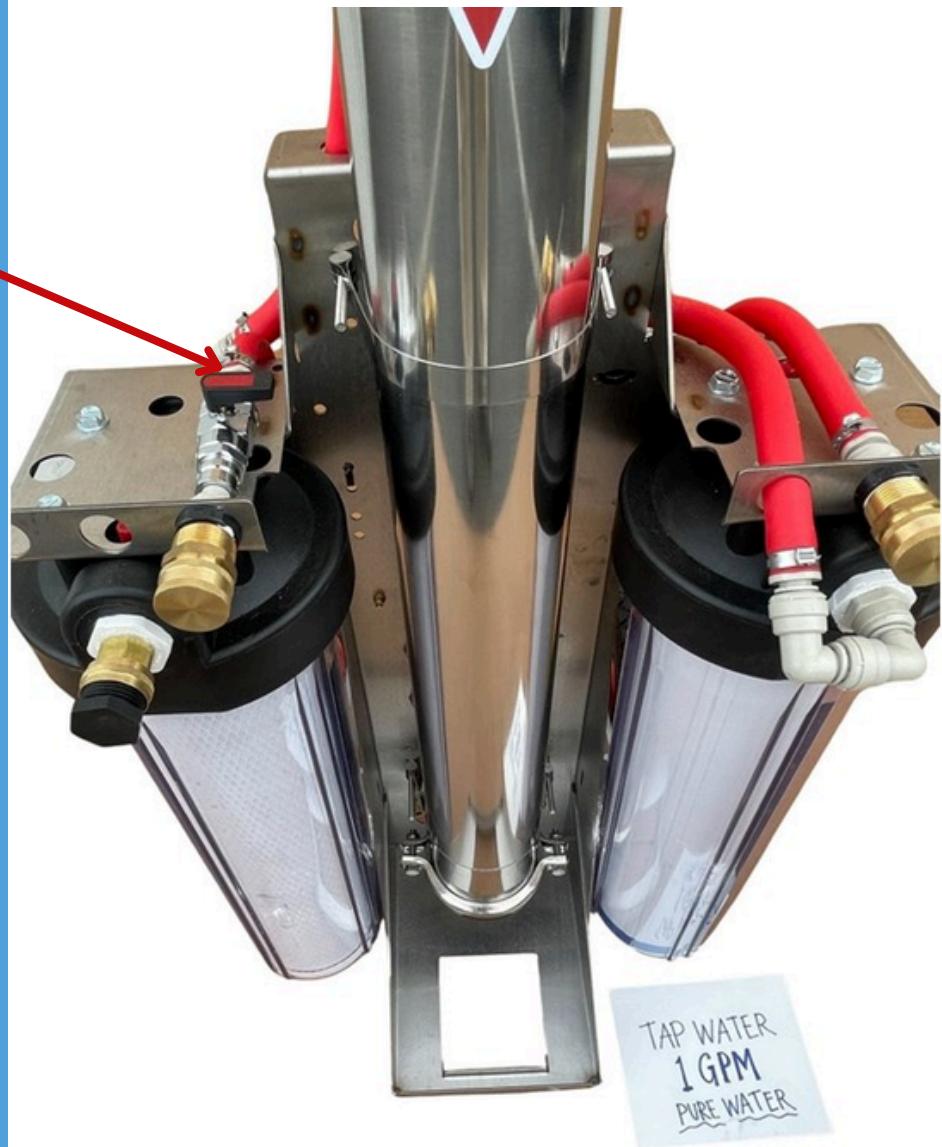
**Remove all caps  
prior to cleaning**

Garden hose caps and plugs are for shipping and storage.  
Remove all caps when producing pure water and cleaning.

Caps can be replaced when

# START OF JOB INSTRUCTIONS

1. Remove **ALL** Caps/Plugs from the garden hose fittings
2. Connect Water-fed pole.
3. Connect tap water.
4. Flush RO for 30 seconds.
5. Close valve and turn into production mode.
6. Ready to clean.



# END OF JOB INSTRUCTIONS

1. Open RO waste/flush valve.
2. Wait 2-3 minutes.
3. Turn off tap water
4. Put away/reel hoses.
5. Place caps on both male garden hose fittings and the female garden hose fitting for storage and transport.
6. Replace caps (optional)

## FLUSHING INSTRUCTIONS

1. Open the RO flush valve
2. Let water run for 30 seconds (start of job)
3. Let water run for 1-2 minutes (end of job)
4. Close valve and turn into production mode. (start of job)
5. Turn off water source (end of job)

## CLOSED Production Mode

Valve is closed, the system in production and sending RO water to the choice valve.

When Closed  
A small amount of water will pass through to help extend RO Membrane life.  
Run this water to a flower bed or a drain



## OPEN Flush Mode



Valve is open, the system is flushing.

# Three Way Valve

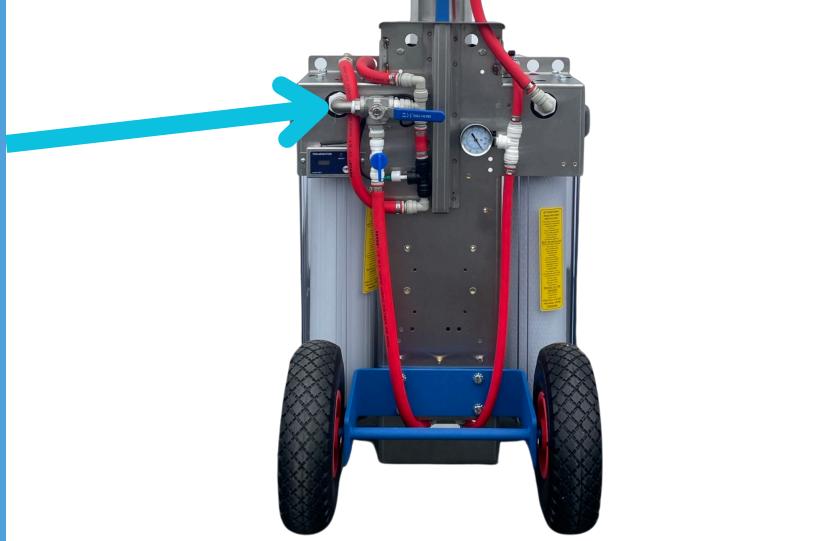
This turns on/off the DI filtration. Great for DI saver. RO is great for solar an auto washing.

Turn the handle to left for DI shut off, or RO only mode.

- This is when the handle is pointing up toward the sky

Turn the handle to the right for DI filtration and pure water (0ppm)

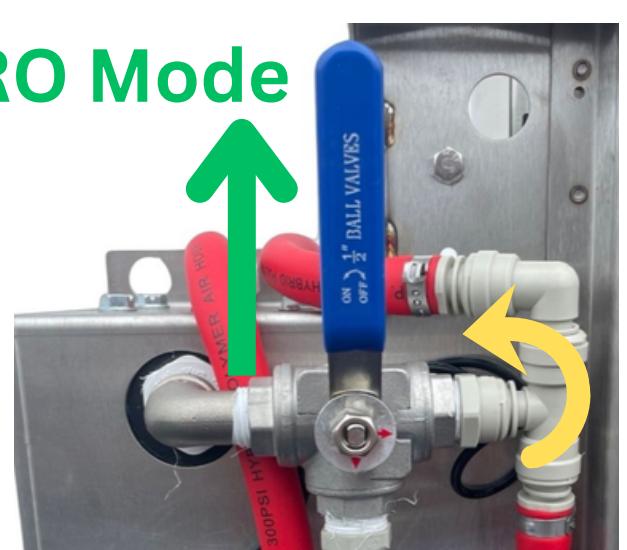
- This is when the handle is pointing to the right



## DI Mode



## RO Mode



## TDS METER

The Inline TDS meter gives you TDS readings in real time for both operating modes.

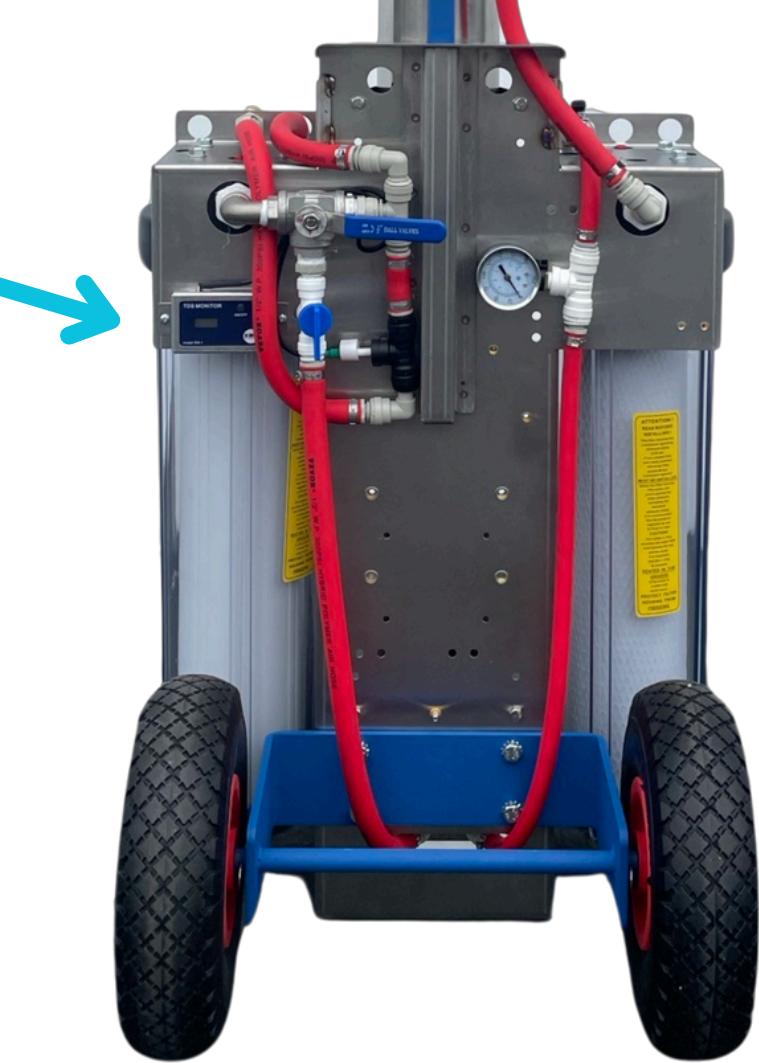
Hit the on/off button and the TDS reading will automatically start.  
(water flow is needed)

The TDS reading is dependent on which mode you are running.

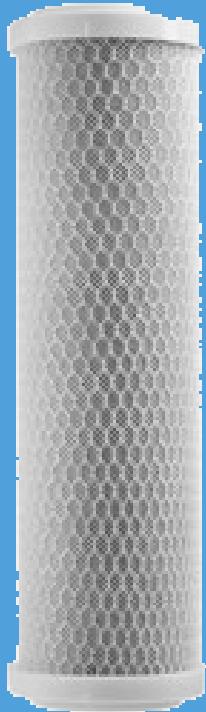
In RO mode, you are looking for 5-10% of incoming TDS

- IE: Tap TDS = 200
  - RO TDS = 10-20

In DI mode, you are looking for 0 ppm.



# REPLACING CARBON FILTER



1. Using the black housing wrench, loosen the housing just enough that you can turn it by hand.
2. Using your hands loosen and remove the housing.
3. Lift up on the carbon filter to remove.
4. After removing all wrapping from new carbon filter, place carbon filter into housing. Make sure it is aligned in the center.
5. Filter should rest on a centering knob on the bottom.
6. Make sure the o-ring is secure in the plastic housing channel. Flat side down.
7. Thread the plastic housing into the black housing cap on the left side of the filter. Inlet side (left when looking at front of cart)
8. Hand tighten the plastic housing.
9. Use the black housing wrench to tighten the housing further.

Video instruction at this url:  
<https://youtu.be/HPR-fXXHoK8>

The Video can also be found on the product page of the website

# REPLACING DI RESIN



1. Using the black housing wrench, loosen the housing just enough that you can turn it by hand.
2. Using your hands loosen and remove the housing.
3. Remove the blue/white container. Open the top and remove the solid foam filter.
4. Empty the contents of the container into a disposable container. Ensure the donut shaped foam filter remains in the bottom of the container.
5. Cut open the corner of a DI resin bag. Pour the contents into the container.
6. Gently shake/tap the container on the ground to let the DI resin settle in the container.
7. Fill the container until full.
8. Replace the top foam filter and the blue lid. Tighten lid.
9. Place the blue/white container in the other clear plastic housing.
10. Thread the housing into the right plastic cap(when looking at the front)
11. Hand tighten the plastic housing.
12. Use the black housing wrench to tighten the housing further.

# 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 start your system, flush the RO 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 at least twice a month.
2. Stay ahead of filter replacements.
3. Keep a spare pump (if applicable) and DI resin in case of emergency.



## TROUBLESHOOTING

1. Not enough flow?
  - a. Ensure tap water pressure is good.
  - b. Ensure pressure gauge is reading around 60 PSI or higher.
2. DI resin is being used too quickly.
  - a. Check the TDS coming out of the RO (blue hose). Make sure the RO is removing 90% of the tap water TDS.
    - i. Turn the RO Choice Valve to RO Mode. Run water and test the TDS.
  - b. Check tap water TDS. High TDS areas will use more resin, even after RO.
    - i. IE: 200 TDS vs 1000 TDS incoming is 5 x more resin. (20 vs 100 RO), even when the RO is working.



# 12 V PUMP OPERATING INSTRUCTIONS OPTIONS

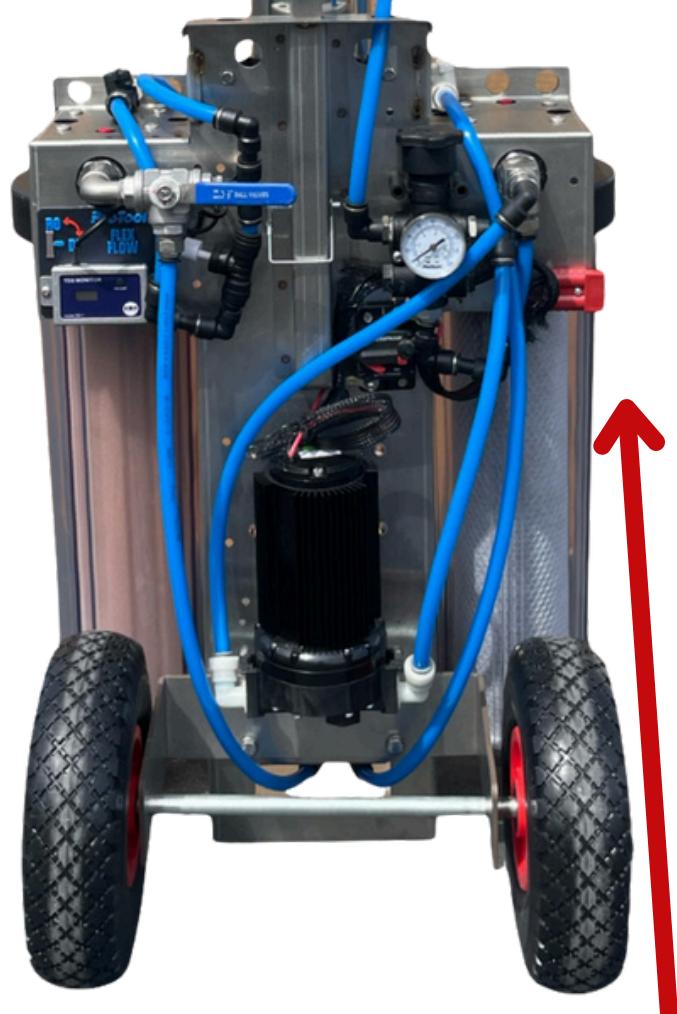
This cart comes with battery jumper cables and a 110V power supply to connect to a 12V power source.

The jumper cables can connect to marine battery or car battery (Don't forget to leave the car on!)

The 110V power supply works just like a laptop. Plug it into the wall, then the red connector into the red connect on the cart frame.

## TURNING ON THE PUMP

1. Connect either the jumper cables or the power supply.
2. Make sure the other end is connected/plugged in.
3. Turn on water flow of the cart
4. Turn on the breaker switch to turn power on to the pump. Push the lever so it is flat. When it is out on an angle, it is off. See picture to the right.
5. The pump is now running.



Off



On

# PUMP TROUBLESHOOTING

1. The breaker switch is off.
  - a. Turn on the breaker switch.
2. No power at all
  - a. Power clip is not all the way plugged in.
  - b. The jumper cables are backwards, check the smart protection status indicator
  - c. In rare cases, the fuse/breaker may be blown on a car inverter, generator or wall socket. Try resetting the breaker at the power source.
3. The breaker is blowing due to a short.
  - a. Try turning on the breaker switch, if it immediately resets, there is a short. Inspect wires, plug and power cables.
4. Call our help desk for additional help.



# 110V PUMP

110V GFCI plug

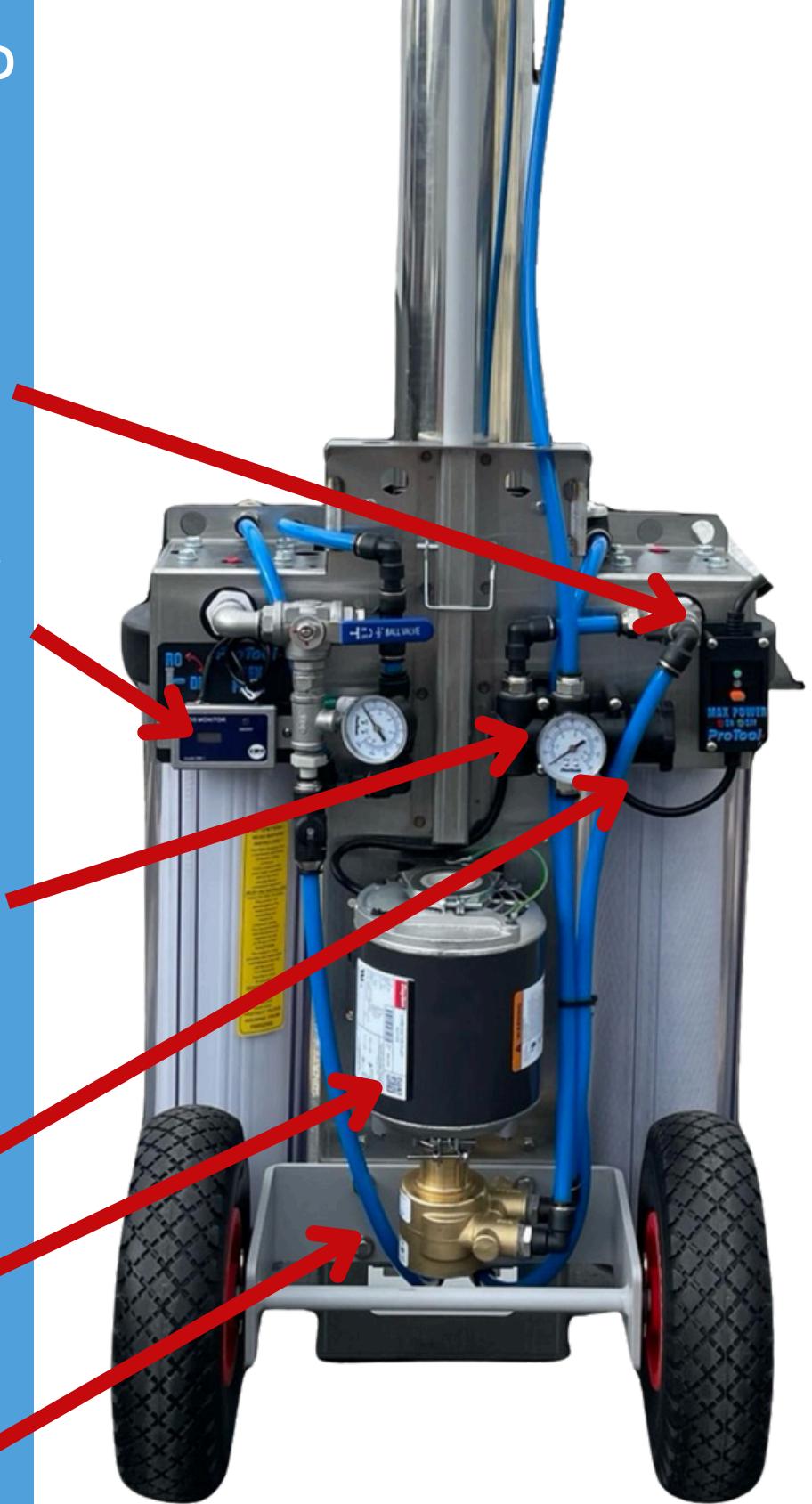
WFP line pressure  
gauge

RO/Inlet Pressure  
Gauge

Regulator

Motor

Pump Head



# 110V PUMP OPERATING

The 110V pump works off every 110V socket. Uses approx 5 amps.

Built in GFCI plug for electrical protection around water.

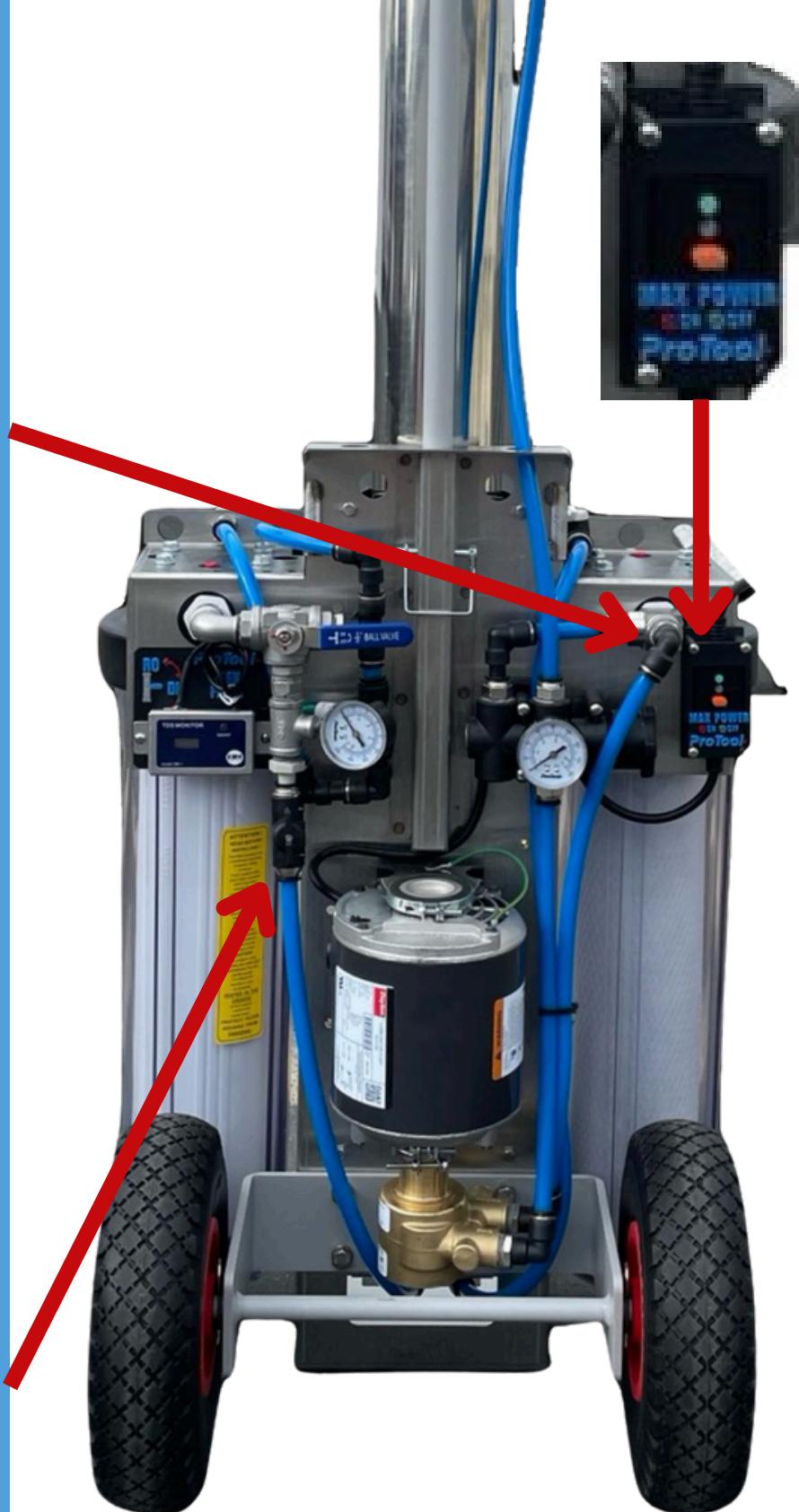
- Reset the switch to turn on, hit test to turn off.

Pump regulator is preset at 120 PSI. Pump will run in bypass mode when the output valve is turned off.

Adjust the pressure by turning the handle forward and back. If less pressure/output is desired, turn the regulator down by turning the handle left. If more is desired, turn the regulator up. The max pressure is 125 PSI

## TO TURN OFF THE OUTPUT!

It is highly recommended to use the valve on the back of the cart to turn off the output. This turns off the pressure before the DI housing. Avoid turning off the output after the cart.



# 110V PUMP TROUBLESHOOT

## 1. No power

- a. Turn on the GFCI Switch
- b. Make sure the extension cable is plugged in on both ends
- c. Check the fuse on the generator or circuit breaker on the house.

## 2. No water

- a. Pump head might be 'stuck'. This is most common when sitting for long periods of time. Turn on the pump briefly to dislodge the internal components of the pump head.

## 3. Clicking sound when pump is on

- a. Not enough water.
  - i. The water source is not providing enough water. This cart needs 4 gpm of water source.

- b. Pump is on and the waste valve is open
  - i. Turn off the pump when the waste valve is open.



# ProTool

**PROTOOL HIFLO RODI  
CART STAINLESS STEEL**

