

# ProTool

## PROTOOL RODI DIY KIT MANUAL



**1 OR 2 RO WITH  
PLASTIC CARBON  
AND  
DI RESIN  
FILTRATION**

# NOTE:

DIY Systems expect a reasonable amount of mechanical ability to accomplish the assembly

## FILTER LOCATIONS

### RO FILTER(S)

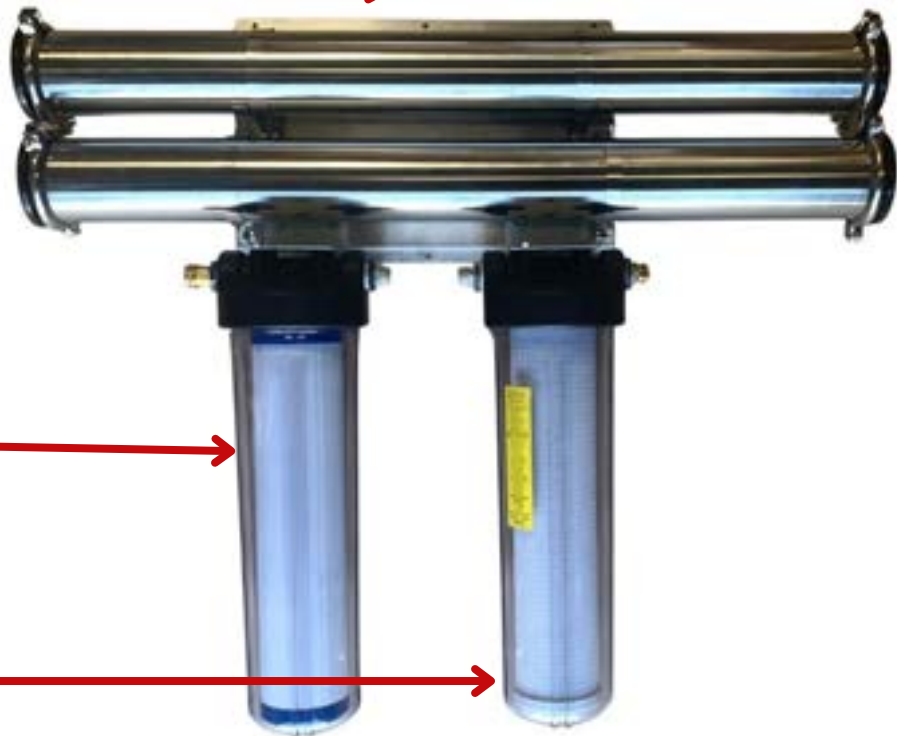
Life expectancy is 5 to 7 years, when the carbon filter is changed twice per year and RO Flushing is done at beginning and end of the job.

### 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 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

2. Water Out valve, stops the water from heading to your water fed pole, Reel or other destination is installed after the Outlet of the DI Resin Filer

3. The Pressure gauge shows the water pressure after the carbon filter and on the way to the RO Membrane It is installed after the Carbon Filter and Before the RO Membrane

## 1. TDS Meter



## 2. Water Out On Off Valve



## 3. Pressure Gauge



# ASSEMBLY INSTRUCTIONS

## STOP

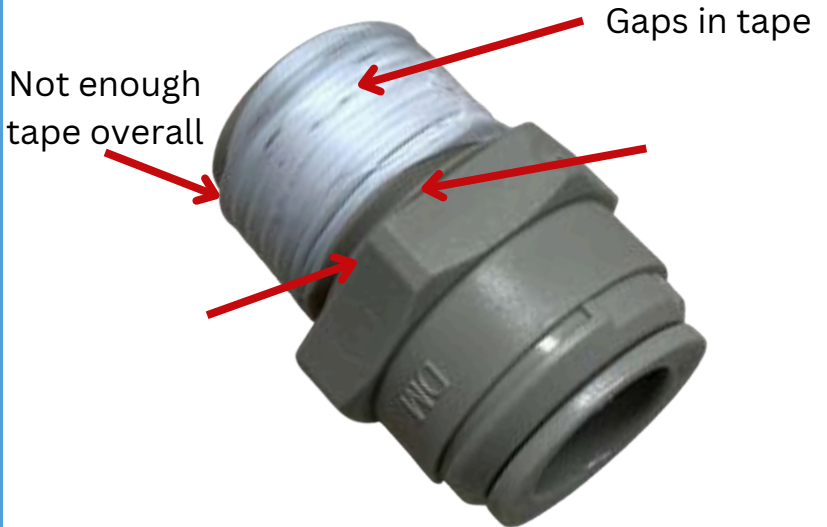
### Items Needed:

- 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 all fitting threads.
5. Ensure an even coverage of tape without gaps.
6. If you see 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.

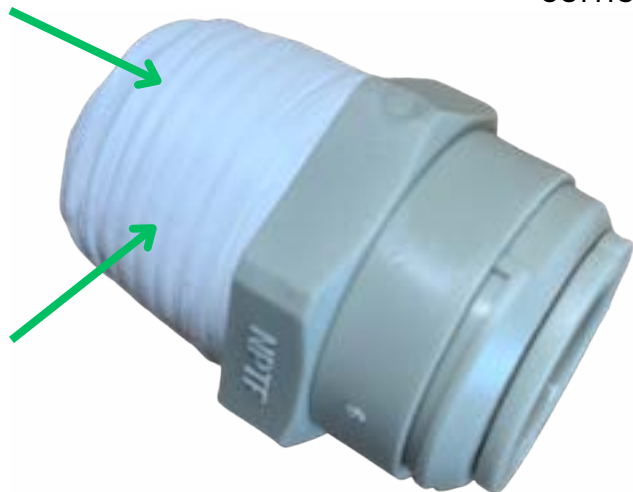
## BAD



## GOOD

Enough tape overall

Tape in the corner



# STEP 1

## Items Needed:

- 1 x Plastic Housing
- 1 x Inlet Housing Kit

## Steps:

1. Tape all male threaded fittings in the inlet/outlet kit per the instructions
2. Thread the reducer fittings into the housing caps on both sides. Tighten.
3. Thread the brass nipple into the dark grey reducer fitting on the inlet side.
4. Thread the brass female garden hose fitting onto the brass nipple and tighten.
5. Thread a push fit fitting into the outlet side.
6. This is the inlet housing cap. Set aside.
7. This cap becomes the top to the carbon filter.



# STEP 2

## Items Needed:

- 1 x Plastic Housing
- 1 x Inlet Housing Kit

## Steps:

1. Thread the dark grey reducer fittings into the housing caps on both sides. Tighten.
2. Thread the brass male garden hose fitting into the outlet side and tighten.
3. Thread a push fit fitting into the inlet side.
4. This is the outlet housing cap. Set aside.
5. This cap becomes the top to the DI filter.



Final

## Items Needed:

- SS Housing with RO
- 1 x RO Fitting Kits

1. NOTE: RO is pre-installed in the SS housing for you.
2. Grab the SS housing and RO fitting Kit.
3. Thread all male fittings with tape per instructions on page 6.

## STEP 3

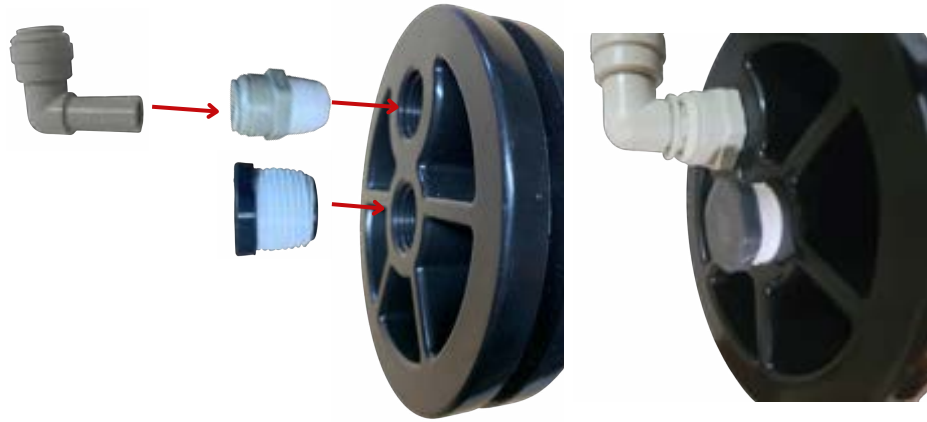
### One Per RO in your System

## Items Needed:

- SS Housing with RO
- 1 x RO Fitting Kits

## Steps:

1. Thread a push fit fitting and a plug into the TOP of the SS housing. The push fit fitting goes into the side port and the plug goes into the center port. The top side is marked with tape and labelled "Top".
2. Thread a push fit fitting into each threaded opening on the bottom of the SS housing.
3. Add elbows to all three push fit fittings.



# Install the Plastic Housing Brackets onto the Plate

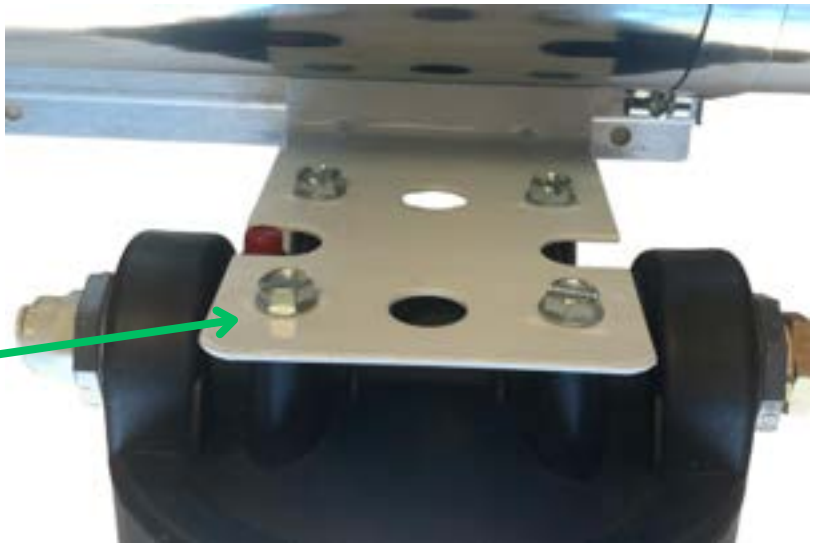
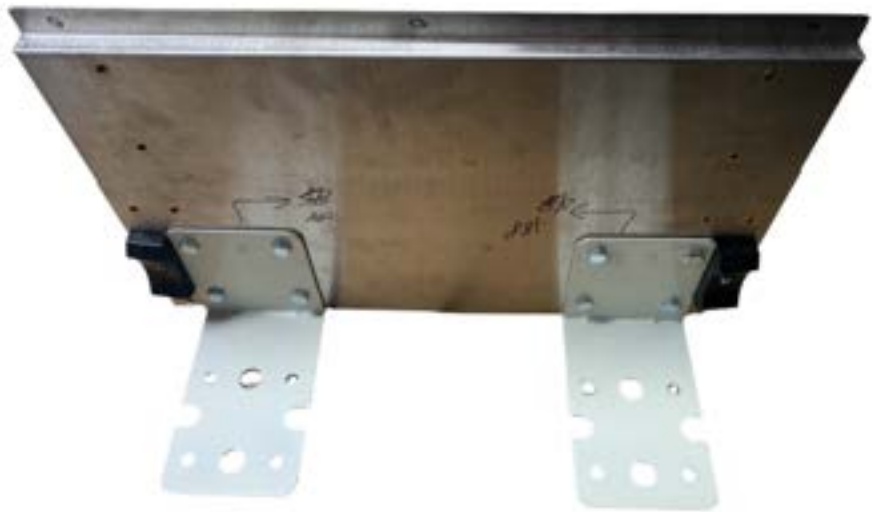
Two Brackets are installed

## Items Needed:

- 8 Hex Head Bolts
- 2 Mounting Plates

## Steps:

1. use the 8 hex head screws to attach the two brackets to the mounting plate
2. The Black Filter caps will then be attached to the bottom of the plates using the sheet metal screws
3. Carbon on left
4. DI Resin on Right





# Install the RO Housings onto the Plate

One Per RO in your System

## Items Needed:

- 2 Straps Per RO Membrane
- 2 Mounting Blocks per RO

## Steps:

1. Use the longer 10-32 Screw
2. Place the screw through the pivot nut and screw only one end into the plate first
3. Now use the smaller screws to attach the mounting blocks as shown in the image
4. Place the RO Membrane on the mounting blocks and then stretch the SS straps over the membrane and screw the second pivot nut to the plate



**Plumbing**

Route a tube from the Carbon filter outlet to the Pressure Gauge

Then From the Pressure Gauge to the single Connector that is the side port of the RO Membrane

If you have two ROs insert a Tee after the pressure gauge and route one of the output tubes to each RO Membrane

**RO Output  
Double Connector Side**

The Center Port is the cleaner water known as Permeate  
This is routed to the Input Connection of the DI Resin Filter

The Side Port Tube is routed to the RO Flush Valve then another tube is used to route that to an assembled garden hose fitting



**DIY Water Purification**



Route the Output of the DI Resin Filter to the "ON-OFF" Valve and from that valve on to an assembled garden Hose Fitting or on to your reel



**Plumbing**

Route a tube from the Carbon filter outlet to the Pressure Gauge

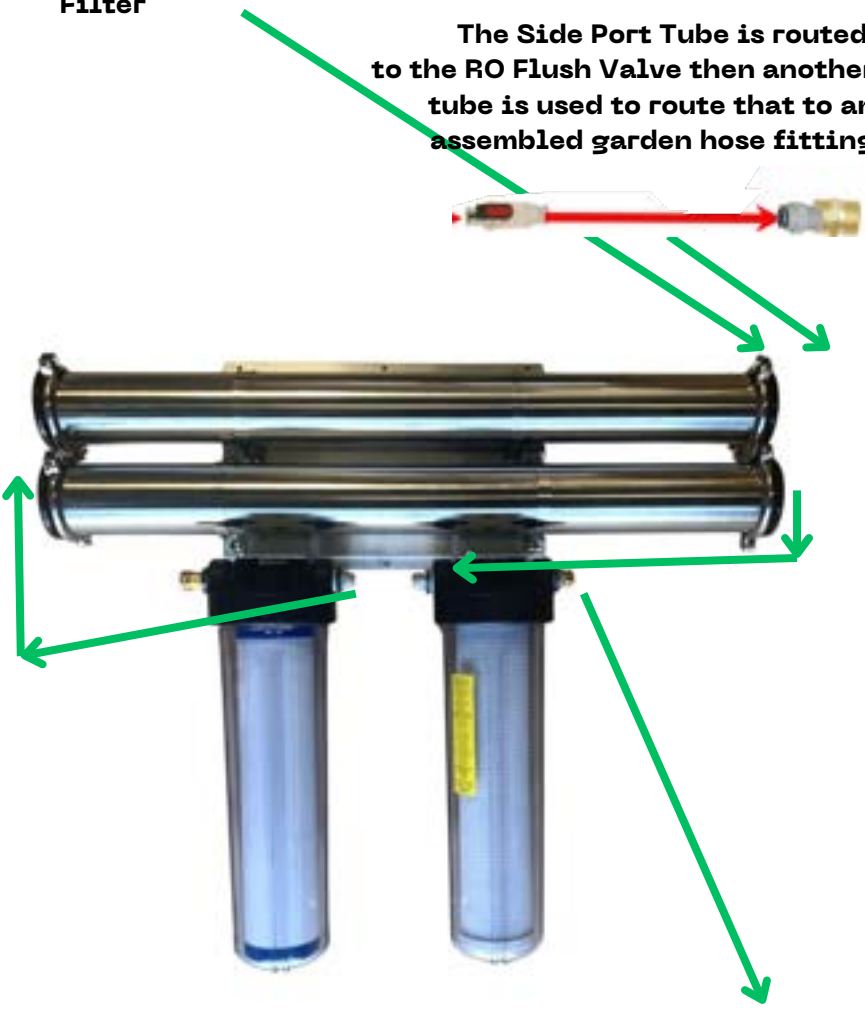
Then From the Pressure Gauge to the single Connector that is the side port of the RO Membrane

If you have two ROs insert a Tee after the pressure gauge and route one of the output tubes to each RO Membrane

**RO Output  
Double Connector Side**

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**Route the Output of the DI Resin Filter to the "ON-OFF" Valve and from that valve on to an assembled garden Hose Fitting or on to your reel**





**Your system is  
ready to clean!**

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

# OPERATING INSTRUCTIONS

1. The most important thing is to keep the RO healthy.
  - a. Replace the carbon filter every 6 months
  - 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 1-2 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 DI resin incase of emergency.

## 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.



# MAINTENANCE DIRECTIONS + TIPS

1. The most important thing is to keep the RO healthy.
  - a. Replace the carbon filter every 6 months
  - 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 130 seconds to 2 minutes.
  - c. Run water through the system every two weeks.
    - i. Do not let the system sit for longer than a month.
    - ii. Make sure to run water for 10 minutes and flush the RO's for 2-3 mins at least once a month.
2. Stay on time with your Carbon filter replacement.
3. Keep a spare DI resin cartridge nearby (Store in an Airtight Baggie) in case you run out in the field.

## CLOSED

Valve is closed, the system is producing RO water.



\*small amount of water will pass through to maintain pressure.

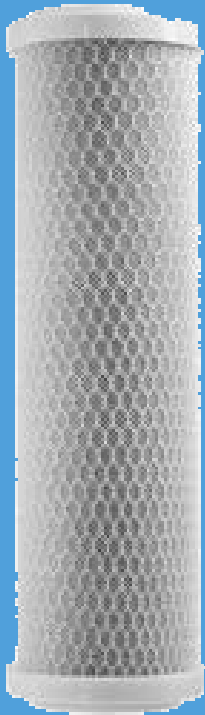


## OPEN

Valve is open, the system is flushing.



# 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

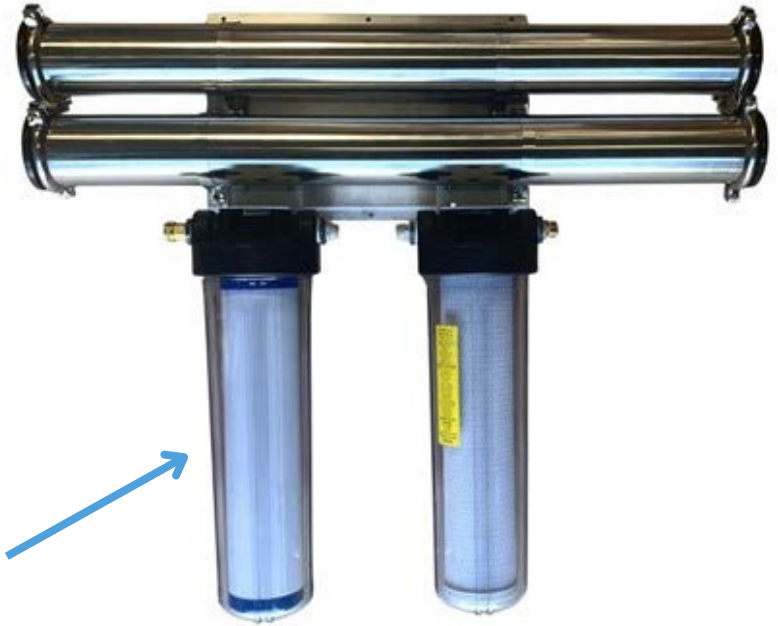
# REPLACING DI RESIN

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 incase 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.





## START OF JOB INSTRUCTIONS

1. Connect Water-fed pole.
2. Connect tap water.
3. Flush RO for 30 seconds.
4. Close valve and turn into production mode.
5. Ready to clean.

# OPEN



Valve is open, the system is flushing. Open for 1 minute

# Set the Valve to CLOSED

Valve is closed, the system is producing RO water.



\*small amount of water will pass through to maintain pressure.

## 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.

# OPEN The Valve Again



Valve is open, the system is flushing. Open for 1 minute

# PUMP UPGRADE OPTIONS

## 12V PUMP

The RO System can be upgraded with a mounting options for both a 12V Pump.

With rivnuts pre-installed and clearance holes adding a RO booster pump is quick and easy.

These kits make it easy to boost RO pressure for more water flow. This allows you to run 2 operators, or reach new heights.

This cart can reach up to 90 feet when paired with the proper water-fed pole and a pump.

The red arrow points to the mounting locations for both the 12V pump.

## 12V PUMP CONTROLLER AND BREAKER

1. The 12V pump kit comes with a pump, breaker switch and a power cables (12v and 110v Power Adaptor).

2. The green arrow points to the mounting locations for the pump breaker switch.

