



PROTOOL CART PUMP ADD ON INSTRUCTIONS



PUMP UPGRADE OPTIONS

110V PUMP 12V PUMP

The ProTool Cart offers mounting options for both 12V and 110V pumps.

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.

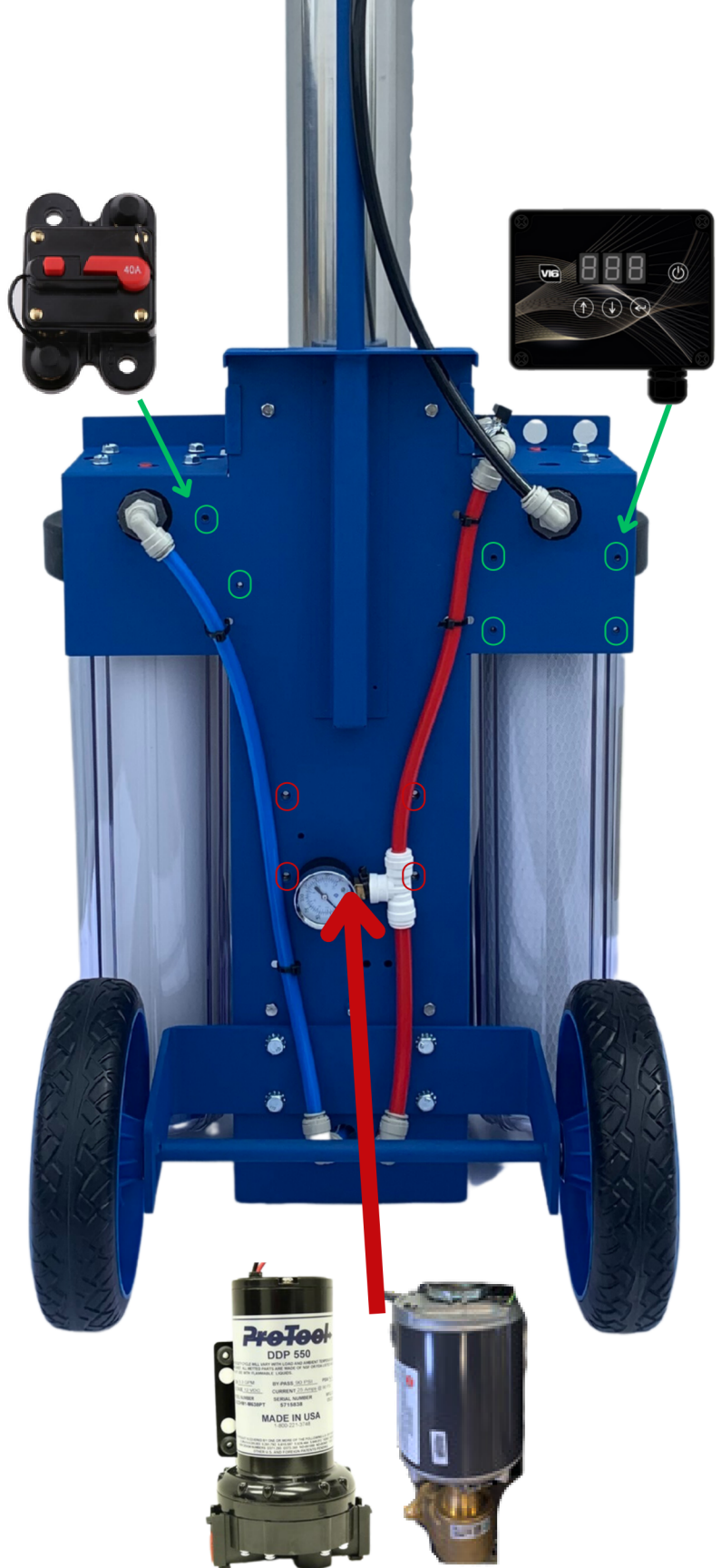
This cart can reach up to 90 feet when paired with the proper water-fed pole and a pump.

The red arrow points to the mounting locations for both the 110V and 12V pump.

Following the provided instructions in the upgrade kit, simply rework the plumbing, attach the pump, and you are all set.

12V PUMP CONTROLLER AND BREAKER

1. The 12V pump kit comes with a pump controller, breaker switch and a power cable.
2. The green arrow points to the mounting locations for the pump controller and breaker switch.



12V PUMP CONTROLLER AND BREAKER

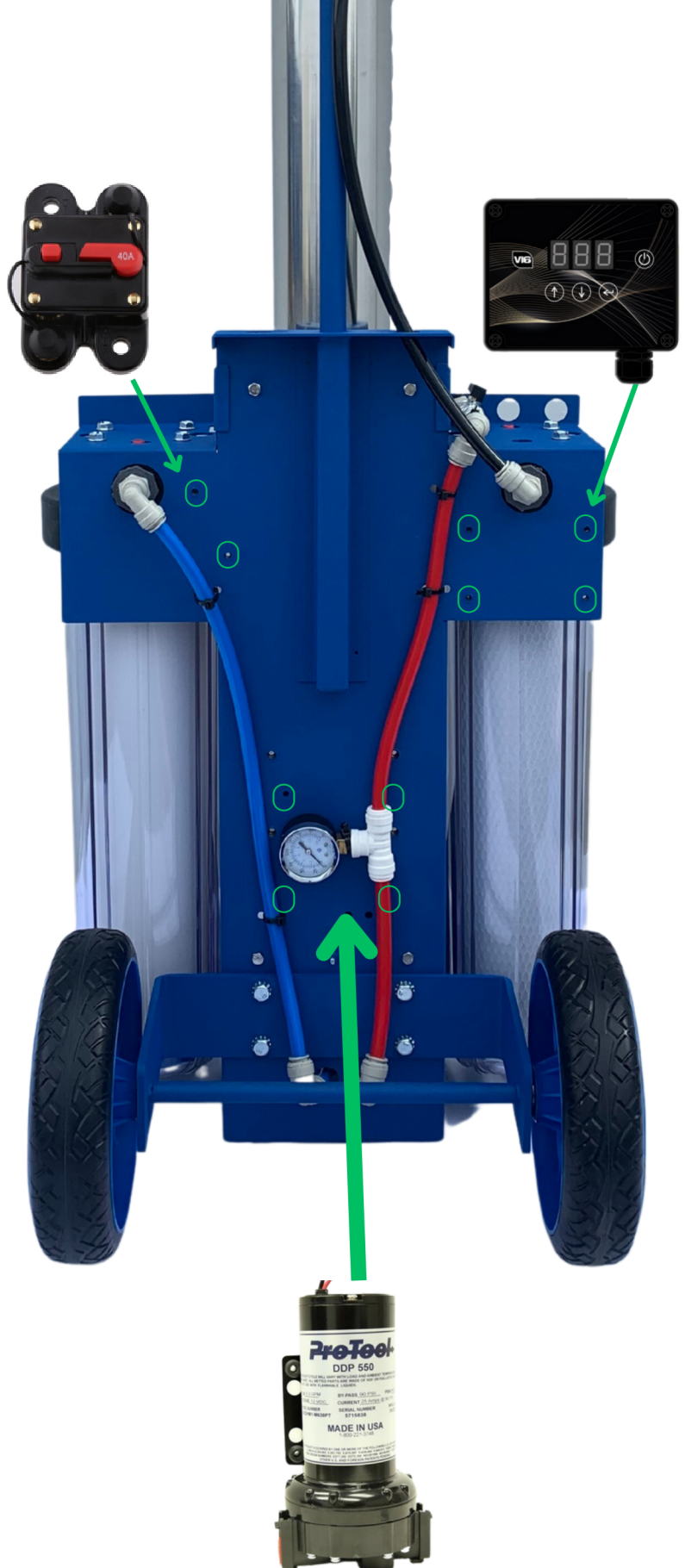
The 12V pump kit comes with a pump controller, breaker switch and a power cable. The green arrow points to the mounting locations for the pump controller and breaker switch.

Pump mounting:

1. Use 10-32 bolts about 1.5 " long to secure the pump.
2. Pass them through the front side and just a lock nut to secure the bolts to the frame. These will now act as posts for the pump
3. Slide the pump of the posts and secure the pump with another set of lock nuts.

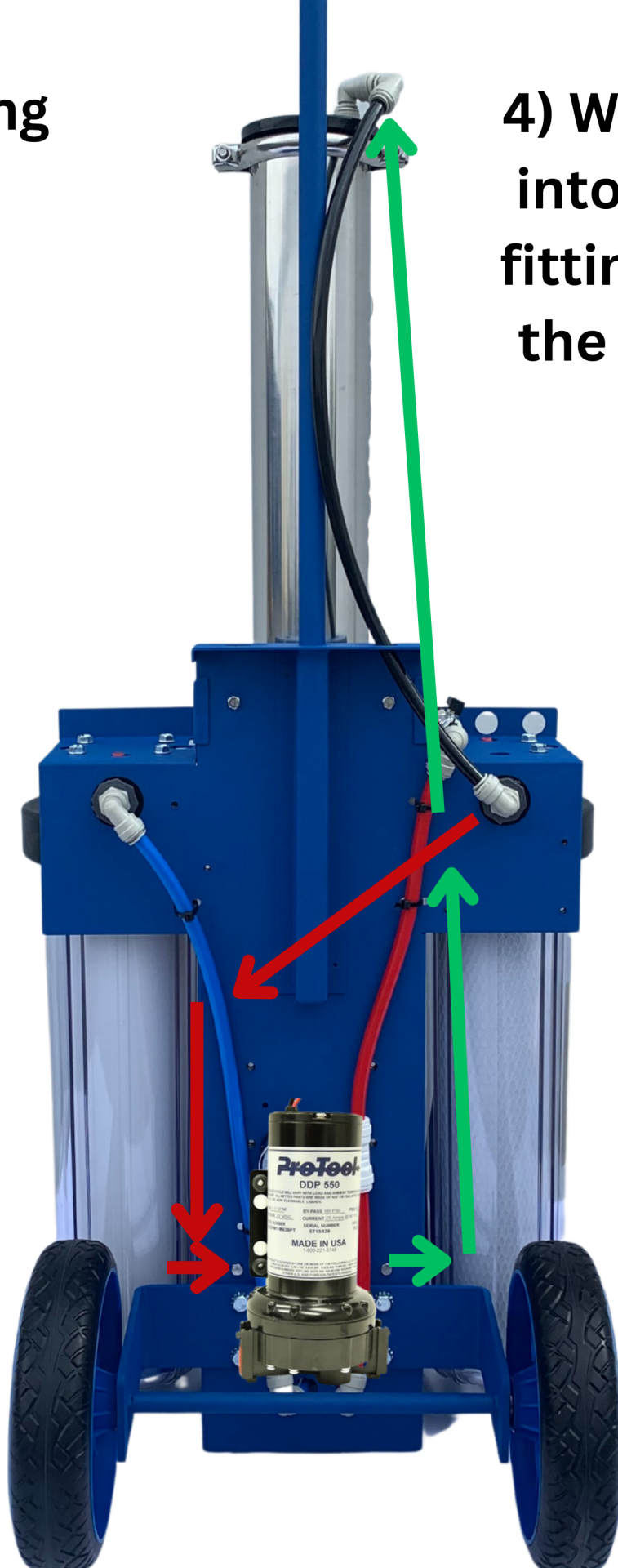
Breaker switch and controller mounting:

1. Use rivet nut mounting holes to secure both the breaker switch and the pump controller.
2. The breaker switch uses 10-32 bolts by 3/4" long.
3. The controller uses 8-32 bolts by 1/2" long.
4. Controller is optional.
5. Circuit breaker is highly recommend to protect pump from a short. It is rated at 40 amps and work as a fuse.



Pump Plumbing

2) Water into pump



4) Water into RO fitting at the top

1) Water out of elbow

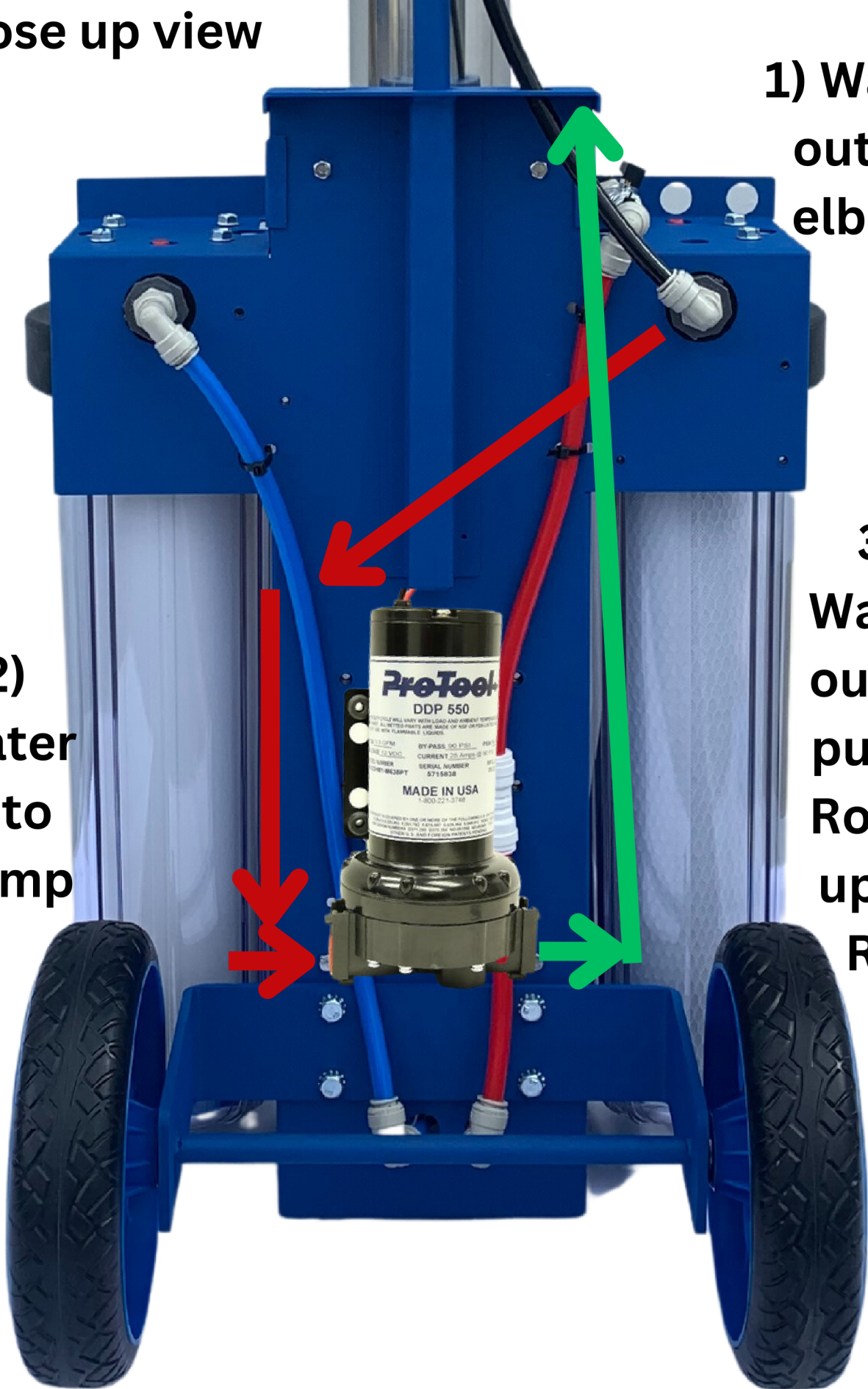
3) Water out of pump
Route up to RO

Close up view

**1) Water
out of
elbow**

**2)
Water
into
pump**

**3)
Water
out of
pump
Route
up to
RO**





**Your pump is mounted,
plumbed and 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 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.

REPLACING RO FILTER

1. Remove the push fit elbow from the push fit fitting in the top of the SS housing.
 - a. To remove push fit fittings, press in on the outer ring (see photo) and pull the inserted object out.
2. Using a 13 MM socket and an adjustable wrench, loosen SS Bracket from around the black top cap on the SS housing.

CLOSED

Valve is closed, the sytem 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.

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.

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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. Disconnect the blue hose from the back of the DI filter. 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.

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.

ADDITIONAL TIPS

1. The handle is used to easily move the cart around. It also protects the SS housing if the system is knocked over or if you want to lay it down.
2. The handle can be removed
3. This system has various holes that can be used to strap to a wall or truck bed to secure the system during transport.
 - a. On the inlet/outlet brackets are two side holes.
 - b. On the top of the frame is an extra hole by the pole.
4. The extra holes can be used for spare parts.
5. If you need extra pressure this cart comes with hole patterns to quickly add either a 12V or 110V pump to the back of the cart.

