

Aquatic Life 200 GPD 5-Stage RO Unit (#540474) Installation, Operation & Maintenance Guide.

WARNING: Please read carefully before proceeding with installation. Your failure to follow any attached instructions and operating guidelines may lead to the product's failure and possible property damage.

Thank you for purchasing an Aquatic Life Reverse Osmosis Water Unit. When properly maintained, this unit will provide you with years of high quality filtered water. Contact us with any questions or if you are missing or need replacement parts at 888-548-3480, or customersupport@aquaticlife.com

200 GPD 4-Stage RO Unit

STAGE 1 – SEDIMENT FILTER

Recommend replacing every 6 months.

The first stage of your RO unit is a five-micron Sediment Filter that traps sediment and other particulate matter like dirt, silt and rust which will affect the taste and appearance of your water.

STAGE 2 and 3 – CARBON BLOCK FILTERS

Recommend replacing every 6 months.

The second and third stage of your RO unit is a Carbon Block Filter. The activated carbon in the filter reduces chlorine and conditions the water prior to the RO Membrane.

STAGE 4 and 5 – RO MEMBRANE

Recommend replacing every 2 years.

The RO Membrane reduces impurities known as Total Dissolved Solids (TDS) from the water down to 1/10,000 of a micron, reducing arsenic, lead, parasitic cysts, copper and more. Because the process of filtering the high-quality water takes time, it is common to use a storage tank to collect filtered water, making it available on demand

OVERVIEW

Reverse Osmosis is the process of removing contaminants from tap water using a special semi-permeable membrane. By applying water pressure across the membrane, contaminants are concentrated on one side of the membrane and filtered water on the other side of the membrane.

In addition to the membrane, water is filtered prior to the membrane with a sediment cartridge to remove larger particulates, and a carbon block to remove chlorine and other materials.

NOTE: Filter Cartridges and Membrane life may vary based on local water conditions and amount of use.

Contents (Model # 540474, 200 GPD 5-Stage RO Unit)

1 – RO Unit Housing with Mounting Bracket

1 – Sediment Filter Cartridge

2 – Carbon Block Cartridge

2 – Reverse Osmosis 100 GPD Membrane Cartridge

1 – Hose Bib Connector (fits standard outdoor garden hose/indoor laundry room faucet)

- 1 – Red Tubing, ¼" x 10 Ft
- 1 – Blue Tubing, ¼" x 10 Ft
- 1 – Yellow Tubing, ¼" x 10 Ft
- 1 – Canister Wrench
- 1 – Membrane Wrench
- 1 – Set Mounting Screws
- 1 – Roll Teflon® Tape
- 1 – Tube, Grease for O-Rings
- 1 – Installation, Operation & Maintenance Guide

OPERATING GUIDELINES

DO NOT use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the unit.

The ideal supply water pressure is 40-65 PSI.

The supply water pressure should range between 40-65 PSI. If the pressure is more than 80 PSI, a pressure regulator is required. If the water pressure is less than 40 PSI, a booster pump is needed. Well water pressure is often 40 PSI or less. The 100 and 200 GPD RO unit output is calculated using 65 PSI.

The ideal water temperature is 77°F.

Using other water temperatures will reduce the effectiveness of the filtration and can accelerate degradation of the membrane.

Water hardness should not exceed 10 grains per gallon or 170 parts per million.

Operating above this may shorten the membrane life.

Reverse Osmosis filtered water should not be run through a copper tube.

The pure RO water can leach copper from the pipe, eventually leading to holes in the pipe.

DO NOT operate the unit unattended.

Tools & Materials Recommended for Installation

Straight Edge Razor Blade

Phillips Screwdriver

WATER SUPPLY INSTALLATION

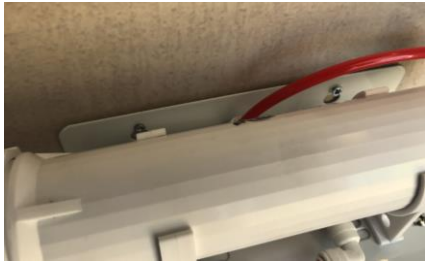
Connect to a standard water faucet (often found on the exterior of houses or laundry areas) with the Hose Bib Connector.



MOUNTING THE REVERSE OSMOSIS UNIT

The RO Unit is designed to be mounted to a secure surface. This will allow for the cartridges to easily be replaced as needed. A metal bracket with screw holes is provided.

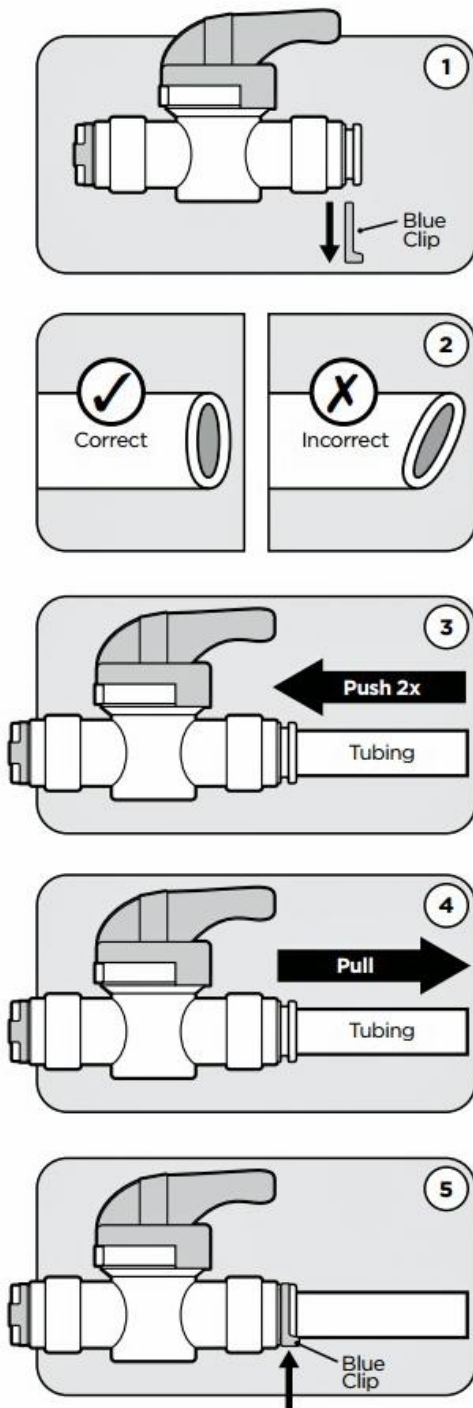
Use screws designed for the type of surface that the RO Unit will hang on. Leave the screws extending about 1/8" from the surface and then hang the metal bracket on the screws.



NOTE: If your model includes soft rubber plugs on any of the ports, it is now OK to remove the plug by simply pulling it out from the press fittings. If you have the hard plastic plugs remove the plug the same as removing the tubing. See **"HOW TO USE THE BUDDIE FIT™ PRESS FITTINGS"** on the next page.



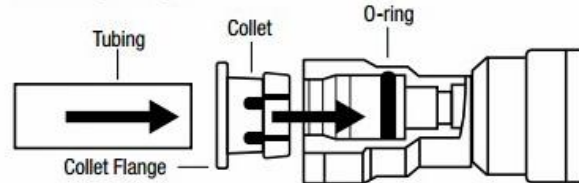
HOW TO USE THE BUDDIE FIT™ PRESS FITTINGS



HOW TO USE THE BUDDIE FIT™ PRESS FITTINGS

Making the connections with the 1/4" tubing is easy with the Buddie Fit™ press fittings included.

To properly connect the 1/4" tubing to the press fittings, follow these simple steps:



1. Remove the blue clip from the press fitting.
2. Make sure the end of the tubing is cut evenly and not at an angle.
3. Push the tubing into the fitting. You will hit the first stop. The tubing is still not secured properly. Push the tubing a second time and you will feel the tubing insert completely into the press fitting.
4. Pull back on the tubing to ensure it is secure.
5. Insert the locking blue clip back onto the end of the press fitting.



NOTE: To remove a piece of tubing, remove the blue clip and press down on the collet where the tubing enters the fitting. While the collet is depressed, remove the tubing from the fitting.



NOTE: We recommend cutting the tubing with a razor blade or something similar so the tubing is not pinched. If the tubing is pinched, it will not seal properly.

All tubing connections will have a "double push" into the connectors. You should feel a two-step insert to verify the tubing is inserted completely into the connectors.

INSTALL THE COLOR-CODED TUBING

The RO Units include color coded tubing to help easily identify filtered, incoming and waste water. This also makes it easier to correctly connect the tubing to the unit.

Refer to the instructions above on how to use Buddie Fit press fittings before installing the tubing.

Step 1 – Connect one end of the yellow tubing to the incoming water supply. This will be the Hose Bib Connector.



Step 2 – Connect the other end of the yellow tubing to the port labeled, “Supply”. Note some units have different connectors but they all will be labeled “Supply”.



Step 3 – Connect one end of the red tubing to the port labeled, “Waste”. The other end of the red tubing should be secured in a way to handle the waste water. For example, plumb the waste water line to a drain or collection container.



Step 4 – Connect one end of the blue tubing to the filtered water port. This is the open port on the Auto Shut Off valve located behind the membranes. The other end of the blue tubing should be plumbed to the container that will collect your reverse osmosis water.

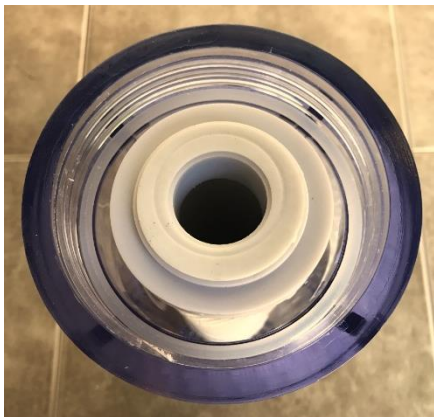


INSTALLING THE CARTRIDGES

Step 1 - Use the Canister Wrench in a clock-wise direction to gain access to the Sediment and Carbon Cartridges. The Sediment Cartridge must be on the right and the Carbon Cartridge(s) on the left for the RO Units to operate properly.



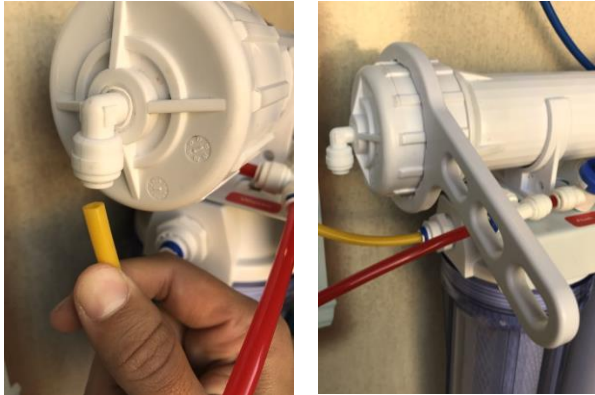
Use care to center the cartridges in the middle of each Canister prior to re-attaching the Canisters. The Carbon Cartridge will have gasket on each end of the cartridge that must be properly seated.



Step 2 – Reattach the Canisters to the housing.

Step 3 – Flush the Carbon Cartridge(s). Prior to installing the Membrane(s), it is important to flush any carbon dust from the Carbon Cartridge(s). With only the Sediment and Carbon Cartridges installed, allow water to run through the RO unit until it runs clear.

Step 4 – Install the Membrane. Remove the yellow tubing connected to the Membrane Cap and use the Membrane Wrench to remove the Cap.



Step 5 – Remove the protective wrap from the RO Membrane and insert into the Membrane Housing.

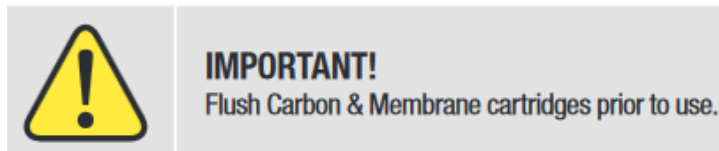


NOTE: It is important to push the Membrane **completely** into the Membrane Housing for the RO to function properly. Push the membrane in the housing until it stops and looks like the image below.



Step 6 – Install the Membrane Cap and tighten with the Membrane Wrench. Re-attach the yellow tubing to the elbow on the Membrane Cap.

PREPARING MEMBRANE FOR USE



The Membrane is packaged with a preservative that must be flushed prior to using the filtered water. Operate the RO Unit until about 30 gallons of filtered water have been produced. **Do not use this water** as it contains the Membrane preservative. Discard the water. The RO is now ready to be used.

UNIT MAINTENANCE

Weekly Maintenance

The RO includes a Flush Valve to prolong the life of the Membrane. It is important to periodically Open the Flush Valve for 45 seconds prior to making filtered water. This will clear debris that may have built-up on the Membrane.



6-Month Maintenance

Replace the Sediment Cartridge at least once every 6 months. This will help prolong the Membrane life.

Replace the Carbon Cartridge at least once every 6 months or when chlorine breakthrough occurs. This will help prolong the Membrane life.

Aquatic Life Replacement Sediment Pre-filter Cartridge (Item # 330088)

Aquatic Life Replacement Carbon Block Cartridge (Item # 330475)

Filtrex GreenBlock FX-VOC Carbon Block Cartridge (Item #330475)

24-Month Maintenance

Aquatic Life 100 GPD TFC Membrane (Item # 330093)

NOTE: The lifespan of the filter cartridges, including the membrane, are dependent on multiple factors. These include the quality of the incoming water supply (TDS levels, chlorine, etc.) as well as the amount of use. Our recommended replacement intervals are based on average usage.

OPERATING PARAMETERS & GUIDELINES

Your target water pressure is 60 - 65 PSI. You will produce less filtered water if your water pressure is below 60 PSI. Pressure above 60 PSI may produce more water. If the incoming water pressure is less than 40 PSI, you may need to add a booster pump. Booster pumps are often needed for well water.

- Operating the RO using softened feed water greatly reduces the chances of Membrane failure.
- Clear canisters have a limited life and should be replaced on an annual basis to prevent possible failure.
- Operating pressure less than 40 PSI may require a booster pump.
- Operating pressure greater than 80 PSI requires a pressure regulator.
- With initial operation, check for leaks. If a leak is observed, verify that the tubing is pushed into the push-fitting far enough to seal the tubing against the O-ring and that the canisters and caps are sealed properly with their O-rings.
- Many of the components in the RO are plastic and subject to damage by ultraviolet light.
- Never store or operate the unit in direct sunlight or other bright lights.
- Do not store or operate the unit in temperatures above 100°F.
- Do not store or operate the unit in freezing temperatures.
- Do not leave the unit unattended while connected to a water supply.

ADDITIONAL PURCHASE CONSIDERATIONS

Depending on your installation and application needs, you may find other Aquatic Life products helpful with this RO Unit. Visit www.aquaticlife.com for the complete line of Aquatic Life filtration products and accessories.

ONE YEAR LIMITED WARRANTY

Lifetime Products LLC warrants that this Reverse Osmosis Unit (excluding cartridges and membrane) shall be free from defective components and leaks or cracks due to defects in materials or workmanship for a period of one (1) year from the date of purchase. If a defect is shown, Lifetime Products LLC will, at Lifetime Product's sole discretion, either repair or replace the product without charge. No cash refunds will be made. This warranty is provided solely to the original consumer purchaser of the product and may not be transferred or assigned. If Lifetime Products chooses to replace the equipment, Lifetime Products may replace it with reconditioned equipment. Parts used in repairing or replacing the equipment will be warranted for 90 days from the date the equipment is returned to you or the remainder of the original warranty period, whichever is longer. This warranty does not apply to damage resulting from accident, misuse, abuse, lack of reasonable care, failure to follow safety and installation instructions.

This warranty will be void if defects occur due to failure to observe the following conditions:

The Aquatic Life RO should only be connected to a potable municipal or potable well cold water supply.

Do not use with water that is of unknown quality without adequate disinfection before or after the unit.

- Incoming Total Dissolved Solids (TDS) not to exceed 1,800 ppm.
- Incoming water to the RO cannot exceed 100°F.
- Incoming water pressure must be between 40 and 80 PSI.
- Incoming water pH must not be lower than 2 or higher than 11.
- Incoming water iron content must be less than 0.2 ppm.
- Incoming water hardness must not exceed 10 grains per gallon or 170 ppm.
- Do not use outdoors or in a location that is subjected to direct sunlight or freezing.

This warranty will not be effective unless and until the Aquatic Life product is shown to have been used in accordance with the installation and maintenance instructions accompanying the product.

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LIFETIME PRODUCTS IS NOT RESPONSIBLE FOR DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, OR UNDER ANY OTHER LEGAL THEORY. LIFETIME PRODUCTS, LLC EXPRESSLY DISCLAIMS ALL ALLEGED DAMAGES FOR LOSS OF MARINE LIFE, PERSONAL INJURY, AND/OR PROPERTY DAMAGE.

Some states and provinces do not allow the exclusion or limitation of incidental or consequential damages or exclusions or limitations on the duration of implied warranties or conditions, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights that vary by state or province.

Lifetime Products, LLC shall not have any obligations under this warranty unless the owner notifies Lifetime Products, LLC in writing of any alleged defect(s) within 30 days of discovery of the defect(s).

Any notice to Lifetime Products, LLC must be delivered by United States or electronic mail to the following address: U.S. Mail: Lifetime Products, LLC, 9710 Klingerman St., S. El Monte, CA 91733 or electronic mail: customersupport@aquaticlife.com. Lifetime Products shall be allowed a reasonable period of time to investigate any warranty claim and to perform any testing Lifetime Products deems necessary to determine the cause of the defect. This warranty shall be interpreted under the laws of the State of California.

How Temperature Affects RO Water Production

Every year, thousands of dollars are wasted on unneeded membrane replacements because hobbyists overlook the negative effects of cold water on their reverse osmosis (RO) system performance. Assumptions are generally made that their membranes have fouled, when in fact the temperature of the supply water has just dropped and caused the membrane production to be significantly reduced. Often, this is because hobbyists forget to take into consideration the lower supply water temperatures experienced during the winter season.

RO system manufacturers can count on receiving phone calls where customers say, 'For some reason the system is producing 30-50% less product water than it did before'. In addition, the customer may say, 'The system's supply water conditions have not changed,' not taking into account the supply water temperature has decreased.

FACT: As water gets colder it gets thicker and the flow rate out of a TFC membrane DECREASES. As water gets warmer it gets thinner and the flow rate coming out of a membrane INCREASES.

IMPORTANT - It is not recommended that you introduce water from your water heater in an effort to increase water temperature. RO membranes cannot handle water temperatures over 100 degrees F, and water heaters have silt and other sediment in their reservoirs that can damage the membrane and RO unit.

All flow rates stated on reverse osmosis systems and membranes are assuming a water temperature of 77 degrees F. As the water temperature changes so will the flow rate. For every degree F you lower the temperature you lose about 3% of product flow. For every degree F you raise temperature you gain about 3% product flow rate - this occurs because water with a higher temperature has a lower viscosity and higher diffusion rate, which makes it easier for the water to permeate the RO membrane.

Temperature Correction Factor (TCF)

Temperature has an inverse effect on product flow through the membrane; a high temperature increases product flow, a low temperature decreases product flow. To find the membrane permeate rate at any temperature divide the rated permeate flow of the RO membrane by the TCF shown in the chart above. The result is the permeate flow at that temperature.

Temperature Correction	
Temperature F/C	Correction Factor
40/4	0.34
50/10	0.52
60/16	0.7
70/21	0.88
77/25	1
80/27	1.05
90/32	1.23
100/38	1.41

Example

A thin-film membrane permeate rate at 77 degrees Fahrenheit, 65 PSI = 50 gallons per day. What is the permeate flow rate at 50 degrees Fahrenheit?

Answer

Use the temperature correction factor (from table above) = 0.52.

New permeate flow rate at 50 degrees Fahrenheit is $50 \times 0.52 = 26$ gallons per day.

Pressure Correction	
Pressure PSI	Correction
10	0.17
20	0.33
30	0.5
40	0.67
50	0.83
60	1
70	1.17
80	1.33