By Bill and Jenn Gehr

PURE & SIMPLE

Taking the guesswork out of water filtration and purification systems

Water is the lifeblood of any self-contained motorhome. Not only is drinking at least eight glasses of water every day suggested for good health, water is also used for cooking, bathing and cleaning. Water that is murky is not pleasant, and when it takes on strong odors, especially chlorine, it's hard to drink without holding your nose. Add cysts, bacteria and viruses to the equation, and finding pure water these days can be quite the challenge.

When we're at home, the water is usually provided by a municipal system or from a well. If you're lucky, the water will be clean and drinkable, but if it's not, you have the option of installing various systems that can treat the water effectively. When traveling, water quality will be unknown until you hook up and turn on the faucet, and then you still will have no idea if the water is actually safe. There are many campgrounds where drinking out of the tap is not a problem and the water is clear and tastes good. Unfortunately, water that is high in sediments, but still drinkable, can wreak havoc on faucets, showerheads and even the toilet valve. Water that's contaminated can get you sick and spoil a trip. Ideally, some type of onboard filtration/purification — whether permanently mounted or used as a portable system — should be considered for protection against bad water when hooking up to campgrounds, as well as when filling the water tank from unknown sources.

Choosing a filtration system for your needs will be an individual process and there are a few questions that must be answered before proceeding. How much volume of water will be used? How often is the motorhome used? What level of purification is required for your needs? Do you want to filter the entire motorhome or just the cold side of the galley faucet for cooking and drinking purposes? Perhaps adding an auxiliary faucet for drinking water alone would be ideal. Cost can be a factor as well, but there are many different options on the market to suit your needs.

Having absolutely pure water in a motorhome is not easily attainable.


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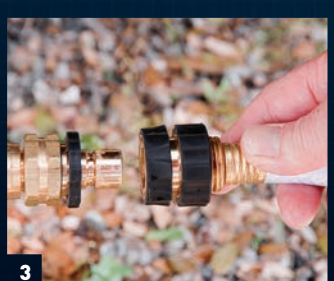
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[1] Typical standard (10-inch) canisters are connected with a brass fitting for convenience and easy handling. Water hoses can be connected to brass fittings on the inlet and outlet of the canisters. [2] While it is OK to lay the canisters flat on the ground during use, many owners rig up systems to keep them upright. Here, an oblong plastic bucket was cut to accommodate the two canisters. [3] The use of brass quick connectors makes setup and takedown quick and clean. [4] A special plastic wrench is used to loosen the filter housing from the top plate with the fittings. An O-ring seals the two pieces without overtightening.

Photos: Bob Livingston

The best system for purification is reverse osmosis, but these systems are expensive, take up valuable space and use a lot of water. Distillation provides the purest water, but having such a system in an RV is not practical. Water softeners only remove calcium, which is the stuff that makes the water hard and leads to clogged faucets and showerheads.

There may be a multitude of contaminants found in city-water supplies. Commonly identified biological contaminants include cysts, protozoa, chlorine, Giardia, bacteria and viruses. The best defense against bad water is to use a sediment filter set up in front of another filter designed to capture biological contaminants. A single in-line filter cannot perform the task that multiple canister systems are capable of. Following are the common options used by the RV community.

Sediment Filters

These filters are designed to remove dirt, sand, minerals, metals and other similar contaminants that can create problems with the water. Smell and taste will pass through a sediment filter. Every motorhome should have a quality sediment filter. The most popular systems use two canisters, one with a filter that traps the sediment followed by a filter that improves taste. It's recommended that the cartridge be at least able to filter out anything larger than 5 microns. The life of these cartridges is dependent on amount of usage, but generally will need to be replaced when the water flow slows down.

Carbon Filters

The second filter in a good two-cartridge system should be carbon. It should be rated at .5 microns and capable of removing lead, heavy metals and cysts — all contributors to bad taste. When choosing a carbon filter, go with a solid carbon block product because it removes much smaller contaminants than granulated carbon filters. Water that's forced through a solid block of carbon will be stripped of many more contaminants when compared to the water that flows in and around granules. Water that comes in contact with carbon will taste better, generally.

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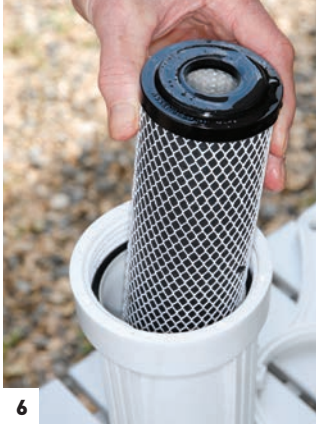

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[5] A sediment filter is used in the canister closest to the water source. After only five weeks of service, it's easy to see why a sediment filter is needed. Filter should be replaced when water flow slows down. [6] A charcoal filter is used in the second canister. This filter will remove lead, heavy metals and cysts that taint the water and contribute to bad taste.

In-line Filters

Basic in-line filters will treat water to a lesser degree and for some owners, it may be all that is necessary, depending on the water source and how often they use their motorhomes. These types of filters can also be used to fill your water storage tank from a home or campground source.

When shopping for an in-line filter, choose a model with KDF additives. This cartridge will have zinc and copper additives incorporated into the carbon filter that resist bacteria growth. These types of filters/additives are particularly good for occasional use. In-line filters are the biggest culprit for diminishing water volume and flow and the problem is compounded as the filter clogs with sediment and particles. High-quality filtration is not feasible with an in-line filter simply due to its small size. However, these cartridges can help improve taste to a small degree, but will not remove chlorine or other biological contaminants.

Ceramic Filters

Ceramic cartridges are the kings of submicron filtration. A micron is equal to one-thousandth of a millimeter. Ceramic filters, in a candle configuration, will remove biological contaminants and chlorine and they can be cleaned and reused for many years with great success. While there are a number of these filters on the market, the Doulton cartridge is said to be best for purification. Ceramic candles impregnated with

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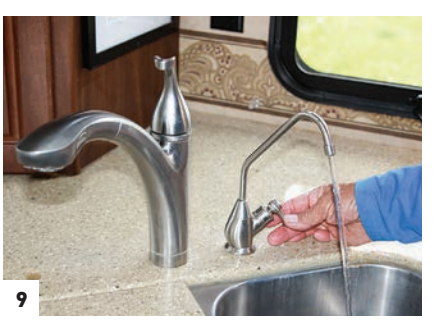

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[7] Carbon filters used in the jumbo canister last much longer and will not restrict water flow. [8] In-line filters will help, but are designed for light-duty use in motorhomes that are used infrequently. Always look for an in-line filter with KDF additives, which help retard bacterial growth. [9] Filters that purify water can be routed through an independent faucet that's used for drinking and cooking. In most cases, it's not necessary to purify water for the entire motorhome, which will shorten the life of a carbon and/or ceramic filter.


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[10] For this RV, which is lived in full-time, jumbo canisters are mounted under the sink and are used for purification purposes. Jumbo canisters can be set up outside to service all the faucets in the motorhome. [11] Six Rio 2000 ceramic candles are used inside this jumbo canister. This filter configuration provides the purest water without going to a reverse-osmosis or UV system. [12] Ceramic candles can be cleaned with a special brush. Keeping the ceramic filter clean will add years to the service life. This filter has been in full-time service for eight years.

silver nitrate will prevent the growth of algae and mold.

A ceramic filter, used in conjunction with a sediment and carbon filter, will provide the greatest protection against bad water for any motorhome, even in areas where the water supply is not up to strict quality standards. Only a reverse-osmosis system or ultraviolet light can improve on the filtration and protection afforded by ceramic filters.

Standard or jumbo canister-type systems are typically found on the market. The standard 10-inch versions are available at most home-improvement stores, Camping World and RV supply stores. These are generally the most popular models used by RVers. A basic, single standard canister can be used with a sediment or a carbon filter. A double-standard canister system can be equipped with the sediment and a ceramic, solid carbon block or even a hybrid ceramic/carbon block filter.

Full-timers, or those who spend long periods of time on the road, should consider the jumbo canister, like those marketed by The RV Water Filter Store. These canisters are designed to treat larger volumes of water and are capable of the best filtration possible, over a longer period of time. The best jumbo filter combo canister contains a plastic block that holds six ceramic candles. The water flows into the canister and passes through each candle. The added bonus of the jumbo canister versus the standard canister is that the volume and water pressure are not restricted.

When setting up a system for a motorhome, most owners position their filters outside, in line with the water hose. Standard, ¾-inch brass fittings make hookup simple

and the use of good-quality quick connectors will add convenience to the process. Many users build boxes or supports to hold the filters upright, which can be done by modifying milk crates or buckets. While this keeps the filters off the ground, it's not necessary; most filters will do just fine lying on the ground in a horizontal position. Protection from direct sunlight is more important. Filters that are shielded from the sun will last longer and resist growing algae and other similar stuff inside that can plug the cartridge(s) prematurely. This can easily be done by placing the filters under the motorhome when in service, by building them into a compartment or by placing a cloth or sunscreen material over the filter housings. While it's best to drain the filters prior to storage, this is not necessary except to keep water from running all over the compartment when storing portable systems.

Tip: Install a strip of masking tape on the canisters and write the date the filters were last serviced. It's best to service the filters before the water flow becomes too restricted.

When shopping for any type of water filter, check for the National Sanitation Foundation certification (NSF). The NSF thoroughly tests filters for flow rates, chlorine removal, taste, odor and particulates. For instance, a Class I filter can remove 75 to 100 percent of chlorine. A Class II removes 50 to 75 percent and Class III will remove 0 to 50 percent of the chlorine. To test chlorine-removal effectiveness, we visited an RV park where the chlorine smell was exceptionally strong, rendering the water almost undrinkable. After running the water through the ceramic-and-solid-carbon-block jumbo canister system, the smell was gone and the taste was as good as that from bottled water.

Not only will you have the confidence that the water is safe, regardless of region and source, but there are weight, space and cost factors to consider. Think of how many water bottles you would have to buy and store to supply enough drinking water without having to run to the market every couple of days.

While there are a variety of these types of filters on the market for stationary homes, the best places to shop for systems is RV supply stores and specialists like The RV Water Filter Store, which has become a recognized expert in RV water filtering and purification, and who has provided valuable information to the RV community for many years. M

Sources

Camping World
www.campingworld.com

Discount Filter Store
www.discountfilterstore.com

The RV Water Filter Store
www.rvwaterfilterstore.com