

This is a convenient way to get acquainted with your RV's systems and their components. You'll find information specific to your RV for most of the items on this list in your RV's documentation or from your manufacturer's website.

The plumbing system

Components

- **Holding tanks:** These three tanks are mounted under the floor of the RV and hold fresh water, gray water and black waste. They are emptied from a valve and hose system in the service bay.
- **Water pump:** In order to draw water from the fresh water holding tank for use when not connected to "city water" at a campground, a water pump is activated. As its name suggests, it pumps water to the faucets, shower, and toilet.
- **Water filters:** Most RVs have a water filter installed to reduce particulates in water from the campground water or from the onboard fresh water tank. You can add an additional water filter on the fresh water hose for campground (city water) connections as a second level of filtration.
- **City Water Connection Inlet:** This connection allows you to use water from a campground faucet through a fresh water hose. A city water source is pressurized and does not need the water pump to circulate water in the RV's plumbing system.
- **Water pressure regulator:** Used with city water hook-ups, the regulator indicates the pressure of the city water delivery. Purchase an adjustable regulator with a gauge to monitor and, when needed, to reduce high water pressure from overwhelming your RV's plumbing system.
- **Water heater:** Just like the water heater in your home, an RV water heater provides hot water for your RV shower and sinks. Typically, a small-RV's water heater has a six-gallon capacity and is propane fueled. Newer RVs may have a tankless water heater providing hot water on demand. It is fueled by propane or electricity (or both). Your gray tank capacity will still limit the length of your shower!
- **Shower, sinks and toilet:** All part of the plumbing system as are their drains. The toilet and sinks may be made of china or plastic. The toilet flush mechanism may be electric or a manual foot-pedal and sprayer.
- **Service Bay:** Exterior compartment that houses plumbing connections, holding tank valves, and emptying hose or macerator operation. It also houses the valve for winterizing and sometimes a TV cable hook-up.

Water system flow

When boondocking: Providing you have filled the fresh water tank, water is drawn into the plumbing system from the fresh water holding tank by the water pump. Once the system is "charged", water flows simply by turning on a faucet, shower, or toilet flush. You will hear the water pump turn on and off as it fills and refills the plumbing system.

When at a campground with a water hook-up: The RV is supplied with fresh water from the campground hook-up (also called "city water"). The water pump is not needed for "city water" since it is already pressurized and will flow through the RV plumbing system on by its own pressure.

Sink and shower drains empty into the gray holding tank. The toilet (and sometimes the bathroom sink) empties into the black tank.

Monitor the levels of fresh water, black, and gray tanks on the systems monitoring panel.

The electrical system

Components

- **Battery bank:** There are two sets of batteries in the RV. One car battery in the engine compartment for the business side of the RV, and a set of deep-cycle batteries in the “house” side of the RV for all the electronic needs of the “house.”
- **Inverter/converter:** In most small RVs, the inverter works by inverting DC battery power to AC power for the coach outlets. The converter function converts the AC power from the shore power hook up, or a generator, to DC power to recharge the battery bank.
- **Generator:** Not all RVs are equipped with a generator. If you do a lot of boondocking it can provide AC power to the entire coach. It can also recharge the battery bank through a converter. A generator can be fueled by propane or diesel and is powerful enough to provide electricity for the entire RV. However, it is limited to its fuel capacity, is rather noisy, and emits noxious fumes so use it only when needed rather than as a continuous power source.
- **Solar panels:** Although optional equipment on most RVs, solar panels can provide a source of power to recharge the battery bank. They do not usually generate enough power to run appliances but do a fine job of keeping the battery level topped up.
- **Shore power:** The electricity provided from the campground hook-up is also referred to as “shore power”. It is a continuous flow of AC electricity that can power your coach systems and can also recharge the battery bank through a converter.
- **Outlets:** Similar to your home, the RV electrical outlets offer access to power for appliances and accessories in the coach. All can be powered by AC current from a shore power hook-up or a generator. Usually just a few outlets are designated to also accommodate power from the battery bank through the inverter when not connected to shore power.

Electrical flow

When boondocking DC power is drawn from the battery bank through the inverter where it is inverted to AC power and supplies designated outlets in the coach as well as some appliances and accessories.

If you are using a generator while boondocking, it supplies AC power to the coach through the inverter to run all of the outlets, appliances, and accessories. It may also recharge the battery bank through a converter.

When connected to shore power, AC current is drawn directly from the shore power connection at the campground through an electrical cord to your RV. It flows through the inverter to supply power to all the outlets, appliances and accessories.

The propane system

Components

- **Propane tank and regulator:** The tank is filled with liquid propane and is dispensed on demand to appliances or generator through the regulator. The regulator controls the pressure of the gas to the RVs system.
- **Appliances fueled by propane:** Furnace, water heater, stove, and refrigerator. In some RVs there is also a propane outlet for a barbeque grill

Propane system flow

Once the propane tank is filled, the gas flows through the regulator to all of the appliances in the coach. In most cases that includes the furnace, water heater, refrigerator, and stove. Each appliance has its own pilot light which needs to be lit. Some appliances have an automatic electronic ignition system for the pilot light.

The propane system is under pressure and as long as the RV is reasonably level, the gas will flow freely through the system to power the appliances. If the RV is severely out of level, the gas flow may be compromised causing the appliances to malfunction.

You can fill the propane tank at most well-equipped hardware stores, a propane dealer, or an RV service center. Since a license is required to dispense propane the attendant will fill the tank for you.

A full propane tank is only 80% full. A higher fill level could be damaging to your RVs system, and could be dangerous.

The HVAC System

Components

- **Furnace:** The RV furnace is propane fueled and uses forced air to heat the RV. It is controlled through the thermostat and uses a fan to blow air warmed by the burners into the RV.
- **Air conditioner** (and perhaps an integrated heat pump): This major appliance needs to run on shore power or a generator. Situated on the roof of the RV, it will cool the RV through a system of air ducts in the ceiling of the RV. If your unit also has a heat pump it used the same vent system to take the chill out of the RV.
- **Thermostat:** Both the furnace and the air conditioner (as well as the heat pump function) are controlled by a central thermostat. It works just like your thermostat at home.
- **Ventilation fans:** To help circulate air in the RV, most are equipped with ventilation fans. These draw air from outside through an open window. They are great for controlling moist air from bathrooms, and for removing cooking odors in the kitchen.

Heat flow

The thermostat is turned on and temperature set, much the way you would at home. The furnace burner lights and the electric fan starts blowing warmed air through the furnace vents in the RV (usually located near the floor) and drawing air from the returns in the ceiling. When the correct temperature is reached, the fan and burner shuts off. As the air in the RV cools the thermostat prompts the furnace to light and the fan to start again.

Air conditioning

Air conditioning operates on the thermostat as well, turning on to cool the RV and then turns off as the set temperature is reached. The air conditioner, located on the roof of the RV, uses a compressor to circulate a cooling fluid through the condenser coils and a fan to blow the cooled air through the RV vents, usually located in the RV ceiling.