Caring for your RV

Maintenance for Rubber Roofs

How to clean and maintain rubber roofs

Tune-up your roof top AC

Simple steps to improve the air conditioners performance

Maintenance Schedule

A general guideline for maintaining the 'coach' portion of RV's

Maintaining black & gray tanks

Simple, effective and inexpensive methods

Enclosed in this manual are ideas for the care and maintenance of your RV.

This information is primarily for travel trailers, fifth wheels and the 'coach' portion of motor homes.

Extend the life of the exterior

Over time the exterior will begin to wear – protect your investment!

Cleaning the fresh water system

Do not assume the system will stay safe – clean it!

Electrical load ratings

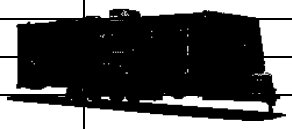
How much electrical amps do typical RV items need

Winterizing your RV

Step by step instructions

RV Care & Maintenance Checklist

	Before each trip	Yearly	
Check exterior lights and pigtail connection	X		
Check tire pressure, condition and lug nuts	X		
Check all appliances for proper operation	X		
Check water, lp gas, and electrical systems	X		
Test smoke alarm, lp and carbon monoxide detectors	X		
Inspect brakes, wheel bearings, axles and springs		X	Spring
Check safety breakaway switch operation		X	Spring
Rotate tires, check tire pressure and condition		X	Spring
Inspect roofing material, vents and sealants		2x	Spring & Fall
Clean rubber/vinyl roof		2x	Spring & Fall
Apply UV protectant on roof		X	Spring
Air conditioner – spring tune-up		X	Spring
Check furnace and refrigerator vents		X	Spring
Lubricate all exterior door and storage locks		X	Spring/Fall
Lubricate slide systems and rubber seals		X	Spring/Fall
Lubricate hitch coupler and stabilizer jacks		X	Spring/Fall
Inspect sidewall sealants, & underbelly for tears		X	Spring/Fall
Inspect battery water level		X	Spring
Clean and tighten battery cables		X	Spring
Winterize & sanitize water system		X	Fall
Dis-connect battery cable for winter storage		X	Fall
De-winterize		X	Spring



This is a general guideline for towable RV's or the 'coach' portion of a Motor Home. Refer to your owner's manual for detailed information or your dealer for specific requirements in your geographic area.

Maintenance for Rubber Roofs

A Brief, Brief History of Rubber Roofs

Rubber roofing came to the RV industry after a long history of excellent performance in the commercial roofing industry. Ethylene Propylene Diene Monomer, or EPDM for short, was initially introduced to the Recreational Vehicle industry in the late 1980's as an alternative to aluminum. One of its many advantages is its flexibility during climate and temperature changes. Because EPDM is strong, flexible and very reliable it has become the roofing material of choice for most RV manufacturers.

Before discussing how to maintain your rubber roof membrane as quickly and as easily as possible, it would be best to point out some of the EPDM rubber material's properties and characteristics.

Beware of Sharp Objects

Although very durable, the EPDM membrane is thin. You should always avoid low hanging branches and be careful about dragging anything across the roof surface that could easily cut it. If necessary, rubber roof patch kits are available from most RV supply stores.

Chalking and Streaking

EPDM rubber roofing is subject to "chalking" as it weathers and ages. In the EPDM manufacturing process, fillers or pigments such as Titanium Dioxide, Zinc or Calcium Carbonate and others are used to give the rubber material its white color. As the rubber ages it begins to react to moisture, heat and sunlight, causing the fillers to come to the surface. These fillers are carried to the surface and appear as white or gray powdery residue. Rain or moisture (morning due) mixes with the fillers and flows down the vehicle forming white streaks. In discussing this with many RVers, we have found that the process usually begins when the roof is 12-18 months old. However, this is only an average and does vary from roof to roof and climate to climate. In some cases, it can be severe at first and then subside over time. Chalking occurs as a natural process and is not harmful to the material.

Spots — Black, Gray, Pink or Otherwise

An unsightly stain that may appear on a rubber roof in the form of dark spots or broad areas of various colors, It is often the result of mold and mildew growth. Black and gray are the most common colors of this stain, but it can also appear in lighter colors such as pink, yellow or purple. You may find these spots on your rubber roof in small clusters or in more extreme cases covering the entire roof. A white color is chosen for most rubber roofs not only because it is aesthetically pleasing, but more importantly because it reflects sunlight and heat more efficiently than darker colors. The

unfortunate side of white is that it does not absorb enough heat to generate surface temperatures above 126 degrees. Therefore, the EPDM rubber roofing material will never reach a temperature hot enough to kill this fungal invasion.

Cleaning Mold and Mildew Growth from EPDM
With some effort and a good cleaner, you may be fortunate enough to remove some of these stains but most will never come off the roof, no matter how hard you try.

Preventive Maintenance Measures
Start by thoroughly cleaning and treating your rubber roof at least twice a year. One recommended cleaner is Protect All's Rubber Roof Cleaner and Rubber Roof Treatment. In addition to helping to retard the chalking process described earlier in this article, Protect All Rubber Roof Treatment aids in keeping dust, pollen and other airborne contaminates that settle on the roof, from sticking to the rubber surface. Then, every month or two, you should sweep the roof free of all residue that has settled on the roof. This process will temporarily eliminate the spores, food and the dusty environment that captures moistures and feeds the growth and accumulation of mold and mildew. As the roof continues to accumulate air-born contaminates, mold and mildew begins to develop, so frequent sweeping is important for effective preventative maintenance.

How often you need to sweep off your roof will be dictated by both your seasonal and living environment such as exposure to moisture from rain, morning dew, fog and snow and airborne contaminates such as dust, sand, trees, smog and even your proximity to freeway traffic and airports that emit large amounts of pollutants. Rinsing the residue off the roof with water is not recommended for two reasons; moisture is one of the four elements required to establish the mildew and the dirty water will create additional clean-up of the sidewalls and windows of your RV. Sweeping regularly is less time consuming and requires less effort than washing your roof and your RV. Thus, you won't mind doing it more often.

A Quick, Easier Cleaning Process
With Protect All Rubber Roof Cleaner, a sponge mop and a bucket of water, you can give your rubber roof a thorough cleaning without a lot of bending and crawling on all fours, and without rinsing. The physical advantages are obvious. No rinsing has several advantages:

- The wet chalk and dirt are contained on the roof and the residue deposited into the bucket. The residue is not rinsed down the sides of RV requiring additional cleaning.
- The dirt, chalk and other contaminants do not seep into the ground water or flow into storm drains, preserving our precious water resources such as lakes, rivers and oceans.
- Cleaning can be performed at campgrounds, storage lots or wherever water use is restricted. The campground restrictions on washing are no longer an excuse for not performing this chore.

Once the cleaning is done, 90% of your rubber roof maintenance is complete. When the roof is dry, you can begin applying Protect All Rubber Roof Treatment with a clean sponge mop. The treatment is formulated to provide a flexible but durable coating that:

- Creates a barrier between the roof material and the elements to aid in preventing the chalking process.
- Provides an anti-static property that keeps grime from sticking making future cleaning quicker and easier.
- Increases protection from the elements and the sun's UV rays.

Protect All Rubber Roof Treatment is a blend of polyolefin compounds that is both safe and compatible on all types of rubber roof systems. No chemicals or abrasives are used in either Protect All Rubber Roof Cleaner or Protect All Rubber Roof Treatment that can harm the rubber membrane.

Maintenance Tips
Items you will need to complete the task.

- Protect All Rubber Roof Cleaner and Protect All Rubber Roof Treatment.
- A sponge mop for application.
- A scrubbing sponge or a soft bristle-brush for excessive oily grime and hard to reach areas.
- Towels to help dry any areas that are hard to reach and to keep cleaner from going over the siding.
- A 5-gallon pail filled half way with water, (Remember, water weighs 8 lbs. per gallon).

CLEANING
One simple note of caution before we start. Remember, we only want to clean the roofing. Do your best to keep the cleaner, water and chalk residue from running down the sides of the vehicle. The chalk has been known to stick to windows and siding like glue. We suggest a "sponge mop and bucket method" of cleaning so that only the roof gets the cleaning. Doing it this way, you do not have to clean the entire vehicle.

We suggest sweeping or dusting loose dirt off the roof before starting. If you feel you must use a hose, do so only before cleaning and only as a method of getting the loose dirt off the surface. Be sure to rinse the entire vehicle thoroughly as you rinse off the roof to prevent any chalk and roof grime from sticking to the siding. Because Protect All Rubber Roof Cleaner is a strong cleaner formulated to loosen roof grime and chalk, do not use the hose to rinse the cleaner and chalk residue off the surface during the cleaning process. This can leave more streaks down the sides of the RV that may be difficult to clean off.

Begin cleaning at the front of the vehicle and work your way back to the ladder. Clean the surface in 3-4 foot sections. In this manner you will use the least amount of effort, water and product. Keep your rinse bucket handy. Spray Protect All Rubber Roof Cleaner onto the surface and agitate with a sponge mop or soft bristle brush. Then use the sponge

mop to pick up the dirty residue and wring it into the bucket. Wipe excess residue off the roof with a rag or towel. Repeat the process a section at a time. Depending on how dirty your roof is, you may need to change the water in the bucket one or two times during the cleaning process.

When done, allow the surface to air dry completely before walking on it or applying the treatment. Old or severely oxidized roofs may require cleaning twice to get them thoroughly clean. Remember, as stated earlier in this discussion, the black mold and mildew spots will be almost impossible to remove. A quart of Protect All Rubber Roof Cleaner is usually enough to clean a 35-40 foot roof.

PROTECTIVE TREATMENT

Once the roof is clean, the maintenance process is about 90% complete. Protect All Rubber Roof Treatment with UV Blocker can now be applied to the roof to provide an anti-static and water-repellent finish. The anti-static feature keeps dirt from sticking to the rubber. Most of it will blow off the roof. Just sweep or dust for quick clean-ups. Applying this water-repellent product on the EPDM surface minimizes moisture and this, in turn, can help reduce chalking.

Again, start at the front of the vehicle and work your way back to the ladder. Spray Protect All Rubber Roof Treatment across an area about 3-4 feet square. Spread the product thoroughly and evenly with your sponge mop, much like waxing your kitchen floor. Proceed with this method in sections working your way toward the ladder. Remember that all you are trying to achieve is a thorough and even coat. Be sure the treatment is completely dry before walking on the surface. Approximately one-half quart of product will treat a 35-40 foot roof.

Protect All Rubber Roof Treatment applies as a protective and durable coating that is both safe and compatible with all rubber roof systems. If you wish to create a sheen on the newly treated surface, buff it lightly with a dry soft cloth.

Avoid walking on your white roof with dirty and oily shoes. Also, if you are not careful, the dirt and grime that settled on the surface can be ground into the material making it much harder to remove. As pointed our earlier, some suppliers of the EPDM rubber material recommend the use of petroleum distillates for specific cleaning purposes. The products on the market that utilize a petroleum distillate in their formulas have also experienced a high degree of success in treating the roof surface.

** DO NOT USE ANY CLEANING PRODUCTS THAT CONTAIN PEROLEUM DISTILLATES ON THE RUBBER ROOF MEMBRANE!

Extend the Life of your RV's Exterior

To protect your investment and get many years of use from your RV there are certain measures you need to take. One important measure is maintaining the exterior of your RV.

Over time the roof and exterior of your RV begin to show signs of wear, caused by the constant exposure to the elements. Ozone in the air and ultraviolet (UV) rays from the sun start to take their toll, which is first evident by signs of fading paint. The ozone in the air also causes products like rubber and vinyl to dry out, crack, and start to deteriorate. The UV rays from the sun make this aging process happen quicker. If at all possible you should try to keep your RV covered when not using it, to help protect it from Mother Nature.

Maintaining the exterior of your RV contributes to extending the life of the RV and protecting your investment. If you let your RV go, without cleaning it for periods of time it can be very difficult to get that new look back. Maintaining the exterior of your RV primarily consists of routine inspections, cleaning and lubricating items on the RV.

Exterior finishes begin to deteriorate over time. To extend the life of the exterior wash the RV frequently using a mild soap and water solution. You should always try to wash your RV after returning from a trip. Do not use harsh or abrasive cleaners. When washing the RV avoid spraying water directly into any appliance vents.

Metal sidewall finishes require routine maintenance to keep black streaks cleaned from the surface. If black streaks remain on metal sidewall finishes for prolonged periods of time it can be extremely difficult to clean or remove them. Use a commercial black streak remover. Test all cleaning solutions on a small portion of the RV's graphics before using them.

Waxing the fiberglass exterior of your RV will help extend the life and appearance of your RV. Wax the exterior with a quality wax formulated for the type of exterior surface your RV has. Always follow the manufacturer's instructions. Exercise caution when waxing around graphics taped on the RV. You should wax the RV when water no longer beads on the wall surface.

Water damage on an RV is often difficult to detect until there is significant damage done to the inside of the roof, sidewalls, and/or floor. The outside of your RV looks fine but the internal damage caused by water over a long period of time can result in the entire roof, floor or wall rotting away without you knowing it. Inspecting any and all sealants can help prevent expensive repairs caused by water damage. You must look very closely for any cracks, gaps, and loose or aged sealants. Inspect the roof, sidewalls, end caps, moldings, windows, compartments and anywhere the manufacturer cut a hole in the RV. Inspect the interior for any signs of water damage. Look for discoloration or wrinkles in the wall panels or wallpaper and feel for any soft spots on the walls, around all windows, doors, vents, slide outs, or any other openings that were cut in the RV sidewalls.

Note: Always use the proper type of sealant to make repairs; if you're not sure what type of sealant to use talk to an authorized RV repair facility. Have any water damage repaired immediately.

RV manufacturers use different materials to construct RV roofs. Consult your owner's manual for the type of roofing material used and for the type of soap or detergent required to clean the roof. Keeping debris such as leaves, tree sap and branches off of the roof will help to extend the life of the roofing material. You should clean and inspect your RV roof two to four times a year.

Caution: Exercise caution whenever you are on the roof of your RV. A fall can result in serious injury. For RV roofs not designed to be walked on it may be necessary to use a piece of plywood to distribute your weight evenly across the roof rafters. If you are not comfortable working on the roof of your RV, have your roof maintenance performed by an authorized RV service center.

When cleaning the roof keep the sides of the RV rinsed off to avoid soap residue, streaking and any damage to decals, graphics or the paint finish. Never use cleaners containing petroleum solvents, harsh abrasives, or citric based acids on rubber or vinyl roofs.

Cleaning the roof is only part of maintaining it. Every time you clean the roof you need to inspect the sealants around all of the openings and the seams on the roof. Water will take the path of least resistance and if there is the smallest opening it will find it. You need to thoroughly inspect the roof sealants for potential leaks and reseal any areas of the roof seams and around openings where you suspect a leak. Check with your RV dealer for sealants that are compatible with your roofing material.

Tune up your rooftop A/C

A couple of things to remember about roof top RV air conditioners- all air conditioners work by removing heat (actually, all refrigeration works that way- as do heat pumps), and RV air conditioner- as they come from the factory- are hermetically sealed, and they only hold about 1 pound of refrigerant. The point of this is that with less than 1 pound of refrigerant and a sealed system, 99% of the time, "not enough cooling" complaints are due to air flow issues, and **not** lack of "Freon®"

Luckily, the average fix for this is easy- clean the coils! Let's take a look at how to do this….

These procedures do involve some risk- you will be working on the roof of your RV, and working around 120 volt systems and devices which can store power even when shut off.
Always observe all common safety procedures!!

Unplug the rig, disconnect the battery, don't fall off the roof…. you get the idea!

A word about RV roofs- **most** modern RV roofs are plenty able to support a person walking on them, but use your own judgment- if the roof seems springy, lay a piece of plywood to walk on, and if the roof is a rubber roof, take care to not damage the membrane- make certain your feet are clean, and pick up your feet before turning them (which causes bubbles)

There are some basic and some advanced maintenance items that can be performed on roof top air conditioners.

The first basic area is the air filter. In summer, using the RV and air conditioner around the clock, the filter should be checked weekly and cleaned as needed. RV air conditioners use either a foam type filter or a fine mesh, both of which can be rinsed in water and reused. This cannot be stressed enough- **keep the filter(s) clean!**

After a few years, even the best filter will let enough dirt past to coat the evaporator coils, though, so they need to be cleaned. If the coils are not too dirty, and if the installation leaves enough room to access the coils, you can simply buy a can of spray coil cleaner and use that- saturating the coils, letting it sit for a bit, then running the air conditioner so that the condensation will rinse the coils off.

A tip though- be very careful in choosing a product to use- a lot of commercial coil cleaners such as would be found in home center type stores can be pretty strong- not something recommended to run over the outside of an RV. Enviro-Chem coil cleaner, is specifically made for RV use.

But- sometimes the coils are just too dirty to simply be rinsed off like this, or access from the inside is restricted enough that a trip to the roof is needed.

The 2 most common models are the DuoTherm Brisk Air and the Coleman Mach series , though the cleaning methods will be the same for every brand and model.

The first task is to remove the shroud- either screws around the base of the plastic (DuoTherm and Carrier), or screws in the top (Coleman).

Once you have the shroud off, you have to get to the evaporator, which is the front of the unit under a (usually) sheet metal (sometimes styrofoam) cover.

The evaporator cover (if it's metal) will be attached by a number of sheet metal screws, remove these, but **pay attention to the screws as you remove them.** On some models there will be either different length screws, some screws might be blunt ended to go in to electrical areas. Just pay attention and replace the screws in the same way they were removed.

Once the cover is off, you can see the evaporator coil. Now it's simply a matter of cleaning the coils. Coleman recommends "Formula 409″, or you can use Voom RV cleaner which is a ph neutral degreaser.

Soak the coils well- if there is a lot of crud on them, use a bristle brush to clean the coils- carefully, as the fins are delicate, to scrape off the crud. Another option is using a "fin comb", which is also good if the fins are bent, restricting the air flow.

While these coils are soaking, do the same thing for the condenser coils- soak them well with the cleaner. *You can often get a 1 to 2 amp decrease in current draw simply by cleaning the condenser coils.*

Next comes the tricky part- rinsing the evaporator coils without flooding the rig. It's not hard- put down towels in the air return opening, and don't use too much water pressure- the cleaner will do the work, you just have to rinse the coils off. Do this on both evaporator and condenser coils.

And…. that's it! Button everything back up, and know that your air conditioner will be able to take as much heat as possible out of the inside through the evaporator, and get rid of the heat through the condenser.

Maintaining Black & Gray wastewater tanks –

very simple, effective, and inexpensive methods of maintaining wastewater tanks.

1. DUMP A FULL TANK

When you are camping and your RV is connected to a sewer/septic intake, leave the drain valves closed until the tank is full and ready to dump. Dumping a full tank provides a sufficient quantity of water to flush solids from the tank. Leaving the drain valves open allows the water to drain off without flushing out solid waste. That solid waste will collect in the tank and cause problems over time.

2. DUMP TANKS IN ORDER FROM DIRTIEST TO CLEANEST

In other words, dump the black (commode) water tank first, then dump the gray tank. This way you will be flushing out the dirtiest water with cleaner water.

3. USE WATER SOFTENER

This stuff is amazing and it works. Buy a couple of boxes of powdered water softener at the grocery store. You'll find it located with or near the laundry detergent products. Dissolve two (2) cups of the water softener in a gallon of hot water. Then, pour the solution down the drain into the empty tank. Use two cups of softener for each wastewater tank in your RV. The tank's drain valve should be closed otherwise the softened water will just drain out. Then use the tank(s) normally until it is full and drain it normally. Add a cup of laundry detergent to the black (commode) water tank at the same time. This will help clean the tank. The gray water tanks should already contain soap through normal use.

The water softener makes the solid waste let go from the sides of the tanks. With softened water gunk washes away instead of sticking.
Add water softener to each tank once after every few dumps to maintain the system.

How to clean your RV's fresh water tank

The water system in your RV provides water to drink, wash dishes and take a shower. Do not assume it will stay safe and fresh like the water system in your home. Contaminated water is extremely dangerous. We not only have to deal with a water system that hasn't been used for some time, but when we travel in the RV we hook our water system up to a different water source every time we stop for the night. We hook up to city water, well water, and eventually contaminated water. You've probably heard people caution to not drink the water in Mexico. Well that can be true anywhere.

Possibly the most important step you can take is to keep the fresh water system sanitized. At a minimum you should sanitize the system every spring when you take the RV out of storage and any time you notice stale water or an odor. It's really quite simple to do.

Start by draining the water heater. Go to the outside compartment where the water heater is located. The drain plug is located in the bottom left hand corner. Remove the plug and open the pressure relief valve on top of the water heater to assist in draining. CAUTION: NEVER drain the water heater when it's hot or under pressure.

Next you need to locate the low point water line drains. There will be one for the hot and one for the cold water lines. This is the lowest point in the water system. Open these and let the water drain out.

Now, find the drain for the fresh water holding tank and drain all of the water from it. At this point you can turn the water pump on for a moment to force out any remaining water. Do not let the pump continue to run once the water stops draining. Close all of the drains. At this point, we have removed most water from the system.

Now take a quarter cup of household bleach for every 15 gallons of water that your fresh water tank holds. Mix the bleach with water into a one-gallon container and pour it into the fresh water holding tank.

FILL THE FRESH WATER TANK almost completely full. Turn the water pump on, open all hot and cold faucets and run the water until you smell the bleach at each faucet. Close the faucets. If possible, drive the RV or pull the trailer so the water can move around to assist in cleaning the entire tank. Let it sit for at least 12 hours. Drain the entire system again and re-fill the fresh water tank with potable water.

Open all of the faucets and run the water until you no longer smell any bleach. It may be necessary to repeat this process again to eliminate all signs of bleach from the water system. Once this is done it is safe to use your water system.

If you follow these simple steps you can rest assured that the fresh water system in your RV truly is fresh.

8 best RV uses for dryer sheets

Next to the can opener, dryer sheets are one of the best inventions from mankind. For RVers they are as useful as duct tape and we all know that duct tape can do anything.

Some of the more popular uses for dryer sheets are:

1. Getting bugs off the RV – just wet the dryer sheet and the bugs magically come off. The used dryer sheets can be kept by your spouse for just this use versus throwing them away.
2. Mosquito repellant – tuck one in a pocket or belt loop and the blood sucking pests will be annoying somebody else.
3. Placed in various places of the RV will keep things smelling nice and fresh and will keep out those winter visitors while the RV is in storage. If you have some footwear that let's everyone know your feet sweat, then tuck a sheet inside your shoes and leave them in a storage bin overnight and you will not only have clean smelling shoes, but your storage area will smell fresh.
4. If you have mini blinds, dryer sheets are great for cleaning them and seem to attract the dust. They also are great for dusting the TV screen. Some say you can use on a computer screen BUT make sure your computer if off and unplugged when you do this.
5. The sheets are excellent for cleaning the shower doors as they will leave them squeaky clean and spotless.
6. Eliminate odors in wastebaskets. Place a sheet of Bounce at the bottom of the wastebasket.
7. Collect animal hair. Rubbing the area with a sheet of Bounce will magnetically attract all the loose hairs.
8. Want to quickly freshen up the RV in the humid summer? Place a sheet in the AC vent to give the rig that clean outdoor smell.

Happy Camping

Winterizing your RV

Drain the fresh water tank and open your low point drains (if available).

Close the low point drains, remove the water heater drain plug and drain the water heater

Dump and flush both the black and grey water holding tanks.

Screw a blow-out-plug into the city water inlet and apply air pressure

With the drain plug still out of the water heater – blow the remaining water out of the water heater. Re-install the drain plug on the water heater.

While applying air pressure open each faucet, one at a time, until all water has been forced out

Blow out all applicable items; kitchen and bath faucets, shower, toilet, outside shower, ice maker, washer/dryer, etc.

Remove the compressed air and blow-out-plug
Close the water heater by-pass valves to by-pass the water heater

**Note: A great accessory for your RV is a water heater by-pass, this very simple device allows you to winterize your RV without filling up the water heater and thereby saving you 6 to 7 additional gallons of antifreeze.

Remove the water line that runs between the fresh water tank and the water pump. Install a flexible water line to the water pump and insert it into a gallon of RV antifreeze (DO NOT use automotive antifreeze!)

Start the water pump and open each faucet, one at a time, until you see antifreeze coming out. Same as with the air – run the antifreeze through each item – kitchen and bath faucets, shower, toilet, outside shower, ice maker, washer/dryer, etc.

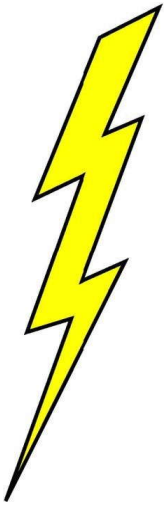
**Note – if there is a water filtration system, remove the cartridge as it will filter the pink out of the antifreeze and make it look like water. As you bring the antifreeze through the faucets, run the cold water side into one side of the kitchen sink and the hot water side into the other side of the sink. This way you are running antifreeze into both sink traps.

Re-install the water line between the fresh water tank and the water pump.

**Hint: you can install an adapter to the water pump that will eliminate the need to remove and re-install the water line from the water pump.

Leave antifreeze in the water lines until spring to help sanitize the lines.

** You can winterize with antifreeze only if an air compressor is not available or you can winterize with the compressed



Electrical load ratings

It is very easy to get confused about how many amps are available and/or being used.

This chart will give you an idea of how many amps are being used with certain appliances.

The conversion formula would look like this…

Watts = Amps times Volts
Amps = Watts divided by Volts
Volts = Watts divided by Amps

Most RV's use a 120 volt - 30 amp electrical system

	Amps needed
Typical air conditioner	13.50 – 18.75
Coffee Maker	7.00 – 11.00
Converter (80 amp Prog. Dynamics)	5.00 – 11.00
Electric frying pan	8.50 – 10.00
Hair dryer (est. 1000 – 1900 watt)	8.50 – 16.00
Microwave oven	7.50 – 12.50
Refrigerator (RV gas/electric)	2.00 – 3.00
Television	1.00 – 2.00
Toaster oven	9.25 – 13.50
Water heater (RV gas/electric)	11.75 – 12.25