Check the electrical connections first. Apply **silicon dielectric** in a thin coating over all your connections. Look at the ground connections. Most wiring failures are due to poor ground connections. This is particularly true for the RV appliances that are mounted with the electronics exposed to the outside elements.

Electrical - Obtain a set of various size fuses for your RV and your tow or towed vehicle. Check your manuals and find the physical location of the boxes. There are different fuse types as well as sizes so be sure you get the correct ones. Do not forget any extra electronics or appliances you have added to the vehicles. Know where your fuses are. You may have in-line fuse holders behind the dashboard. **Never replace a fuse with a higher current rated unit unless you know what the circuit does, and the operating current being drawn through it.** A fuse is not there to protect the light bulb, circuit board, appliance, or computer. Its purpose is to protect the wiring. **Do not increase any fuse size; bigger is not always better and sometimes it can lead to disaster.** A handy item to carry is a set of ATC automotive type fuses that are circuit breakers. These will open if there is excessive current flow and then reset once the current goes below the fuse rating. Carry a 15, 20 and 30 Amp set. LED replacements are now available, at reasonable costs, for your interior and exterior lighting needs. These are particularly efficient for replacing incandescent and fluorescent lights.

Electronic Boards
Another connection area that can cause all kinds of problems is the tiny Molex plugs on your circuit boards. Your gas appliances that have self-lighting capability have circuit boards to control this function. Some of these are exposed to the elements and pick up dirt as well as corrosion. **You cannot use WD-40 to clean these connections** since it will leave a film that attracts dirt and grease. You should have a spray can of electronic circuit cleaner that leaves no residue after use.

Hinges, Bearings, Steps, Locks
Annually clean all the external compartment hinges on the RV and then lubricate them. Use a small amount of WD-40 for the cleaner and then, dry the hinge with paper towels. Then use a small amount of Silicon spray on the metal surfaces that move. You should include the moving surfaces and joints on all your awnings. Check the manufacturers recommendations on slide outs and follow them. Failure to do this can result in troubles on the road and major expenditures. Do not forget to clean the awning material (awning manual has the instructions). Use a tube of graphite for your locks.

Batteries and chargers
Completely check out both your engine start and coach batteries before you are ready for the new camping year. A battery failure on the road will not only be costly but you may have to buy an off-brand with no effective warranty. We recommend Wal-Mart (or equivalent, large chain) batteries since they have stores all over the US and Canada. If your batteries are using water every week, they are going bad. Do not buy sealed lead acid batteries that never require water for your coach batteries. These have one-way valves to release the pressure when the battery overheats so that it does not blow up. The water vapor escapes through this valve and since the battery is sealed it cannot be replaced. Your Coach batteries go through many deep cycles requiring many recharges during their useful life. Your engine batteries, however, do not, and thus can be the sealed type. Lead-acid batteries must be mounted externally because the gases they give off are toxic. The only truly sealed batteries are either absorbed

glass mat (AGM) or Gel Cell. These do not give off gases and can be mounted anywhere in the rig. They are excellent, long life units; however, they are quite expensive.

One key consideration is the power conditioner (converter). Most of the trailers have poor converters that do not maximize the useful life of the batteries. The best power conditioners are computer controlled and allow AC power to be on all the time without hurting the batteries. These usually have three or more charge modes (stages) including bulk, absorption and float that are automatically selected by the computer control circuits. These chargers will insure that you get maximum life from your batteries. For the motor home owners most of the modern diesel rigs have excellent computer-controlled charge systems included with the inverter. However, you should remember that for some gas motor home models the engine start battery is not charged when you are on AC shore power. If this is the case, you should obtain a separate inexpensive staged charger, which can be used when in a campground. Most of the classic motor homes have very poor charging systems and do not provide an engine charge capability. The highest quality staged chargers will also incorporate a sensor that modifies the charge cycle based upon the batteries temperature and charge status.

A load test is the best way to check a battery. When you take your car in for a battery test, they wheel out this 3-foot unit on a cart. An engine start battery is load tested to see how many amps (200 to 400) are available to start the engine. This takes a big resistor that gets quite hot. You can also get a reasonable idea of the battery condition by monitoring the voltage level on the batteries. You will need a digital voltmeter because a fully charged battery will read in the range of 12.6 to 12.7 volts. If it reads less than 12-volts it is below a 50% state of charge and will need to be charged, or, the fridge and furnace may not function properly. Check the battery grounds first. You must check each of the coach batteries, which means disconnecting one of the leads, so they are not in parallel. Very often, one of them is bad and this will not show up if they are all connected. Always remove the ground terminal from the batteries first when you are going to perform any tests. If you remove, both cables hook up the ground cable last.

SURGE GUARDS

These come in both portable and hard-wired versions. They can protect the RV from electrical surges, incorrect polarity, open neutral, reverse polarity and over/under shore power voltage input. They range in cost from $100 (surge/spike protection only, for 30-amp) up to $400, for all the above with a 50-amp line. They are available for hard-wired installation in a motor home or a hard-wired or portable device for trailers.

AC LINE TESTER

Every camper should have a $5, 120-volt AC line tester (looks like a male plug with three lights on it), which provides a simple check for any of the defective wired conditions above. This tester will work fine on a 30 or 50-amp outlet box by using the proper 20-amp adaptor. When the lights light up correctly you are good-to-go.