6 Invisible RV Safety Threats
This month’s feature article, contributed by electrical safety expert Mike Sokol, is on a safety issue we seldom think or hear about. The topic is RV hot-skin voltages and electrocution. Don’t miss reading this important and informative RV safety article.

20 RV Carbon Monoxide Safety
The other invisible killer is Carbon Monoxide poisoning. Learn what it is and how to prevent it.

27 Calculating Propane Usage
Did you ever wonder if you will have enough propane to last through your planned camping trip?

DEPARTMENTS

4 Editor’s Desk

16 RV Quick Tips – RV Safety
Get some tips & tricks on how to stay safe when traveling and camping in your RV.

19 Stocking Stuffers
Stocking stuffers for that favorite camper on your Christmas list.

25 RV Videos of the Month
Get some travel trailer and 5th wheel trailer backing tips, and if you own an RV with a fiberglass roof learn how to re-coat the roof to a like new condition.

26 RV Insurance Tips
Find out what the top 10 factors are that contribute to your RV insurance rate.
SUPERIOR SWAY CONTROL lets you enjoy the journey

THE ORIGINAL Equal-i-zer® SWAY CONTROL HITCH

For over 50 years the Equal-i-zer® hitch has been providing safe towing for families.

The Equal-i-zer hitch’s superior design makes it the best performing sway control hitch on the market. Four steel on steel friction points (known as 4-Point Sway Control™) and excellent weight distribution – provide unmatched resistance to your trailer’s attempts to sway. That’s the premium performance that keeps families safe, and the premium performance that keeps owners recommending the Equal-i-zer hitch to their friends.

99% of our customers would recommend the Equal-i-zer® hitch to their friends. Why? Because Equal-i-zer hitch’s superior sway control performance helps you reach your destination safely. Don’t trust your safety to a lesser hitch. Get the peace of mind that comes from towing with the best Integrated Sway Control™ hitch available. Get The Original Equal-i-zer Sway Control Hitch.

Tell all of your friends.

“Last year I moved cross-country... across Alaska... to the East coast. [The Equal-i-zer hitch] performed flawlessly through the mountains, on the open road... and even in the tightest of campsites. I have told all my friends they need this hitch for their towing.”

- Devin T., Georgia

Made in the USA

The Secret to the Equal-i-zer® hitch’s Superior Performance is Integrated 4-Point Sway Control™

Call now to get a FREE DVD to see how much safer you can tow with an Equal-i-zer hitch.
(800) 478-5578
www.EqualizerHitch.com

Get Superior Sway Control - Get the Original Equal-i-zer® Sway Control Hitch.
In this special RV safety edition we are going to discuss some safety concerns folks don’t usually think about. The reason we don’t think about these issues is because they are invisible. When you can’t see the threat it is difficult to be concerned about the threat. The problem is these invisible threats can be deadly. I talk about Carbon Monoxide poisoning all the time, and it is more prevalent during the cold winter months. The other invisible safety threat is electrocution and more precisely with RVs, RV hot-skin voltage.

We go camping to have fun. Understanding all facets of RV safety makes our RV experiences more fun. Our goal with this issue of RV Consumer is to bring awareness to these invisible RV threats and what you can do to prevent being a victim.

Enjoy this issue and have a wonderful holiday season.

Mark
Our new digital RV Product Catalog puts all of our RV training products in one place, and we separate which products apply to which type of RV. For example if you own a travel trailer you can browse through the single DVD titles or go directly to the DVD value sets that apply specifically to travel trailers.

This helps accomplish two things; it eliminates the guess work as to which DVD titles go together, and it saves the RV consumer a significant amount of money with our DVD box set discounts. Our goal at RV Education 101 is simple; to help RV owners until they are comfortable operating and using their RV, and to make their entire RV experience safe, fun and stress free. Browse our RV Product Catalog now.

Go where your RV takes you see what’s around that next bend
I don't want to scare or upset folks about safety issues concerning their RVs, but this is important information. While modern RVs are inherently safe, there are still dangerous situations they can't protect us from. I'm talking about the invisible killers, Carbon Monoxide (CO) and Hot-Skin Voltage. I talk about CO poisoning all the time and will cover it more in-depth in another article, but it is caused by incomplete combustion in a flame or gasoline engine. This colorless, odorless gas kills by displacing the oxygen in your bloodstream, suffocating you while plenty of oxygen is available. Placing a generator in a garage or a propane furnace with a fault in the flue causes the death of dozens of homeowners and campers every year.

But what if I told you that over 1,000 people a year in the US alone die from electrocution? Yes, they certainly do. And that's another case where an invisible killer is often taken for granted until the right set of circumstances come along. I've asked electrical safety expert Mike Sokol for a basic primer on what causes RV hot-skin voltage, how to test for it, and basic troubleshooting techniques. This is one article you will want to read and understand and pass the word around the next time you are discussing things with a neighbor at the campground.

I'm not sure that I like the term "hot-skin" on an RV, but that's the name the industry has called it for decades.

Actually it's more like a hot-chassis since that's where the voltage actually starts, and since the "skin" and all metal surfaces in an RV are "bonded" (connected) to the chassis, they'll all have the same voltage. Notice I didn't say "grounded" since that's a term that used too often for many things that have nothing to do with actual "earth ground". But more on that later.

The key to keeping an RV electrical safe is for its "skin" (and chassis) to be very close to the voltage of the earth beneath your feet. That's because electricity needs different voltages on two surfaces for current to flow. And it's the actual current flow that's dangerous, not the voltage itself.
For instance, you can watch birds landing on un-insulated 11,000 volt power lines above your street and they're perfectly safe. This "bird-on-the-power-line effect" occurs NOT because the bird isn't grounded, but because it's only making one point of contact on a high voltage wire. If the bird is large enough to span the gap between two different power wires, then the unfortunate raptor will complete the electrical circuit and vaporize in a puff of burnt feathers. Of course if a bird (or squirrel or even a person) touched a power wire and the grounded metal tower at the same time, there would also be a large current flow and death. But that's really because of the voltage difference between the wire and the ground or the wire and another wire. No ground is actually needed.

Modern home and RV wiring is designed to keep all metal surfaces you're likely to come in contact with at nearly the same electrical potential, within a volt or two of each other. This is accomplished by "grounding" the RV to the incoming electrical service panel's Ground-Neutral-Earth bonding point by a continuous green "ground" wire from the pedestal back to the main service panel. Note that there can be only ONE Ground-Neutral bonding point back at the main electrical entrance panel, and that also bonds (connects) to the ground rod. Any additional G-N bonding at pedestal sub-panels is a violation of code, as is any G-N bonding inside your RV's circuit breaker panel or outlet wiring. So there should ALWAYS be a low-resistance path (less than 1 ohm) from the chassis of your RV, through the shore power connector, extension cords, dog-bone adapter, pedestal outlet, campground distro wiring, and finally back to the service panel connected to the overhead power line transformer. This low resistance connection assures that no matter what happens inside your RV's electrical wiring that the RV's chassis (and skin)
Let's talk dangerous voltages for a moment

While it's the voltage that punches through your skin, it's the current that actually interrupts your heart. You can barely feel 1 mA (milli-amperes or 1/1,000 of an amp) of AC current, while 5 mA will certainly get your attention with a solid shock. Just 10 mA is very painful, and 20 mA of current will cause your all muscles to contract at the same time so you can't let go of a live wire. And 30 mA of current for a few seconds will almost certainly guarantee that your heart will go into fibrillation and stop pumping any blood. Once your heart is in ventricular fibrillation, you'll need someone to begin CPR and restart your heart with a defibrillator using a big pulse of DC voltage to "reboot" it. Without CPR and defibrillation, you'll be brain dead in 5 minutes or so. More on the voltages required to produce these dangerous currents later in the article.

Now I've read hundreds of threads about what causes hot-skin conditions, with incorrect recommendations to drive your own ground rod next to your RV, or that your leveling jacks on the dirt with "ground" your RV, or that little shock and tingles are OK. That's all incorrect and dangerous advice that doesn't follow the national electrical code or the laws of physics. So I'm going to set the record straight right here and now.

1) For a hot-skin condition to occur you first need an open or high resistance safety ground connection between the chassis of your RV and the Ground-Neutral-Earth bonding point back at the main electrical service panel. Most of the time a high-resistance safety ground path caused by an open ground wire connection inside a dog-bone or pig-tail adapter, but can also occur from a worn or damaged pedestal outlet, mis-wired home receptacle, or even a broken or non-existent wire in a campground power feed. I've also found RVs with loose grounding screws in their own circuit.
circuit breaker panel, and at least one of them with a broken ground lug on the back of the shore power twist-lock connector. Your RV's safety ground needs to have a very low resistance path all the way back to the entrance service panel (less than 1 ohm total) to meet national electrical code standards. And no, a ground rod driven into the earth next to your RV will do little or nothing to actually "ground" your RV since a ground rod can have up to 100 ohms impedance to earth and still be code compliant. The ground rod's job is actually to drain away lightning strike currents and keep the local grid's ground voltage close to earth potential.

2) You also need a source of leakage current to electrify the skin of the RV. Now I want to correct a statement I've read time and time again on hundreds of forum threads. Nearly everyone assumes that proper operating appliances don't leak current to their own chassis grounds. But that's completely wrong since virtually ALL electrical appliances plugged into a 120-volt outlet will have some current leakage to their own chassis. But the maximum amount of current is regulated by the UL and the NEC. In fact, there are fancy leakage current meters that measure the maximum amount of leakage from appliances on the assembly line. You'll find that "ungrounded" appliances such as a crock-pot, iPhone charger, or laptop computer will normally develop a "hot-skin" potential around 60 volts even when everything is operating correctly. But because their leakage current is limited by UL standards to less to 0.75 mA, you'll never feel a shock. Just over 1 mA of 120-volts, 60 Hz AC is the lower threshold of feeling a shock, which is certainly not dangerous. However, appliances with a grounded plug can have a maximum of 3.5 mA of leakage current between the power line and chassis and still be within UL and NEC guidelines. Normally that 3.5 mA of leakage current is drained away harmlessly by the safety ground path of your RV.

But if your RV's safety ground path is compromised, then there's nothing to drain away that leakage current and a hot-skin voltage is the result.

3) Those hot-skin voltages come in two flavors, high-current (low-resistance) and low-current (high resistance). Think of a low-current hot-skin as a tank with a very small diameter hose that could only dribble out a small amount of water if the valve was opened.
These low-current hot-skin conditions can be caused by a single appliance inside your RV with normal hot-to-chassis leakage currents. This can be a microwave oven, RV battery converter, refrigerator, television set, or even a computer with a grounded power cord plugged into your RV's 120-volt system. Also note that these appliance leakage currents are additive, so 2 or 3 mA of leakage from your microwave can add to the 2 or 3 mA of leakage from a MOV surge strip (yes, they leak current to the safety ground as well). So, if your RV does not have a proper safety ground path you could feel a tingle from a 5 mA leakage current that could startle you, but isn't immediately life threatening. However, that low-current leakage can easily turn into a high-current leakage at any time and kill the next person touching the RV and the earth simultaneously. See #4.

Note that it's completely possible to trip a GFCI at a 20-amp pedestal outlet while there is nothing specifically wrong with your RV's electrical system. That's because a GFCI in the US only requires 5 mA of fault current to trip so a few appliances with 2 mA of allowed leakage current can cause a GFCI to exceed its 5 mA current threshold and trip. It's also possible to generate a 120-volt hot-skin condition if you have a broken or high-resistance safety ground wire that results from these same low-current leakages adding up from several of your RV appliances, all of which are operating within approved UL leakage limits.

Also note that something as simple as a corroded electric heater element in a hot-water heater can cause a high-current leakage of 1 or 2 amps fault current to flow through the water and into the chassis of the RV. However, if your RV DOES have a proper safety ground path back to the campground's incoming electrical service panel, there can NEVER be a dangerous voltage on the skin or your RV, even if...
your hot water heater is corroded and leaking current or a short-circuit between a wire and your RV's chassis occurs. A hot-skin condition can ONLY occur if your RV's safety ground path is compromised in some way.

4) A high-current (low-resistance) hot-skin condition is typically caused by something like a wire inside the walls of your RV being drilled through by a screw, or pinched by a box cover, or its insulation worn through by hanging on a metal crossbeam. Think of a high-current hot-skin as a tank with a very large diameter hose that could blast out a huge stream of water if the valve was opened.

5) While a ground rod driven next to your RV can drain away a low-current hot-skin voltage, it does not "ground" your RV and will do NOTHING to stop high-current hot-skin voltage.

And putting your leveling jacks down on the dirt will not "ground" your RV at all, contrary to popular belief on many forums. Remember that as little as 30-volts AC across wet hands can induce a 30 mA current across your heart and be deadly. Don't risk your life on a ground rod.
I've read that a number of campgrounds are adding ground rods at each pedestal to guarantee "grounding" they do not mitigate the need for a low-resistance safety ground connection back to the service panel. While the National Electrical Code does allow multiple ground rods, there still must be a ground wire connection back to the G-N-E (Ground-Neutral-Earth) bonding point.

6) A proximity hot-skin test will save lives.
I've pioneered the use of a NCVT (Non Contact Voltage Tester) as a simple and safe way to test for RV hot-skin voltages. In fact, both Mark Polk and I feel it's so important that we've procured ten VP-1000SB testers from Amprobe as giveaways for readers of this article. Read to the end of this article to find out how to win a free NCVT tester.

Here's how to properly test any receptacle for proper voltage, before and after plugging in your RV's shore power plug.

TESTING 1.., 2.., 3....

Test #1 - Ground Voltage and Polarity Check
Use a Non-Contact Voltage tester to confirm outlet polarity and lack of ground voltage before proceeding with any other tests. Start with testing the ground pin first using a NCVT as in the picture below. If you get a beep and red/blinking light while poked into the U-shaped ground hole, DO NOT proceed to any other tests and DO NOT insert your shore power plug into this receptacle. The fact that your tester is showing voltage on the ground wire indicates there's either an open ground with a ghost voltage (not dangerous, but won't ground your RV properly) or there's a reflected hot-skin condition from another campground pedestal (very dangerous, but could be intermittent), or the outlet has been miswired with a Reverse Polarity Bootleg Ground (extremely dangerous since it's a 100% fail that appears to be normal but won't be found by any 3-light tester, Surge-Voltage protector, or even standard voltage metering).
Now check for correct polarity by confirming your NCVT lights up when inserted into the Hot contact, but does NOT light up when inserted into the Neutral contact. See picture below. If the receptacle does not read as indicated below, then it has failed your ground voltage/polarity test. DO NOT proceed to plug your RV into it.

And see the diagrams for the pin-outs of various outlets you'll commonly find in campground pedestals. Anything more than 128-volts or less than 108-volts is real cause for concern.

**TEST #2 - Line Voltage Checks**

Now you can use your volt meter and 3-light tester to see if the voltage is correct. Here are three pictures using a meter to measure a standard 120-volt receptacle.

The only update I need to do is on the 50-amp/240-volt receptacle that could read 208-volts between Hot-1 and Hot-2, and still 120-volts from Neutral to Hot-1 or Hot-2. That's because the NEC has allowed campgrounds to use two legs of 3-phase power for pedestals. All your appliances should
still operate normally since very few RVs in the USA actually have any 240-volt appliances. Your 240-volt incoming power is split into two separate 120-volt services, so all is still well with a 208-volt measurement.

However, it should NOT read 0-volts from Hot-1 to Hot-2 since that suggests there's a bootleg 240-volt outlet with both legs of the receptacle tied to a common incoming wire. That's an easy way to burn up your 50-amp neutral wire, so do not accept a bootleg 240-volt receptacle in a campground's pedestal.

**TEST #3 RV Hot-Skin Test**

If your pedestal or home outlet passes the above tests you can plug your RV into the pedestal or home outlet for a final Hot-Skin Check. (Remember to shut off the pedestal circuit breaker before plugging or unplugging your shore power plug) And you should repeat this hot-skin check any time you feel the slightest tingle from your RV. By touching any metal surface of your RV (hitch, wheels, door frame, metal steps, etc...) with a standard sensitivity Non Contact Voltage Tester (NCVT) you should NOT get a red-light or beep. If you do get a beep at this point, then you most likely have a loose or broken safety ground wire or contact in your shore power plug, extension core, dog-bone adapter, or even your RV's circuit breaker panel.

The takeaway lesson from this article is that you should NEVER feel any type of shock from any appliance or RV. If you do feel a shock shut it down and unplug immediately and get it checked by a licensed electrician or technician. However, note that there's a lot of electricians and technicians who don't seem to understand what causes shock conditions, so if there's any doubt, measure the hot-skin voltage yourself using a NCVT.

If you do get a red-light/beep when touching the skin of the RV it's time to unplug from shore power and re-evaluate the power system starting with the pedestal or home outlet. DO NOT let a hot-skin voltage condition exist and "fix it tomorrow". Unplug immediately and find the source of the hot-skin voltage.
Win a Free Voltage Tester

Here's how to win your free NCVT. Amprobe sent us ten free VP-1000SB Non Contact Voltage Testers. To win one email your answer to the question below to Mark@RVEducation101.com with Amprobe in the subject line. If you're one of the first ten readers to answer the question correctly Mark will contact you for your mailing address and send you a free NCVT. What a great deal! Thanks Amprobe for the free testers.

**Question:**
You can check for correct polarity by confirming your NCVT lights up when inserted into the Hot contact, but does NOT light up when inserted into the Neutral contact of a receptacle.

**True or False**

Come back next month when Mike shows you how to troubleshoot the causes of RV hot skin conditions along with plans on how to build a simple tester to check your RV's chassis plus shore power cords and adapters for a low-resistance safety ground path. See you then.

Mike Sokol is an electrical safety expert with over 40 years of electrical design engineering and technical writing experience. He’s currently a technical seminar instructor teaching all aspects of music production and mixing.

Please take a minute to visit his [NoShockZone blog](https://www.noshockzone.org) at for more electrical safety information, training and articles or email Mike at mike@noshockzone.org with any RV electrical safety questions.

Just like CO poisoning, hot-skin voltages are invisible killers that could take your life or that of a family member, pet or visiting friend. Let's stay safe out there.
Fire Extinguisher Safety
Learn an easy way to remember how to use a fire extinguisher, especially during an emergency. Remember **PASS**, it stands for **Pull, Aim, Squeeze and Sweep**.

- **P** - Pull the pin located at the top of the fire extinguisher.
- **A** - Aim the nozzle at the base of the fire, not at the flames.
- **S** - Squeeze the handle or trigger, standing approximately 8 feet away from the fire. Release the handle if you want it to stop.
- **S** - Sweep the nozzle side to side at the base of the fire until it is out. Observe the fire to make sure it does not re-ignite.

Smoke Alarms
In less than 30 seconds a small flame can turn into a major fire & within a minute the RV can be filled completely with smoke. A smoke alarm can save lives. You may want to install additional smoke alarms in your RV.

- ✓ Test smoke alarms monthly & before each trip.
- ✓ Replace the battery in smoke alarms when you change your clocks for daylight savings time.
- ✓ Instruct everybody in the RV on an emergency escape plan in the event of a fire.

RV Fire Escape
The National Fire Protection agency requires that RV’s have emergency escape windows. Make sure everybody knows where the escape window is located and how to use it. It’s a good idea to practice using it so you are familiar with how to get out of the RV in case of an emergency. You should have an emergency escape plan for the front of the RV and the rear of the RV.
Question:
I read one of your articles on LP gas and one of the bullet points on the dos and don'ts of LP gas said:

* Do not go to a gas station to refuel unless you extinguish any open flames and/or pilot lights and turn LP gas appliances off. Does this mean you have to shut the refrigerator off in your travel trailer if you stop for gasoline for your tow vehicle?

Answer:
Good question, As a safety precaution I strongly recommend you do. It can be a bit of a pain with a travel trailer or 5th wheel, but if you travel with the refrigerator in the LP gas mode there is an open flame and of course gasoline vapors at the gas pump which could result in a very dangerous mixture.

Make sure the LP gas appliance is actually turned off. For example, If you just turn the LP gas supply (cylinders) off the refrigerator will continue attempting to re-ignite a couple times creating sparks which could be even worse. ~ RV 101

For more information on RV safety read some of Mark’s RV Safety articles
How will you Remember your travels?

The laptop we would've used to keep in touch with the kids.

The guy from Ed's Towing. Spent three hours with him.

Cook's Field, the week after we missed the Bluegrass Festival.

Not all insurance is equal. Just because you have your RV insured, doesn’t mean your whole RV experience is covered. Things like personal effects coverage, vacation liability, and towing expenses are frequently left out of other carriers’ policies. But at Explorer RV, we believe it’s more than just your RV we’re covering. It’s the travels, the good times, the memories. Visit us online to learn more or to get a quote.

PROTECTING YOUR RV. PROTECTING YOUR MEMORIES.

Visit www.explorerrv.com to get a quote
RV 101 Christmas Specials

Stocking Stuffers for that Special RVer on your Christmas List

Go Shopping Now

RV Education 101 Christmas Special

Now through 1 January 2014 all single DVDs & DVD Box Sets in our RV training library are 10% off. Surprise the RVer on your list with a gift that keeps on giving.

Merry Christmas and Happy New Year!
We already discussed one of the invisible killers RV owners need to be aware of and the other one is Carbon Monoxide poisoning.

Every year, when the cold weather arrives I like to remind folks about the dangers of carbon monoxide gas. Carbon monoxide (CO) gas is invisible, odorless, and deadly! It is produced by the partial combustion of solid, liquid and gaseous fuels. This includes gasoline, propane, natural gas, oil, wood, & coal.

It is extremely serious when combustion by-products are not vented outside, or when you are exposed to any source of CO gas. Carbon Monoxide is the number one cause of poisoning deaths each year. Carbon monoxide poisoning is toxic and can be deadly to both humans and animals. CO poisoning occurs after enough carbon monoxide gas is inhaled. The severity of the CO poisoning depends on the level of CO gas you are exposed to and the duration of the exposure. The good news is the threat of CO poisoning can be lessened through awareness and education. Let’s take a look at what we can do to prevent the danger of carbon monoxide poisoning, especially when we are camping.

When it comes to RVs and camping carbon monoxide gas usually results from:

- Exhaust leaks from a vehicle’s engine or a generator.
- Improper use of portable gas powered heaters.
- Somebody else’s vehicle or generator when camping in close quarters.
- Malfunctioning or unvented LP gas appliances.

Understanding the threat and some of the causes is the first step to preventing becoming a victim.
First of all, if your RV doesn’t have a carbon monoxide detector you need to purchase a battery operated carbon monoxide detector designed for use in RV’s. Test the carbon monoxide detector every time you use the RV. Replace the carbon monoxide detector batteries when you change clocks for daylight savings time.

Here are some important CO prevention tips:

✓ Inspect the generator exhaust system before using the generator, every time.
✓ Avoid leaving windows down and roof vents open when in close proximity to vehicle and/or generator exhaust.
✓ Follow all directions and safety cautions and warnings when operating gas powered heaters.
✓ If you use a portable generator direct the exhaust well away from the camping area.
✓ **Never** use the range burners or oven to heat the RV!

✓ When cooking with the range burners use the range top fan & leave a window cracked open for fresh air and ventilation.
✓ If somebody in close proximity to you is running a generator ask them to turn it off. They might be upset with your request, but it can save lives.

Next, teach everybody with you how to recognize carbon monoxide symptoms. Carbon monoxide symptoms are similar to flu symptoms, but without the fever. CO symptoms include:

- Dizziness
- Vomiting
- Nausea
- Muscular twitching
- Intense headache
- Throbbing in the temples
- Weakness and sleepiness
- Inability to think coherently

If you or anyone else experiences any of these symptoms take the following action:

✓ Shut the vehicle, generator or source of the CO poisoning down and do not operate it again until it has been inspected and repaired by a professional.
✓ Get to fresh air immediately.
✓ Account for everybody that is with you.
✓ Call 911 for emergency assistance
Do not re-enter the RV
If the symptoms persist seek medical attention immediately.

Understanding invisible safety threats helps prepare you to prevent these threats from harming you and others with you. If you witness a potential safety hazard take a minute to educate others on the threat and how they can prevent it. It may save somebody’s life. ~RV101

Our RV Safety DVD addresses safety issues like: fire safety, emergency escape plans, LP gas, water & electrical safety, emergency weather planning and more.

Watch an excerpt from our RV Safety DVD

Play & Learn RV Crossword

Cold Weather RVing Puzzle
You may or may not be aware of this but lots of RV manufacturers use the exact same key for outside storage compartment locks. If you look closely at your key and it reads CH751 lots of other RV owners, and I’m sure lots of criminals too, have access to all of your personal belongings.

In addition to the criminal threat for locks using CH751 keys most RVs come with a myriad of keys. There are entrance door locks, baggage door locks, bar locks and trigger latches all using separate keys.

Several months ago I ran across a company that offers viable solutions to all these RV key related issues. The company is www.rvlocksandmore.com

Their entrance locks, baggage locks and bar locks are direct replacements for major brands like FIC, Tri-Mark and Southco.

**Note:** Their locks are not associated with the FIC recall

rvlocksandmore not only offers replacements for the common CH751 cams to make your RV more secure, but you can pick your key code and match it to your current Global Link Entrance lock.

What I like is they now have all the compartment cam locks with the removable key cylinders so you can change out all the locks on your RV to use just one key.

Another very cool item is their new LED replacement keys. The small LED light activated by pushing a small button on the key is very helpful when trying to locate the key cylinder in the dark. The LED keys are available in all codes for the Global Link Locks as well as all FIC codes. For more information on securing your RV, replacement locks and keying all your RV locks alike visit www.rvlocksandmore.com
Having the right insurance coverage on your RV is important when you need it. Get a free quote from Explorer RV Insurance.

Get your free RV Insurance Quote

I think it is safe to say that the evolution of RVs in America began with the covered wagon when hundreds of thousands of settlers headed west in the mid 1800’s for the promise of free land, a better life and to fulfill their adventurous spirit.

The western wagon was for the most part a modified farm wagon. They were usually smaller and lighter than a prairie schooner and only required two to four horses to pull it. Actually the early pioneers quickly discovered that horses were not the best option for pulling their wagons out west. Horses couldn’t live off of prairie grass and sage and needed water more often. Oxen and mules became the choice to power the wagons, and more often than not pioneers used oxen rather than mules because they were stronger and easier to work with. The downside was oxen were much slower than horses.

Can you imagine what the pioneers and nomads of yesteryear would say if they saw the way we traveled the country by RV today?
RV Videos of the Month

Enjoy and learn from Mark’s RV videos of the month.

**RV101.TV**
Your premier destination for RV how-to & RV product videos

---

**How to Re-coat a Fiberglass RV Roof**

**Travel Trailer & 5th Wheel Backing Tips**

---

**BatteryMINDer®**
Charger - Maintainer - Desulfator - Conditioners
The Only Charger You Will Ever Need...

800.379.5779 (ET)

---

Tired of dead batteries?
Stop the problem for good with the charger, maintainer & conditioner that Mark uses on all his batteries.

The Battery Minder
Top 10 Factors that Contribute to Your RV Insurance Rate:

As you shop around for the best in RV insurance rates, consider these top 10 factors that contribute to your overall rate.

1. **Location:** Just like with real estate, nothing matters more to your insurance rate than where you store your RV. An insurance company will consider factors such as weather risks and crime rates for the area you keep your RV.

2. **Credit Score:** A higher credit score indicates a higher degree of responsibility and therefore, lower RV insurance rates.

3. **Age:** Older adults get a break on rates so sometimes being older does have its perks. Being married can also lower rates by showing stability.

4. **Deductibles:** Choosing to have a higher deductible will lower your rate while lower deductibles increase rates. However, choosing the right deductible for you is most important. Consider carefully how much money you're able to spend out of pocket in case of an accident.

5. **Driving History:** Insurance companies consider your past driving record, past accidents or tickets, and how many claims you have made in the past.

6. **Owning a Home:** Owning a home means your RV will spend less time on the road and be at less risk, lowering your rate.

7. **RV Type:** Car insurance varies by car and so does RV insurance. Rates change based on kind of RV you own.

8. **RV Use:** How much do you use your RV? Are you a full timer or just a vacationer? The less you use your RV, the lower your rates.

9. **Experience:** Experienced RV drivers often receive a discount based on experience. Be sure to mention your years of experience to your agent when purchasing your policy.

10. **Association Memberships:** Membership in an RV association provides discounts at campgrounds and restaurants and could also provide discounts with certain insurance companies. Check your membership details to see if you qualify for a discount.

*For more information or to get a free quote from Explorer RV Insurance*
Question: We plan to do several days of camping in remote areas, at a time. Is there any way to calculate how much propane we will use?

Answer: There is a way to roughly calculate propane usage. For starters you need to know how much propane is in your RV when it is full. Remember an RV propane tank is full at 80% of its capacity to allow for expansion.

The first step is to multiply your propane container capacity using one of these formulas, (gallons or pounds), to determine the container BTU capacity.

- BTUs per gallon equal 91,502
- BTUs per pound equal 21,548

Next, divide your container BTU capacity by the total BTU demand of the appliances you are using. BTU appliance demand can normally be found on the appliance, or in the appliance owner’s manual. This will give you an idea of how long you can expect your LP gas to last. For example, if your RV propane container holds 14-gallons of LP gas when it’s full, you multiply 14 X 91,502.

The result is 1,281,028. Now divide this figure by the total BTU demand of any appliances you will be using.

Let’s say, for the sake of an example, the total demand will be 43,800 BTUs. In this case you would have approximately 29 hours of usage. However, keep in mind that the amount of LP gas in the container and varying temperatures affect these calculations. This is especially true in cold weather. In temperatures below zero degrees the per hour container BTU capacity will be reduced by 50% or more.

Calculating propane usage can give you a general idea of how long you can use your LP gas fired appliances before you need to find a propane filling station.

~RV 101

Our goal at RV Education 101 is to assist you in learning how to properly and safely use and maintain your RV. Our unique RV Orientation online program puts the RV dealer orientation (walk-thru) class into video format so you can watch it as many times as you like, or need, until you are comfortable using your new RV. RV Orientation Intro
Learn more about our products

For all your RV training needs, we have you covered.
RV Consumer E-Magazine Archives

Did you miss previous issues of RV Consumer e-Magazine? Catch up on all the information packed issues right here.

Happy RV Learning

Go To Archives now

---

Looking for a bargain on some RV training materials? Check out Box Set deals in our Bargain Room.

RV Education 101
Learning RVs the Easy Way with MARK POLK

Americas most popular RV Training Series

Videos, Books, E-books
Looking for a bargain on some RV training materials? Check out Box Set deals in our Bargain Room.
Visit our Sponsors

www.koa.com

www.rvtrader.com

www.explorerrv.com

www.vdcelectronics.com

www.equalizerhitch.com

RV Education 101 Learning RVs the Easy Way

2013 Media Kit
Our goal with RV Consumer E-Magazine is to provide you with helpful information to make all of your RV experiences more enjoyable. I left my position as an RV Sales and F&I manager in 2000 to start RV Education 101.

We produce RV educational videos & DVDs and publish books and e-books on how to safely & properly use and maintain your RV. The reason I left my job was because of my concern about the lack of educational and safety awareness material available to the RV consumer, in other words you.

My wife Dawn left her position in RV sales to help start the company, and is our Sales and Marketing Director. We currently have a 35-foot Class A motor home. We have two boys, Tyler 16 and Josh 22, both avid RVers and three dogs, Roxie, Gracie and Buck. If you would like to learn more about us and about RV Education 101 please visit www.rveducation101.com

RV Consumer E-Magazine, Copyright 2011,2012,2013 Mark J. Polk except where indicated otherwise. All Rights Reserved worldwide. Reprint only with permission from copyright holder(s). All trademarks are the property of their respective owners. All content provided as is. Not all content may be the opinion of the RV Consumer Magazine editorial staff or of RV Education 101. Advertisers are solely responsible for ad content.

To subscribe please visit our sign up page. All RV Education e-publications are opt-in, available by subscription only. We neither use nor endorse the use of spam. Your e-mail address will only be used to distribute RV Education 101 e-news and will never be sold or given to any other entity.

If you no longer wish to receive e-news from RV Education 101 you can unsubscribe in the e-mail notification you receive in your in box.

RV Education 101
150 Bay Ridge Rd.
Harrells, NC 28444
910-484-7615

Contact:
Mark@rveducation101.com
Dawn@rveducation101.com