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NORTH AMERICA'S PREMIER HOW-TO RV RESOURCE

October 2021

Volume 1, Number 8

INSIDE



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Incendiary Information

A fire is about the worst thing that can happen to an RV. To fight a fire successfully, the first thing you need to do is make sure you have the right equipment. The second thing is to make sure you know how to use it correctly. This overview of fire extinguishers will help you meet both objectives.



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Motorhome Makeover

From black streaks running down the sidewalls to bugs and road debris that make the front of an RV look like it's prematurely aged, RV exteriors face a lot of challenges. While there are a lot of products available claiming to restore its original luster, your best bet may be to use the products — and practices — of professional detailers.



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Security Guard

An RV is a home — and just like a brick-and-mortar residence, it needs to be safe and secure. Not surprisingly, the more popular alarm systems are those designed for houses — and when it came time to protect this Keystone Montana fifth wheel, the owner opted for a Ring wireless system that allowed for upgrades.



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Locked When Loaded

With many door locks capable of being opened with a master key and most baggage doors using the infamous CH751 key, your RV isn't nearly as secure as you might think. Fortunately, there are a number of quality replacement locks available for RVs — and a keyless entry door lockset really ups the ante.

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Lippert "reimagines" some typical RV components — from ladders to A-frame tongue jacks — with atypical engineering and design.



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A journey into Palo Duro Canyon in Texas' panhandle produces spectacular memories that took millions of years to create.



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E. Don Smith set his camera on a timer to capture him using a DP half-gallon foam gun to cover the exterior of his 2008 Tiffin Phaeton 36QSH with Chemical Guys Honeydew Snow Foam Extreme during a detailing session.

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Electric Eye

When things go sideways on the highway, a dash cam could be your best friend. Like anything else, though, there are a lot of things to consider before buying one, from resolution to screen size, GPS, installation and audio (or lack of it). We explain your options — then take a look at some of the best dash cams on the market.



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Kicking Back

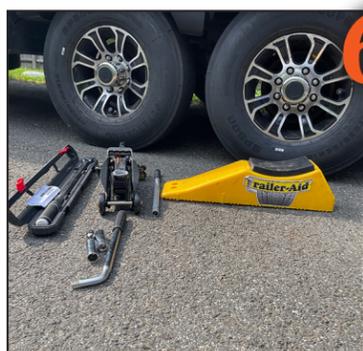
Most RVers choose their unit based upon the floorplan. Sometimes, however, a person's lifestyle changes — but the floorplan doesn't. That usually means trading it in — sometimes at a loss — for one that meets your newfound requirements. A smarter solution just might be to revamp the living space. Here's how one owner accomplished it.



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Trailer Tire Troubles

Special Trailer (ST) tires seem to be failing at an alarming rate. Who — or what — is to blame? As we discovered, those aren't easy questions. The situation is further complicated because there's always at least a possibility that operator error contributed to the failure. The best defense is to be proactive in monitoring your rolling stock.



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Flat Out

Changing a tire on a travel trailer or fifth wheel isn't the same as on a car or truck — you can't just whip out a jack, lift the trailer and slip on a spare. That's not to say it's an especially difficult task — but the process is different. With the right tools and equipment, however, you can be back on the road in no time.

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RV Costs Are Climbing — for a Lot of Reasons

By Bruce Hampson

In normal times, the streets, parking lots, vacant fields and many RV production facilities across Elkhart County, Indiana, would be awash in towable and motorized RVs in late September as manufacturers, suppliers — and, most critically, dealers — came together for the annual Elkhart County Open House. Begun in 2008 during the Great Recession by Forest River CEO Pete Liegl as a way to celebrate and cement the company's relationships with its dealer network at a time when RV sales were in the toilet, the event snowballed as more and more RV builders joined the fray, ultimately transforming it into the largest RV show in North America.

These, though, are not normal times. For the second consecutive year, September's event was cancelled out of an abundance of caution due to the COVID-19 pandemic, leaving OEMs to host individual showings for those dealers who still wanted to visit the RV-building Mecca and tour 2022 models.

While Open House is a trade show and isn't open to the public, it's also where the media gets its first glimpse of new models and innovations. *RV Enthusiast* visited a number of manufacturers during the September 27-30 event, speaking with RV company presidents, general managers and product managers — and we came away impressed. While 2022 models were expected to feature naught but simple upgrades for the most part as the industry works to chip away at backlogs that, for some manufacturers, extend out for a year or more, many OEMs nonetheless debuted new models and unique floorplans that are sure to command the public's attention when they hit dealer lots in the coming months. While some can be found in the 2022 *New Model Year Guide* produced through a partnership between *RVBusiness* and *RV Enthusiast* magazines (go to <https://rventhusiast.com> and scroll through the top frames to locate it), RV builders historically hold back truly eye-opening units to debut at Open House. These will be showcased within the pages of *RV Enthusiast* magazine in the coming months.

While speaking with the various product managers about these and other new-model-year RVs, however, we also learned how difficult it was in the current environment for OEMs to simply build RVs while trying to hold the line on price points. I live in Elkhart, so I'm familiar with the impact certain product shortages is having on the industry — manufacturer campuses across the county are filled with units awaiting specific components. However, the problems go far beyond an inability to receive enough air-conditioners or TVs. And, again, it can probably be traced back to the pandemic.

Why? Because American households have taken to the Internet in droves to order everything online from electronics to paper towels. Plus, the government's additional unemployment benefits meant that many households under quarantine had more money than before — and with nowhere to go, it was being spent online. According to Reuters, households accumulated at least \$2.5 trillion in excess savings during the pandemic — and consumer spending grew at a robust 12% rate in the second quarter. And most of the products being ordered are made overseas.

This has created a double-edged problem. First, space aboard container ships from Asia is now at a premium — allowing shippers to dramatically raise rates. According to one GM we spoke with, the same 40-foot shipping container that cost \$3,500 two years ago to ship from overseas to Amer-

ican ports currently costs as much as \$35,000. Secondly, those shipments — and all those Internet deliveries to your homes — have revealed a headache the trucking industry has grappled with for years: a shortage of drivers. Consider what's currently happening at the Port of Los Angeles/Long Beach, California, the largest port in North America. Normally, six or seven container ships would be moored outside the port awaiting unloading; in mid-September, that number grew to a record 72 ships.

And that's when OEMs can even get the necessary product. Sometimes those containers aren't headed to Elkhart.

"Just chasing material has become a full-time job," another GM told us. "In the past, labor was the number one concern that we faced as an industry. Today, it's material procurement — and that also creates labor challenges as we are continually having to catch up on units in the yard or invest in longer hours or on the weekends. It affects everything."

And, while most of us tend to associate product shortages with things like refrigerators and washing machines, many of these products in short supply are the actual building blocks of RVs.

"Most of the products we build have full-body paint, so it gives us the ability to diversify," said another company executive when speaking to the dearth of available exterior fiberglass paneling. "If it's white glass, tan glass, gray glass... if it's gelcoat, we're going to take it, because we're going to paint over it. The problem comes when you don't paint the glass and you have to have that same color. Then we're in a different world."

The lack of fiberglass was perplexing to yet another GM. In this instance, he spoke of an inability to procure an adequate amount of fiberglass insulation. As is often the case with products that are the same whether used in a traditional home or an RV, it's not uncommon for a builder to augment its supply chain with products found on the shelves of local home-improvement stores — but that's a short-term solution. Rather than allow the insulation shortage to curtail production, this GM discovered a company with a product similar in concept to the spray-on insulation used in houses. To his credit, the GM was able to locate a new supplier with a readily available product equal to or exceeding the performance of what was already in use — but that's not always the case.

Even when it is, the consequences of having to change suppliers include the time lost while training the workforce to install the new product and the additional cost these replacements often demand. No RV OEM wants to "devalue" a popular product line by swapping an unavailable component with a cheaper one that's more readily accessible. Unfortunately, neither can a builder always absorb all the costs of an unforeseen upgrade; some are, out of necessity, passed on to the consumer.

I can't imagine the frustration level of an RV general manager or product manager trying to keep a handle on costs in today's environment. Their jobs might seem straightforward enough — design and build (with your team) the best product imaginable at price points that are attainable and stable — but right now, it's about as easy as an 8-second bull ride. The next product to be in short supply in Elkhart County may very well be stomach antacid.

Keep this in mind when you're shopping for your next RV.

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Ember RV Debuts New Adventure Trailers



No doubt every RV manufacturing company on the planet was probably started after its founders looked at what was available in the industry and said, "We can do better." Some succeeded, others didn't. Based on its initial product launch in late September, Ember RV looks like it's going to make an impact in a big way.

Founded by respected industry executives

Ashley Bontrager — who will be the first woman to head an RV company as CEO — Vice President and COO Chris Barth and Operations Directors Ernie Miller and Steve Delagrange, Ember RV was established earlier this year in Bristol, Indiana and will shortly be moving into a new 87,000-square-foot facility on 87 acres.

At the outset, Ember RV will be

building two product lines: Overland and Overland Micro, both aimed at the growing adventure trailer market. Centerpiece to the brands is a unique chassis constructed of heavy-duty reinforced steel tubing instead of a conventional I-beam frame for additional torsional stability. Designed specifically for Ember, the chassis utilizes a new integrated CURT independent suspension system; the axle-free design features road-damping shocks and cushioning springs. Up front, a new VersaCoupler hitching system fits a wider variety of tow vehicles with less need for adjustment; it also allows owners to add articulating hitches. There's also a new parking brake system that eliminates the need for traditional wheel chocks.

The Overland will initially be available in five floorplans from 20 feet, 6 inches to 22 feet, 6 inches, while the Overland Micro is available in two 12-foot, 8-inch configurations: the ROK and the ROL. The designations highlight the differences between the two: ROK will feature a well-equipped rear outdoor kitchen with a galvanized-steel countertop and pull-out griddle shelf, portable 12-volt DC/120-volt AC compact fridge/freezer combo and 12-volt DC TV with Bluetooth soundbar. In the ROL, that space is utilized as an outdoor storage locker.

More information on Ember RV's unique construction, interiors and floorplans can be found at <https://www.emberrv.com>.

Cummins Debuts Onan Generator Control System

"America's Largest RV Show" — otherwise known as the Hershey show — in Hershey, Pennsylvania, is historically the first big RV show of the season. Not surprisingly, the September program tends to feature a number of brand-new products — and that includes components as well as RVs. At September's show, there was a crowd around the Cummins display as the company introduced its new EC-AGS+ (Energy Command Auto Gen Start) wireless control system for Onan diesel- and gas-generators that allows users to control their generator by utilizing an app on a mobile device.

The wireless control enables automatic-, manual- or voice-activation to start the generator, receives mainte-

nance reminders within Bluetooth range and allows for climate monitoring.

Compatible with virtually all Onan "green" generators — including the Quiet Diesel and Quiet Gas gensets — the kits include the EC-AGS+ gateway, temperature sensor, power harness and Y-harness. According to company reps, installation is easy — just plug the EC-AGS+ into the generator and attach to the battery, then download the app. Once preferences are set, the EC-AGS+ autoruns; the app also delivers a fault code that explains any issues. For more information or to order the \$349.99 kit, go to <https://www.cummins.com/generators/motorhome-and-rv/wireless-rv-auto-generator-start-system>.

You Meet the Coolest People at an RV Rally

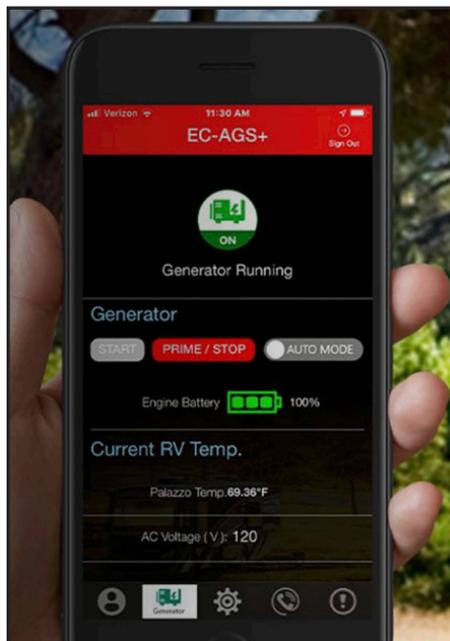


RV rallies — especially "national" or "International" rallies — have a lot to offer participants. There's the opportunity to hook up with friends you have met elsewhere — perhaps even at the same rally in prior years — and partake of numerous technical seminars. Some — such as the Forest River Owners Group (FROG) International Rally and the Grand Design RV National Rally — even provide free tech service to registrants.

At this summer's Grand Design rally — which, like the FROG program, was held at the Elkhart County 4-H Fairgrounds in Goshen, Indiana, a "home port" of sorts for Elkhart County-based RV manufacturers — we also met up with Cindy Heisler. Cindy and her husband, Chris, travel the country in a beautifully wrapped Grand Design Momentum toy hauler as caretakers of the U.S. Honor Flag.

Shortly after the Sept. 11, 2001, attacks, an American flag and a Texas flag were gifted to Chris Heisler by the Texas House of Representatives as a "thank you" for taking Texas first responders to Ground Zero. The flag traveled with Heisler to Ground Zero, and has since become a symbol of America's fallen heroes. It was officially named the U.S. Honor Flag in 2008, and the parent non-profit organization The Honor Network was founded. (Go to en.ushf.net for more information.)

"It's traveled the country and even into space to honor America's heroes," said Cindy Heisler. While the U.S. Honor Flag did not accompany the Heislars to the fairgrounds — "It's on its mission of honoring a hero and arrived in Tampa, Florida, last night to honor Florida Highway Patrol officer Sean Hryc at his funeral," Cindy told us — the Heislars led a flag ceremony on the grounds during the event.



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KZ RV Celebrates 50th Anniversary



In 1972, Daryl Zook and his uncle, Sam King, started building truck campers. Travel trailers soon followed — and the KZ brand was established. That was nearly 50 years ago — and the company, now ensconced within a 530,000-square-foot campus in Shipshewana, Indiana, continues to build 12 towable product lines under the KZ RV and Venture RV brands.

In celebration of this milestone — few manufacturers can boast of having built

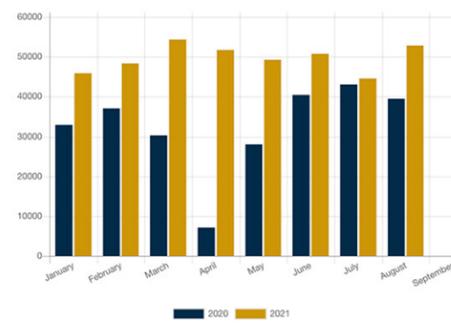
RVs for a half-century — KZ is producing a special “anniversary edition” of its Sportsmen travel trailer. Introduced by KZ in 1972, the Sportsmen series is one of the company’s most popular lines. The 2022 Sportsmen 50th-anniversary edition will include a climate package, solar roof prep and “modern farmhouse” interior, with a number of options including heated and enclosed underbelly, fireplace and tri-fold sofa.

“Our 50th anniversary is the ideal

time to debut these features,” Product Manager Nick Francis told the trade journal *RVBusiness*. “It’s a celebration of the innovation KZ has demonstrated in the past — and will continue to implement for years to come.”

Wholesale RV Shipments on Record Pace

Total Shipments Monthly vs. Last Year



According to its August 2021 survey of manufacturers, the RV Industry Association (RVIA) reported a total of 52,819 RVs were delivered to dealers for the month — an increase of 33.8% compared to August 2020. The total represented a monthly record for August and is the second-most units shipped in any month on record.

The growing popularity of the Class B motorhome market was reflected in the August report. A record 1,442 Class B units shipped. Towable RVs, led by travel trailers, ended the month up 34.7%, while motorhomes finished the month up 25.5% compared to August 2020, with 4,930 units shipped.

Through August, the industry has shipped 397,623 RVs to dealers, compared with 258,591 shipped during the same time last year.

Highland Ridge Adopts Smart RV System



Interior of Open Range Roamer fifth wheel

Control systems for RVs are one of the most popular additions of late, allowing owners to monitor and control a variety of operations via mobile device. The latest company to adopt the system is Highland Ridge RV, which is including the TravellINK Smart RV System by BMPRO on several 2022 models.

TravellINK allows for control of awnings, lighting, slideouts, heating, leveling, cooling and other functions by mobile devices utilizing Bluetooth. The TravellINK app can be downloaded from the Google Play or Apple App Store.

The TravellINK system is available on Light travel trailers and fifth wheels, Roamer XLT fifth wheels and full-profile travel trailers and fifth wheels.

Cortes Campers Introduces 17-foot Travel Trailer

In early January, US Lighting Group announced plans to enter the RV manufacturing market by establishing Cortes Campers. According to company officials, the campers and travel trailers would offer “exceptional weight, strength and thermal properties” due to their honeycomb monoshell core made from biaxial aluminized fiberglass material and carbon fiber, and feature Armorcote 991 Series marine-grade gelcoat exterior colors.



In June, the Cleveland, Ohio, company officially went into production with its first model, a 17-foot travel trailer. Built without wood, the lightweight RV features floorplans with double bed or twin-bed arrangements and a host of Furrion appliances, double-pane windows and Timbren axle-less independent suspension. The body consists of an exterior

layer of molded fiberglass, an inner honeycomb core and an interior layer of molded fiberglass. The net result is said to make the Cortes a true four-seasons coach that, added a company representative, “is immune to corrosion, rust and rot.” For more information, visit <https://www.cortescampers.com>.

continued on page 66

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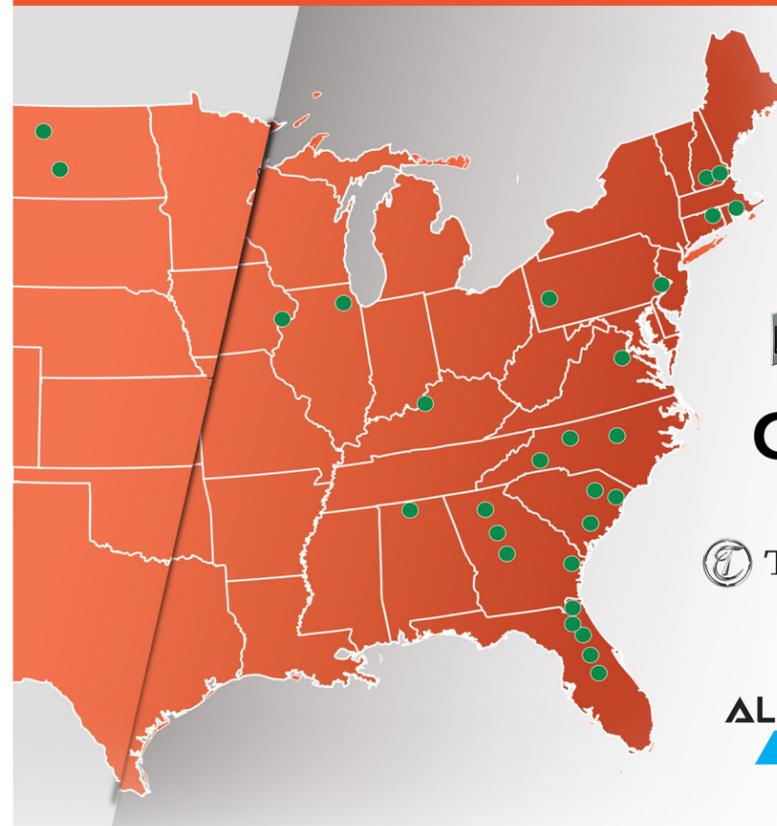
The Campers Inn RV Story

Campers Inn RV began in 1966 after founders Art and Fran Hirsch had a poor experience at an RV dealership. After years of camping in a tent, the Hirsch's saved up some money and decided to find something more comfortable. They gathered their three kids and headed to a local dealership. But when they arrived, the salespeople were more interested in playing cards than helping them find an RV.

Art was furious. He was wearing clothes from his job as a mold maker, and he felt the salespeople judged him by his appearance. They left angry and empty-handed. On the way home, they decided they could do a better job themselves. They pooled together the family's savings and began selling RVs out of their front yard in Acton, Massachusetts.

Campers Inn RV continued to grow over the next five decades, and we are now one of the largest RV dealership groups in the United States. We are still operated by the Hirsch family, and we remain dedicated to connecting families of all backgrounds with the RV lifestyle and helping them find their "away."

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A Host of Gadgets for Easing Entry/Exit of a Pickup Bed, Enjoying Beverages Campside and Making Short Work of a Dirty Job

By Bob Livingston / Photos by author



Stake Hand provides a secure handle to grab when climbing in and out of a pickup bed. Mounted in the rear stake pocket, the handle provides plenty of support.

There's a world of difference between a gadget and a gimmick. Both attract attention, but a gimmick is more of a ruse — it grabs your attention (and maybe your wallet) but proves to be of little real value. Gadgets, on the other hand, tend to be inventions with a purpose, designed

to help make something you do either quicker, faster or easier. There is an abundance of both in the RV industry — but here are three products that definitely fit within the “gadget” parameters. We tried each of them out and found each enhanced a certain aspect of the RV lifestyle.

Hold On: Hatchlift's Stake Hand offers a good grip when climbing into/out of a pickup bed.

Climbing into a pickup truck bed can be less than graceful. Major truck manufacturers, like GMC/Chevrolet and Ford, finally figured this out and now offer unique tailgates that unfold, and/or have bumper cut-outs for better footing when stepping into and out of the bed. There are even add-on steps available in the aftermarket that facilitate safe boarding. But what about all the millions of owners who don't have pickups with such features?

Hatchlift Products, a Colorado-based company which specializes in high-quality struts for compartment doors and mattress platforms, has developed a gizmo called the Stake Hand that lends a helping “hand” when climbing into and out of the pickup bed. It's simplicity personified — and is one of those “why didn't I think of that” products.

The device is a 13 1/2-inch, straight metal handle that slips into a special-designed receiver mounted in the stake pocket at the rear of the bed rail. It provides a stable handle to hold on to while stepping on the bumper and over the tailgate to reach the bed. Without such an aid, users must grip the tailgate, which can be awkward and unsafe, lower the tailgate and climb on butt first — or use a step stool.

The Stake Hand is designed to fit most trucks with rectangle stake pockets (holes) in the bed rails — you know, those holes that most people never use. Compatible stake pocket openings will have dimensions of either 1-3/4 x 2-5/8 inches or 1-3/8 x 2 inches. There is one slight caveat: Many trucks now have bed rail covers, generally made of plastic, which means the receiver portion of the kit will not be able to snug tightly against the metal bed rail. It's best to trim the bed rail cover to allow the receiver to seat against the metal, but we installed it on top of the bed rail cover. Doing so presented some play when pulling on the handle. Although this feels somewhat disconcerting the first time out, the receiver is still attached to metal and offers plenty of support. We were somewhat hesitant to trim the bed rail cover until checking out



The large capture plate was used for this installation. Usually the first step entails assembling the receiver, gasket and capture plate, working it into the stake pocket and positioning under the bed rail. Here, because of the bed rail cap, the capture plate is worked into the stake pocket first and held in place through a nearby hole in the bed.

whether this handle will work as advertised; since it met expectations, we will now trim the plastic using a Dremel tool and cutting wheel.

Installing the Stake Hand is very easy, but it takes a little finesse to manipulate the parts. For the 2016 Ram dually we used to test the product, we needed to employ the large capture plate. For trucks without a rail cover, the first step entails loose assembly of the receiver, gasket and capture plate. A long bolt is threaded into the plate using only a few turns. While holding on to the bolt, one corner of the capture plate is pulled up while pushing the opposite side under the lip of the stake pocket. A tie-down strap hole in the receiver must face the inside of the bed. The hole is used to attach the S-hook of a tie-down strap through the receiver, offering a convenient attachment point when strapping down cargo. This is an add-on benefit that has no bearing on the use of the handle and is only designed for light-duty use.

The next step is to wiggle the capture plate until it is completely under

the lip of the stake pocket. After loosely inserting the other bolts, the receiver is tightened against the rail. For the test installation with the rail cover, the capture plate was inserted first and the receiver bolted in after lining up the two parts, which took a little more patience.

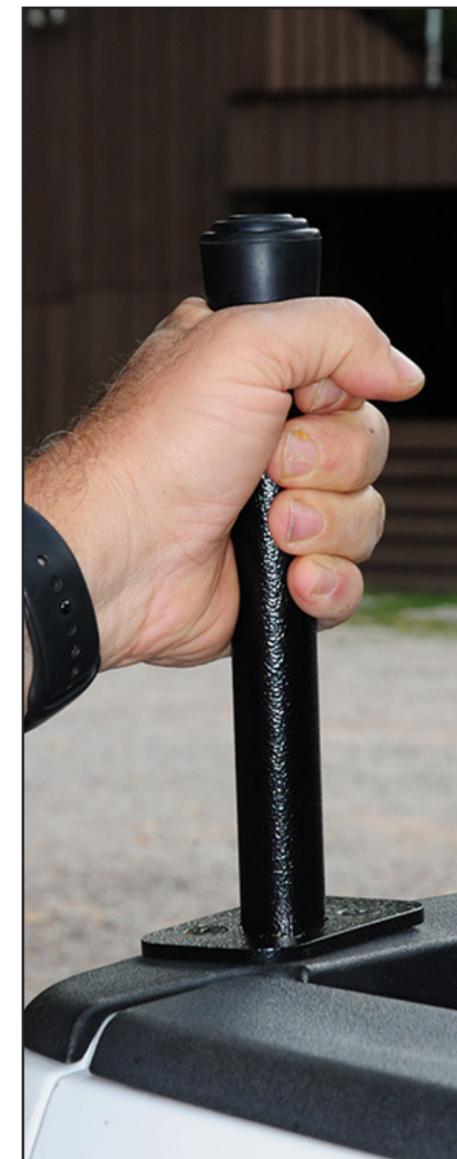
To use, simply insert the handle in the receiver and hold on while climbing aboard. A word of caution: The handle protrudes 8 1/4 inches above the bed rail, so you must remove it before attempting to hitch up a fifth-wheel trailer or your day will be ruined.

As with other Hatchlift products, the Stake Hand exudes high quality workmanship. Two snap-in brackets are provided with the kit for those who wish to mount the handle in a convenient location on the bed wall. The only maintenance is to apply a coating of linseed oil inside the tubes to prevent rusting.

Once you rely on the Stake Hand handle to get in and out of the truck bed, you'll wonder how you lived without this device.



The receiver and gasket are carefully lined up and one bolt is threaded into the capture plate. With the holes lined up, the other bolts are then threaded into the capture plate. All four bolts are tightened and the job is done.



The handle is inserted into the receiver when needed and provides 8-1/4 inches of grip. Since it was installed without trimming the rail cap, it has some play, but since the capture plate is against the metal under the bed rail, there's plenty of support. Later, the rail cap will be trimmed to allow the receiver to seat against metal. Trucks without rail caps will not have to deal with this step.



The kit comes with two clips to store the handle that can be attached to the side of the bed in a convenient location

Liquid Refreshments: This Zarcor Universal Drink Holder really works

Sitting on a camp chair, relaxing with a cold drink in your hand, presents the age-old problem of what to do with that glass between sips. Cup holders are everywhere — including in a tow vehicle, motorhome and even in couch arm rests — but I've found that those on camp chairs are usually for show only. Most of the time these flimsy fabric or thin plastic cup holders end up toppling the drink and have limited versatility when it comes to cup size. Zarcor, an accessory company out of Addison, Texas, offers a Universal Drink Holder that solves all the inherent issues associated with a chair-mounted apparatus. It's stout, can handle just about any type of bottle, can, cup or even wine glass, and it's attached to a gimbal that prevents accidental spilling.

Mounting the Universal Drink Holder is a no-brainer: No tools required. A hanger pad is simply attached to a convenient spot on the chair using the integrated wing nut clamp similar to those used on automotive hoses. The clamp is opened and wrapped around a suitable rail/tube — typically one that's part of the folding operation of the chair — and the wing nut is tightened. It's best to leave the clamp somewhat loose, attach the cup holder and make adjustments while sitting in the chair and holstering your favorite cup. Once a comfortable location (one that is easy to reach without adverse calisthenics) is



The Zarcor Universal Drink Holder can accept just about any can, cup or bottle; it can even cradle wine glasses with long stems.



A round extrusion, mounted to the hanger pad, provides the mechanism for attaching the cup holder.

set, the wing nut is tightened to prevent most movement. That's it — you're done.

The cup holder is made of strong plastic and slides on the extruded round fitting attached to the hanger pad, which means it can be easily removed before storing folding chairs in a bag. When seated, the holder is able to rock back and forth, but cannot be dislodged from the hanger without a purposeful upward movement. The gimbal arrangement compensates for any unlevel mounting position of the hanger, keeping the drink vessel in a vertical attitude and preventing spills.

A unique design, using upper and lower slotted round arms, provides a universal platform for the cans, bottles or cups while also allowing wine glasses to slip in and be stabilized. It's a clever design and maybe the best such device on the planet. After years of service on folding chairs, the Zarcor Universal Drink Holder has proven to be extremely durable. It's been tossed around and squashed among other heavy items in the storage compartment and only one time was the hanger pad damaged — when an overly frisky dog crashed into the chair. Replacement pads are available for \$4.95. Cup holders, with the hanger, are available in white or black and sell for \$24.95 — and are made in the USA.

The word, "universal" seems to be thrown around too much these days, and in many cases is just advertising hype, but this description rings true with the Zarcor drink holder. It's easy to hang out under the awning with a cup of coffee by your side, change to a soda can later in the day and slide in a wine glass in the evening, without making any adjustments. Outside couch potatoes rejoice.



The hanger pad is attached to a convenient location on the chair using a hose clamp with a plastic wing nut, eliminating the need for tools.



When installing, it's best to leave the hanger pad loose enough to be moved, allowing perfect positioning of the cup holder while sitting in the chair. Once set, the hose clamp can be tightened.



Gimbal features means the holder will remain vertical and keep cups from being thrown out if accidentally bumped. It can handle large coffee cups with aplomb.

Poop Goes the Weasel: Black tank pyramids are no match for the Camco Swivel Stik

Dumping a black holding tank is not rocket science, but it does conjure up fears of getting that nasty stuff on your hands or ground — which plays right into the best campfire stories. There are a number of techniques on how to clean these tanks circulating on the Internet, but one thing is for sure: preventing the dreaded "poo pyramid" inside the tank is crucial to a free-flowing system and odor control. Camco's RV Flexible Swivel Stik a must have accessory to carry in your tool arsenal that will help keep black tanks clean.

Many black holding tanks these days are fitted with a built-in flushers, which should be used every time the tank is emptied. These systems use a spray nozzle, usually mounted to the side of the tank, and are connected to a hose that forces water through a rotating nozzle inside the tank. But while the tank flusher gets much of the contents to flow out the dump hose, there are times when it's just not enough to thoroughly clean the tank — and owners of RVs built without this feature can find themselves in an even more precarious situation.

The Swivel Stik is available with a solid or flexible shaft, depending on how the toilet is connected to the tank. If the toilet is mounted directly over the holding tank, the solid version is needed; when the tank uses a curved connector pipe, the 55 1/2-inch flexible model does the trick. For this evaluation, the Flexible Swivel Stik was needed.

There's nothing fancy about this product. It's connected to a water hose and routed into the tank through the toilet valve. (Always dedicate a hose for this purpose; it's not safe to use a drinking water hose that will also be

used to hook up the RV to an outside source.) On one end of the Swivel Stik is the threaded hose fitting with an on/off valve and on the other is a nozzle that provides a strong rotary spray of water necessary to dislodge solids in the tank.

To clean the tank, the contents are first dumped in the normal manner. If you have a tank flusher, use before the Swivel Stik. Once the tank is empty, leave the discharge valve open and insert the Swivel Stik through the toilet valve as far as possible. You'll need to keep the toilet valve open (turn off water source), engaging the flushing lever by hand or foot, depending on the toilet model. Allowing the toilet valve to snap shut on the Swivel Stik tube may damage the valve. Move the lever to the "On" position and let the rotary spray nozzle do its thing.

While it may seem redundant to use the built-in tank flusher and the Swivel Stik, our testing revealed that the latter will remove leftover solids that did not make it out during the initial tank rinsing. This was verified by having a helper watch the flow of contents through a clear fitting while the other person managed the Swivel Stik in the bathroom.

Those RVers who are on the road and only stop for a few days to a couple of weeks may only have to use the Swivel Stik just before storing the rig. Using plenty of water when flushing and agitation on the road usually will keep the tank flowing without clogging. Final rinsing with the Swivel Stik will ensure the tank is clean and ready for use during the next outing.

Owners who stay put for long periods of time may find that the lack of agitation inside the tank may create an unwanted build-up of waste, which will impact the flow during dumping and lead to a noxious odor. Full timers should consider using the Swivel Stik once a month and have the tank profes-

sionally pressure washed annually.

Although the Swivel Stik folds up for easy storage, keep in mind that it's used in a very unsanitary environment, so use disposable gloves and clean it thoroughly with a throw-away rag or paper towel with a disinfecting solution before placing in any compartment. The Camco RV Flexible Swivel Stik is available at Amazon for around \$25, or from most RV supply stores.



A brass rotary fitting at the end of the wand throws a strong spray pattern of water, specifically designed to clean black water holding tanks. A hose is attached to the end of the wand with the on/off valve. This valve makes it easy for one person to control the water. Never use a hose that provides city water service to the RV; it's best to dedicate a hose for cleaning the tank.



The Swivel Stik is routed through the toilet valve (turn off city water source) into the holding tank via the connecting pipe. Holding open the flushing mechanism during the cleaning process will prevent damaging the toilet valve. **RVe**



Swivel Stik folds in half for easier storage. Keep in mind that this wand must be cleaned and sanitized before storing. We discovered that it fit perfectly inside the dump hoses stored in the bumper. When opened, the wand is 55 1/2 inches long. This flexible version is designed for cleaning holding tanks that are not directly under the toilet.

Sources:

Zarcor
(800) 877-4797
zarcor.com

Camco Manufacturing
(800) 334-2004
camco.net

Hatchlift Products
hatchlift.com

Incendiary Information



A fire is about the worst thing that can happen to an RV. Make sure you have the right equipment — and know how to use it

By Bill Stewart

No one likes to think about the possibility of fire in their RV, but accidents happen — and in the confines of an RV, a small fire can mean big danger in just seconds. A fire extinguisher should always be on hand, but the question is: Do you have the right one, and are you prepared to use it?

Know, too, that fire extinguishers are not like fine wine — they *do not* get better with age. You must inspect your fire extinguisher every month and it's recommended that a tag with the inspection date is attached to each extinguisher (you'd be surprised how fast a month goes by). Even if the pressure has not leaked down, after a few years dry chemical compound may pack up to the point where the fire extinguisher will not perform when needed.

Every year we all hear and read of RVs that were damaged or destroyed by fire. The damage occurred because the occupants were unable to stop the fire from spreading. Perhaps they were not in or around the unit when the blaze began, or perhaps an explosion forced them to flee to safety. However, if you are in or sitting outside your RV when a

fire starts, there are ways to safely fight the fire and perhaps save your RV. I remember when I was in grade school we would have fire drills. Like those drills in school and in offices, a surprise drill can be exercised to practice getting everyone out of the RV, operating the emergency exit window, unclasping the fire extinguisher and determining a designated area of where to meet. The fire department should be notified as soon as a fire is discovered, of course.

Frequently, though, an RV can be saved and/or damage minimized if you have access to the proper fire fighting equipment — and if you possess the knowledge and strength to use that equipment while waiting for the fire department to arrive. Just remember: the most important goal in fire fighting is the protection of human life. No matter how much you value your RV, do not endanger your safety or that of others if you are ever confronted with a fire. You can always get another RV, but you can't get another you.

Although RVs come equipped with fire extinguishers, some owners either replace or supplement the original fire extinguishers with one or more additional units. But if the new fire extinguishers

are not of the correct type or size, they can result in a false sense of security. You may not know it, but the NFPA 1192 standards for the size and type of fire extinguishers required in RVs have changed. The old standard stated that towables were to be equipped with a 5BC fire extinguisher and motorhomes were to be equipped with a 10BC



Fire extinguishers must be mounted within 24 inches of the entry door of any RV.

extinguisher — but now all RVs should be equipped with a 1A-10BC extinguisher. All RVs should be equipped with at least one 1A-10BC extinguisher, mounted within 24 inches of the main entry/exit door. Adding extinguishers to other areas, including sleeping areas, the galley, outside kitchen and an outside storage compartment should be considered.

So what is the difference between the above fire extinguishers? Thought you'd never ask.

Fire Extinguisher Size Ratings

You will come across fire extinguishers with different nomenclature on them, for example, one labeled 2A:10B:C. The numbers indicate the size rating of each extinguishing agent. Here's how to decipher them:

- The Class A size rating represents the water equivalency. Each number represents 1 ¼ gallons of water. For instance, 2A means the extinguisher is just as effective as 2 ½ gallons of water.

- The Class B size rating indicates the square footage the extinguisher can cover. 10B means that as long as you sweep the nozzle side to side, there is enough extinguishing agent inside the canister to provide 10 square feet of coverage.

- There is no size rating for Class C. A Class C electrical fire is nothing more than a Class A or Class B fire with energized components requiring a non-conductive extinguishing medium. To effectively fight Class C fires, choose

fire extinguishers based on the Class A and Class B size ratings.

Know, too, that dry chemical extinguishers can make a considerable mess when deployed. The dry chemical extinguishing agent can be corrosive and may damage the very objects that you are trying to protect. Cleaning the objects as quickly as possible after the fire is out will limit the damage.

Use and Maintenance

As with any other safety equipment, fire extinguishers require periodic inspections and maintenance. Examine the fire extinguishers regularly to ensure that they have not lost pressure. Visually inspect them to confirm that they are not physically damaged and that the nozzles are not plugged by insects or dirt. A dry chemical fire extinguisher should be turned upside down periodically and shaken, thereby preventing the extinguishing agent inside to pack at the bottom, which could render it useless. To determine whether the pressure remains satisfactory, check the pressure gauge or test pin. Do not "test" the unit by partially discharging it. This will cause most dry chemical units to lose pressure completely, thus requiring recharging or replacement. If you discharge any fire extinguisher, even momentarily, you need to have it professionally examined immediately — or just replace it. Yes, larger units are expensive and well worth maintaining, but most RVers tend to equip their units with several smaller extinguishers



Shown for comparison are an ABC (4-A, 80-B, C) extinguisher and a BC (5-B, C) extinguisher. The symbols on the front indicate the type of fires this extinguisher is designed for.

which can be purchased for about \$20 each.

Finally, a fire extinguisher is of little or no help if it is not used properly. This means that all potential users should know how to operate it. Follow these steps to make sure you're ready to use your extinguisher:

- Periodically review the instructions printed on the fire extinguisher. You will not have time to read these instructions when you need to use them.

- Be sure you can manipulate the device. Although large units are available, it's useless if it is too heavy to be maneuvered into place and utilized. Most RVers, however, tend to locate smaller extinguishers in various locations inside their units with perhaps a larger 10-pound bottle kept in outside storage.

- Keep it accessible. A fire extinguisher is useless if you store it out of reach in a closet or cupboard and consequently cannot grab it quickly.

- Consider purchasing an extra extinguisher to be used as a training tool that can be used to practice extinguishing small fires that have been started in a safe location, such as a fire pit. The knowledge gained from this experience will be far greater than the purchase price of the fire extinguisher. Be sure to follow all fire safety rules during this

A		Ordinary Combustibles	Wood, Paper, Cloth, Etc.
B		Flammable Liquids	Grease, Oil, Paint, Solvents
C		Live Electrical Equipment	Electrical Panel, Motor, Wiring, Etc.
D		Combustible Metal	Magnesium, Aluminum, Etc.
K		Commercial Cooking Equipment	Cooking Oils, Animal Fats, Vegetable Oils

There are various classifications of fire extinguishers based on the types of fires they are most effective against. A, B, and C type fires are the most common in an RV environment.



The rating for a fire extinguisher is listed on the side label on the UL listing sticker. The sticker also will also highlight basic use (remember: pass, pull, aim,, squeeze, sweep) and, on disposable extinguishers, note that they must be removed from service 12 years after the manufacturing date stamped on the bottom.

test, and take proper precautions to prevent the fire from spreading if the portable unit is unable to extinguish it.

The approximate discharge time will likely be 10 seconds or less for smaller handheld dry chemical units. Time spent misapplying the chemical uses some of these precious seconds, making it even more important that you and your family know how to handle fire extinguishers and prevent getting yourselves into a situation that simply overpowers your ability to fight the fire.

Don't allow your family to be unprotected, or even under-protected, at home or in your RV. Fire extinguishers are like insurance policies — we buy them and then hope that we never need to use them.

RV Detectors

Unfortunately, many RVers have been hurt or killed in RVs from everyday hazards like smoke, CO, or a propane leak. Such accidents are oftentimes preventable. All RVs are required to have a working and in-date smoke detector, carbon monoxide detector and LP-gas detector per NFPA 1192. While smoke and CO detectors may be battery powered, LP-gas detectors are connected to 12-volt DC source from the RV electrical system.

• **Smoke Detector:** RVs will be equipped from the factory with a single ionization-type smoke detector, powered by a 9-volt battery in most cases. While these work fine, there are upgraded models available that have features like dual sense (photoelectric and ionization), a silence button for nuisance (burnt toast) alarms, 10-year batteries, and Z-wave connectability for use with a Ring alarm system (See "Security Guard" elsewhere in this issue). Smoke detectors should be tested on a weekly basis while the RV is in use. Consider using smoke detector testing spray, available online and at most home-improvement stores, in lieu of the test button to verify operation.



Smoke detector testing spray can be found at most home-improvement stores and online.

Detectors must be replaced 10 years after manufacturer date.

• **CO Detector:** Fuel-burning appliances and equipment have exhaust that produces carbon monoxide, a colorless, odorless gas that is deadly if

inhaled over time. Portable RV generators also are known to create CO problems in RVs when used improperly by pointing the exhaust into a neighbor's RV. CO detectors must be replaced after 7-10 years in operation, or as the manufacturer directs. After 2009, all CO detectors have an end of life alert.

• **LP-gas Detector:** RVs that are equipped with propane systems will have an LP-gas detector that is wired directly into the RV's 12-volt DC electrical system. Generally, LP-gas detectors will last 5-7 years, depending on the manufacturer. A date will be stamped on the back of the unit that is either the expiration or manufacture date (will be marked as such). Check the detector's manual for details of the replacement schedule. Most newer models will have an end of life warning. Some LP-gas detectors (in motor-homes) will also have an electronic valve connected to them that will cut off the gas supply when the detector activates.



LP-gas detectors are hardwired into the RV's 12-volt electrical system and will have a date stamped on the back; they should be replaced per the manufacturer's instructions.



Most fire extinguishers have a gauge to show condition. The extinguisher should be inspected annually, at a minimum, to ensure condition and charge. If the pin seal is broken it must be recharged. Sometimes extinguishers can lose charge while just sitting. This one is low on charge and out of service awaiting repair. **RVE**

Bill Stewart



Bill Stewart is the director of education for the RV Technical Institute (RVTI). After attending the University of Michigan and graduating from General Motors Institute with a degree in Electrical Engineering Technology, Bill amassed 32 years of automotive and RV experience. In addition to being a Level 4 Certified RV technician, he holds certifications from Cummins and more than 70 other RV and Automotive manufacturers and RV vendors. He also is master-certified in both Mercury Marine and ASE automotive and light-duty trucks. He can be contacted at bstewart@rvti.org or (330) 417-3658.

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Part # 50050

Motorhome Makeover



When using a foam gun and a high-quality foam like Chemical Guys Honeydew Snow Foam, a blanket of foam is produced on the paint that helps clean and prevent scratching the paint during the washing process.

Using professional products — and a lot of elbow grease — will give any RV a long-lasting and beautiful protective finish

By E. Don Smith

If you want to maintain a nice-looking motorhome you have two options: Learn to do it yourself, or pay someone on a regular basis to detail it for you. Some of us love detailing in general and look forward to washing and waxing our coach. It's not much different from the care you may have put into the cars of your youth, except there's a lot more real estate to cover. Nobody ever said motorhome ownership was easy — and a full detail job on a motorhome is a lot of work.

For a professional detailer and a small crew, it's a task that can be

easily finished in a day. However, for an individual person doing a full paint correction plus wax/sealant on the paint and polishing the wheels, it can take multiple days.

One aspect about detailing that is constantly changing is the type of products that are available. In the past, detailers mostly used "old school" waxes such as carnauba or longer-lasting synthetic/polymer sealants. For most professionals today, however, it makes little sense to spend hours waxing a large motorhome with a carnauba wax that lasts weeks when it is actually easier to use a modern synthetic



Detailing a motorhome not only requires a lot of time, but it also requires a lot of products and tools as shown here. This photo doesn't even include the ceramic coating products and applicators.

polymer sealant that lasts months. Also, during the last five years a new class of products called "paint coatings" have come on the market — usually ceramic or graphene-based chemicals that are applied in a different manner than a normal wax or sealant. They literally can last for a few years instead of a few months (see sidebar for more on ceramic paint coatings).

Obviously, you have a lot of choices when it comes to detailing your ride — and they hold true whether your RV is a 44-foot motorhome or a 20-foot single-axle travel trailer.

Throughout this article we will reference brand names and products you may not be familiar with; unlike the cleaners and waxes found on the shelves of the big-box retail store, these are very specific products mostly used by serious detailing enthusiasts and professional detailers. Most of these are available online at specialty detailing product dealers (and, in most cases, Amazon); very few of them will be found at normal retailers or, in some cases, even auto parts stores. There are usually good alternative products stocked at such

locations — but I've found the best results are achieved by products used by the pros.

Cleaning: Front to Back

Before starting on the rest of the coach, we prefer to clean the front end to remove bugs as this takes a bit more time than the sides and back. There are many good bug and tar removers on the market, but currently our favorites are Griot's Bug and Smudge Remover, Poorboy's World Bug Squash and Duragloss Bug Remover 471.

Start by first completely wetting the front end of the coach and allowing the water to soften the bugs and to rinse off as much dirt as possible. Each brand of

bug remover has its own directions, so refer to each before using. Spray the bug remover on and allow it to remain for 30-60 seconds, then use a specialty bug-removing cleaner pad to scrub away the bugs before rinsing everything off. Sometimes two or more applications may be necessary for caked-on bugs. (Know, too, that if you notice that



When washing any painted vehicle always use a large 5-gallon bucket (filled with soapy water) with a grit guard in the bottom. This keeps your washing bonnet from touching the bottom of the bucket where the dirt will accumulate and keeps the grit off the paint.

the paint is not beading water anymore, you may need to re-wax/seal the paint.) If your motorhome has a clear bra on the front, it may have special cleaning instructions. Diamond Shield (clear bra), for example, suggests not using any bug and tar removers and to only use its own brand of soap and a soft cotton or lamb's wool wash mitts. Next, apply 303 Aerospace protectant to the clear bra after each washing.

After the bugs are gone, the next step is a good wash for the paint. Some detailers use an electric pressure washer; it does help, but it is not required. A water hose with a nozzle-mounted foam gun filled with "snow foam" will produce a blanket of foam that will greatly speed up the process and help prevent scratches in the paint. Most paint swirls that you see on motorhome paint jobs are caused by improper washing or drying, so it's important to use a good soap and a soft pad. On the bottom of the coach, we prefer using a hand mitt made for washing cars along with a Swobbit Sheepskin washing tool on an extension pole for the higher areas. In our experience, the Swobbit tool has shown to be the softest and least likely to scratch the paint of any we have ever used.

Generally, we wet the entire side of the coach we are working on, and then spray soap on a smaller section at a time. It helps to split each side of the coach into several equal sections and work on each area in succession to prevent the soap from drying before rinsing it. If possible, work when the sun is not directly shining on the paint to help prevent water spots; using deionized water for the final rinse will also help. After spraying the soap, give it a minute or so to loosen the dirt then use the Swobbit to remove the dirt — and make sure you have a clean bucket of soapy water with a "grit guard" in the bottom to rinse the Swobbit after each section. Continue until the coach is completely washed and rinsed. If you have a leaf blower, you can speed up the drying process and reduce water spots by using it.

If you have awnings or slide covers and want to clean those, it may require opening them up and getting on the roof or a ladder. You can usually use the same soap on them, but there are special soap and cleaners for awnings and vinyl should you have a particularly dirty one.

Next on the basic detail list are the wheels and tires. There are two major types of wheels used on most motorhomes: Coated and uncoated aluminum. Make sure you know which wheels you have, as you never want to

"polish" a coated wheel. You can often tell the difference by closely inspecting where the lug nuts meet the wheel; clear-coated wheels will oftentimes show a little flaking where the wheels meet up with the lug nuts due to the metal-on-metal contact. Or, you can apply a small amount of polish to an inconspicuous part of the wheel and buff it; if the wheels are uncoated, this will create a black smudge on your towel due to the aluminum oxide.

Most (but not all) motorhomes have plain uncoated wheels, so we will cover that process here. First, use an all-purpose wheel cleaner and a wash mitt to completely clean the wheels. Simply spray it on, then agitate it completely — making sure you clean around all the lug nuts and center cap — then rinse fully. Follow that up by using a soft brush and a dedicated rubber cleaner to scrub the sidewalls of the tires. We really like the Griot's Garage product called "Rubber Cleaner" — it's made just for rubber and will not accelerate or dry out the rubber on your expensive tires. After cleaning the tires, dry and treat them with 303 Aerospace



After spraying the surface with a foam gun and snow foam we used a Swobbit wash mitt on an extension pole to help remove all the dirt and road grime off the coach.



During the polishing and ceramic coating stages, we used painters' tape to divide the coach into easy to manage sections. There is a lot of surface area on a motorhome; if you are working alone plan on spending multiple days to do an entire detailing job.



To make the "clay bar" process easier we used a clay bar pad from Griot's Garage on a Griot's buffer. This buffer mounted pad, along with their Speed Shine spray as a lubricant, speeds up the process greatly. This stage is done after washing and before polishing to remove all bonded debris off the paint.



After the clay bar and polishing steps, the paint will be smooth, glossy and ready for a wax, polymer sealant or continuing to the next step of the ceramic coating process.

Ceramic Coating Primer



Shown here are two popular ceramic coating systems. The Artdeshine Nano Graphene system on the left is a professional grade product only available through licensed detailers. The CarPro system on the right is a good product that is available to consumers but doesn't include a warranty.

When looking on the shelf at retailers, you will see many detailing products using the word "ceramic" on everything from car wash soap to spray detailers. When a professional detailer uses the term "ceramic coating" or "ceramic paint coating," that is not the same thing as a soap or spray on detailer spray with the word ceramic on the label. A true ceramic paint coating is a rather lengthy (and very expensive) process that requires several preparation steps to the entire vehicle to ensure it is ready for coating. The product is a chemical that is applied to the paint (and other surfaces) that helps protect it from damage and keep it looking great and repelling dirt and water for far longer than traditional automotive wax and sealants. A small bottle of ceramic detailer large enough to coat one car will cost between \$40-\$100, not counting all the preparation chemicals and toppers that go on afterwards. The total product cost of coating a car with a professional-grade coating can easily cost \$200-\$300 — and a large motorhome will be several times that. Remember, that is product cost only; you still need to pay for the labor.

Is it worth it? In my experience, yes. I believe that paint coatings are perhaps the most important product development in the industry in more than 20 years. I use ceramic paint coatings on every vehicle in my garage, including the motorhome, and typically they last a minimum of two years. However,



The application of a ceramic coating is very different than wax. First you must wear gloves, then apply a few drops of the coating on a special applicator. The applicator pad is wiped back and forth, then up and down over a two- or three-foot square and allowed to flash. A clean microfiber towel is then used to level the product on the surface.

I have seen them last up to five years, depending on exposure level and maintenance.

The process starts with a decontamination wash, the iron and/or mineral deposit removal, and the prepping of the entire painted surface with a clay bar. The entire painted surface must then be paint-corrected (polished) to remove scratches, swirls and micro marring. This can take one, two or sometimes even three entire polishing steps with a powered buffer to leave the paint glossy and free of surface defects. Finally, the last step before application of the paint coating is an IPA (Isopropyl Alcohol) wipe-down to remove any traces of oil or fillers left from the previous work. Only then is the paint clean and smooth and ready to accept the ceramic coating.

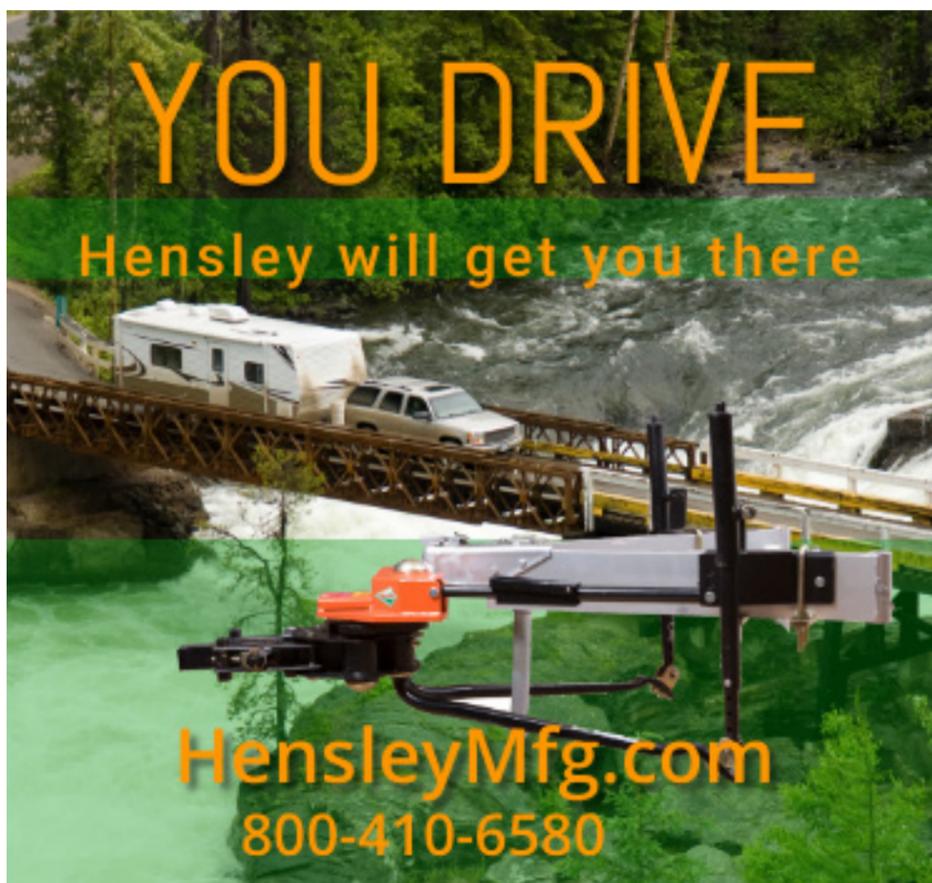
Depending on the brand and type of paint coating used, it may require as little as one layer to as many as three layers of ceramic coating to achieve the desired results. Each layer is hand-applied with special application tools and pads and then allowed to slightly "flash" before wiping down (leveling) with a clean microfiber towel. Once a microfiber towel has been used to wipe off a ceramic coating it should never touch paint again as the coating residue dries in the fibers and



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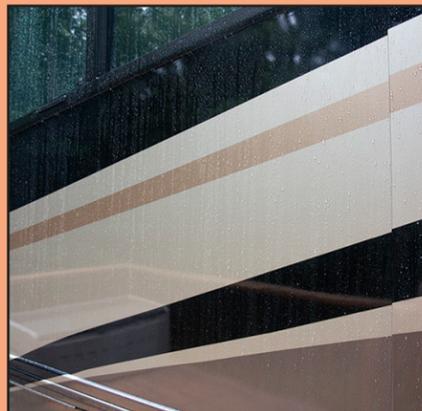
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can lead to scratches. (This is, as you might have surmised, a very strict regimen and not usually attempted by do-it-yourselfers at home without considerable experience.)

Leveling the ceramic after it cures is tricky and if not done correctly can lead to the forming of streaks or “high spots.” After the coating has cured, the only way to remove a high spot is to mechanically polish the paint again with a polishing media — the coating is that hard and durable. Most coating companies also suggest the use of a topping spray after the coating is applied to protect it during the curing process. Typically, the paint needs to cure from 1-7 days where it is not exposed to water or wash soaps, etc., after the coating is applied. In some cases, IR lights are used to accelerate the curing process.

With all the added cost and complexity of application, you may be wondering why even bother with a ceramic coating. The benefits are many, but most noticeable as an owner is the ease of keeping a coated motorhome clean and looking great. Because of the incredible hydrophobicity — the finish’s little or no affinity for water — after coating, the paint is presenting a surface to water and dirt that they do not want to be on. The water stands up on the surface of a coated surface in a way that has to be seen to be appreciated. This surface makes the paint much easier to wash, dry and to clean, as well.

A coated motorhome also looks much better because the



The water beading of a ceramic coated paint job is just amazing. Plus, it lasts for years.

gloss is so deep. It is also more resistant against UV damage and oxidation than traditional wax or sealants. One thing that ceramic coatings can’t prevent, however, is water spotting. If hard water gets on the surface and allowed to dry, the minerals in that water will be left on the surface. It will make removing those deposits a lot easier. Understand, too, that although a coated motorhome is resistant to many things, it is not a hard, impervious shell that prevents scratches or nicks from rocks and road debris. It still needs to be washed properly without the use of harsh scrub brushes on the surface. After a paint coating is applied it is important to follow the suggestions of the coating manufacturer for washing and maintenance to ensure the coating lasts as long as possible. If you use the wrong products it can lead to “clogging” of the coating and reducing the benefits.

The process of coating a large motorhome is expensive even if you do it yourself. Expect to spend several thousand dollars to have it done by a professional (and manufacturer accredited) installer. There are many brands of coatings, and each has their own network of installers across the country. Popular brands include Optimum, CarPro, Gyeon, GTechniq, Adams and our current favorite, Artdeshine. On our coach we had the Artdeshine Nano Graphene Coating applied — which is a true professional-grade coating with a multi-year warranty when applied by certified installers — topped with the Artdeshine Graphene Detailer Sealant. This is a true one-coat ceramic coating and after application the surface was incredibly slick and hydrophobic. The water beading is insane compared to a regular wax job and it lasts for years.

In addition to paint coatings, there are specific ceramic coatings for other parts of a vehicle such as glass, plastic trim, rubber, leather and more. In general, the glass and trim products tend to be the most beneficial to motorhome owners. We have used many of them and found they do last significantly longer than their traditional counterparts.



If you decide to use a long-lasting paint sealant instead of a more involved paint coating, there are several good products on the market including Wolfgang Deep Gloss Paint Sealant, Duragloss 105 Total Performance Polish as well as Rejex. All of these are readily available online at most detailing suppliers and Amazon.

Protectant; this is one of the best protectants on the market today and with regular use will help extend the life of rubber and vinyl.

Once you determine you have uncoated aluminum wheels, you can proceed to polishing. We like Zephyr PRO-40 wheel polish and White Diamond polish; both are very good and easy-to-use products. To polish a wheel fast, you really need a drill motor and a polishing tool. We prefer a cordless drill and the Mothers PowerCone and/or the Mothers PowerBall. It also helps to have Viva brand paper towels, which are 100% lint free and are amazing on aluminum wheels (again, based upon our experiences). You don’t really want to use microfiber towels to remove the black polishing residue because the towel will be ruined after this step.

Start by applying polish to the PowerBall and then use the drill to spin it, moving it over the entire wheel. The black slurry that is formed is a sign that it’s working. Some areas of the wheel, such as around the lug nuts and center cap, may not be accessible with the power tool; you will have to do those by hand. After you think it is polished, use the Viva towels and wipe away the residue — the shine should be revealed along with any missed spots. If you did miss some places or don’t think its shiny enough, make another pass. Each wheel can take from 15 to



Another good alternative to exterior paste or liquid wax is a good quality spray on wax/sealant. This one from Griot’s Garage is easy enough to apply so you may not mind doing it every few months.

45 minutes or more, depending on how neglected they are.

Treating the Finish

Now that your motorhome is clean, it’s time to do the real work.

Although it’s not required, a clay bar step improves the whole job by removing bonded contaminants on the surface of the paint. You can use either an actual clay bar (available at most auto parts stores) or a clay bar mitt (by hand) or a pad that can be attached to the buffer. Make no mistake: This is an arduous process when done by hand — but after finishing the clay bar step, the paint will be smooth like glass.

If your paint is more oxidized and requires additional polishing (and you are comfortable performing this operation) you can really take the paint to a new level of clarity and shine with enough time and the correct products. Using a power buffer and a cutting pad along with a good polish such as Optimum Hyper Polish, buff a small area at a time, then remove the polish with a clean microfiber towel. Repeat this step until the entire coach is polished. If the paint is really scratched, it may require two stages of polishing to restore the proper gloss.

For most of us, however, a simple one step sealant with a mild polish will do fine. Paint protection (some call this “step waxing” or sealing) is usually the final step of the process. Using a Dual Action Orbital buffer with the correct pad will make a huge difference in the time of a project like this. There is a lot

of surface area involved and, depending on what type of paint protection and polishing you are trying for, it could take anywhere from a few hours to a day or more if you are working alone. Products such as Griot's Garage Finishing Sealant, DuraGloss 105 Total Performance Polish or Rejex can be used; all are available online and in some stores. They will all do a good job and last many months.

As noted earlier, this is not a fast or easy project — which is why many owners hire detailers to do it for them. When shopping for a detailer make sure you know what type of products they plan on using and exactly what steps are involved. If one company is offering a multi-stage paint correction and sealing with a high-end product, expect to pay more than someone simply washing and waxing it with a short-life carnauba wax — the quoted \$250 job that sounds good usually isn't. Over the life of the coach, cleaning and polishing it will pay off both in enjoyment as well as resell value — so don't overlook the importance of taking care of your coach. **RVE**



303 Aerospace Protectant is one of the best rubber and vinyl protectants on the market today and it is completely safe for use on tires (unlike some protectants on the market with petroleum distillates).



Griot's Garage Rubber cleaner is a great product for cleaning tires as well as other exterior vinyl and plastic parts.



For polishing the uncoated aluminum wheels, we like the Mothers PowerBall system with the extension rod and both sizes of the polish wheels. This, along with a cordless drill and good aluminum polish like Zephyr Pro-40, will yield fantastic results. After polishing the wheels and protecting the rubber with 303 Aerospace Protectant, they should look like this.



There is nothing that looks better than a fully detailed motorhome with glossy paint, wheels and rich dark black rubber tires properly protected.



Installing and upgrading a Ring alarm system in a fifth wheel

By Chris Dougherty

Go online and you're sure to find many people espousing their favorite alarm systems for RVs. The reason is simple: RVs are faced with the same need for security as their brick-and-mortar counterparts. Not surprisingly, the more popular systems are those designed for homes. Some are portable, while others are hard-wired into the residence — but they all have one common denominator: offering homeowners protection from "bad actors."

We're of the same mindset. We first installed a Ring alarm system in our house in 2020 and have been pleased with its performance, so when it came time to adding security to our fifth wheel, we first looked to Ring's features. What cinched the deal? It has the benefit of being completely wireless — and therefore very easy to install in any RV — and comes with a number of optional sensors that can be added to



For our 2015 Montana 3710FL, we initially chose the Ring Home Security Kit, one smoke detector listener and a power supply to convert the unit to 12-volt DC. We later added two more listeners for the LP-gas and CO detectors.



The Ring kit comes with the base station, keypad, motion detector, four door/window mag switches, a network extender (not needed in this installation), sticker and power supplies. We added the power supply converter and smoke/CO detector listener.

the system at any time.

Living in our mobile real estate also encompasses other day-to-day hazards that we commonly protect ourselves from in our fixed-base home, including smoke and fire detection, carbon monoxide alarms, LP-gas alarms, flood detection, temperature alarms and so on. While RVs are required to have smoke-, CO- and LP-gas alarms, modern technology now allows us to enhance these standard offerings to provide more comprehensive protection and notification.

The Ring alarm system starts with an entry-level five-piece kit, available through the Ring website or Amazon.com, and then additional components can be added as necessary. Ring systems work on Z-Wave wireless technology (z-wave.com) and are — at least in part — compatible with most Z-Wave products on the market, depending on the type of component. Amazon's purchase of Ring has led to the platform being fully compatible with Alexa, and the system can be purchased with an Echo Dot Alexa device for \$10 (see below for a special offer from *RV Enthusiast*).

The kit, which reportedly protects 1,000 square feet, includes:

- Base station: This is the communications hub for the system, which includes Wi-Fi and cellular connectivity and acts as the router for all the sensors in the system. It also has built-in 24-hour

battery backup in the event of power failure. In RV-Land, connectivity for this unit is the same as with a smartphone; it should connect to an RV access point like WiFiRanger or Winegard Connect 2 or similar system. A cellular booster can help the unit maintain its own optional cellular backup, if subscribed to the Ring Protect Plus plan. It will operate off the RV's 12-volt DC system with the addition of a Tobsun 15-watt DC-DC Converter (EA15-5).

- Motion sensor: The single motion sensor, designed for a single room, is adequate to protect an RV interior when the unit is vacated. The motion detectors do have a pet setting, which works at home, but we haven't tested it with a pet in the RV yet.

- Contact sensor: Using VHB

tape, the contact entry-door sensor works well with a little finessing.

- Range extender: Larger RVs may benefit from this when basement compartments are equipped with sensors; however, we didn't use it in this installation.

- Keypad: Control the system and sound panic alarm at the touch of a button.

In addition to the above, we added three listening devices, placed within 24 inches of each alarm in the RV. Alternatively we could add special Ring-integrated First Alert combination smoke and CO detectors. We did not add any window sensors or compartment door sensors, although they or motion detectors can be put in each of those areas for additional protection.

Ring's security cameras can also be added, if desired, including doorbell cams. The doorbell cams have the option of a solar charger mounting base to keep the battery up. Some RVers swear by their use, while others have gotten frustrated by the doorbell cam's sensitivity — default settings will often-times pick up a car driving by a user's brick-and-mortar house. If you opt for one, be sure to dial it down; sensitivity levels can be adjusted down to as little as five feet. Also, the doorbell cams' auto-sense features can get annoying while on the road. Granted, the mobile alerts can be snoozed through the app,

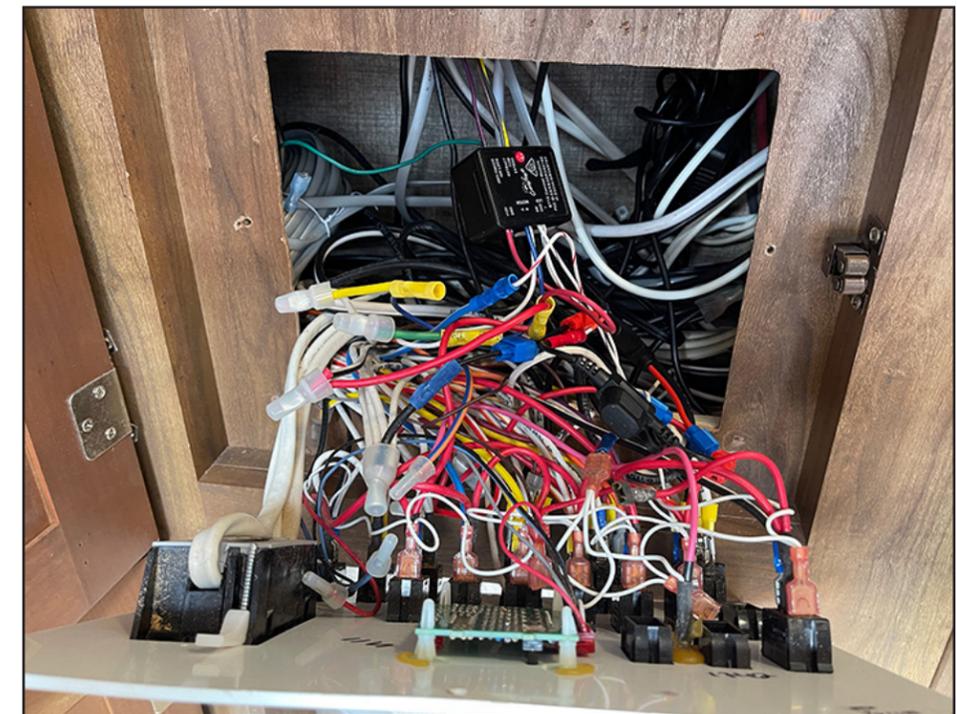


Installation of the base unit is very simple and fit in the cabinet with the switch panels. This makes sourcing 12-volt DC power easy, muffles the siren slightly, and keeps it out of sight.

but the constant activity will drain the battery on the doorbell cam quickly — and the optional solar charger backplate doesn't charge the unit very well in our residential experience.

If you don't have the need to record video or have professional monitoring (which isn't workable in a mobile RV environment anyway) there is no additional cost. You will be able to receive notifications from your system and access it remotely with the app or website for free. The Ring subscription, however, provides a number of good benefits — including 60 days of recorded video history for all cameras with the ability to share the video, extended warranties for all devices, and cellular backup if your main Wi-Fi connection is lost. You'll also get rich notifications with photo preview of the alert on your smart device without having to open the app. Campsite cams are popular with RVers and Ring's portfolio of battery or hardwired cams with lighting provide plenty of choices. The Plus subscription mentioned here includes 24/7 professional monitoring (again, not for RVs and may be restricted by local municipalities) for \$10/month or \$100/year. Consider it cheap protection.

There are numerous other add-ons available, many of which are battery operated, including a remote siren (your neighbors will love that but it will dissuade criminals), door chimes,



The main control center is a bit confusing. We had previously installed electronics and solar in this unit, so we knew which circuits we wanted to hit to run the Ring system.

smart lighting (solar) for your campsite, flood and freeze sensors (great to put in plumbing bays and other sensitive areas), remote panic buttons, deadbolt locks with keypads that allow remote access (via the app), solar step lights and a bunch of other options. It also

integrates with Alexa, including Alexa Guard, which can alert in the event of glass breaking or other sounds of distress, according to the company.

A common question is: Will the system suffer from interference from close neighbors in RV parks and while

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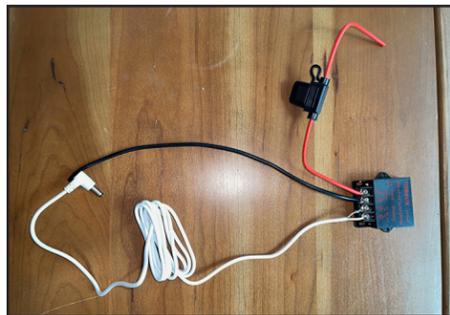
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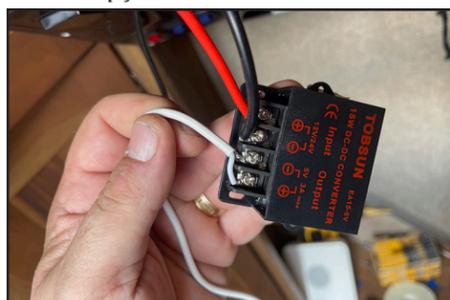
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We performed surgery on the power supply for the main unit so we could connect it to the Tobsun 15-watt DC-DC Converter (EA15-5) <https://amzn.to/3zlpNr4>. Alternatively, you could source the proper plug and make your own. We left enough cable to reconnect the powerpack, if needed later. We added an inline ATC fuse holder and 5-amp fuse.



The design of the converter prohibited using solderless terminals. We were able to make solid connections here, tinning the wire ends and later securing them, and taped off the converter and wires.

traveling around the country? Not only will there not be interference, according to the company, but the system can benefit from the Amazon Sidewalk Network interface which, when activated by you and other Ring customers, allow Ring systems to support each other and still function if, say, your internet connection should fail and theirs is still active. Since all the connected devices are digitally encoded and protected, the company says only you can see what is happening in your system. With the system connected to the Internet through our Winegard Connect 2.0 and Verizon Wireless, I have full control of the system from anywhere — the fifth wheel is in storage 20 miles from home during the winter and the system works great. The Connect 2.0 shares our Verizon data plan for an additional \$10/month.

Complete 5-piece kits start at \$199 and go up from there. System components can be bought ala carte if desired.

SPECIAL OFFER: If you buy the 5-piece system, the Echo Dot is FREE on Amazon. For details: <https://amzn.to/2X3602m>



Heavy-duty hook-and-loop fastener was applied to the back of the main unit so it could be easily removed to access wiring, reset and Bluetooth buttons and the internal backup battery.

Ring Your Tow or Towed Vehicle

Ring has announced a new security line designed for cars and trucks that should be released later in 2021, according to the company.

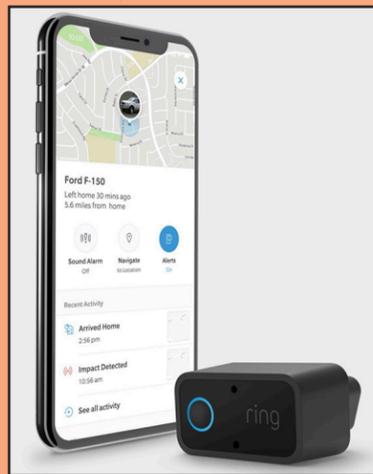
Ring Car Alarm is a module that plugs into the vehicle's OBD-II port and uses the vehicle's computer and sensors to detect motion and attempted thefts, when connected to Wi-Fi or Amazon's Sidewalk network sharing service. When at home (RV in this case) it links to your other compatible Ring devices to increase effect, such as turning on lights and recording video in the event of an alarm activation. Of course, you'll be notified via the Ring app.

The device can work with most cars and small trucks built after 1996 that have an OBD-II port. Most new vehicles have sensors that can work with the system, but not all of them. Class A gassers and some cutaway chassis won't work with the system and diesel chassis motor-homes also may not have connectivity, so you should check the product against your own chassis or tow vehicle to make sure it is compatible.

Ring Car Connect similarly ties your vehicle's own system of cameras into your Ring account via Wi-Fi or, optionally, LTE service. Ring Car Connect will be rolled out in upcoming vehicles

but is currently available in some Tesla models.

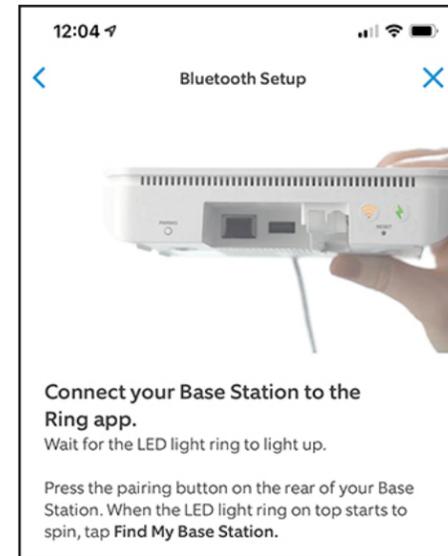
Finally, Ring Car Cam is a dual HD camera setup installed inside your vehicle and can record the bumps, break ins and so on like the Car Alarm system. Like their other cams, you can see a live image, record video, see the vehicle location and sound the siren all from your Ring app. Further, it has two features for use on the road. First, the Emergency Crash Assist feature automatically calls first responders for assistance. Second, if you're getting pulled over, the Traffic Stop feature, along with Alexa, starts the cameras, recording the interaction and can notify others you want advised of your status.



The forthcoming Ring Car Alarm will send an alert to the Ring app when it detects an event — be it a break-in or bump — or an attempt to open a door. Operators can check the last-known location and trigger a built-in siren.



A hole was drilled beneath where the cable connects and main unit was mounted to the panel. The unit was positioned to the left in order to access the buttons and get a visual on the Wi-Fi and power indicators without removing the unit from the wall.



The entire system is set up automatically in the iOS or Android app. It is super simple and all the kit components are already associated with the app, so pull the tab and it starts connecting. Others can just scan the QR code on their device. Note that you will have to enter an address, which was the same for our other system. That is OK — but it will show two systems under your city name. Simply pick the one for your RVs system and change it to "RV" and you're in business. While this is simplified, just follow the step-by-step instructions in the app, which even have videos. Later, each sensor setting and behavior can be customized in the app.



Two door sensors, one on each entry door, were installed. Others can be added to compartment hatches as needed. A recess in the door trim was cut and stained to install the mag switches. The sensors attach with double-sided tape, and the magnet fit the screen door perfectly. Of course, there are many designs of RV doors, and you might have to get more creative.

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The keypad is activated when plugged into its adaptor or a USB port, which also charges it. It comes with a slide-in wall mount, which we placed next to the main entry door.



Mounting the motion detector will vary depending on the RV; for this project it was mounted on the end molding on one of the forward living room slides, which provides visual access throughout the RV. Again, double-sided tape is used to attach it. Because an RV is a tight space, usually only one will be needed, but others can be added, say, to a garage in a toy hauler or in large compartments in lieu of mag switches on every door. These can be adjusted in the app to ignore pets. This feature works fine in a home but was not tested for this installation.



The detector listener must be mounted within six inches of the detector, which explains the need for three in this RV. A special Z-Wave combination detector is available, which would eliminate the need for one of them in many applications.



What does this Xantrex battery app have to do with this article? The Ring system was connected to the Internet via a Winegard Connect 2.0 with Verizon wireless. The solar panels were temporarily disconnected to monitor the power draw using the Ring system and the Winegard Connect 2.0. The fifth wheel has a bank of two Xantrex lithium batteries that record, among other things, the draw on the system. Less than a one amp draw from the bank was noted. The draw, along with other loads, will be monitored over an extended time connected with a DC amp clamp to establish some baseline data. So far, it looks like the 350 watts of solar panels and lithium batteries will keep this unit protected even while in storage. **RVE**

Locked When Loaded



Installing entry-door and storage-compartment locks from Creative Products Group takes advantage of keyless security and keyed-alike convenience.

By Bob Livingston / Photos by Shawn Spence

All RVs have an entry door or two and exterior storage compartments, which means there must be mechanisms to keep them closed securely and locked to prevent unwanted visitations. While this may seem like an over-simplification, not so fast: There are a number of considerations when it comes to locking up an RV. Beyond the painful experience when a lockset fails, the RV industry's use of certain hardware that helps dealers control key inventory and keep manufacturing costs down has created a situation that owners may not be aware of.

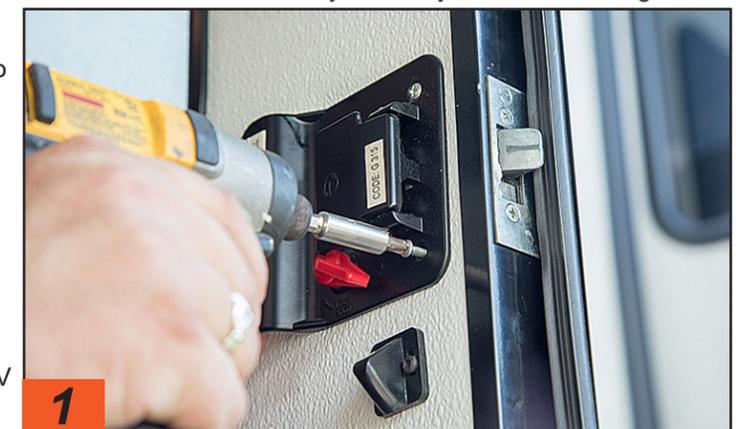
There are two locking features for just about all entry doors: one that locks the handle and the other that engages a deadbolt for maximum security. However, many of these handle locks are stamped with an "M" — which means dealer personnel (and others) can use a master key to open them. At first blush, this seems like a sound idea; it allows dealership employees to quickly open and close inventory for potential buyers without handling separate keys for

each model. Unfortunately, master keys aren't all that difficult to obtain. Literally thousands of sales and service departments have them — heck, so do most transport companies, for that matter. They are really a necessity for many people to get their jobs done. That said, their prevalence is just one more reason why owners should always use the deadbolt along with the handle lock when securing their RVs; master keys — which also are compatible with some after-market door locks — will not open the deadbolt portion of the lockset.

And then, of course, there is the infamous CH751. Overwhelmingly, the RV industry supplies locks that use the same key, CH751, to "lock" baggage

doors. However, they have been around for 50 years, and just about everyone has one. If you want your baggage door lock to offer more protection than simply preventing things from falling out, these definitely need to be upgraded.

Fortunately, there are a number of quality replacement locks available for RV applications. RVLock (rvlock.com) is a keyless entry lock with an integrated



1 Removing the original entry-door lockset starts from the inside, where the screws that hold the housing are removed.

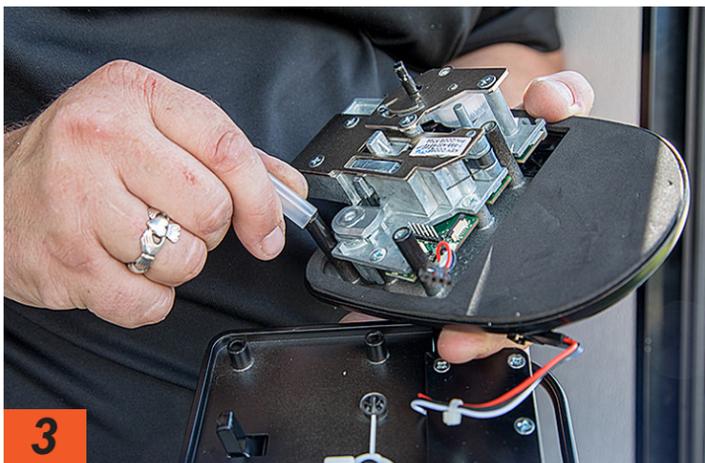


Two screws must be removed from the faceplate on the edge of door before the lockset can be pushed out. Once the screws are removed from inside the door and faceplate, the lockset can be pushed out. You'll have to hold on to the parts on both sides of the door to prevent dropping parts on the ground.

keypad and fob; the company's latest iteration, V4, carries a solid 4.8 rating on Amazon (with 3,547 people weighing in as of mid-September). Bauer Products (bauerproducts.com) is another company that has made RV security a focus. It's newest lock, the Bauer NE Bluetooth, is an entrance door handle with "close field technology" — meaning it allows the lock to be activated by having a paired device (smartphone) in close proximity. It also keeps track of locking/unlocking history and, according to the company, offers "bank-grade" encryption. And there are others.

RVLocksandMore.com, the retail segment for Global Link, which produces locks for RVs under the Creative Products Group (CPG) branding, offers a variety of locks for RV manufacturers and consumers via aftermarket distribution. What got our attention was the ability to key alike the entryway and all compartment locks among its keyless options.

An even better solution is the compa-



Components of the new Ultra E Pro Electronic Lock are assembled before being pre-fit into the hole vacated by the factory lockset.

ny's Ultra E Pro Electronic Lock (\$185) keyless lockset for entry doors. By using a four-digit code, owners can rest assured that the deadbolt will always be engaged and not accessible to master keys. Dealers can still use a master key or set their own code for use on sales lots with units so equipped, but once the owners change the code, access by unauthorized individuals is no longer possible. The deadbolt works differently than the standard lockset used by the majority of RV manufacturers in that it doesn't throw a metal rod or square "bolt" into a strike plate; the GPC model uses a mechanism that locks the door internally. Personal codes are entered on the LED keyboard built into the lockset housing and the mechanism is powered by a single C123 lithium battery. The lockset is covered by a one-year warranty.

A subsequent introduction since our installation is the Ultra ES Pro Smart Lock, which adds a secure encrypted connection to a smartphone or tablet to control the lock. The smartphone can lock or unlock the door, has a provision for changing the passcode and informs the owner of battery life — all within a 120-foot range, according to the company. Up to eight users can program their smartphones to control multiple locksets.

Once you ex-

perience the convenience of a keyless entry, you'll never look back at physical keys, except to hide one somewhere in the RV in case of a failure (which is most often caused by a dead battery). The Smart Lock feature adds the Bluetooth element to the process, and just about everyone these days has a smartphone.

Entry-way locksets from the company are also available without the keyless option, and for both products the handle has a unique mechanism that allows the user to pull the door at the same time as releasing the latch bolt, providing a more secure grip when opening the door. This configuration works well, once the user gets the knack of how it works — only one side of the handle pulls out at an angle. Acclimation does come quickly, but you'll have to instruct visitors not familiar with the mechanism how to use it to prevent adverse strain on the lockset.

For our purposes, we installed the Ultra E Pro keyless version on the main door leading into the living area of a fifth wheel and a second, standard Ultra M Pro Lock model on the entry door into the rear bedroom. And, since the main exterior storage compartments were fitted with slam-latch handles and another with cam locks, we changed all the hardware to accommodate a keyed-alike system.

Installing both locksets should be an easy project by anyone using basic hand tools, especially since the chances are good that the opening (once the old lockset is removed) will be compatible without modifications. In our case, the opening was a little tight to allow the mechanism to operate freely, so we simply employed a razor knife to cut away some of the polystyrene insula-



The new lockset is pre-fit into the door to make sure clearances are OK. The clearance in the door opening was a little tight to allow the Ultra E Pro lockset to function smoothly, so a razor knife was used to cut away a small amount of polystyrene insulation.

tion and increase the opening tolerances, which only took a few minutes.

Slam Shut Case

Most fifth wheels these days use slam-latch paddle locks on the exterior storage compartment doors and we replaced those with CPG's counterparts to enable the tumblers to be keyed alike. The slam-latch paddle locks (\$47.73) used for this project were direct replacements for the original Kenco hardware. Locks for other OEM models are available; it's best to seek professional advice if you are not familiar with the standard locks on your trailer or fifth wheel.

The process is straightforward, meaning you unscrew one lockset and replace it with the CPG slam latch hardware. Some models may require drilling out rivets inside the compartment door; we found that necessary on a second fifth wheel solicited for a concurrent project. A special removal tool will make short work of drilling out the rivets, although a drill bit large enough to release the rivet collar will work fine. Once the new latch brackets are riveted in place, it's just a matter of mounting the paddle with a screwdriver. However, it's also possible that you will have to realign the strike plate, which can take some patience.

While the compartment latches work

smoothly, we found that a thin coating of a silicone paste, applied about once a month (for heavy usage) facilitates easier opening and closing.

The last phase of this lock transformation project was replacing two CH751 cam locks on one of the storage compartment doors. These locks are nothing more than latches to keep the compartment door closed; the prevalence of the CH751 by many manufacturers means there's hardly any security offered — your next-door-neighbor at the campground probably has locks on his rig using the same key. CPG offers cam locks for just about any compartment door where the cylinder will fit; 5/8-inch diameter cam locks are available in short- or long-arm versions. The only caveat in using these cam locks is that they may not work in access doors (think outside shower, leveling controller or gravity water fill, for example) that have shallow locks, but there's nothing worth stealing there. Careful measurement and test fitting will help.

Cam locks sell for around \$12 (two keys are provided) and can be fitted with offset latches to fit the compartment-door configuration. The big benefit of using the CPG cam and slam latches is that they can be keyed alike to the entry-way lockset, which happily renders the CH751 key useless.

Owners can order all the locksets with alike keys, including those that cannot be opened with a pass key; we like that feature. There are 90 key com-



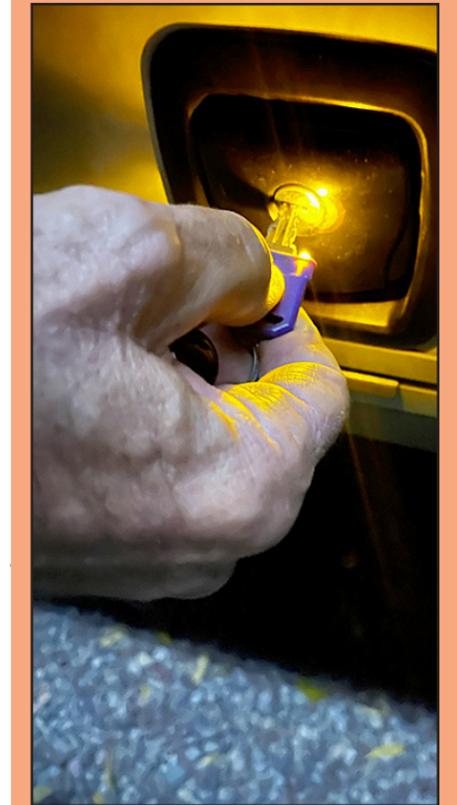
The outside and inside sections of the new lockset are connected by two wires, which sends the signals from the passcode entered via the LED keypad.

binations available, which makes it pretty difficult to find someone with a key that will fit your locks. Owners can also change the tumblers in existing locks, which requires the use of a change key. This key is not universally available, which is a good thing, but most RV dealers have one or it can be rented from CPG for \$50; \$40 will be credited when the key is returned. While this is done for security reasons, it's still possible for a crook to buy a key, but the chances of that are slim. And, if the lock is in the locked position, the change key won't work anyway.

The process for replacing the tumbler is simple: Insert the change key into the

Light Up Your Life

Finding the keyhole at night can often be difficult without a flashlight. Among its varied offerings, CPG can supply a key with an LED in the thumb hold that illuminates the keyhole. This lighted key sells for \$15.99 and can be ordered to fit your tumblers. These keys are bright enough to prevent fumbling at night; we found the light to be indispensable.



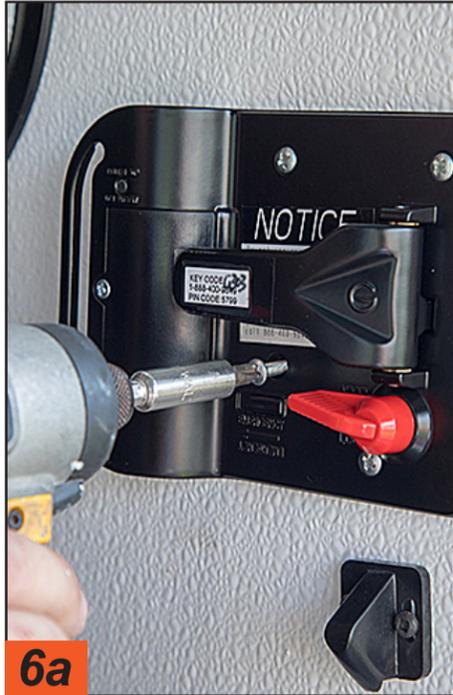
CPG offers lockset keys with an LED that can illuminate the keyhole at night. It provides plenty of light to prevent fumbling with the key in dark quarters.

lock, turn and remove the tumbler. Put the key in the new tumbler and secure in the cylinder. It takes less than a minute. In fact, it only required about two hours to complete the entire job. This is one project that raises the convenience factor dramatically by going keyless to enter the RV — and only having to carry one key to access all the storage compartments — while still offering enhanced security against unauthorized entry.



7

The deadbolt can be engaged from the inside using the big red lever on the lower part of the lockset. An emergency provision is included should the handle get locked from the outside with someone inside the RV — a discrete small button on the inside of the lock will, when pushed, disengage the deadbolt.



6a



6b

After ensuring the fit was right and the wires connected, the lockset screws are tightened from the inside. If using a screw gun, be careful not to overtighten — this can damage the door by sinking the housing edges into the fiberglass.

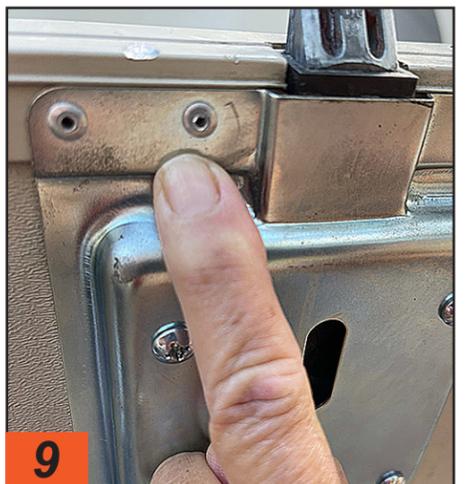


8a



8b

New paddle locks were installed on five storage compartments. The slam latch paddle locks were direct replacements for the original Kenco counterparts (CPG has replacement slam latch locks for most fifth wheels and trailers). CPG's slam latch paddle lock fit perfectly in all the compartment doors. They operate smoothly and the paddle handle is comfortable to use.



9

Adding the slam latch paddle locks to a second fifth wheel required drilling out rivets and setting new ones before the body of the lock could be fastened in place.



10

The original cam locks for one of the storage compartments used a CH751 key, which offers virtually no security.



11a



11b

Removing the original cam lock is simple. First, the arm is detached and then the large nut is removed to free the lock.



13a



13b

The large nut is installed to hold the cam lock in the compartment door. Some installers will remove the screw that holds the latching arm in place first, but the process works in either case. Short or long arm versions (not shown) are available, depending on compartment and door configuration.



14

Cylinder tumblers can be ordered directly from the CPG or RV dealer.



12

The new cam lock uses a cylinder that is keyed alike to the entry-door and compartment paddle locks.



15

A change key is required to remove and replace the tumbler. RV dealers usually have change keys, but one can be rented from CPG for \$50; \$40 will be credited when the key is returned. **RVE**

Source:

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Electric Eye



When things go sideways on the highway, a dash cam could be your best friend

By Chris Hemer

The first thing someone asks when you tell them you've been in an accident is, "Are you okay?" The second is usually, "Were there any witnesses?"

In today's litigious society, that's an important detail. If no one saw what happened (or at least no one who will come forward) it's your word against theirs. Certainly, there are still some honest people out there who recognize an accident as just that — but there are others who see property damage as an opportunity to dig deep into your pockets and those of your insurance company.

A dash cam is a great way to protect yourself — especially when driving or towing an RV, vehicles which, like semi-tractor trailers, often tend to be on the losing end as auto drivers carve through traffic lanes. Attached discreetly to the top of your tow vehicle or motor-home windshield, these small cameras

act as ever-vigilant eyewitnesses to your travels, recording high-resolution video in a loop that automatically stops on impact, capturing the accident event. Most dash cams also record at night, so even if the offender is a wayward deer or falling tree branch, you can provide all the details. Dash cams can also be a useful tool for bearing witness to someone else's driving mishaps, hit-and-runs and more. Just search "dash cam accidents" on YouTube, and you'll see what we mean.

The decision to purchase a dash cam is the easy part — deciding on *which one* is what can be daunting. There are dozens of dash cam manufacturers on the market, each with several models to choose from. To help you narrow your search, we'll discuss dash cam features and benefits in general, followed by 10 solid dash cam choices. These should be considered a "jumping off" point for your dash cam purchase, not neces-

sarily recommendations. Also, keep in mind that many of the companies featured here have several dash cam models to choose from, so if you see one that interests you, be sure to visit that company's website. Oftentimes the flagship (or newest) cam will get all the accolades, but the company may offer other, lower-priced models that may suit you just fine.

Like many other types of electronics, dash cams range from the basic to the high-tech. The more feature-rich they



The wider the viewing angle, the more the camera can see — but also the farther away objects will appear. Typically, 140 degrees is the narrowest field of view you'll find, while 180 degrees is the widest.



Many dash cameras affix to the windshield using either a suction cup or two-sided adhesive.

are, the more expensive they become. The question is, what features do you really need and what others can you do without — or simply don't fit within your requirements?

Resolution

Possibly the first thing you'll want to consider is resolution, or the clarity of the image recorded. All dash cams, even the least expensive models, shoot in 720P or 1080P, which is more than enough resolution to capture the essentials: What happened and the license plate of the offender (provided it is close enough to see). However, there are now dash cams on the market that record in higher resolution — all the way up to 4K Ultra HD, which is cinematic-image quality. This may be a consideration if you want to be sure you can see detail almost to the granular level, like license plates, road signs, lane markings, etc. Recording in 4K provides improved contrast and color range compared to HD footage for unbeatable recording quality. The only thing to consider with a 4K camera is that you will need a larger memory card and the file sizes will be considerably larger than those of a 720P or 1080P camera.

To Screen or not to Screen

The next thing to consider is the screen...or not. Most full-featured dashcams have a screen size of about 3 inches and touchscreen controls for

various features. However, some drivers find the screen distracting, especially when it is displaying the road in front of you. Some only display this in the beginning so you know the recording is live, then turn off; others continue to display, but give you the option to turn it off if desired. Models with no display will only have an indicator light and connect via Bluetooth to your smart phone if you want to view, manage or share a recording (some screen models also have this feature). The advantage of these screenless models, however, is that they're smaller, less expensive (apples to apples) and more discreet, which may be of interest to you if, for example, you plan to leave the camera



If you don't want to add another screen to your dash, consider a smaller unit (such as this Garmin Mini 2) using Bluetooth connectivity to synch with your smartphone.



Many dash cams don't include a memory card. If you're going to get one, go big and get the most storage possible. Make sure you read the manufacturer's notes about what type of card (and class) is required before purchase — not all cards are the same.

in the vehicle and don't want it to be a target for theft.

GPS

Another feature you'll see in many dash cam offerings is GPS. GPS helps record important data like date, time, direction of travel, location and how fast you were driving prior to impact. None of this is good if you were actually breaking the law, but if you weren't, the GPS feature will prove your actual location and speed, while the camera footage will prove that you were driving sensibly. GPS isn't necessarily a must-have feature, but most dash cameras have it now.

Installation

How does the dash cam you're considering mount? Many models use a suction cup mount and get their power from a 12-volt DC accessory receptacle. These may seem like the easiest to install, but keep in mind it will still take some time to neatly route the cord from the dash cam at the top of your windshield down to where the power outlet is located. Some dash cams have their own mounting systems that do not incorporate suction cups, and many offerings have "hard wire kits" that allow you to wire the dash cam directly to the vehicle battery, leaving the 12-volt DC



Most full-featured dashcams like this Pioneer ND-DVR100 have a screen size of between 2 and 3 inches and touchscreen controls for various features.

•**Front and rear:** Some dash cams can record what's happening in front and behind you, either with a dual-lens setup or with optional cameras that can be added to the main unit at the time of purchase or afterward. With a truck and trailer application, you may elect to add a rearview camera on your tow vehicle, but when you're towing a trailer or dinghy vehicle, a cable long enough to reach the back of your rig won't be available.

You could rig up your own, but the

manufacturers we spoke with said that image quality can suffer if the cable is too long. Instead, it might make more sense to purchase a second, less-expensive dash cam that could go inside your trailer or dinghy vehicle and record the action behind you.

•**Parking monitor:** Wouldn't you like to know what happens to your tow vehicle, motorhome or trailer when you're not there to protect it? Who, for example, backed into it while parallel parking

and didn't leave a note? With a parking monitor feature, you might just find out. If your vehicle is bumped, many dash cams on the market can start recording to capture the perpetrator in action, but this feature usually requires a hard wire kit that allows the camera to draw juice even when the ignition isn't on (although some units have internal batteries or optional external batteries that will allow them to record without tapping into your vehicle battery). Don't worry; hard wire kits are designed with a battery saving feature that turns off the power supply a short time after the incident.

•**Audio recording:** Some dash cams also allow you to record audio, which could be useful after an incident, during a traffic stop, or when encountering an aggressive driver. Keep in mind, however, that audio isn't always a good thing — one dash cam reviewer on Amazon commented that his dash cam recorded the argument he and his wife had after an accident, and it was played in all of its glory in court. If you do get audio, make sure it can also be switched off.

•**Additional features:** Some dash cams also offer a number of features that, frankly, have little to do with being a dash cam but can nonetheless be very handy for some drivers. These include driver assist aids (like lane departure warning), Amazon Echo (Alexa) integration and more. These all pile on to the price tag, however, so think about what features you can/will actually use rather than being swayed by a multitude of cool features that may never be taken advantage of.

outlet open for other accessories.

The four features above are what we think should be your primary considerations based on our personal experiences with dash cams. But as we mentioned earlier, dash cams are becoming more advanced and feature-rich with every passing year, so it's good to know what's available to suit your own needs. Here are a few of the latest features worth contemplating when shopping for a dash cam:

The Players

Apeman C450A



One of the least-expensive dash cams on the market, the Apeman C450A records in full 1080P resolution and features a 170-degree super wide field of view, built-in G-sensor and infrared night vision. It can also be hard-

wired to take advantage of the 24-hour parking monitor mode. The company also offers several other models, including the C860, with both front and rear-facing lenses. The C450A retails for \$39.99. apemans.com

Blackvue DR750X-2CH Truck Plus



The DR750X-2CH is the only dashcam bundle we found designed specifically for heavy vehicles, which makes it a per-

fect option for motorhomes and trucks towing large fifth wheel trailers. A waterproof infrared rear camera connects to the front unit via a 49-foot, waterproof coaxial video cable, with an option for a 65-foot cable. The system shoots in full 1080P at 60 fps, and rear at 30 fps. Like dash cams designed for automobiles, this system incorporates a lot of useful features, like Intelligent Parking Mode (which is hardwired into the fuse panel or an available battery pack), Sony STARVIS image sensor for improved detail day and night and built-in impact and motion detection. GPS-enabled, the DR750X-2CH also features Wi-Fi so you can connect to the unit with a smart phone or tablet; LTE connectivity is optional with an

available module. The free Blackvue app, meanwhile, allows you to change settings and review videos, sorted by time and type (normal, event, parking). And with the Blackvue app connected via Wi-Fi to your dashcam, you can retrieve videos on the spot. MSRP: \$499-\$659.99. blackvue.com

Garmin Dash Cam Mini 2



About the same size as a key fob, the Garmin Mini 2 is a tiny, discreet dashcam with some big camera benefits, like 1080P resolution with 140-degree field of view, hands-free voice control and Parking Guard feature. Another thoughtful touch is the extra USB port in the unit's charger, so you can power up the dash cam and charge your phone at the same time. The Garmin Drive app for compatible smart phones allows the user to access the camera remotely for Live View monitoring from anywhere (requires an active Wi-Fi connection and constant power supply, which will require the use of the Constant Power Cable, sold separately). The app also allows the user to share video clips with others by sending a link and passcode (again, with a Wi-Fi connection) and saved videos can be accessed via the secure online Vault for 24 hours from the time of upload. Garmin also offers extended storage plans via paid subscriptions. The Garmin Mini 2 retails for \$129.99. garmin.com/en-US/

Garmin 67W



The Garmin 67W is the company's full-featured dash cam that is still incredibly tiny. In addition to 1440P HD video resolution and a super-wide 180-degree field of view, the 67W features incident detection with GPS, voice control for a variety of commands ("Okay Garmin save video," for example) and driver aids like forward collision and lane departure warnings, available red light and speed camera warnings (not available in all regions; requires subscription) and "Go Alerts," which let the driver know when the traffic in front of the vehicle begins to move again (a great benefit in big city driving). And, like other dash cams in the Garmin family, the 67W features Parking Guard, Live View mon-

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itoring, and a charge cord with extra USB port. It even includes a microSD memory card. MSRP: \$259.99. garmin.com/en-US/

Kenwood DRV-A601W



Kenwood is one of the most recognizable brands in audio and electronics, so it stands to reason that it offers a very capable dashcam in the DRV-A601W. Recording in 4K Ultra HD, this unit features a 3-inch touchscreen display and wide dynamic range that records clear footage in light or dark situations without over or underexposing. A polarizing filter is included, which attaches to the lens to reduce windshield glare or reflection and has a rotating bezel to adjust the lens for optimum results in your vehicle. Handy features include a G-sensor with built-in GPS, Parking Mode Recording (automatically powers on and records 30 seconds of video when physical impact is detected — requires an optional hard wire kit) and a super capacitor, which prevents the recorded video file from being corrupted by allowing the video file to close properly. The Wireless Link App allows the user to share recorded videos, and the Kenwood video player desktop software allows easy viewing of video. The DRV-A601W can also be connected to the optional KCA-R200 rear camera, providing simultaneous recording in the front and rear of the vehicle. The kit includes two mounts: A 3M-tape style and suction cup, while the camera connects via a quick-release magnetic mount. MSRP: \$199.99 (Best Buy). kenwood.com/usa/car/dashboard-camera/

Nextbase 622GW



Introduced just last year, the 622GW is Nextbase's flagship product, and it's packed with a number of features. First and foremost, the 622GW shoots in 4K Ultra HD at 30 frames per second (FPS) for maximum detail and clarity — and built-in digital image stabilization helps minimize vibration. The prominent lens features a 140-degree viewing angle and is even equipped with a built-in polarizing filter to minimize glare (us photo geeks appreciate that kind of thing). Enhanced Night Vision is designed to pick up all the critical details even on dark roads, and Intelligent Parking Mode automatically records any bump or physical movement when the vehicle is unattended. The 622GW also has some uncommon features, like Super Slow Motion playback ability and Extreme Weather Mode, which helps cut through the fog to provide the clearest possible image. Convenience and safety features include voice command Alexa integration, Emergency SOS (automatically dispatches emergency services in the event of a major crash) and what-3words, an extremely useful app that can provide your location inside a 10-foot square (anywhere on the planet) without a data connection, making it easy for loved ones or EMS to find you. The 622GW can also be easily fitted with a rear window camera (which physically attaches to the rear window) a rear view camera (rear facing) or a cabin view camera (wide angle to view occupants), each of which simply plug in to the main unit and cost \$99. The 622GW retails for \$399.99. nextbase.com/en-us/

Nextbase 222



At the other end of the spectrum in Nextbase's line-up is the 222, the company's budget-priced dash cam that still records in 1080P HD at 30 FPS. A "new and improved" 6G lens captures the critical details with a 140-degree viewing angle, while a Click&Go PRO mount makes it easy to attach and detach the camera thanks to integrated neodymium magnets on the mount and dash cam that attract themselves together. Intelligent Parking Mode is standard, and the lens is compatible with a polarizing filter if desired. MSRP: \$79.99. nextbase.com/en-us/

Pioneer ND-DVR100



Another offering from an audio/visual legend, the Pioneer ND-DVR100 is a small, discreet dash cam with a 2-inch LCD screen that records in 1080P HD. Featuring a built-in G-sensor, this unit will record an impact event then save the video file in a separate Event Folder to prevent being overwritten and to provide later access to the video. A 27.5-fps frame rate was specifically chosen by Pioneer to accurately capture LED traffic lights, which often operate at 60Hz — especially helpful in the case of a traffic signal related video. In addition to recording HD video, the ND-DVR100 has the capability to capture still images so that in the event of an accident, the driver can detach the camera and

take detailed photos from outside the vehicle. Using its built-in GPS receiver, the ND-DVR100 can also display and record the time and GPS position (longitude and latitude) directly onto the recorded video and still image files. MSRP: \$150. pioneerelectronics.com/PUSA/

Thinkware U1000



The Thinkware U1000 is the company's flagship model that records in 4K resolution in a 150-degree field of view and includes a comprehensive suite of driver assistance systems — including forward collision warning, front vehicle departure warning (lets you know when the vehicle in front of you begins to move in traffic) and lane departure warning, plus red light and speed camera alerts. Super Night Vision technology with high dynamic range (HDR) is capable of recording high-quality video

in low-light conditions, while Parking Mode 2.0 helps you keep tabs on your vehicle when you're away. The system can be upgraded with an available radar module for added protection and an external battery to extend parking-surveillance duration. Thinkware Cloud keeps you connected to the vehicle even when you're not in it, with notifications sent directly to your compatible smartphone. These include impact notification while parked, vehicle location, remote live view and a geofencing feature which will notify the user if the vehicle travels outside of a pre-selected geographic zone. Finally, the U1000 can also be accessorized with a 2K resolution rear camera with a 156-degree field of view and is available in a front/rear camera bundle. MSRP: \$399.99. us.thinkware.com

Vantrue S1



This compact dash cam offers a lot of good features at reasonable price. For openers, the S1 is a front and rear camera system with full 1080P resolution with a 170-degree field of view front, a 160-degree field of view in the rear and Sony night vision. The system automatically switches to Parking mode when it senses no movement for five minutes, after which both cameras will automatically begin recording when people or objects come close to the front of the vehicle. GPS with live Speed Display tracks your movement, which can be played back on Google Maps via the Vantrue GPS player. Those who live in extremely hot or cold climates will appreciate that the S1 features a built-in supercapacitor instead of a battery, which the company says can withstand temperatures from -4 to 158 degrees F. MSRP: \$179.99. vantrue.net RVE

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Kicking Back in Comfort



Tired of the same old floorplan but still love your RV? Remodeling the living room — and adding Thomas Payne recliners — can be a game changer

By Bob Livingston / Photos by Rich Dubnow

When it comes to buying a brick-and-mortar home, realtors know that the mantra is “location, location, location.” In the RV arena, salespeople are well aware that it’s changed — to “floorplan, floorplan, floorplan.” Granted, the RV still needs to fit a budget, but it first needs to fit a buyer’s lifestyle — and budgets have been known to “grow” in order to accommodate that “perfect” floorplan.

Finding it, however, sometimes takes a few tries. What looks good at first may prove to be unworkable after a being on the road for a while. But unlike moving furniture around in a stationary residence to change the layout, RV owners who get tired of the floorplan have fewer options. Most, in fact, ultimately trade

their RVs for one that offers a more suitable floorplan for their changing lifestyle — which can be very expensive when depreciation enters the picture.

A good alternative — and one that has gained a lot of traction lately in the RV world — is to remodel, taking advantage of new furniture and entertainment/convenience options.

We consulted with owners who just couldn’t live with the floorplan in their 2015 Tiffin Phaeton 40-foot motorhome any longer and stuck around to document the results. In this coach, an L-shaped couch (or often referred to as J-lounge) dominated the living room, with the TV mounted on the wall shared by the “jack-and-jill” bathroom. The bathroom was in fact the driving reason for buying this motorhome — the mid-

coach bath is a good feature for those wanting better access to the bathroom from the bedroom. But as they discovered, watching TV from the couch was uncomfortable — and the opposing dining area felt out of place visually to the owners.

Also, since the owners did not entertain overnight guests, the bed built into the couch served no purpose and was never used — and it crowded the driver’s seat when turned toward the living room. After a number of years complaining about the floorplan (and wishing for a theater seat arrangement), they finally decided to remodel the living room in lieu of selling the motorhome and buying a new one.

A couple of factors solidified the decision to remodel. They found the per-

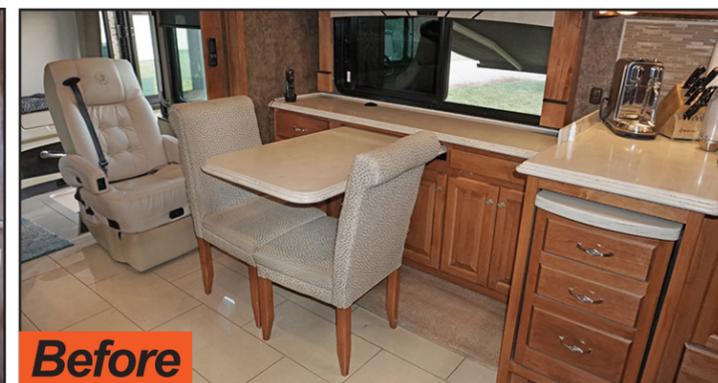


Before



After

Original floorplan featured a large J-lounge, which occupied a great amount of space, and a small recliner. Television placement was not ideal. The results of the remodel are dramatic: the J-lounge and recliner were replaced with Thomas Payne recliner, extra storage and a wine cabinet. The TV, meanwhile, was moved from the far wall and placed within the credenza using a power “televator;” its former location is now a home bar.



Before



After

Across from the couch, the original credenza/dinette was functional but the owners felt it was detached from the rest of the living room décor. It was the perfect foundation for relocating the television and expanding the countertop. When the TV is elevated, it covers the window, but can be lowered quickly using the remote control. It does provide a perfect screen view from the Thomas Payne theater seating ensemble.

fect theater seating arrangement from Lippert’s Thomas Payne collection, and they hooked up with a master furniture craftsman, Dave Borkholder, who runs Custom RV Furniture in Milford, Indiana, close to the Elkhart “RV metropolis.” Borkholder is an Amish furniture builder who follows the culture and traditions of old-world craftsmen. His shop is on the outer edge of his expansive farm, which has no electricity or modern conveniences. He travels by horse and buggy and invites customers to park on his property and enjoy the solitude of natural living. Borkholder has even signed up to be part of the Harvest Host overnight stay program.

Borkholder is no stranger to the RV industry, having spent more than 20 years in various capacities, primarily working in factory cabinet shops. He has also rehabbed houses, capitalizing on his ability to build fine furniture. While he offers a number of pre-designed tables and workstations, his forte is to dig in and figure out how to customize interiors.

To get the project started, the owners visited Borkholder’s farm and spent a couple of days discussing options. Borkholder listens to the owners and

then works with them in designing a plan from scratch; there is no need to come to his shop with plans from an outside source. He’s incredibly creative and, knowing his way around RVs, can make decisions that offer convenience and value. Of course, the popularity of his work means you can’t just drop in; figure on about two months lead time to get an appointment.

Complying with his Amish culture, Borkholder does not use a computer. He does have a phone that’s kept in the shop, which — along with his generator and power tools — is allowed by Amish rule in order to make a living.

Once the plan was penciled in, the owners had to do some shopping. Settling on the theater seating was a no brainer. Offered exclusively through Lippert,

the Thomas Payne collection boasts an extensive number of options, and once you sink into the company’s theater seats, you’re hooked. For this project, right- and left-hand recliners (part numbers 2020129336 and 2020129337, respectively) were chosen with Norlina fabric upholstery. The light beige fabric has a handsome texture that is very smooth to the touch. This is a departure from the Ultraleather upholstery originally in the couch, and desired by



1

The teardown started with dismantling the dining structure. Most the cabinetry was retained, including the table that matched the other counters in the motorhome.



2

The credenza was removed from the wall and taken into the cabinet shop to expand the countertop, making room for the television lift.



3a



3b

Custom cabinet builder Dave Borkholder uses plywood core veneer for the new cabinet sides and tops. The veneer has a proven track record for durability in RVs. All the pieces of the cabinetry are connected with pocket screws and glue to ensure structural stability. This painstaking procedure pays off for superior longevity under stressful RV conditions.

the owners for its warmth in colder weather and somewhat better resistance to scratch marks from their dog and cat. Once the center console (part number 2020129339; 12 x 34 x 31 inches), with matching fabric is added, the entire ensemble is about 67 inches wide; only 4 inches of space is needed to the back wall to allow for full reclining. Fully extended, the recliners stretch 64 inches.

Panels on the inside surface of the armrests control the power headrest, lumbar support, lighting and recline functions and to activate massage and heat features. Counting the two in the center console, there are a total of four chrome cup holders with color-adjustable lighting activated by touching

the trim ring. In the center console is a large storage compartment suitable for remotes and incidentals; a flip-up 120-volt AC power center with USB charging ports is built into the top surface.

Power ports are also built into each armrest, designed to accept an optional reading light, fan and wireless phone charger. The same ports can also be used to accept a unique wine caddy, a small swivel desk and a clip-on armrest tray. We didn't get a chance to check these items out during the install because of a backorder situation.

Getting the theater seating through the front door of the motorhome was easy since the ensemble is modular and the backs can be removed. Mounting is facilitated by interlocking hardware that requires no tools, and it only takes a few minutes to assemble the entire set-up; the seats and console were plugged into a nearby 120-volt AC outlet. The owners elected to forego fastening the seats to the floor, since the motorhome exhibits good ride control; it's probably best to screw them to the floor in travel trailers and fifth wheels. The Thomas Payne recliners are priced at \$749.95 each and the center console is \$259.95.



4

Components for the television lift must be integrated carefully into the wood structure to assure smooth operation; Borkholder fabricated the metal brackets as well as all the woodwork. Although Borkholder follows strict Amish tradition, exceptions are made for using power tools needed to make a living.

Considering the Thomas Payne seating took up less space than the factory L-shaped couch, the plan also called for additional cabinetry on both sides of the theater seats, providing quite a bit of increased storage and counter space. Originally, a small recliner was tucked into the space behind the couch and immediately adjacent to the TV. With the addition of the twin Thomas Payne recliners it wasn't needed; the remodel plan called for a wine cooler to be built into matching cabinetry. A modern-looking wine cooler was purchased from Best Buy for \$799. The two-door, dual zone Insignia (model NS-BC2ZSS1) is



5a



5b

Work begins on the flip-up counter extension on the dinette that will open when the TV is lifted into position. Hinge for the flip-up counter must be aligned perfectly to prevent binding when the TV "pops" out of the structure. Once that's accomplished, the existing valance frame is put back in place.

designed for mounting inside a cabinet and can hold 21 standard wine bottles and is also suitable for water and soda bottles. A nice benefit of purchasing appliances from Best Buy is the ability to procure warranty service just about anywhere. This was a strong consideration for the owners, who live in the motorhome fulltime.

A key element for this remodel was moving the TV from its aforementioned

factory location to a position across from the theater seating to provide a perfect viewing posture. Borkholder retained the front portion of the original credenza — countertop, cabinets and pull-out table — and reconfigured it, using a power "televator" for the 47-inch Samsung 3D TV and by extending the countertop. This new structure provided additional counter space for entertaining and allowed for full use of the large



6

The TV was removed from the original mounting position on the shared wall with the bathroom and attached to the lift mechanism built into the dinette/credenza. Original countertop was retained and extended to house the television.

window when the TV is tucked into its retracted mode — without losing any storage space. Both dinette chairs were retained, but the plan is to replace them at a later date.

The only caveat was rewiring the TV to the satellite receiver, broadcast antenna, surround-sound components and cable connection. Previously the wiring logjam from the factory was reworked by Advanced Satellite, a Junction City, Oregon, company specializing in RV entertainment systems. Months before the Tiffin's interior redesign, upgraded stereo components, speakers and controls were added to enhance listening pleasure. Advanced Satellite, being familiar with the system, was contracted after the interior upgrade to re-route the cabling to the new TV location. The project was completed flawlessly at a cost of \$1,500.

The wall vacated by the TV allowed for an unplanned opportunity to convert the area into a bar that holds wine, spirits and wine glasses. Borkholder designed a system to control the bottles and glasses and offer a beautiful touch to the living room, aesthetically and functionally — and it was built in such a way as to prevent the glasses and bottles from dislodging from their positions



7

It's hard to tell that the new dinette/credenza was not original. Countertop extension for the TV lift blends perfectly. When the TV is elevated, it covers the window, but can be lowered quickly using the remote control. It does provide a perfect screen view from the theater seating ensemble.



8a



8b

Thomas Payne furniture was shipped directly to the Borkholder's shop in Milford, Indiana. A horse-drawn wagon was used to transport the two recliners and center console for loading into the motorhome. The Thomas Payne modular design makes it possible to move the pieces into the motorhome, without having to remove one of the cockpit seats. These pieces will also fit through the front door without incurring damage to the upholstery.

when the slide is in travel mode.

Once the plan was fleshed out, it took four days to complete the project. All the cabinetry framing and doors are made from maple hardwood and the tops and sides are plywood veneer; pocket screws and glue are used throughout the structure. The existing factory finish was meticulously matched using industrial-grade stains, which cannot be found in local hardware and big-box stores. Cost for Borkholder's creations, including the television lift, was \$3,992.

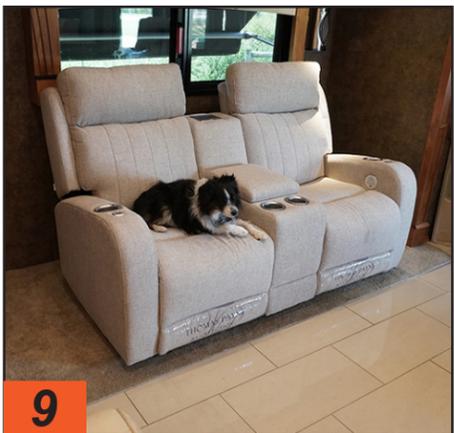
Obviously, RVs are made to be on the road, and that's the rub. Hardwoods can sweat up to 16%, according to Borkholder, which can lead to splitting. In order to compensate for the stresses imposed by a moving vehicle and

changing climates, veneer tops and side panels were chosen which, said Borkholder, provide superior strength and longevity. (I can attest to the quality of Borkholder's work; he built new furniture for our fifth wheel three years ago and his upgrades have endured more than 30,000 miles of torturous highways without any signs of fatigue. And under full-time living conditions, the countertops show no signs of wear and tear.) Owners looking to remodel their RVs should be cognizant of weight and come to the party armed with accurate figures from a local scale. Of course, some of the additional weight will be offset by the removal of the original furniture and fixtures, but it's also important to know the capability of the slideout (especially in a fifth wheel or

trailer) and be aware of the impact of any shift in weight balance. The weight changes in the project motorhome were not an issue.

In the end, the interior remodel opened up the living area visually and added a big dose of luxury that complemented the factory décor beautifully. With the cockpit seats turned toward the living quarters, the entire living room becomes a much warmer environment for entertaining guests — something that was less feasible with the original L-shaped couch. The ability to sink into the new Thomas Payne seating, recline to an almost horizontal position, adjust the lumbar support, get a massage and warm your tushy is a game changer.

If the owners can stay awake, they can gawk at their new surroundings.



9

Each recliner attaches to the center console via special brackets that lock the units together without using tools. Seat backs can also be removed without the use of tools. Here, Brody finds his new seating just right for watching the other components take shape.



10

Framing for the cabinetry is constructed using maple hardwood. Walls and countertops made from the same wood do not hold up well under RV conditions. Cabinet doors and drawers are also made of hardwood.



11

Sanding machines are used to ensure a perfect fit at the frame joints and overall consistency.



12a



12b

One of the two side end tables starts to take shape. These cabinets, placed on each side of the Thomas Payne theater seating add valuable countertop and storage space. The larger cabinet is designed to shroud the wine cooler, which will occupy the space originally used by the stock small recliner.



13

Industrial grade stains are carefully mixed to make sure they match the original décor. It took a number of attempts to get it right. Once Borkholder is satisfied, he stains a new piece and places it next to an original and asks the owners if they can tell the difference. "Thumbs up" means it's a go.



14

Stain is applied using a cloth or from a spray gun, normally reserved for the larger pieces.



15

Finishing touches are made to one of the end cabinets, making sure the stain is applied evenly. You won't see any runs on these components.



16

Once finished, the rear end cabinet was fit into place between the wine cooler cabinet and theater seating. The rear cabinet has two doors and two shelves; the smaller front cabinet has only one door.



17

Final fitting of the wine cooler and end cabinets fill the space beautifully. When done, it was virtually impossible to tell that these components were part of a remodel. A portion of the window is covered by the wine cooler cabinet, but the owners deemed that as inconsequential.



18

An opportunity to re-utilize the space vacated by the television presented itself while placing the new furniture. Borkholder added stylish shelves to securely hold wine/spirits bottles and wine glasses.



19

The new bar for storing wine glasses and bottles blends beautifully with the fireplace. Space formally occupied by a recliner that was never used adds a huge element of luxury and function.



20

The Thomas Payne theater seats are upholstered in a stylish fabric, rather than Ultraleather, which is smooth to the touch. Seats recline into an almost horizontal position providing tremendous support and comfort. Trying to stay awake is not an easy task.



21a

Controls for reclining and adjusting the lumbar support, and activating the massage, heat and lighting functions are flush mounted on the inside surface of each seat arm. There's also a USB charging port on each side. Pop-up power station is built into the top portion of the center console. Provided are 120-volt AC and USB charging outlets. The new recliners also feature two lighted cup holders built into the center console, which opens for storage.



21b



22

The completed remodel adds beauty and comfort while opening up floor space in the living room. A nearly perfect blend of theater seating, cabinets and additional countertops transforms the area once only occupied by a couch and small recliner. **RVE**

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Trailer Tire troubles

Special Trailer (ST) tires seem to be failing at an alarming rate. Who — or what — is to blame?

By Chris Hemer / Photos by author and Chris Dougherty

Perhaps you've experienced it. But you've almost certainly seen it. A trailer parked by the side of the highway, emergency flashers on, a shredded tire being examined by one or more bewildered RVers whose travel plans have just come to an abrupt end. If you drive long enough along a major interstate during travel season, odds are good you'll likely come across such a scenario at least once.

Why?

That's a great question. For decades, the editors of *RV Enthusiast* (who were staff members of several reputable RV publications prior to this one) have attempted to drive home the importance of proper tire inflation pressure, weight/loading and storage practices (which from here on in we'll refer to

as "tire protocol"). Organizations like Mark Polk's RV Education 101 and the RV Safety and Education Foundation have well-established programs to help RVers understand more about tire protocol. In fact, just about everything you need to know about RV tire care and maintenance is available with just a quick Google search.

And yet, trailer tires continue to fail — and if anything, the problem has gotten worse, not better. Are there really still that many RVers that are clueless about their tires? Is it because so many trailer tires are manufactured overseas? Or is it that there just aren't adequate testing standards for trailer tires? That's what we wanted to find out.

Industry Standards

All tires, trailer and otherwise,

domestic or foreign, must meet Federal Motor Vehicle Safety Standards (FMVSS) set forth by the U.S. Department of Transportation (DOT) National Highway Traffic Safety Administration (NHTSA). It was no surprise to us that these standards vary depending on the application — but we couldn't seem find one that applied specifically to Special Trailer (ST) tires. In fact, it wasn't clear to us that there was anyone in the tire industry that knew if one existed.

Kevin Rohlwing is the senior vice president of training for the Tire Industry Association (TIA), with more than 40 years in the business as of next year. The TIA represents commercial and retail tire stores and its board consists of a wide range of national and regional dealerships, including Discount Tire and Bridgestone Americas. "All tire manu-

facturers have to follow the appropriate FMVSS 571.139 [new pneumatic radial tires for light vehicles],” he said, “but this doesn’t apply to ST tires. These are not under FMVSS 139. In fact, I don’t know what standard applies to ST tires, but there is one,” he assured us. As we talked, he continued to look up other standards that might apply, eventually pointing us to FMVSS 110 and 120 and suggesting that we look at all the other standards as well. “Google ‘49CFR (code of federal regulations) part 571,’” he said. You’ll get all the FMVSS.”

So, we did. We eventually dug up FMVSS 109 (“New pneumatic and certain specialty tires”); FMVSS 110 (“Tire selection and rims and motor home/recreation vehicle trailer load carrying capacity for motor vehicle with a GVWR of 4,536 kilograms (10,000 pounds) or less”); FMVSS 119 (“New pneumatic tires for motor vehicles with a GVWR of more than 4,536 kilograms (10,000 pounds and motorcycles”); FMVSS 120 (“Tire selection and rims and motor home/recreation vehicle trailer load carrying capacity information for motor vehicles with a GVWR of more than 4,536 kilograms (10,000 pounds)”); and the aforementioned FMVSS 139.

Of these, we found that only FMVSS 109 mentioned ST: “This standard applies to new pneumatic bias-ply and certain specialty tires, specifically new pneumatic radial tires for use on passenger cars manufactured before 1975, new pneumatic bias-ply tires, and ST, FI, and 8-12 rim diameter and below tires for use on passenger cars manufactured after 1948.” Try as we might, we could not find any construction or testing language with regard to ST tires specifically, nor standards that differentiated them from



A trailer tire’s size is preceded by the letters, “ST” and may also be accompanied by “For trailer service only.” 205 is the section width in millimeters, 75 is the aspect ratio, which indicates the height or profile of the sidewall relative to the cross section width, also expressed in millimeters. On this tire, the sidewall is 75% as tall as the cross section is wide. “R” indicates radial and 15 is the rim diameter in inches.

other tires, in any of the FMVSS we were directed to. In addition, relevant FMVSS we reviewed were written years ago — some as far back as 1975, although they are apparently updated on the electronic Code of Federal Regulations website (ecfr.gov).

What came as a bigger surprise was that, at the beginning of each FMVSS, we found “Section 1, Purpose and Application,” which outlines requirements for *self-certification*: “The Office of Vehicle Safety Compliance (OVSC) provides contractor laboratories with Laboratory Test Procedures as guidelines for obtaining compliance test data.

The data are used to determine if a specific vehicle or item of motor vehicle equipment meets the minimum performance requirements of the subject Federal Motor Vehicle Safety Standard (FMVSS)... Every contractor is required to submit a detailed test procedure to the COTR (contracting officer’s technical representative) before initiating the compliance test program. The procedure must include a step-by-step description of the methodology to be used, and should contain as a minimum, Tire Identification and Marking, Tire Handling and Storage, Test Rims, Test Data and Report Preparation and



Whenever possible, always use the same tire size, load rating and tread pattern. If two tires need to be replaced with a different brand, make sure that the same tires are used across one axle, as with this trailer.

Approval Processes. The contractor’s test procedure shall contain a complete listing of test equipment with make and model number and a detailed check-off sheet. The list of test equipment shall include instrument accuracy and calibration dates. All equipment shall be calibrated in accordance with the manufacturer’s instructions.” There’s more — much more to read — but the gist of it is that NHTSA’s guidelines amount to an “honor system” with no direct oversight.

“The tire manufacturer just has to present data that it has complied,” Rohling said. “They have to test them where they are built, then submit the required data — and that goes for domestic and foreign manufacturers. They (NHTSA) may spot check here and there, but they can’t say that every tire is tested.” Nor, it would seem, can they specify or enforce a foreign manufacturer’s quality control processes once tires are in production.

“All new pneumatic tires for use on highway vehicles sold in the United States must meet relevant FMVSS established by NHTSA regardless of where a tire is made,” said Tracey Norberg, senior vice president and general counsel at the United States Tire Manufacturer’s Association (USTMA), the national trade association for tire manufacturers that produce tires in the U.S. “NHTSA enforces its regulations and can recall a tire for noncompliance or due to safety-related defect.”

It can. However, it stands to reason that with hundreds of brands and thou-

sands of models to choose from globally, it simply can’t audit all tires sold in this country with any regularity. Add to this the fact that ST tire production (even total RV tire production) is only a fraction of passenger car/light truck tire production, and it’s hard to believe that ST tires get audited regularly (if at all). Granted, industry oversight (self certification) is a common practice in many industries, backed by standards and liability for companies not following those standards. We tried repeatedly to reach NHTSA for comment, but our requests went unanswered.

For now, the fault for premature trailer tire failure is still being placed on the shoulders of RV owners. “The difference between tires and other components failing is that tires require a lot more maintenance,” said Rohling. “From our experience, it’s almost always overloading or underinflation. That’s what most of this is.” Norberg agreed that weight and loading is often to blame and said that storage is a huge issue as well.

From our point of view, blaming vehicle operators for virtually all premature tire failures is an easy way to redirect attention from possibly poorly made, foreign ST tires and a self-certification system that seems in need of an overhaul. As long as it’s possible that the tire was underinflated, overloaded or improperly stored/maintained, then a defective tire can still be blamed on the consumer. Knowing that, an RV owner’s best protection is to take a strong pro-active approach to tire upkeep.

What Can You Do?

First, protect yourself by following these guidelines:

•**Weight and loading:** Keep your trailer tires inflated to the recommended pressure specified by the trailer manufacturer. Always weigh your trailer full of water, LP-gas and all supplies you would normally bring with you to make sure the trailer isn’t overloaded. You can do this at a public scale (as detailed in the May issue of *RV Enthusiast*, “Worth the Weight”) or better yet, at a shop that can provide individual wheel weights.

•**Keep tabs on tire pressure:** Most newer vehicles have a Tire Pressure Monitoring System (TPMS), but most trailers don’t. A good trailer TPMS will alert you when one or more tires is losing air, giving you a chance to have it repaired, or at least to pull over before it fails completely. Checking tire pressure manually with an accurate gauge before each travel day isn’t a bad idea, either.

•**Alignment:** Most of us associate wheel alignment issues with the tow vehicle, not the trailer. However, trailers can also have poor alignment, and in fact, can suffer to a greater degree than the tow vehicle. Poor tracking, increased drag and accelerated wear on the tires (not to mention reduced fuel economy) can be the result. Incorrect trailer tire alignment can have many causes. One or more axles could be slightly bent, either at the factory, during delivery or by harsh impact on the roadway. It’s also possible that the trailer may not have been properly aligned at the factory, or the misalignment could be caused by loose or worn compo-



When selecting tires, it’s not only important to get the right size but also the correct load rating. These two tires were on the same trailer but have different load ratings. Ideally, it would be best to have the same load ratings on all tires, but when that’s not possible (example: you needed to replace two tires while on the road) it’s important to consult the load/inflation tables from the manufacturer to make sure the tires aren’t overloaded or underinflated. When in doubt, always ask your tire professional before making a purchase.



Buying a used trailer, or can’t remember how old your tires are? Check the four-digit code on the sidewall. This one on an old trailer in a storage lot indicates that the tire was built on the 25th week of ‘03 (although the last digit is difficult to read in this instance). Even if an old tire still looks good, remember that tires “time out” after six years and should be replaced.



Small cracks in a tire's sidewall are called "weather cracks" and are considered a naturally-occurring condition that results from exposure to heat and sunlight. If the cracks extend below the surface, or any internal components of the tire are visible, replace the tire immediately. Consider replacing your tires when the tread depth reaches 6/32-inch.

nents. A bent spindle can also cause adverse tire wear. Seek a qualified alignment shop that can check the components and re-align the axles to the hitch point, whether that's the hitch ball (travel trailer) or king pin (fifth wheel).

•**Balance:** Unlike vehicle tires, trailer tires are usually not balanced at the factory — the prevailing wisdom being that no one rides in the trailer, so no one will feel the vibration. However, unbalanced tires can "cup" and wear excessively on their heavier side, so having your trailer tires balanced is another way to help improve longevity and reduce the odds that they will fail without warning.

Tires that are out of round can also cause irregular wear. An out-of-round condition can be caused by a bad rim, improper tire mounting or just a tire that was not correctly formed at the factory. While you're having your tires balanced, have the technician check them for concentricity (roundness) at the same time to eliminate all possible variables.

•**Proper storage:** The USTMA recommends that tires mounted on any stored vehicle be parked in such a way so that all weight is removed from the tires, which is a difficult proposition for a travel trailer or fifth wheel owner who may not want to risk axle or frame damage if the trailer isn't lifted correctly. The next best option is to unload the trailer to reduce its weight, maintain the recommended tire inflation pressure and make sure that the surface where the trailer is parked is firm, reasonably level, well-drained and clean. Protect

the tires with covers, particularly if they are exposed to the sun. If stored indoors, the tires should not be kept on concrete (consider plastic or plywood pads instead) and should be kept away from sources of ozone (electric motors, furnaces, etc). The trailer should be moved every three months (minimum) to prevent flat spots. Before returning the tires to service, the USTMA

recommends that you inspect the tread and sidewalls for irregular wear, cracking, scrapes, bulges, cuts, foreign objects or other damage resulting from use. The USTMA also recommends that consumers have their tires periodically inspected by a tire service professional who is trained to see potential problems you may not even notice.

•**Slow and easy:** Most trailer tires are rated for 65 mph unless otherwise



Misalignment is a common cause of accelerated tire wear, and worn suspension components is a common cause of misalignment. Note that these bushings are completely worn out and the holes are oblong, allowing the axles to "walk."

What is an ST Tire?

A trailer tire (designated by the prefix ST, for *Special Trailer* or *Special Tire*) is designed primarily for load carrying capacity, stability and long life. As such, trailer tire construction may include differences to steel belts, plies and beads, as well as the use of thicker cords and larger diameter wire, depending on the application. ST tires also utilize a comparatively narrower tread width for reduced rolling resistance and a shallower tread depth, which aids in tracking by reducing "tread squirm." In addition, ST tires usually contain compounds that help them hold up against the elements better while in storage.

Years ago, trailer tires were mostly bias ply, but today, travel trailers and fifth wheels leave the factory with radial ST tires. In addition, radial trailer tires have a more rounded shoulder design, which allows them to perform better in lateral scrub conditions such as turning and backing.

noted in the tire's speed rating. While it may be tempting to drive faster (especially in higher speed zones), you're putting your tires at higher risk when they are at or near maximum speed, particularly if they're close to their load limit. Take it easy and enjoy the journey; driving more slowly nets better fuel economy, too.

•**Do your homework:** If a tire fails, the TIA, USTMA and RV Industry Association (RVIA) recommend that you contact NHTSA directly through its tire complaint form <https://www.nhtsa.gov/report-a-safety-problem#tire> or by calling its Vehicle Safety Hotline (888-327-4236). Essentially, the NHTSA can't act on what it doesn't know about — and we're told that it will pay attention if there are enough complaints, especially about the same tire brand. "Any time you have a tire fail, save it," Rohlwing advised, "don't throw it away. If you can't produce the tire, you've got nothing. You have to have evidence. You've got to be able to produce the tire(s)." In addition, Rohlwing said you should take plenty of pictures and detailed notes — where you were, direction of travel, time of day, ambient temperature, data from TPMS (if you have one) and anything else you can think of. Make sure you



If your axle components are showing their age, the good news is that you can purchase a new hardware package. A stock replacement package like this one should be considered the minimum; a better choice would be a kit with greaseable bolts (note Zerk fitting at end) and bronze or Never Fail bushings. These will wear better and last much longer, helping to prevent misalignment issues that will cause tires to wear unevenly.

record the tire brand, line, size, load index, speed rating and DOT tire identification number.

•**Alternative tires:** If you have had problems with readily available ST tires, you still have options. One is commercial tires (designed for commercial applications like cargo trailers), which feature heavier construction. One popular commercial brand that we've had good luck with is Sailun, and these are being offered as an option on new Montana trailers as well. However, these are not available for 15-inch wheels, which many trailers still

have, so a wheel change would also be required (which could create clearance problems). Another popular choice are light truck or LT tires. In any case, always consult with a tire professional before considering a different type of tire to make sure the width, height and load/speed ratings are compatible, and that the new tires do not violate the rim's pressure rating.

•**Radical change:** This may be a stretch, but one of the industry experts we spoke with offered another suggestion that was, at the very least, interesting: A consortium of trailer owners



This trailer is a good example of how NOT to store your trailer. Select a surface that is firm, clean, dry and reasonably level, and keep your tires covered if exposed to direct sunlight. If stored indoors, don't leave the tires on concrete — use squares of plywood instead. Move the trailer at least every three months if possible.



(perhaps in a Facebook group) who have experienced premature failure or blowouts who get together to establish a centralized location to have the failed tires shipped to. It could be as simple as a warehouse or barn belonging to one of the members. Each tire is shipped with detailed notes and any relevant images of the failure. Once enough tire carcasses and notes had been assembled (say 100 or more), the consortium could hire a forensic tire expert (with help from a local attorney) who could help expose the ST tire failure epidemic and get the attention of NHTSA. With enough proof that tire defects were to blame, maybe — just maybe — RVers could affect change. Just remember: The last time tire failures got the attention of NHTSA, it was the infamous Firestone vs. Ford fiasco of 2000. It's not easy to change a federal standard. **RVE**

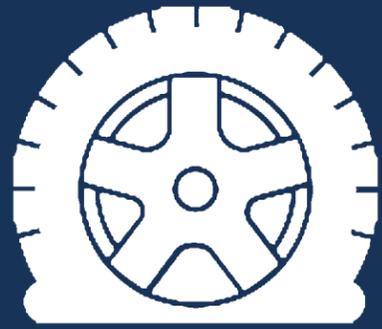
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Flat Out



Changing a tire on a trailer isn't the same as on a car or truck — but with the right tools and techniques, you can be back on the road in no time.

By Chris Hemer / Photos by Chris Dougherty

If you drive, the chances are good that at some time in your travels, you've experienced a flat tire. It's scary at first, but soon your mind catches up to what's happening and you pull over. From here, you probably called roadside assistance or mounted the spare yourself. With a flat on your travel trailer or fifth wheel, it's a different story. Roadside assistance isn't always available for an RV and changing a trailer tire isn't as simple as whipping out a jack, lifting the trailer and putting on a spare.

Honestly, it's surprising that the practice of properly changing a tire isn't better known — the procedure isn't in the owner's manual, and we'd be willing to bet that the dealership you purchased the RV from didn't show you (or tell you) how to do it. But changing a tire on a trailer safely and without causing any damage isn't difficult — you just have to know the correct procedure and have the right tools at your disposal.

The first thing that you should consider a must-have is a Camco Trailer Aid PLUS, a lightweight, super strong polymer ramp designed specifically for changing a tire on a tandem-axle trailer. On a triple-axle trailer, a single Trailer Aid PLUS ramp can still be used, then a trolley jack can be employed to lift the axle with the flat just enough to remove the wheel. Single axle trailers are commonly small and light, so on these, you can use a screw or bottle jack and some wood blocks on the frame (as close to the center as possible) to lift the wheel off the ground. In any case, you'll also need a lug-nut wrench, correctly-sized thin-wall socket (a regular or impact socket won't fit inside the recesses of aluminum trailer wheels) and a torque wrench.

As with changing a tire on a car or

truck, the first step is to use the wrench to loosen the lug nuts on the wheel with the flat tire — you won't be able to do this once the wheel is in the air, because it will turn. Just loosen them so that they turn easily with the wrench but not so much that the wheel is loose, because you still need it to safely support the weight of the trailer. Place the Trailer Aid PLUS ramp in front of (or behind) the good tire and pull forward/back up onto it (depending on whether it is a front or rear tire). The ramp raises the flat tire just enough to get it off the ground. From there, use the wrench to remove the lug nuts, then pull the wheel off the hub. To do this correctly — and to minimize the chances of damage to the hub or wheel studs — the lug nuts

should be removed in a "star" pattern (see the illustration for the correct torque sequence on five, six and eight lug wheels for reference).

Travel trailers and fifth wheels come with a spare tire, which you should regularly inspect for correct air pressure and to make sure it is a suitable replacement — in other words, it's in good condition and hasn't "timed out" or expired. A small, inexpensive 12-volt DC air compressor is also a good thing to have just in case the tire is low and needs to be inflated to the proper level. Remove the spare, then put the spare wheel/tire on the hub. Tighten the lug nuts as much as you can with the wheel off the ground, then drive the trailer off the ramp.



This is all you need to change a trailer tire correctly and safely on a tandem axle trailer: A torque wrench, a trolley jack (small floor jack), wrench, thin-wall socket and a Trailer Aid PLUS. You should also have some wooden or plastic blocks handy

Can You Change a Motorhome Tire?

Motorhome tire failures aren't as common as those on trailers — but if you get a flat tire, can you change it yourself if need be? That depends entirely on the motorhome. Class B motorhomes are essentially van conversions, so changing a tire on one of these is no more difficult than a truck or, well, a van. Class C motorhomes obviously vary greatly in size, from 22 feet to more than 30 feet, but the one thing they

have in common is a spare tire and an automotive-style frame; changing a tire on a Class C should present no more challenge than a pickup truck and the motorhome should have come equipped with the necessary jack and lug nut wrench. If not, a screw or bottle jack, some wood blocks and a lug nut wrench should help you get on your way. If your motorhome has leveling jacks, don't use them to raise the

tires off the ground; they are not designed for that purpose and could be damaged.

Class A motorhomes are a different story completely. Most don't come with spare tires, and even if they did, they are usually too large, heavy and difficult to handle for one person, particularly those on diesel pushers. It's best to keep your tire brand, size, load range and other information on hand, and contact roadside assistance with that information.



Before you ever have to change a tire, look at your trailer owner's manual to determine the recommended wheel torque. If you don't have the owner's manual, now would be a good time to get one, or consult with the axle manufacturer (i.e., Dexter or Lippert) to find out what the correct wheel torque should be. Begin tightening the lug nuts in sequence using your torque wrench. It's good practice to start with the torque wrench at one third the specified torque, then tighten the wheel in the correct sequence. Repeat the process at about half the specified torque, then again at the final torque setting. A word of caution here: Though it may be tempting to use a battery-powered impact driver to tighten the lug nuts, don't do it. It's too easy to over-tighten the lug nuts and damage the studs, wheel or both. There are impact guns with torque limiters, but then you are relying on the accuracy of same — a torque wrench is still the safest bet.

Once the wheels are properly torqued, you're ready to hit the road again—but be sure to re-check the torque after 10 miles, then again at 25 miles and at 50 miles to make sure the lug nuts are tight and you're safe to travel to your next destination. And don't forget to replace that spare as soon as you can.

For this demonstration, we used a Gorilla Power Wrench, which includes a 3-inch extension and 3/4-inch and 13/16-inch thin wall sockets, available on Amazon <https://amzn.to/2W5knmE>. The telescoping handle extends to 21 inches for maximum leverage but collapses to 14 inches for easy storage.



There's not a lot of space between the lug nut and the mounting hole on aluminum trailer wheels, so this is where the thin-wall socket comes in. The deep socket, combined with the 3-inch extension gets a good grip on the nut, and clears the center cap. Loosen the lug nuts before elevating the wheel.



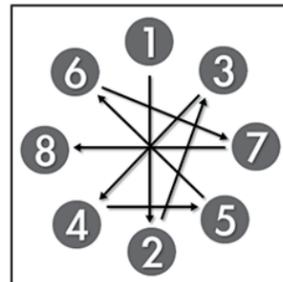
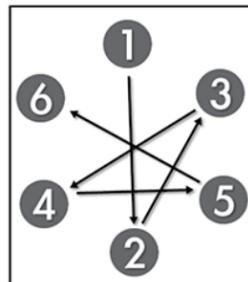
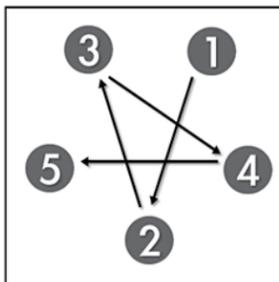
Position the tire on the Trailer Aid PLUS ramp, as shown. Since both of the tires in this demonstration are inflated, there isn't any clearance between the ground and the tire that's not on the ramp, but in most cases there will be when the tire is flat (or shredded, as they most often are). If there is still no clearance, the trolley jack can be pressed into service to elevate the tire.



If the tire does not clear the ground, use some blocks and a trolley jack to lift the axle directly underneath the spring perch, as shown until it clears the ground by a couple of inches. Since you are not lifting the full weight of the trailer in this scenario, there is no danger of bending the axle.



Torque the lug nuts in three passes, using the correct sequence for the lug nut pattern.



Torque-sequences: This illustration from Keystone RV Company shows the torque sequences for five-, six- and eight-lug wheels. These should be used when removing the wheel as well as re-installing it. **RVE**



There are torque wrenches of all kinds on the market today, but this style is most common. Turn the collar until it reaches the desired torque value and you're ready to go.

New Stuff!

Lippert 'Reimagines' Typical RV Components with Atypical Engineering and Design

By Bruce Hampson



Lippert's On-The-Go ladder system is designed to extend 24 to 36 inches above RV roof level, making it safer and easier to use.

No discussion of RV suppliers is ever complete without heavy mention of Lippert. From axles and coatings to electronics, furniture and mattresses, glass, lamination, metal fabrication, plastic molding and power and motion systems, Lippert has a hand in an amazing number of supply channels feeding the RV industry. Most RVers, in fact, are unaware of the depth of Lippert's involvement. That HappiJac bed lift in your toy hauler? That CURT fifth-wheel hitch? The Thomas Payne furniture you sit on? These — and more than two dozen others — are all Lippert companies.

But while acquisitions have contributed greatly to Lippert's growth, much of

the company's success is fueled by its continual dedication to product development.

"We're really focused on turbocharging our innovation as a company," said Andy Murray, chief sales officer for Lippert. "We're looking for areas that may have been stagnant and trying to find ways that we can bring value, innovate and change the game in some of those areas."

Underscoring that statement, *RV Enthusiast* joined *RVBusiness* Executive Editor Rick Kessler recently to meet with several key Lippert executives showcasing a number of new products the company is introducing through RV manufacturers for 2022 model year

recreational vehicles. And while Vice President of Marketing Jarod Lippert noted that the company's initial focus with the new products will be on the OEM side, he also pointed out that all would find their way to the aftermarket. In fact, one — the On-The-Go Ladder system — may be making its way there well before the upcoming holidays.

Along with the ladder, the products unveiled included a new entry step design and, said Jarod Lippert, "a new electric tongue jack that's never been seen before in the market." And unless you read the RV trade publications, you're seeing them here first.

Gate Defender



Lippert's Gate Defender extends down from the bottom of the A-frame. Aided by a triangular support system developed by Lippert, it's rated for 3,500 pounds.

Actually, a case could probably be made that the Gate Defender – the company's latest A-frame jack – isn't really new. It is, in fact, derived from the angled electric stabilizer jacks Lippert has been manufacturing for years. Where and how the company has repurposed it, however, makes all the difference.

"Tongue jacks have been pretty much the same for a long time," said Mason Ogle, vice president of sales. "They stick up in the back and get in the way of lowering a truck's tailgate when hitched up. We wanted to create a jack that is at the bottom of the A-frame, not protruding out the top."

To accomplish this, Lippert engineers modified one of the jacks used in the company's travel trailer leveling system. Mounted to the bottom of the A-frame, when not in use the jack collapses into its housing, flush against the A-frame; when activated, it drops down at an angle to provide the required support. Aided by triangulation bars to either side — new technology developed by Lippert — the jack is rated for 3,500 pounds. An easily accessible switch and lighted bezel will be added to the front of the A-frame where the cylinder jack previously resided.

In addition to saving wear-and-tear on a tailgate, additional benefits of the Gate Defender include freeing up otherwise unused real estate on the top of the A-frame for additional batteries, bike racks or other equipment. And, because it tucks up flat against the underside of

the A-frame when not in use, there's no chance of it catching and bending on a steep driveway.

Solid Step Levitate



Solid Step Levitate captures the modernistic look of "floating" stairs used in upscale homes. The open design — rated for up to 350 pounds — also allows side access to the RV entry stairs.

Solid Step Levitate, on the other hand, is an entirely new concept.

"Our current Solid Step is used extensively in the market, but it's similar in

in Solid Step Levitate, on the other hand, is an entirely new concept.

"Our current Solid Step is used extensively in the market, but it's similar in design to our competition," said Ogle.

"We wanted to make something with more of a residential 'feel.' This step has one rail going down the center and has a 'floating stair' look to it."

By removing the somewhat bulky side rails, the new step also allows users to approach the unit from the side as well as from the front for faster access. And, added Ogle, tests have shown the Solid Step Levitate's stability to be comparable to the company's current Solid Step; it also will carry a similar 350-pound weight rating.

Easily adjustable to whatever terrain is below it, the new step uses an adjustable pull pin on the center leg to set the unit and features a larger foot pad for increased stability. The Solid Step Levitate will be available in configurations of two to four steps and is manufactured with an eye toward aesthetics: the steps are black steel treads while the main center rail sports an aluminum finish. The new steps also will incorpo-

rate an optional lighting system.

"Another benefit we've addressed is, the Levitate latches to itself using cables that prevent it from going into the unit," Ogle said. "Other steps latch to the doorframe and can damage the unit. And it's just chest-high when you are unlatching it; current latching systems used today are 18 to 20 inches higher, which can make them difficult to deal with at times."

On-The-Go-Ladder



When not in use, the telescoping On-The-Go ladder collapses into itself for easy storage in an outside compartment.

In much the same way that the Solid Step Levitate brings a fresh way of looking at RV entry/exit steps, Lippert has redesigned the typical staid roof ladder — which, in Lippert's world, is less a ladder as it is a ladder system.

"Ladders had been a mainstay in the industry for decades, but they aren't a very secure method to access the roof," said Jarod Lippert. "OEMs feel the need to supply them due to maintenance requirements on the roof and that's why most RV owners feel like they need it. But what triggered the idea here was noting how many times an RV was seen rolling down the road with a real ladder strapped to the back. That told us the end user wants a better solution."

Lippert's On-The-Go Ladder is built around the use of a telescoping ladder

and bracket. The lightweight aluminum ladder collapses into itself for easy storage in an outside compartment while the bracket can be mounted on the rear or side of the RV — a big benefit for toy haulers where ladders cannot be mounted on the rear ramp door. During use, special arms at the top of the ladder fit into the bracket to establish a solid connection while the ladder legs are secured on the ground rather than the RV.

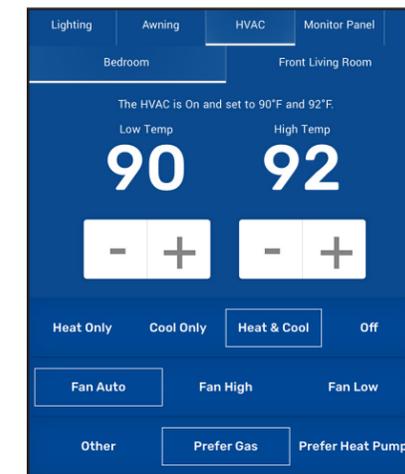
Just as importantly, said Lippert, is the fact that the ladder when used is set against the RV at an angle rather than the typical vertical ladder mounted to the rear of a unit.

"That makes a huge difference in terms of ease of use and security when you're going up the ladder," he added.

The On-The-Go system also was designed to overrun the rooftop when in use by 24 to 36 inches. This provides the user with a secure area to grab onto when accessing or leaving the roof. And, by limiting mounting points to just the bracket, the Lippert ladder system also eliminates upwards of a dozen screws sunk into the rear cap of the RV for a traditional RV ladder — all of which are potential water incursion points.

Beyond the obvious benefits, having access to a portable ladder while camping also opens up other uses, from being able to access the roof of a cargo trailer or cleaning the windshield on a motorhome to retrieving kids' toys from tree branches. The ladder, by the way, has a weight capacity of 250 pounds.

OneControl Upgrades



Lippert also has incorporated a number of upgrades into its OneControl system, including its own proprietary panel and Bluetooth connectivity to link with smartphones.

While Lippert's OneControl is an OEM-installed feature, the company has given the system a host of upgrades for 2022 that are sure to interest most RVers.

Arguably the first control system widely used in the RV market, Lippert has made continual upgrades to the product and the newest version — its fourth iteration — has been updated with a new interface for mobile devices and its own monitor panel.

As explained by Andrew Mock, vice president of sales/interiors, the new interface allows end-users to access OneControl's various tasks with fewer inputs — "it's going to be less button pushes to get to the things you want to be able to use," he said. The interface also is designed to be programmed by the user to create "favorites" and make required access buttons more readily available.

The interface, Mock added, also is "scalable." At the base level, it controls five motor functions and four light zones, then allows for nearly unlimited plug-ins, from controlling HVAC systems to the generator.

Along with the interface, OneControl also will have its own proprietary monitor panel for the first time and will feature Bluetooth connectivity allowing users to automatically link to their smartphone.

"You will just hit the button at the top of the monitor panel and then find your phone just as you might find any other Bluetooth-connected device," said Mock. "It then automatically links up." The high-tech Laser Etch panel also uses a single cable, he added, "which gives OEMs the option of placing it just about anywhere in the unit they want."

New Stuff!



King of Connectivity

Perhaps the hardest part of traveling is staying connected. No one likes having cell phone conversations continually dropped as you drive between cell towers or, worse yet, stop at a campground where “away from it all” includes cell reception. The KING **Extend Pro** boosts and extends cell signal, providing greater voice and data coverage and speed. The Extend Pro can be used while stationary or moving and is 5G-ready with 4G/3G LTE voice and data. No added contracts and no monthly fees are required and it supports multiple users and all devices and carriers. Comes with brackets for roof, pole or ladder mounting. **KING**, (952-922-6889), kingconnect.com.



Tire System Technologies, (770-889-9102), tsttruck.com.



Is It Safe Yet? The buildup of carbon monoxide (CO) is a very real danger in brick-and-mortar homes — in the tight confines of an RV, it demands critical monitoring. The **RV Safe Alarm** uses the latest technology to monitor not only CO but also propane gas leaks. It meets or exceeds all UL requirements for CO and propane gas alarms and uses the latest advanced electrochemical sensors to detect CO. Winner of the 2021 Product of the Year at the RV Aftermarket Awards program, the sleek, modern profile (in black or white) includes an alarm with a four-beep pattern and flashing red LED for CO gas, or a continual beeping with a solid red LED indicator for propane. A test/silence button allows for easy testing of the unit and for quickly silencing nuisance alarms. **RV Safe Alarm**, (714) 934-8512, vsafealarm.com.



The X Factor

Does your fifth wheel or travel trailer need a bit more “muscle” while tackling rough roads or tight corners? The **X-Factor Crossmember** from MORryde adds lateral support and reduces stress on your RV’s frame. The low-alloy steel crossmember strengthens the suspension to improve performance while reducing stress by up to a claimed 94% at each location. It’s also adjustable to fit different frames and is easy to install with no welding or drilling required. **MORryde**, (574-293-1581), morryde.com.

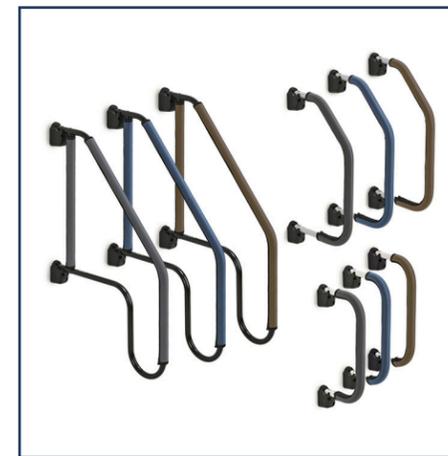
(Sp)Air Apparent

While most RVers know the value of using a tire-pressure-monitoring system (TPMS) on their vehicles, spare tire maintenance is often overlooked. That’s understandable — no one wants to crawl around under an RV to check the air pressure in the spare. Now you don’t have to. **Spare Air** from Truck System Technologies (TST) is a 6-foot-long spare tire hose kit that allows users to check the air pressure in the spare at an easily accessible location. The kit includes hose and all necessary mounting hardware — including a valve stem should users opt to add a TST TPMS sensor to monitor the spare in real time.



Want to Know a Secret?

Hot Shot’s Secret launched its first product — Striction eliminator oil additive — in 2009, and since then has added more than 30 products to serve the needs of gas- and diesel-powered RVs. While most are fuel treatments, the company recently expanded its lineup to include two 150,000-mile engine **antifreeze/coolants** and two full synthetic **Group III RV generator oils**: one for gas-powered engines and one for diesel-fueled units. According to the company, the additives are designed to reduce oil consumption and are infused with patented nanotechnology to guard against heat, oxidation and deposits. The antifreeze/coolants are formulated to meet heavy-duty RV diesel-engine maintenance requirements. Both feature thermal, rust and corrosion inhibitors. **Hot Shot’s Secrets**, (844) 338-5589, hotshotsecret.com.



Hold On Tightly

Handrails are one of those products most RVers never give a second thought to — until the grip wears out or becomes uncomfortable. Why wait? Stromberg Carlson offers a number of replacement hand grips — including the company’s popular **Zip Grip** — in 22-inch and 39-inch lengths to fit popular RV handrails. Plus, unlike those “basic black” grips that accompany most RVs from the factory, each size is available in charcoal, tan or blue colors to match your RV — and, they are machine-washable. The company also carries a number of commercial rails, a soft touch grab handle, the Rail Mate and other replacement handrail grips. **Stromberg Carlson Products**, (231) 947-8600, strombergcarlson.com.



Cold Energy

Boondocking is the current rage in the RV universe, but chances are it will slow down as the weather turns cold. Some folks just don’t like the cold — and some batteries don’t, either. Lithium batteries, in particular, are susceptible to cold. With the **BBGC2H**, Battle Born has added to its line of lithium batteries that incorporate a heating element inside the battery, allowing charge and discharge restrictions to expand below freezing. Using proprietary low-draw technology, the element keeps the battery warm and ready to charge no matter the weather conditions. As per Battle Born testing, at 0 degrees the low-draw internal heating system (it pulls an average of 1.8 amps) is on about 30% of the time. With no external charging or loads, it gives approximately 185 hours of heat capability before the battery goes into low voltage disconnect. **Battle Born Batteries**, (855-292-2831), battlebornbatteries.com. **RVE**



Safety is a CO-Sniffing Generator Yamaha Motor Corp. USA has released its new **EF2200iS inverter generator** that, according to company reps, is the first in Yamaha’s lineup of generators equipped with CO Sensor technology to meet the Portable Generator Manufacturers’ Association’s (PGMA) ANSI/PGMA G300-2018 standard that includes requirements designed to monitor carbon monoxide emissions. When the unit’s sensor detects elevated levels of carbon monoxide, the inverter generator will shut down and remain off for five minutes; a CO Sensor graphic and LED indicator light in the control panel will notify the user of CO levels. The EF2200iS delivers 2,200 watts of AC output, with a maximum AC current of 18.3 amps at 120 volts, and can be connected to another unit using Yamaha’s Twin Tech parallel function. **Yamaha Motor Corp.**, yamahamotorsports.com/power-product.

continued from page 11

North America's 'Top 50' RV Dealers for 2021



Searching for a new RV? Don't limit your research just to the type of unit you want, the floorplan and the price — the dealer you purchase from is every bit as important. Knowing the dealer will take care of you after the sale is just as crucial to your decision as the RV you buy.

How do you find a solid, professional dealer? Recommendations from your RVing friends should carry considerable weight — there's no substitute for experience. Another vetted source is the annual Top 50 Dealer Awards program by *RVBusiness* magazine.

Top 50 dealers are chosen following a process that begins with their nomination by an RV manufacturer. Each participating dealer — and hundreds are involved — submits packages based upon an extensive application and supporting documentation; each package is then reviewed by an independent panel comprised of longtime RV industry experts recognized by the magazine as being well-versed in all aspects of running a successful dealership. It's an arduous process that weighs everything from the dealer's focus on customer service to its support of its community.

The magazine, considered the premier trade publication in the RV industry, released the names of the Top 50 dealers for 2021 recently — and it's a list anyone in the market for a new or used RV should pay attention to. Know, too, that while the list focuses on individual dealerships, some are part of multi-store dealership groups. Since inclusion on the prestigious list is indicative of the dealer's professionalism, rest assured that it's a company culture that permeates all of a chosen dealer's locations.

The Top 50 dealers for 2021 include:

- Affinity RV Service, Sales & Rentals, Prescott, Ariz.
- Airstream Adventures Northwest, Gladstone, Ore.
- All Valley RV Center, Acton, Calif.
- Alpin Haus, Amsterdam, N.Y.
- ArrKann Trailer & RV Centre, Edmonton, Alb.
- Beaver Coach Sales & Service, Bend, Ore.
- Bent's RV, Metairie, La.
- Bucars RV Centre, Balzac, Alb.
- Bullyan RV, Duluth, Minn.
- Byerly RV Center, St. Louis, Mo.
- Camperland of Oklahoma, Tulsa, Okla.
- Campers Inn RV, Jacksonville, Fla.
- Colonial Airstream & RV, Lakewood, N.J.
- Colton RV, North Tonawanda, N.Y.
- Cousins RV (RV Retailer), Wheat Ridge, Colo.
- Crestview RV Center, Buda, Texas
- Curtis Trailers, Portland, Ore.
- Fraserway RV, Abbotsford, B.C.
- Fun Town RV, Cleburne, Texas
- Giant Recreation World, Winter Garden, Fla.
- Giant RV, Montclair, Calif.
- Gib's RV Superstore, Coos Bay, Ore.
- Good Life RV, Webster City, Iowa
- Great American RV, Hammond, La.
- Greenway RV Sales & Service, Wisconsin Rapids, Wis.
- Hartville RV Center, Hartville, Ohio
- Hilltop Camper & RV, Fridley, Minn.
- Holman RV, Batavia, Ohio

- Lewis RV Center, Oklahoma City, Okla.
- Manteca Trailer & Motorhome, Manteca, Calif.
- Mike Thompson's RV Super Stores, Santa Fe Springs, Calif.
- Modern Trailer Sales, Anderson, Ind.
- Mount Comfort RV, Greenfield, Ind.
- Pan Pacific RV Centers, French Camp, Calif.
- Parris RV, Murray, Utah
- PleasureLand RV Center, St. Cloud, Minn.
- Princess Craft, Round Rock, Texas
- Rangeland RV & Trailer Sales, Rocky View Co., Alb.
- RCD RV Supercenter, Heath, Ohio
- Rich & Sons RV Headquarters, Grand Island, Neb.
- Rick's RV Center, Joliet, Ill.
- Ron Hoover RV & Marine Centers, Rockport, Texas
- Sicard RV, Smithville, Ont.
- Tacoma RV, Fife, Wash.
- United RV Center, Ft. Worth, Texas
- Unlimited RV, Independence, Mo.
- Veurink's RV Center, Grand Rapids, Mich.
- Voyager RV Centre, Winfield, B.C.
- Walnut Ridge Family RV Sales, New Castle, Ind.
- Woody's RV World, Calgary, Alb.

Additionally, five dealerships were recognized as "Blue Ribbon" recipients singled out by judges for exemplary performance: Affinity RV, Campers Inn RV, Colton RV, Hilltop Camper & RV and Sicard RV. Further to this, Veurink's RV Center was named recipient of the Gaylord Maxwell Innovation Award for exceptional creative business strategies, while Airstream Adventures Northwest received the Arthur J. Decio Humanitarian Award for outstanding charitable outreach. **RV**

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MAKING MEMORIES

By Sue Strauss

photos by author

Driving Deep into History

A journey into Palo Duro Canyon in Texas produces specular memories that took millions of years to create



A distinctive "hoodoo" rock formation near Capitol Peak in Palo Duro Canyon State Park in the Texas panhandle. The multi-colored layers of rock are similar to those seen in the Grand Canyon in Arizona. Palo Duro Canyon has been nicknamed "The Grand Canyon of Texas."

The Llano Estacado is a vast, dry plains area located in the southwestern United States, covering parts of eastern New Mexico and the panhandle of northwest Texas. The area is often described as being made up of "baked nothingness" — but within these arid plains, visitors will find a giant gap in the ground and soon discover this little-known canyon is the second-largest canyon in the United States. Palo Duro Canyon shares many similarities with the Grand Canyon, but has far less distinction — and, hence, crowds of people — than Arizona's popular landmark, making it well worth a side excursion for anyone wanting to view the power and beauty of nature. Carved through millions of years of erosion, these canyons have similar geological features, including multi-colored

layers of rock and steep mesa walls. Palo Duro Canyon was shaped by the Prairie Dog Town Fork Red River that winds through west Texas and suddenly runs off the Caprock Escarpment; the river carving its way through the southern high plains of the panhandle created Palo Duro Canyon. Today, the canyon measures approximately 120 miles in length and up to 20 miles in width with an average depth of 820 feet; in some spots, the canyon measures as much as 1,000 feet deep. The canyon also has many notable features including caves and "hoodoos," oddly shaped stone pillars formed by erosion. (Bryce Canyon National Park, in southern Utah, is said to be home to the largest number of hoodoos.)

Though many travelers today may not be familiar with Palo Duro Canyon, there is evidence of human habitation in this canyon dating back 10,000 to

15,000 years ago. The first inhabitants of the canyon were primarily nomad hunters who inhabited the canyon because of the ample game and natural protection provided by the landscape. Native Americans of the Apache Tribe lived in the canyon in the 1500s and were eventually displaced by the Co-



Hoodoos can be seen along many of the hiking trails in Palo Duro Canyon State Park. This mushroom-shaped hoodoo is on the Lighthouse Trail.



The high cliffs are pockmarked with caves. The rust and ocher-colored layers of sedimentary rock add beauty to this arid canyon.

manche and Kiowa Indians. In 1541, the Coronado Expedition brought the first European explorers into this canyon and introduced horses to the area, as well. Native Americans continued to inhabit the canyon for the next several hundred years, until 1852 when the U. S. military sent a team of men into the area to map the canyon. Approximately 20 years later, U. S. Army troops were sent to remove the Native Americans and forcibly move them to reservations in Oklahoma. The most significant military confrontation between the U. S. Army and an encampment of Plains Indians took place on September 28, 1874. Known as the Battle of Palo Duro Canyon of the Red River War, U. S. Army troops led by Col. Ranald Mackenzie attacked the Indian encampment. The Comanche and Kiowa Indians conceded and fled to Fort Sill Reservation in Oklahoma. A few years later, the J.A. Cattle Ranch was established in the canyon by two wealthy businessmen and operated for about 15 years. In 1934, Texas purchased 29,000 acres of land in Palo Duro Canyon and established it as a state park.

The Civilian Conservation Corps (CCC) developed Palo Duro Canyon State Park over four years in the 1930s, building the first two-lane road from the rim to the floor of the canyon. The CCC also built culverts and bridges as well as the park's headquarters building, cabins and picnic areas; most of these structures are still standing and are used today. Additional facilities have been added to the state park over the years, including the Palo Duro Canyon Pioneer Amphitheater. Completed in

1966, this outdoor amphitheater holds 1,600 seats and was actually carved out of and nestled into the natural basin of the canyon, using a 600-foot cliff as its backdrop. Every summer (June to mid-August) a musical drama entitled "Texas" is performed in this amphitheater. The family-friendly show brings to life the stories, struggles and triumphs of the settlers of the Texas panhandle in the 1800s. Tickets range from \$17-\$38 and can be purchased on-line by going to www.texas-show.com or by calling (806) 655-2181.

Palo Duro Canyon offers a variety of activities for visitors, including 36 miles of trails for hiking, biking or equestrian activities. Trails range from ½ mile to about 8 miles in length and can be found by going to www.alltrails.com. One of the most popular hiking trails is the Lighthouse Trail, a 6-mile roundtrip route, which takes you through the park's signature geological formations. Go to www.tpwd.texas.gov to download a copy of the trails map for this park. If you are interested in horseback riding, Old West Stables offers horseback riding tours through the park on a daily basis. Birding is another very popular activity in Palo Duro, with more than 240 different species of seen in the park. Park management have actually built several "bird blinds" to allow visitors to observe birds and other wildlife without disturbing the animals. Geocaching, an outdoor recreational activity using GPS or other navigational techniques to hide and seek containers called geocaches, is another popular activity in the park. Photography, studying nature and stargazing can also

be added to the list of activities. If you enjoy animals, you should check out the Texas Longhorns — several members of the official State Longhorn Herd live in the canyon and can often be seen along the rim near park headquarters or in Longhorn Pasture. The park cares for these Texas Longhorns as a way of preserving its state history. Park rangers also give daily talks and lead hikes and can provide more detailed information on any of the activities listed here.

Because there is so much to see and do in Palo Duro Canyon State Park, I would recommend spending two or three days here on your first visit. Several campgrounds are located within the park, and reservations can be made on-line by going to www.texasstateparks.reserveamerica.com. The Mesquite/Sagebrush Campground includes 47 sites up to 60 feet long, with 50/30-amp electric service and water; rates are \$26 per night. The Juniper Campground includes 18 paved sites with 50/30-amp electric, water and picnic tables with shade gazebos. Restrooms and showers are located nearby; rates are \$26 per night. The Hackberry Campground offers 32 sites with 30/20-amp electric service and water, also for \$26 per night. The park also offers group sites for up to 72 people in the Wolfberry Campground, and primitive campsites can be reserved for \$12 per night.

You should go prepared when visiting Palo Duro Canyon. It is recommended that you bring sunscreen as well as bug spray (to ward off the biting horse flies) if you travel here during the summer months. As this is an arid area, pack in lots of water if you decide to stay in the primitive area. The park has a small store and restaurant, known as the Palo Duro Trading Post, which sells many of these essentials, along with a multitude of souvenirs, and is open 9 to 5 daily. The restaurant portion of the Trading Post serves breakfast and lunch selections all day.



Texas Longhorns can often be seen grazing in the canyon. Texas maintains a herd of Longhorn cattle as a way of preserving part of its history.



Birding is a popular activity in Palo Duro Canyon State Park, with more than 240 bird species living in the canyon. This Golden-Fronted Woodpecker looks on as a Sparrow splashes in a bird bath/fountain. We also spied this male Cardinal through one of the many bird blinds in the park.

Canyon is the closest town (about 10 miles away) and offers a few additional points of interest that you won't want to miss. The Panhandle-Plains Historical Museum, located on the campus of West Texas A&M University, is the largest history museum in Texas. From dinosaurs to conquistadors, you will find it all on display in this museum. The museum also houses a life-size pioneer town to show visitors the



The steep rock walls of Palo Duro Canyon, which extend for approximately 120 miles in length and up to 20 miles in width with an average depth of 820 feet.

struggles of the settlers that once lived in the panhandle area, and has one of the Southwest's finest art collections. The museum is open Monday through Saturday, 9 a.m. to 6 p.m. and Sundays from 1 p.m. to 5 p.m. Admission is \$12.50 for adults (\$10 for seniors). You should allow yourself approximately half a day to visit this museum. While you are driving through Canyon, be sure to check out the Tex Randall, Big Texan statue on 3rd Avenue. This 7-ton slouching cowboy statue stands 47 feet tall and has become a Texas icon in Canyon since 1959.

If you are driving from Amarillo to Palo Duro Canyon State Park — a distance of about 25 miles — you will be traveling through Amarillo's Route 66 Historic District. Another roadside attraction that you won't want to miss is Cadillac Ranch. Here stands the world's only 10 Cadillacs buried nose-down in a field, on display as a public art sculpture since 1974. This art sculpture has gained in popularity over the years and is even the name of a Bruce Springsteen song and has been pictured in a music video "Living in America" by James Brown. It's definitely worth a short stop, just so you can say you've been there!

One of Canyon's more famous residents was the painter, Georgia O'Keefe. From 1916-1918, O'Keefe produced a multitude of paintings of Palo Duro Canyon, sharing her memories of this place on canvas. When asked about her canyon paintings, she is quoted as saying: "It is a burning, seething cauldron, filled with dramatic light and color." I spent several days

exploring Palo Duro Canyon and concur. This little-known canyon is sure to capture many memories of a natural wonder that that took millions of years to create.



Cadillac Ranch is a historic roadside art sculpture that has stood along historic Route 66 since 1974. Ten Cadillacs are buried nose-down in a field and stand approximately 30 miles outside of Palo Duro Canyon State Park. **RVE**

Suzanne Strauss



Suzanne Strauss and her husband, **Rich**, have been full-time RVers for about four years.

They started out camping on weekends in a pup tent; eventually, they bought a small single-axle travel trailer to "test the waters" and fell in love with RVing. Now living full-time in a motorhome, they ply the roadways in search of interesting and "off the beaten path" places. She can be reached at: RStrauss22@gmail.com

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