

RV Safety: Surge Protectors, Cordsets & Receptacles

RV ENTHUSIAST

NORTH AMERICA'S PREMIER HOW-TO RV RESOURCE

August 2021

All About RV Appliances!

- **Galley Maintenance**
- **Stove, Fridge Swap**
- **12V DC Refrigeration**

How to:

- **Replace Trailer Entry Steps**
- **Cool Screen Door Upgrades**
- **Rid Hydraulic Jack 'Popping'**



TRAVEL TRAILER



SMALL CAMPING TRAILER



TRUCK CAMPER



NOW BOARDING, THE ULTIMATE SOCIAL DISTANCING MACHINE!

OPTIONAL FEATURES INCLUDE:



Roof Mounted Solar Panels - Clean, Quiet Power Anywhere!



Lithium Batteries - Lightweight Cutting Edge Power With More Usable Capacity!



Four Seasons Capability - Comfortable Camping Year Round.



Model 650

Control your environment while creating memories.

Take control of your vacation with a Lance Travel Trailer or Truck Camper. All the comforts of home with the serenity, isolation and beauty the wilderness has to offer. An all-inclusive resort wherever you park!

Make it a Lance. We are social distancing pros with 55+ years of experience building RVs. Unmatched quality achieved through composite construction and lightweight design with off the grid features keeping you powered up and connected with family and friends.

Our dealer partners are open and ready to serve you in a safe environment! LIVE.LANCE.LIFE.



REV GROUP

Lance Campers, social distancing since 1965. Visit lancecamper.com to locate your nearest Lance dealer and the RV of your dreams.

RV ENTHUSIAST

NORTH AMERICA'S PREMIER HOW-TO RV RESOURCE

August 2021

Volume 1, Number 6

INSIDE



16

Dueling Fuels

Among RVers, it's a debate as old as camping: Diesel or gas? The decision isn't as clear-cut as it once was, so we surveyed experts to get their opinion on the subject to help you make the right decision.



20

A Tight Connection

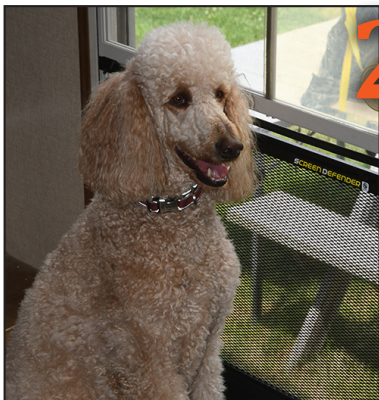
Do you know what "resistive heating" is — or how to deal with it? Tune in as we discuss the causes, symptoms and — thanks to SmartPlug's replacement receptacles and shore power cordsets — a cure.



23

When Generators Die Young

Part 2 of our series on RV generators includes a number of maintenance tips to ensure your generator starts when you need it to. It also addresses using your portable genset for powering your brick-and-mortar home in an emergency.



26

Behind Closing Doors

Lippert's entryway product threesome — Thin Shade, Screen Shot and Screen Defender — adds a huge dose of convenience when going in and coming out of a trailer. And then there's the "cool" factor.



32

Pop Goes the Leveling Jack

Loud noises emanating from an RV's hydraulic system are both fairly common and quite unsettling. The cause is usually micro bubbles in the pressurized system, or static friction. Here's one way to reduce or eliminate it.

DEPARTMENTS



6 On the Road

Recognizing — and dealing with — little problems before they become major headaches can help keep your RV on the road.



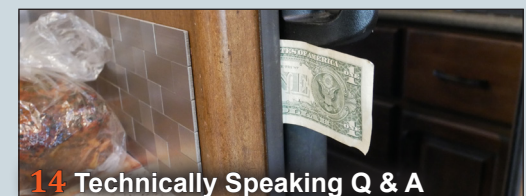
8 News & Notes

New-model RV debuts from Alliance RV, Airstream, Coachmen RV and, on the supplier side, Truma — plus the latest RV news.



12 Have Paws, Will Travel

Rollin' On TV, the nation's premier weekly RV program, initiates "Paws On Board," hosted by Dr. Marissa Fitzpatrick — aka "Dr. Fitz."



14 Technically Speaking Q & A

Readers stymied by a refrigerator adjustment, leaking toilet seal and interrupted propane flow write in for technical advice.



67 Making Memories

A visit to Assateague Island, shared by Maryland and Virginia, nets breathtaking views — and is home to two herds of feral horses.

On The Cover

Technical Director Chris Dougherty uses a flare tool to install a new propane gas line while swapping out the original range in *RV Enthusiast* magazine's pet project, a 2005 Lance Lite 1025 truck camper, for a new Greystone range. Photo by Chris Dougherty.



66 Advertisers Index



Special Section!



36

Galley Appliance Maintenance Magic

Extending the life of your kitchen equipment — the range, oven, microwave and refrigerator — isn't especially difficult when it's done on a regular basis. Here's what to do and what to watch for.



44

Contemporary Cooking

The galley in *RV Enthusiast* magazine's project, a 2005 Lance Lite 1025 truck camper, had seen better days. So, we swapped out the worn appliances for a new Greystone range, Norcold refrigerator and RecPro microwave.



52

A Direct Current to Cold

The biggest trend right now in the RV world is boondocking — going off the grid in search of new experiences. It's fueled in part by the growing popularity of refrigerators operating on a 12-volt DC power supply.



56

Surge Protection

Electrical surges can happen anywhere and at any time. A surge protector — either portable or hard-wired into your RV — will help safeguard expensive appliances and other electrical components.



61

Step Lively

The latest generation of trailer entry steps makes old wobbly steps pale in comparison. Torklift's new Smartstep Glowstep Revolution is a multi-link design that allows for operation in very tight spaces — and includes embedded glow strips for night use.

EDITORIAL STAFF

PUBLISHER - BOB LIVINGSTON
(800) 830-9729 EXT. 3
BLIVINGSTON@RVEMEDIAGROUP.COM

EDITOR - BRUCE HAMPSON
(574) 584-4616
BHAMPSON@RVEMEDIAGROUP.COM

TECHNICAL DIRECTOR
CHRIS DOUGHERTY
(800) 830-9729 EXT. 5
CDOUGHERTY@RVEMEDIAGROUP.COM

TECHNICAL EDITOR - CHRIS HEMER
(800) 830-9729 EXT. 6
CHEMER@RVEMEDIAGROUP.COM

SOCIAL MEDIA DIRECTOR - JIM MAC
(800) 830-9729 EXT. 7
JMAC@RVEMEDIAGROUP.COM

ART DIRECTOR - MIKE ACCUARDI
MACCUARDI@RVEMEDIAGROUP.COM

BUSINESS OFFICE

RV ENTHUSIAST/RVE MEDIA GROUP INC.
120 ATWATER ROAD, SPRINGFIELD, MA
01107

ADVERTISING

ADVERTISING DIRECTOR
SUE SEIDLITZ
(800) 830-9729 EXT. 2
SSEIDLITZ@RVEMEDIAGROUP.COM

SUBSCRIPTIONS

To subscribe electronically, log onto: www.rventhusiastmagazine.com, click on the "subscribe" icon and follow the prompts to add subscriber and payment information. Alternately, you may also mail to: RV Enthusiast Subscriptions, 120 Atwater Road, Springfield, MA 01107. Subscription rates: Subscriptions for U.S. and Canada: \$9.99/one year, \$18.99/two years. Premier membership subscription rates available upon request.

CORRESPONDENCE

Correspondence is invited from subscribers and readers of *RV Enthusiast*. Technical inquiries relating to RV function, maintenance, repairs and/or upgrades should be directed to either Technical Director Chris Dougherty or Technical Editor Chris Hemer at rvtech@rventhusiast.com. Letters to the Editor should be directed to Editor Bruce Hampson at editor@rventhusiast.com. Personal replies cannot be sent due to the volume of mail received. By forwarding letters to *RV Enthusiast* magazine, the author consents to allow letters to be published at the discretion of *RV Enthusiast* editors. Letters may be edited for brevity and clarification.

RV Enthusiast is published monthly by RVE Media Group Inc., 3425 East Golden Valley Road, Reno, NV 89506. *RV Enthusiast* magazine is copyrighted in the United States, Canada, Great Britain and other countries. All rights reserved. Permission to reprint or quote excerpts considered on an individual basis and granted only by written request. Advertising rates and Editorial calendars provided upon request.



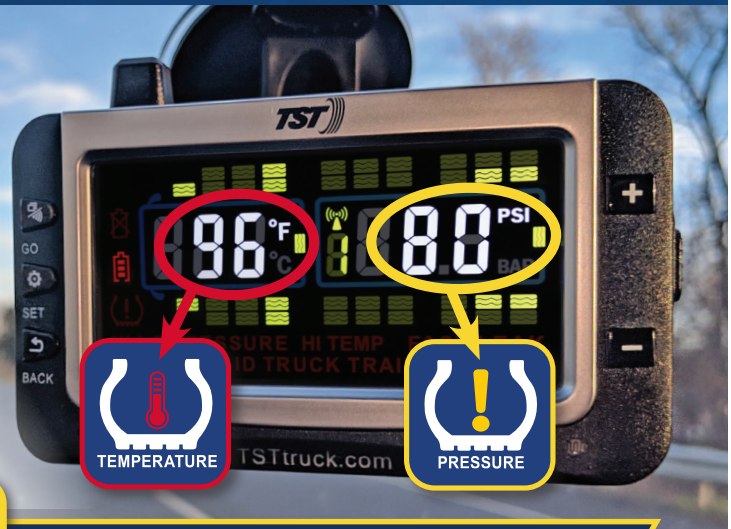
TIRE PRESSURE MONITORING SYSTEM



MONITOR YOUR TIRES FROM THE DRIVER'S SEAT.

Display Tire Pressure and Tire Temperature information at the Same Time.

Increased awareness brings increased safety, tire life and fuel economy.



OEM APPROVED & INSTALLED.

CUSTOMER REQUESTED!

WHY IS **TST** THE #1 CHOICE FOR OEM'S?

- ✓ Designed to Commercial Vehicle Standards.
- ✓ Easy Installation.
- ✓ All Sensors are Compatible with Each Other so you can Mix & Match Sensors to Monitor a Variety of Applications at the Same Time.
- ✓ User-Replaceable Batteries on Cap & Flow-Thru Sensors -- Code Lock Keeps Sensors Paired After Battery Maintenance.
- ✓ Monitor Power Unit and up to 4 Trailers and 115 Tires, including Spares.

REPEATER IN EVERY KIT.

100' RANGE

INTEGRATED INLINE FUSE

115 TIRES
5 VEHICLES

DISPLAYS PRESSURE & TEMPERATURE AT THE SAME TIME!

TSTtruck.com

SENSORS FOR EVERY APPLICATION AVAILABLE NOW!

FLOW-THRU SENSOR CAP SENSOR MARINE SENSOR INTERNAL SENSOR

OEM-INSTALLED AVAILABLE AFTERMARKET

Select RVs have TST Factory-installed. Look for the Stickers or Hang Tags to make sure you are Protected!



To find an Authorized Retailer, visit or call: www.TSTtruck.com | (770) 889-9102 M-F 9am-8pm, Saturday 9am-2pm EST

Recognizing 'Little Problems' Before They Become Major Headaches

By Bruce Hampson

Let's talk about icebergs for a few minutes. Yea, I know — it's the middle of summer. Who wants to think about overgrown ice cubes when your air-conditioner is having a tough time keeping up with the temperature outside your rig? But it's precisely now, when you are using your RV — or, possibly, looking for one after having finally decided to start enjoying the outdoors — when you oughta be aware of your immediate surroundings.

An iceberg, if you remember your high school physics class, behaves just like that cube in your evening drink — it's a solid, but it floats, because it's about 9% less dense than the water around it. That said, its density also means 90% of floating ice is under the surface, and as any ship's captain knows, it's not only what's visible that will hurt you — it's what you can't see. If he were around, no doubt Edward Smith would concur (he was the captain of the Titanic — and that's the limit to your history lesson for today).

The same is true with recreational vehicles. There are plenty of things that can — and often do — go wrong with an RV, and many of them portent even greater maladies. Fortunately, they also often tend to reveal themselves long before real calamity strikes. Being able to recognize such problems will go a long way to alleviating major repairs down the road.

Want some examples?

Moisture spotted around a window. Sure, it might only be condensation caused by the temperature variable between your AC-cooled interior and those 90-degree afternoons — but it also could indicate the weep holes might be plugged. If that's the case, well, water always finds the easiest route down. Ignore it, and water will leak into the interior and wreak havoc on the wall coverings and structure.

A bubble in the roof membrane. You do check your roof several times a year, right? If so, be aware that the roof membrane normally doesn't release from its substrate all at once — it usually starts with just a small bubble. Catch it in time and it's a relatively easy job to cut it away, replace that part of the membrane, glue it down and recoat the area with a capable rubber sealant. Ignore it, and things can go bad quickly.

Water continues to dribble after closing the dump valves.



Resealing a roof air-conditioner.

Yea, a slight amount of dribble is expected — your valves are, after all, set back a bit from the sewer hookup. More than a little, though, usually means the seal for the gate valve is bad or the channel the valve slides in is clogged with, um, “stuff.” Caught early, it's a little repair; left to its own devices, it can ultimately make dumping the holding tanks a lot more exciting.

Ceiling discoloration near the AC unit. Here's an equation that you never heard in your Algebra class: wood + water = rot. While using aluminum for framing and composite materials in place of lauan is becoming more common today, most RVs still utilize a plywood deck for the roof substrate. Fortunately, roof leaks tend to make themselves known early; they begin to discolor the interior ceiling and/or walls. Such discoloration around the roof AC can indicate a bad seal. Overlook it, and the scope of the job magnifies dramatically.

Granted, not every dilemma posed during your travels is so easily rectified. For example, smelling ammonia near your absorption refrigerator means the cooling unit is bad and you'll have to replace it or the entire refrigerator, while stress cracks spotted on a fifth wheel's cabover often requires stripping the area down to check the frame for broken welds. Even then, though, dealing with big problems sooner than later means you'll oftentimes be dealing with a problem of lesser magnitude.

All you need to know is how to go about it.

That's where *RV Enthusiast* really shines. This issue is a great example. We address everything in these pages from upgrading your screen door to swapping out galley appliances. You'll find more than a dozen stories in this issue explaining in an easily understood way how to deal with the sort of things that can otherwise keep you from enjoying your investment. In fact, in the last six issues, we've published more than 70 technically-oriented articles, written and photographed to show everyone from the experienced RVer to the “newbie” what can go wrong — and how to make it right.

Knowing how to make simple repairs can make or break your next vacation — but don't take our word for it. One of the best responses I've seen of late on the myriad RV-related forums online came as a rebuttal to someone questioning the quality of new units being built during the pandemic-fueled resurgence of RVing. I'll quote the rebuttal in edited form — just know that this was written by someone obviously not afraid to work on the family's rig who has dealt with her share of “little problems” and caught them before they became major concerns:

“We bought a unit in 2019,” wrote Melanie Covington. “Our friends bought a unit three months earlier than we did. Our unit has never been in a shop — and theirs has been in the shop more than on the road. Why? Because I fix every issue I come across and they put theirs in the shop with every issue. Wallpaper peeling due to high humidity? I fixed ours; theirs was in the shop for three months. Water leak? I found ours, replaced the bad seal for \$2 and the problem was solved; theirs was in the shop for a month. The list goes on. Every issue isn't a ‘quality’ issue; many are just wear-and-tear. I fix ours and they shop theirs — then they complain when we go on vacation and they can't because ‘it's in the shop.’ People putting their unit in the shop doesn't equal a crap-quality rig.”

I couldn't have said it better myself. **RVE**



UPGRADE YOUR ENTRY DOOR

Reliable, economical and easy to install, our entry door accessories make it simple to upgrade your RV. From added shade to screen door protection, our entryway products will give you convenience, security, and privacy in no time.



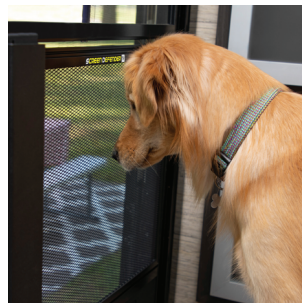
Scan to upgrade your entry door



SCREEN SHOT® SCREEN CLOSER

Looking to enhance your entryway? Get the entry door upgrade that closes your RV's screen door automatically.

- Automatically closes your RV's screen door
- Easy, DIY installation
- Helps keep pests out of your 5th wheel RV or travel trailer
- 1-year warranty



SCREEN DEFENDER™ SCREEN PROTECTOR

Bring your pet along with you without worrying about them getting out of the RV or damaging your Lippert screen door.

- Solid, aluminum screen
- Black powder-coated
- Locks into existing channels of screen door
- Easy, DIY installation
- 1-year warranty



THIN SHADE™ COMPLETE KIT

Add privacy and shade to your RV's entry doorway with this easy-to-install, sleek shade upgrade.

- Uniquely designed blind embedded in frame
- Helps keep RV interior cool and adds privacy
- Easy, DIY installation
- Easily adjustable, horizontal blind



FRICTION HINGE

Upgrade your RV entry door with ease. With the Friction Hinge, your entry door stays in the exact position you need it to.

- Provides added strength and durability to existing hinge
- No need to remove door or existing hinges for installation
- Keeps RV entry door in exact position in wind gusts up to 25 mph

Products are only compatible with Lippert entry doors

WHENEVER, WHEREVER, WE MAKE YOUR EXPERIENCE BETTER | store.lci1.com

Alliance RV Debuts Avenue Mid-Profile Fiver



will consist of four floorplans, with plans to expand the lineup over the course of 2021. The suggested retail price for the Avenue fifth wheels range from \$65,000 to \$80,000, with product starting to hit dealers' lots later this summer. For more information, visit alliancerv.com.

Airstream Debuts Pottery Barn Special Edition

A lot of folks enjoy decorating their homes with things they've discovered at Pottery Barn. A lot of others enjoy decorating their RVs in much the same



way they would their home — albeit on a smaller scale, naturally.

So, Airstream combines the two in its

In just a few short years — the company was founded in late 2019 — Alliance RV has proven itself a growing force in the manufacturing of quality-driven fifth wheels. Coming on the heels of its successful Paradigm fifth wheel and Valor fifth wheel toy hauler product launches, the Elkhart, Ind., OEM recently debuted its new Avenue, the company's first mid-profile fifth wheel.

According to Alliance General Manager Ab Saleh, the company spent "considerable" time engaging with

RVers to crowdsource the design of the Avenue.

The company cited its unique 101-inch-wide body construction, fully laminated floor, Azdel sidewalls, performance running gear enhancements, innovative storage solutions, carpet-less interiors, flush-floor slides, HVAC upgrades and a fresh interior décor as key differentiators.

With lighter weights ranging from 9,000 to 12,000 pounds, the Avenue offers towability by a larger segment of the tow vehicle market. The initial lineup

latest collaboration, the Pottery Barn Special Edition Travel Trailer.

Built around a 28-foot Airstream International platform, the iconic trailer includes a specially outfitted interior based in large part upon Pottery Barn designs. The ultra-plush sofa and dinette, for example, were inspired by the Big Sur collection, while all seating is covered in durable and easy-to-clean Performance Boucle fabric. The dinette table was inspired by the Benchwood Dining collection and features oak hardwood, and window coverings utilize Emery Linen Curtain fabric. Belgian Flax Linen bedding is used in the sleeping quarters.

According to Airstream President and CEO Bob Wheeler, the two companies began working on the trailer concept and the licensing agreement between the two allows each firm to co-develop products for use in the trailer.

Creating “designer” special editions is nothing new for Airstream. For many years, Airstream has produced a special edition in conjunction with Tommy Bahama (it’s currently offered within the company’s Interstate Class B lineup). The Pottery Barn Special Edition will be available at Airstream dealers nationwide, with an MSRP of \$145,500.

Fleetwood RV Shows ‘How They’re Made’

Ever wonder how an RV is built? Many manufacturers offer guided tours of their facilities, but most people won’t alter their travels to include a stop in Northern Indiana, where more than 80% of RVs are built.

Because the pandemic has forced the temporary suspension of its tours, Fleetwood RV has produced five videos that allow viewers to take a self-guided tour of the manufacturer’s facilities. Filmed at the company’s 480,000-square-foot manufacturing headquarters in Decatur, Ind., the “behind-the-scenes” video tour delivers a peek into a few of the steps involved in manufacturing a Class A motorhome and introduces some of the engineers, managers, welders and technicians who design, manufacture, and assemble the various elements of a Fleetwood RV.

The factory tour videos deliver a top-to-bottom look at Fleetwood RV and cover the foundation, lamination process, cabinet shop, assembly, and paint process. To watch the factory tour videos, visit FleetwoodRV.com. Select the “About” tab, click on “Factory Tours” and provide an email address.

Truma Brings Aventa AC to North American Market



When you stop to consider that, at its most basic concept, an RV is just a big box made out of glass, metal and fiberglass, you begin to understand why air conditioning is such a vital component of summer travel. That said, rooftop air-conditioners are often noisy and bulky.

[Truma North America](#) is looking to change that impression as the company is set to supply the U.S. RV market with its Truma Aventa rooftop air-conditioners.

The German-engineered Aventa is, according to Truma representatives, the perfect balance of cooling and humidity, creating comfort while minimizing noise in a modern, energy-efficient, low-profile design.

The Aventa will be offered in two models: The Eco model offers 13,500 BTU/h cooling capacity, while the Comfort models offer 15,000 BTU/h cooling capacity. Both models will be offered in black and white. Compatible with ducted and non-ducted systems, the Truma Aventa comes standard with many advanced features, including automatic cooling mode, dehumidification mode, night mode, air circulation mode and three manually selectable cooling mode fan speeds.

“We entered the North American market with premium heating and water heating products,” said Gerhard Hundsberger, president and CEO of Truma North America. “A top-tier air-conditioner to complement our heating systems was the natural next step. The introduction of the Aventa gives us the capability to provide year-round comfort systems.”

Used RVs Increase in Value

Interested in selling your current RV? There’s probably never been a better time.

According to the Black Book RV Market Commentary for August, the values of used RVs sold at wholesale auctions rose across the board again in June. The average selling price for a towable was \$23,654 (average model

year: 2015), while the average selling price for a motorized unit was \$69,157 (average model year: 2010).

One year ago, those numbers were \$18,331 and \$51,574, respectively.

For buyers of used RVs, there may be a respite coming. According to Eric Lawrence, principal automotive analyst, specialty vehicles, for Black Book, the month-over-month increases “were less than we have been seeing.”

As quoted by leading industry trade journal *RVBusiness*, Lawrence said “It’s likely that supply is finally catching up with demand, especially on the new side, where factories are producing record numbers of vehicles every month. Auction volume dipped once again, probably due to dealers holding onto their trade-ins.”

Ford F-150 Onboard Generator Delivers



As reported in *RV Enthusiast* way back in our March issue, Ford is working its way to full electrification with the F-150 PowerBoost — a combination of the popular 3.5-liter EcoBoost twin-turbo V-6 and a hybrid power system, the key components of which consist of a 35kW electric motor, 1.5kW-hour lithium-ion battery and a Ford-engineered 10-speed modular hybrid transmission.

Another intriguing aspect of the new Ford pickup is the inclusion of Pro Power Onboard. Unless we’re pulling a trailer that’s already equipped with a generator, most of us carry a portable unit capable of powering 120-volt AC appliances when we’re not hooked up to a pedestal at an RV park or camp-

NEWS & NOTES

ground. With Pro Power Onboard, the PowerBoost F-150 is the generator. A standard 2.4kW inverter converts direct current (DC) from the high-voltage battery to standard alternating current (AC), so you can power up a total of 2,400 watts simultaneously through two 120-volt, 20-amp AC outlets in the driver's side rear of the bed. Optional is the 7.2kW inverter, which includes four 120-volt 20-amp AC outlets and one 240-volt 30 amp outlet — that's enough juice to power up your roof air conditioner.

Now, RV electrical guru Mike Sokol has verified the capabilities of the onboard generator. Sokol, a frequent contributor to *RV Enthusiast* and moderator of the RVElectricity online forum, started the Go Green RV forum recently on Facebook — and has been working with various manufacturers to test their e-rides. Sokol fitted an F-150 with equipment to monitor the performance of the truck's largest Pro Power Onboard system and, in a post to his Go Green RV site, confirmed that the F-150 PowerBoost Hybrid "will power its built-in generator with a 7,000-watt load while driving down the road at 70 mph. And it only seemed to impact the gas mileage by less than 0.5 mpg.

"With the appropriate breakaway inlet

connector on the front of your RV," he added, "it would easily power a 30- or 50-amp RV shore power connection allowing you to run your trailer air-

conditioners, refrigerators and anything else that's safe to power in your travel trailer while towing it, or boondocking."

Coachmen's New Cross Trail



There's no denying Coachmen RV's capability for delivering quality Class C motorhomes — according to the RV Industry Association, Coachmen was one of the best-selling Class C manufacturers for all of 2020.

Now, the company has transformed its popular Cross Trek motorhome with a host of functional, storage-centric floorplans and equipment focused on

the "adventure RVer" — and have rechristened it the Cross Trail.

The Cross Trail is currently available in eight floorplans: two known as Cross Trail Transit units (20XG and 21XG, both built on the 11,000-pound GVWR Ford Transit platform and powered by a 3.5-liter EcoBoost) and six known as Cross Trail XL and built on either the Ford E-350 or E-450 chassis. Both are



ALL BRANDS. ALL MODELS. ALL RVS.

Schedule on-line at REVRVSERVICEANDREPAIR.COM

EAST COAST

REV RV Service & Repair
1420 Patterson St.
Decatur, IN 46733

WEST COAST

REV RV Service & Repair
91186 N Coburg Industrial Way
Coburg, OR 97408

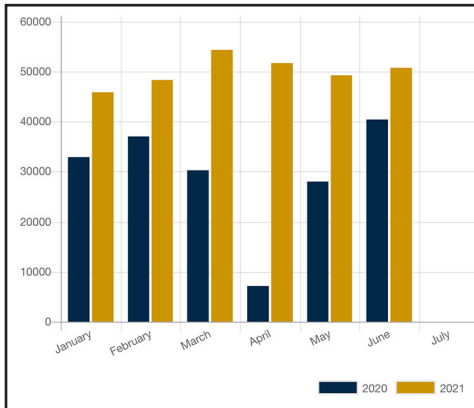
REV
RV Service & Repair

powered by Ford's new 7.3-liter V8. Cross Trail XL coaches feature wheel-bases from 158 to 220 inches, GVWRs of 12,500 to 14,500 pounds and up to two slideouts.

Upgrades to the Transit include an extra-large kitchen counter, 3-way refrigerators, Wi-Fi Ranger, interior and exterior TV, 3,000-watt inverter and Renogy Empowered hybrid electrical system designed to operate every coach appliance and accessory from battery power, including AC.

The Cross Trail XL, meanwhile, features 2-inch-thick Azdel composite vacuum-bonded sidewalls, 4000 Lamilux color-infused fiberglass finish, seamless Thermofoil countertops, Wi-Fi Ranger, a 4,000-watt Onan generator and is prewired for rooftop solar and sidewall portable solar panels. Select models also offer oversized rear cargo storage, with options including up to 380 watts of roof solar and an exterior entertainment center. For more information, visit coachmenrv.com.

- ✓ Improved Performance
- ✓ Optimized Shift Points
- ✓ Reduced Engine Noise
- ✓ Limiters Removed
- ✓ Simple Installation



RV Shipments Still Rising

The RV industry appears on the cusp of another record-breaking year. You might've seen where the industry shipped 420,412 RVs to dealers in 2020. What some folks may not know is that the industry achieved those numbers even though it was shut down for two months due to the pandemic.

With things opening up in 2021, the outdoor hospitality arena is poised for even greater things. According to the RV Industry Association, June shipments to dealers totaled 50,706 units — an increase of more than 25% compared to last year. It also marked the fourth consecutive quarter that monthly shipments set a record — with the second quarter of 2021 (April-June) establishing a new high-water mark for any quarter.

continued on page 66

www.URVP.COM
800-417-4559

YOU DRIVE
Hensley will get you there

HensleyMfg.com
800-410-6580

ROTV Debuts 'Paws On Board' Pet Segments

Dr. Marissa Fitzpatrick — aka 'Dr. Fitz' — provides viewers with vital information about caring for pets while on the road

If you've been to a campground lately, you know that it's rare to visit one that doesn't have its share of four-legged guests. Indeed, in its *2021 North American Camping Report*, Campgrounds Of America (KOA) states that parks that allow pets and have pet accommodations were among the top considerations when staying at a campground — only "safety and security" ranked higher.

Simply stated, RVers love to travel with their pets. Cognizant of this, RV manufacturers are crafting RVs with pet-friendly features, including built-in bottom drawers holding pet food and water bowls, and parks are keying on pet-friendly features to attract visitors. In fact, KOA now has certain campgrounds designated as KampK9 pet parks, where travelers will find open fenced areas for pet exercise, cleanup stations and fresh water.

However, traveling with pets — particularly cats and dogs — is not without its drawbacks. While they don't suffer from "separation anxiety" when their owners leave on vacation, you have removed them from their safe environs. New "digs" take a while for animals to adapt to. Beyond that, pets can get car sick, bored and find things at parks that they shouldn't, from bad food to nasty critters.

Rollin' On TV (ROTV), the nation's premier weekly RV program, recently kicked off a new weekly segment to its show designed to help travelers keep



Dr. Marissa Fitzpatrick — aka 'Dr. Fitz' — brings a wealth of experience as a small animal veterinarian to Rollin' On TV as host of the show's new "Paws On Board" weekly segment.

their pets healthy. The new series, *Paws On Board*, is hosted by Dr. Marissa Fitzpatrick — aka 'Dr. Fitz' — a small-animal veterinarian in mid-Michigan who earned her Doctor of Veterinary Medicine degree from Michigan State University. In 2020, she started FitzVet, a company dedicated to companion animal health and general care. *Paws On Board* launched in June at the start of Rollin' On TV's newest season and, by all accounts, has been met with a great deal of enthusiasm by pet owners.

"My passion is owner education and providing general pet health information," Dr. Fitz said by way of introduction in the first episode, which keyed on the essential items travelers should include when traveling with pets. Those, she reminded viewers, included any prescriptions — in quantities for the entire trip — as well as flea, tick and heartworm prevention that the pet may be due for while traveling. Other tips included putting together a pet first aid kit. Subsequent installments of the weekly feature included visiting with Joe Mehl from Forest River to discover what some manufacturers are doing to accommodate pet travelers and how to help pets overcome being carsick to enjoy the journey.

To view previous segments of *Paws On Board*, go to rollinontv.com/?s=pets+on+board.

Speaking of Rollin' On TV, the show announced in late July that NEXSTAR Media Group — the country's largest television station owner with 199 stations in 116 markets — has approved ROTV to air on its entire network of

Campground Selection and Offerings

Similar to 2019, safety and security is the top consideration of campers when selecting a campground, regardless of their preferred type of accommodation. When comparing these considerations per year, campers in 2020 appear to have a wider set of considerations, which can be attributed to the influx of first-time campers.

First-time campers are also most likely to say that safety and security are their top priority at a campground, but are also likely to rank family style bathrooms, safety lighting, and allowing pets/pet area in the top three. Gen Z ranks having a pool as their highest consideration followed by other onsite amenities such as a campground store.

— Top Considerations When Staying at a Campground —



According to KOA's 2021 North American Campground Report, a top consideration for travelers when they book reservations is the availability of pet-friendly facilities.

stations in the United States.

"ROTV has been airing on a couple of NEXSTAR stations for a few years so we're familiar with the network and have enjoyed a good long-term relationship with them," said ROTV Producer Jose Moniz. "We'll be meeting with each station individually. We have already added a few stations to our schedule and will continue adding additional stations through the end of the year. Most stations have their fall and winter lineup already scheduled, so we'll see the majority of new stations coming on throughout 2022."

Currently celebrating its 11th season, Rollin' On TV has a nationwide household reach of 40-million homes and an average weekly TV viewing audience of around 375,000 homes. ROTV can also be seen on various streaming media outlets as well as on its own website and other partnering websites; for more information, visit rollinontv.com/where-to-watch-rollin-on-tv/. **RVE**

Tough enough for any adventure



Truma Cooler
Portable Fridge/Freezer



C96 Dual Zone

www.trumacoolers.com



Readers Stymied by Refrigerators, Toilet Seals, No Propane Flow



Fridge Fix

How do you adjust refrigerator doors to make them fit tighter and stop leaking cold air? My unit is a Norcold model 2118 SST. The other issue that I have is the condensate to the drip tray in the fridge runs out to a container outside the RV. The container sits next to the coil on the tubing. No drain. I have to empty the container at least twice a day — not a real efficient design.

Barry Barquest

Barry, I have some good news and some bad news.

Let's start with the good news. The issue of the water dripping from your condensate tube is easy to fix. Simply pull up the condensate tube from the outside tray and re-route it to one of the little square vent openings in the outside access door. Many refrigerators

are designed to do this anyway, and if you need more tubing to reach you should be able to source it at a local home center or auto parts store.

Now the bad news: the reason your fridge is creating so much condensation is because it's open to the warm humid air, which is causing condensation on the cooling fins in the fresh food compartment. Sometimes people complain of a condensation issue on the doors of this model if the door flapper heater fails for some reason. That doesn't seem to be the case here.

You mentioned adjusting the doors. I assume you have inspected them already to look for damage and that they are making good contact with the fridge box. The doors can be only adjusted by removing them and adding or removing washers (neoprene preferred) at the hinge pins. On the older 1200 series, there was an issue with wood door inserts being too

heavy which caused the bottom hinges to bend. I'm sure that's been remedied (I'm talking about early 2000s here) but it's worth a look.

Test the door seal by closing the door on a dollar bill. If the bill slides easily, the seal is likely bad. Of course, any physical damage such as tears or separation from the door are obvious. If the door seals are bad, then so is the news: the seals are molded into the door foam when the doors are manufactured and are not replaceable. In order to have a "factory quality" seal the door will have to be ordered and replaced.

As an alternative, it may be possible to cut off the old seals and surface-glue generic refrigerator seals on the doors, but this doesn't always work very well. I hope this helps!

— **Chris Dougherty**



Toilet Odor

I have a fifth wheel with a Thetford toilet, and I have a terrible odor problem, especially early in the season after winter storage. Last year I replaced the toilet seal to try and fix the problem, but it didn't work. What else should I be looking for?

David Morehouse

David, this is not an uncommon issue, and the problem is a bad seal — but not the toilet seal. Rather, it's the ball seal inside the toilet itself.

The ball seal is compressed against the ball, isolating the toilet from the black tank, but it allows the ball to move when the toilet is flushed. When sitting in storage while winterized, the seal will dry out and stiffen. When returned to service, the seal can leak — and once there is no water left in the bowl, odors can come up through the toilet.

Thetford makes a toilet seal conditioner which restores the seal and keeps it moist and supple. A valve grease like Dow Corning 111 can also be manually applied. Occasionally, material can get trapped around the ball and seal, creating a leak. A soft toilet brush and water with cleaner can be gently used to try and clean it up, but understand that toilet seals are fragile and super-stiff brushes can damage some seals and other plastics in the flush mechanism.

Lastly, the mechanism can be sticking slightly open. Silicone lubricant sprayed around the moving parts and joints may help free it up enough to close.

Replacing the ball seal may be needed, which may require removing the toilet (Dometic toilet seals may be changed without removing). This will give you a good opportunity to service and clean the entire unit. Service kits for most RV toilets are readily available.

— **Chris Dougherty**



No Gas at Altitude

I have a seriously odd tech problem I'd like to discuss with you. Our stove stopped working — it will not light, won't even flow gas at the burners. It worked fine at home a few days ago when tested. I have a full propane tank and other devices — fridge and furnace — work fine fed by the same pipe. Nothing changed, no pinched lines, etc. Such a simple device has me flummoxed.

Jeff Johnston

Jeff, propane can be finicky at higher altitudes because of the lower atmospheric pressure and lower oxygen content up there. Because of the way the cooktop is designed, it can't adjust its output of gas to correspond with the atmospheric pressure, and thus won't light.

Interestingly, many RV appliances do function at higher altitudes — but some fail, like your cooktop, even at lower levels around 3,000 feet.

There are basically two ways to fix this in most situations. Appliances that have an available high-altitude kit are fitted with a smaller-sized orifice to reduce the amount of gas flow. The second way is to derate the regulator to a lower pressure, as low as 2.5-inches water column (wc). The former is a pain to do, especially on each appliance, but not all appliances require it. The latter requires a manometer and gas fitting to properly adjust and should be done by a qualified technician.

What I'm not sure of is the effect of the third-stage regulator, if there is one, in the cooktop. Appliance regulators further reduce the gas pressure from 11-inches wc to 10-inches wc. Those, like the ones on your home BBQ grill, are fixed and non-adjustable.

You would do well to reach out to the appliance manufacturer and see what they say. They may have seen this before and have a fix, like an altitude kit.

— **Chris Dougherty**



Ford Edge Towability

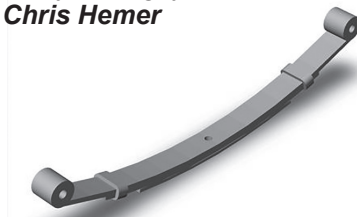
I've been in the market for a towable vehicle. I found a 2015 Ford Edge Sport, but when I consulted the motorhome.com dingy list, that model was not listed. If I remember correctly, the Ford Edge Sport was listed on every list from 2010 to 2020, except 2015. I've also looked at the owner's manual, which says that model can be flat towed, but I wanted to check with you first before completing the purchase.

My question is, was the 2015 Ford Edge left off the list for a reason or was it erroneously omitted?

Aaron Leimer

Aaron, I compiled the dinghy towing guide for MotorHome magazine for roughly 20 years, and I can tell you that errors and inconsistencies did arise from time to time. In some instances, the manufacturer incorrectly stated that a vehicle is not towable or, worse yet, was towable when it actually was not. This often happens when a new vehicle has not been completely vetted as towable and the preliminary information isn't correct. The other possibility is that the 2015 model was simply overlooked that year, and that happens as well. The bottom line is, as long as the owner's manual verifies that the vehicle is towable, you're good to go. Enjoy your new-to-you dinghy vehicle!

— **Chris Hemer**



Axle flip?

My wife and I just purchased a travel trailer to tow behind our 2018 Ford

F-250 4WD. When we hooked it up, I noticed that it is pretty "nose up" and I'm worried about the back of the trailer scraping over driveways, etc. We also occasionally travel off-road. I have heard about axle "flip kits" that put the leaf springs on top of the trailer axles instead of below them. Will doing that make the trailer top heavy or affect the handling in some way?

Mike Stinson

Mike, the short answer is "no." While raising the trailer does raise the center of gravity, it's usually not enough to affect handling. What you have to watch is the overall height increase of the trailer with road-height restrictions. Note that this information applies to your average axle flip — not extreme lifts. Make sure that the hitch is correctly adjusted so that the trailer is level when hitched up.

— **Chris Hemer**

Do you have a technical question concerning your motorhome, fifth wheel, travel trailer or tow vehicle? Inquiries relating to RV function, maintenance, repairs and/or upgrades should be directed to rvtech@rventhusiast.com. Personal replies are not always possible due to the volume of mail received. By forwarding letters to *RV Enthusiast* magazine, the author consents to allow letters to be published at the discretion of *RV Enthusiast* editors. Letters may be edited for brevity and clarification. **RVE**



DUELING FUELS

Diesel or gas? The decision isn't as clear cut as it once was. We talk to the experts to get their take on the subject — and offer our own experiences to help you make the right decision.

By Chris Hemer

Deciding on a diesel or a gas engine for your towing needs used to be easy. If you were just doing some light towing and wanted something you could use as a second vehicle, a gas-powered truck or SUV was the obvious choice. Flipside, if you planned to tow a large fifth wheel frequently or full-time, a diesel's longevity and massive torque was the logical decision.

But technology has changed radically in the last few years. There are now small six-cylinder diesel engines in half-ton trucks that rival the performance — and surpass the fuel economy — of their gasoline counterparts. And there are new gasoline V8's available in 3/4- and 1-ton trucks that can tow nearly as much as a diesel option — and cost

around \$10,000 less. Diesel engines do tend to last longer, but it's not uncommon today to get 150,000 or 200,000 miles out of a well-maintained gasoline engine, which begs the question: Is the added cost of a diesel engine worthwhile today?

Cost Analysis

When considering a diesel, cost is always the primary consideration. Diesels have always commanded a higher price tag, owing not only to the heavier-duty components of the engine itself but all the ancillary items that go along with it. However, ever-stringent emissions-control regulations have driven costs even higher.

In the year 2000, the United States Environmental Protection Agency (EPA) adopted new guidelines designed

to reduce emissions from on-road heavy-duty trucks and buses by up to 95% and cut allowable levels of sulfur in diesel fuel by 97%. Beginning with the 2007 model year, 100% of on-road diesel trucks required the use of a diesel particulate filter, and by the 2010 model year, 100% also required NOx exhaust control technology. As a result, today's trucks are equipped with a complex Selective Catalytic Reduction (SCR) exhaust after-treatment system that requires a continuous diet of Diesel Exhaust Fluid (DEF, a solution of 32.5% urea and 67.5% de-ionized water) to break down NOx emissions into harmless nitrogen and water.

While the required emissions equipment certainly drove costs higher, the design and intended use of a diesel engine brings extra costs of its own.



The torque- and fuel-economy gap between gas and diesel engines has narrowed in recent years, making the choice of truck powerplants a lot tougher for RVers.

“Higher-pressure pumps and material cost increases all play a role (in overall cost)” said Rod Romain, chief engineer for Ram trucks. “And with greater capabilities come larger transmissions, frames, brakes and drivelines with higher capacities.” For example, Romain



Late-model Ram pickups (2020 Ram 1500 shown here) incorporate a gauge in the instrument cluster to monitor DEF level. The fluid is added to a special reservoir accessed behind the fuel filler door on the pickup.

noted that the 1988 Ram truck with the Cummins diesel option had 400 lb-ft of torque; the current Cummins High Output (HO) option produces 1,075 lb-ft of torque.

“Due to their additional emissions-related components, diesels tend to cost more upfront, yes,” said Kendall Fulton, General Motors global chief engineer, diesel engines. “But depending on a customer’s usage and needs, diesels may be a more cost-effective option due over time, thanks to their superior fuel efficiency and durability. Customers that plan on driving a lot of miles, especially while towing, will see long-term cost savings at the pump while enjoying that stellar low-end torque.”

Then there are other considerations that diesel ownership brings. Scheduled maintenance will be costlier, as the 6.7-liter Cummins holds 12 quarts of oil while the 5.7-liter and 6.4-liter Hemi gas engines take seven quarts. The 6.7-liter Power Stroke diesel,

meanwhile, requires 13 quarts, while the larger 6.2-liter and 7.3-liter gas V8 engines use seven and eight quarts, respectively. There may also be added costs associated with fuel filters/water separators, and during the last several years diesel fuel has been marginally more expensive than gas.

Considering that heavy-duty trucks are not required to post fuel economy ratings, comparing mileage figures against an available gas engine isn’t so cut and dry.

“It depends on customer usage, so each customer would need to calculate their fuel economy in addition to the DEF usage and oil-change cost and frequency,” said Peter Lyon, manager of diesel propulsion systems calibration for Ford Motor Company. “Our fleet customers track cost of ownership closely and can make a precise decision of powertrain selection based on very accurate expected overall costs — and very often select diesel engines based on their usage profiles,” he said.

“Always consider your use and length of ownership,” added Romain. “In some cases, the weight you haul will require a Ram 2500 or 3500 HD with Cummins 6.7-liter. If not, the 6.4-Hemi is a great option and reduces upfront costs. Each owner has a different need and it’s up to them to crunch numbers.” To wit: A Ram 2500 4x2 Crew Cab Tradesman with the 6.4-liter Hemi gas engine can tow up to 17,190 pounds, while the same truck with the standard output 6.7-liter Cummins tows 19,290 pounds



7.3-gas-V8: Ford finally replaced the aging 6.8-liter V-10 in the 2020 model year with a 7.3-liter V-8 generating a best-in-class 430 hp and 475 lb-ft of torque, for a tow rating of up to 21,000 pounds.



The addition of a Cummins engine to a Dodge truck in 1988 arguably started the diesel horsepower race. Today, the High Output version of the engine is capable of 420 hp and 1,075 lb-ft of torque.

— a difference of 2,100 pounds. So, in the case of a trailer that weighs between 10,000-15,000 pounds, for example, it may not make sense to spend the extra money on a diesel — at least from a budgetary standpoint.

Indeed, while a gas engine may have similar tow ratings to a diesel in a given truck, there's little doubt that the diesel will be able to pull your load with far less effort. "Both gas and diesel

performance. This ultimately equates to durability and longevity to diesel customers when making an engine choice."

Convenience may be another vote for diesel power. *RV Enthusiast* staffers who own a diesel truck note that taking on fuel while towing a large fifth wheel is much easier in a diesel truck than with a gas truck simply because of the way most fuel stations are laid out. Truck stops are designed for 18-wheel-

engines are designed to the extreme customer operating targets," noted Fulton. "However, since the diesel engine is designed to produce greater torque at a lower RPM (engine revolutions per minute), the engine does not operate at the same engine speeds to achieve the same torque, meaning gas engines tend to work harder to achieve the same

large and make it easy to pull up to the pump. By contrast, gas pumps are typically designed for passenger cars, so the pumps are closer together and the islands smaller, making it difficult to maneuver to an available pump with a trailer in tow. If you've been to a crowded gas station/convenience store/fast food mega center on a holiday weekend, you've probably witnessed the struggle for yourself.



For the 2020 model year, GM offered the 6.6-liter Duramax diesel with an all-new Allison 10-speed automatic transmission that bestowed 3500 series trucks with a towing capability of up to 35,500 pounds — a 52% increase over previous years.

Half-Ton Diesels

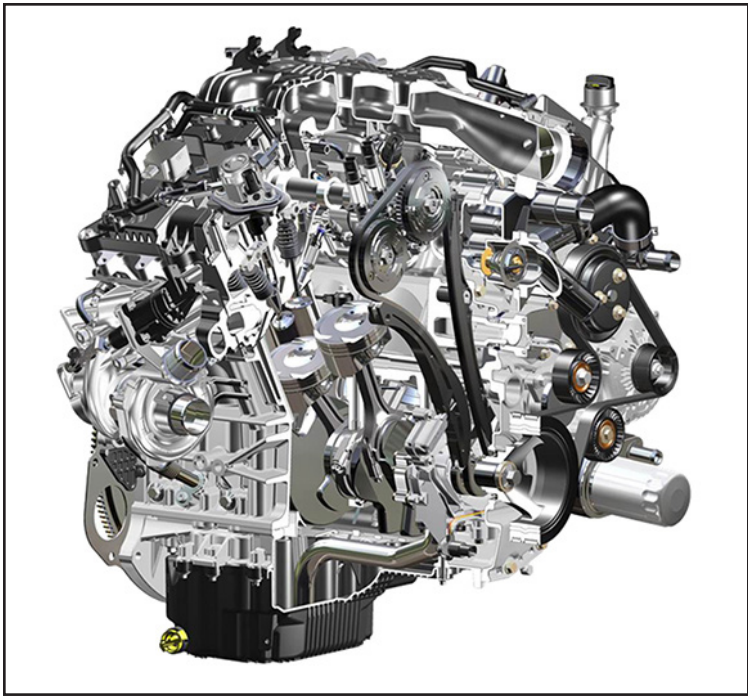
The addition of a diesel engine option in the half-ton pickup truck segment adds a new wrinkle to the diesel vs. gas debate. For years, many of us wondered why no manufacturer had ever put a diesel engine in a half-ton truck — but by the time these engines were available, more powerful and fuel-efficient gasoline engines seemed to make them a moot point. Diesel engine options in half-ton trucks don't make as much horsepower as their gas counterparts, cost more and tow less. In fact, Ford recently announced that it would no longer be offering its 3.0-liter Power Stroke V-6 option after July 16, citing slow sales compared to its wildly popular EcoBoost V-6 engine. And yet, Ram continues to hang onto its EcoDiesel option and GM introduced its 3.0-liter Duramax in its half-ton trucks just more than a year ago — then doubled down by offering it in full size SUVs like the Suburban and Tahoe a few months later.

So, does a small diesel still make sense, or not?

For certain customers, it does. Ford elected to drop the 3.0-liter Power Stroke because, with the introduction its PowerBoost hybrid a few months ago (which gets better mileage and has more torque and horsepower than the 3.0-liter Power Stroke), there was really no reason to keep it as an option. But for Ram and GM customers, a small diesel bridges the gap between normally-aspirated V-6 and V-8 engine options — and the additional mileage a diesel offers makes sense if the truck/SUV in question will be used as a second



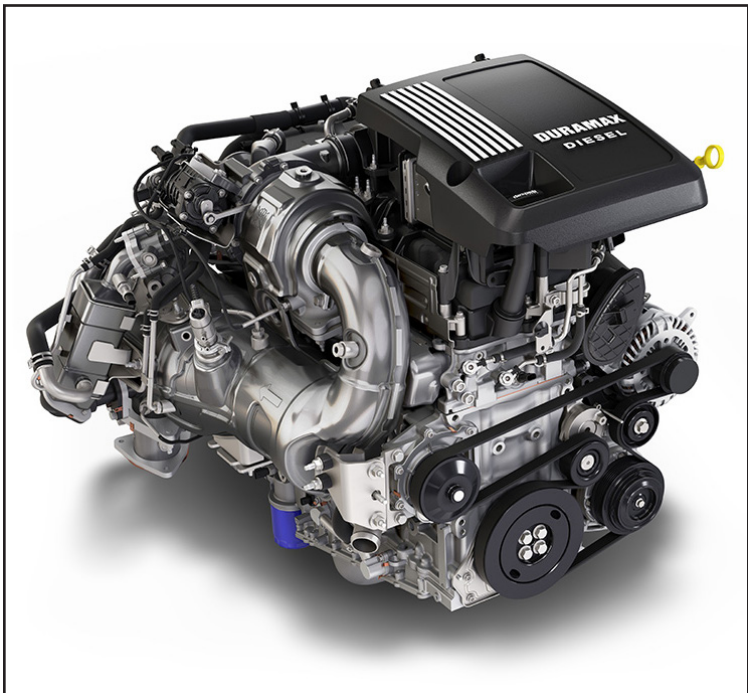
Ram's 6.4-liter Hemi engine is a viable option to diesel in a 2500/3500 model truck. With 410 hp at 5,600 rpm and 429 lb-ft of torque at 4,000 rpm, it can tow up to 17,190 pounds.



Ford's 3.5-liter EcoBoost engine has become a dominant force in the half-ton truck segment, with 400 hp and 500 lb-ft of torque and a maximum tow rating of 14,000 pounds.

family vehicle or daily driver between camping trips.

"Technologies are changing to improve the overall performance and driving experience of the (diesel) engine," said Fulton. "For example, we have improved the combustion system of the new 3.0-liter Duramax (by changing the fuel system and piston) to not only increase power and lower emissions but also to ensure the engine achieves



GM introduced the fuel-efficient 3.0-liter Duramax diesel in its half-ton pick-up line late in the 2019 model year. It is now available in the Tahoe/Yukon and Suburban/Yukon XL full-size SUVs.

incredible fuel economy. Now a customer that previously bought a gas engine can own a 3.0-liter Duramax and, in most cases while driving, not even know that a diesel is under hood. All this technology ensures the vehicle is quiet, fun-to-drive, achieves incredible fuel economy and meets the current diesel regulations. The (added) cost of the engine covers the total package for the customer."

To put that into perspective, consider: a current

model Chevy Silverado 2WD with the 3.0-liter Duramax achieves an EPA-estimated 23 mpg city/33 mpg highway and 27 mpg combined. Compare that to the same truck with the popular 5.3-liter V8 engine, which gets 17 mpg city, 23 highway, and 19 combined. That's a *big* difference in fuel economy. The 3.0-liter Duramax isn't available until you arrive at the mid-grade LT trim level, so if you compare apples-to-apples at the same

trim grade, the Duramax costs around \$1,000 extra. With an EPA-estimated annual fuel cost of \$1,850 for the Duramax compared to \$2,450 for the 5.3-liter V-8, you can see that the diesel option will pay for itself in a little more than a year.

Towing capabilities for the two engines are comparable: The Duramax in the same 2WD truck will tow up to 9,500 pounds compared to the 9,700 pounds with the 5.3 (without a towing package).



The 3.0-liter EcoDiesel makes a powerful case for a diesel option in a light-duty truck, with a tow rating of up to 12,560 pounds and an EPA-estimated fuel economy rating of 23 mpg city and 33 mpg highway.

Ram's 3.0-liter EcoDiesel also offers a viable alternative to gas. The EcoDiesel pulls down an EPA-estimated 23 mpg city/33 mpg highway/26 mpg combined, compared to the popular 5.7-liter Hemi V8's 17 city/23 highway and 19 combined. Annual fuel costs are estimated at \$1,900 for the EcoDiesel, \$2,800 for the Hemi. In the same Tradesman trim and Quad Cab 2WD configuration, the EcoDiesel costs \$2,700 more as of this writing, but the EcoDiesel gives up very little in the way of maximum tow capacity compared to the Hemi: 12,560 vs 12,750 pounds, respectively.

In summary, there are no longer clear-cut lines when it comes to gas and diesel choices. Newer gas engines offer some capable, economical choices in heavy-duty trucks while a diesel offers greater fuel economy and impressive towing capacity for half-ton customers. It all comes down to crunching the numbers for the truck model(s) you're considering, intended use and budget — you really can't make a bad choice. **RVE**

A Tight Connection



SmartPlug's replacement for standard RV and marine shorepower cordsets and receptacles improves safety and convenience

By Chris Dougherty / Photos by Chris Hemer

When I was a fulltime RVer back in the early 2000's, I remember the power in my motorhome began flashing and finally "blinked" out on a hot day while I was working on my computer and running the air-conditioner. Looking around for the issue, I glanced out a window and saw some smoke. There was no fire pit in the general vicinity so it quickly became evident that the smoke was coming from my rig or the one in the site next door.

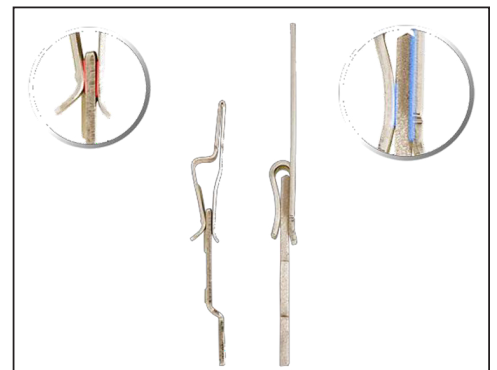
As it turned out, the plug on the motorhome's cordset melted and was smoking. No flames, fortunately, but the burnt and discolored plug was an uncomfortable sight. The cause of this failure, which I have seen many times as a technician and again on another personal RV, was resistive heating.

Resistive heating is a result of prolonged heavy, but within rating, amp draw on a connection where the terminals — because of design, wear, or both — fail to make a tight connection. The slight space between the terminal contacts begins to arc and creates abnormal heat. The more heat, the worse the contact gets, eventually leading to a more significant event and failure.

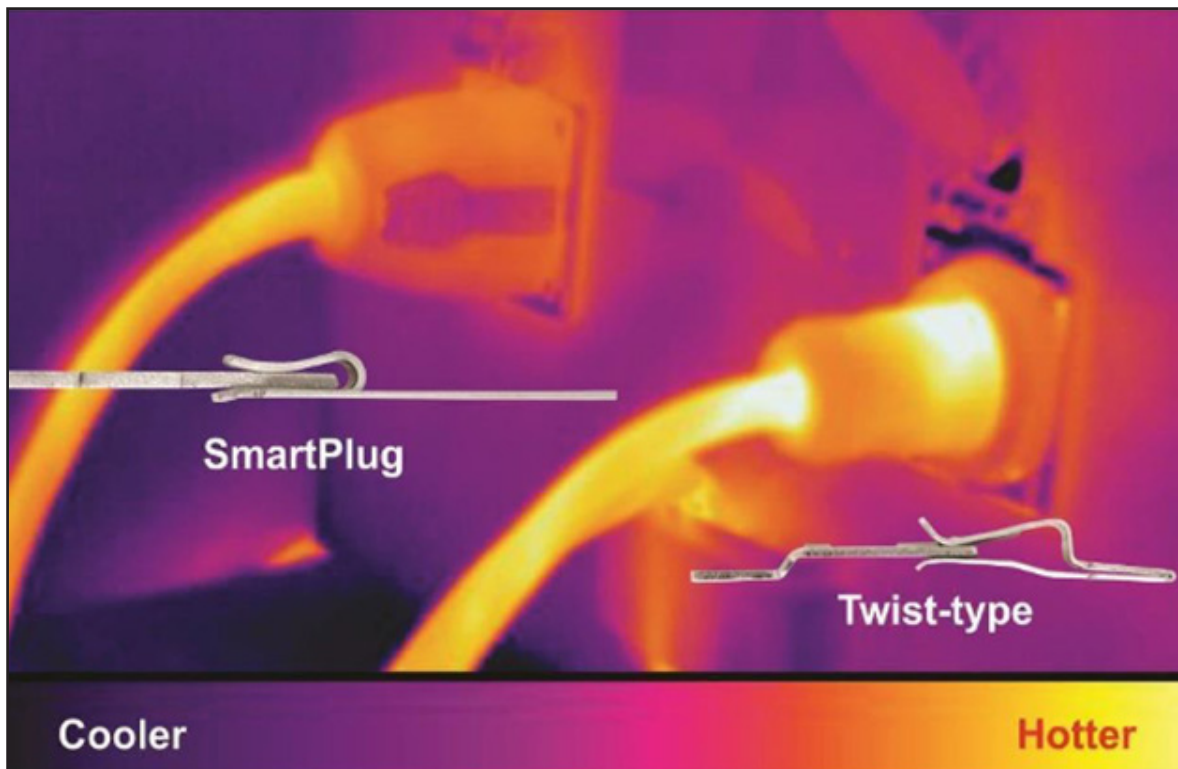
Moisture adds to the problem. Over time, corrosion can help amplify the terminal gap, increasing the arcing and heating. This is especially common, for example, in the connection between the RV cordset and extension cord, pigtail, or plug-in surge protector where the connection is exposed to rain. However, it can also happen to an unsealed exterior RV connection.

Marine environments are far harsher than those experienced by RVs mainly

due to salt water exposure. Recreational boaters frequently had to deal with power-connection issues like those



As seen in this comparison between the typical pins on a twist-lock (left) versus the SmartPlug (right), the SmartPlug establishes greater contact to maximize electrical transfer — the company claims a 20x improvement.



This thermal image of a SmartPlug and a typical twist-lock under load is quite telling. According to Smart Plug systems, the SmartPlug protects against overheating through its sleeve design and locking system, while its weatherproof seals maintain a dry connection. There's still a fair amount of play with a typical twist-lock connection, which can lead to arcing. Photo: Smart Plug

moisture and damage to the open end of the cordset when not connected to the RV. Once closed, the SmartPlug receptacle on the RV is also watertight.

Fourth, the latest version also includes a second LED on the cordset plug that indicates shorepower polarity — which helps indicate whether you have a safe connection.

The SmartPlug is available in 30- and 50-amp versions as a replacement cordset end and RV side receptacle for existing cables, or as a complete cordset with easy-pull shorepower plug and softer insulation jacket that doesn't stiffen in cold weather. Anyone who has had to deal with a standard 50-amp cord will

mentioned above, which led to the invention of the SmartPlug. The Seattle-based company soon realized RVers can suffer from the same dilemmas and began marketing to the RV community.

The SmartPlug is very different from power cords that use twist-lock connections. First is the form factor: Instead of twisting in to secure the connection and then securing a fine-threaded (and fragile) plastic ring, SmartPlug just pushes

straight in and locks itself in place using spring locks on either side. This reduces the wear on the pins inside the connection, keeping the connection tight without movement. Twist-lock connections also can become loose, weakening the connection, which can be the result of a plastic ring that does not keep the whole thing together — a common issue with 30- and 50-amp connectors.

appreciate the flexibility of the Smart Plug cable. In fact, RV Enthusiast Publisher Bob Livingston has been using the Smart Plug cordset for a number of years and said the difference is dramatic, especially in cold weather.

Kits start under \$150 and go up from there. Expect to spend \$400+ for the 50-amp cable and hardware kit in chrome. We installed a chrome SmartPlug 50-amp system on a 2015 Montana fifth-wheel, replacing a legacy twist-lock which, as it turned out, was broken inside from an over-torqued set screw.



SmartPlug components, like the ones shown here, are available individually or as a kit. We installed the chrome Smart Plug receptacle with the 50-amp cordset. Note the plastic protector for the end of the cord.

Second, Smart-Plug uses much heavier-grade pins that are also larger, providing a tighter connection. This upgrade by itself can reduce or even eliminate resistive heating.

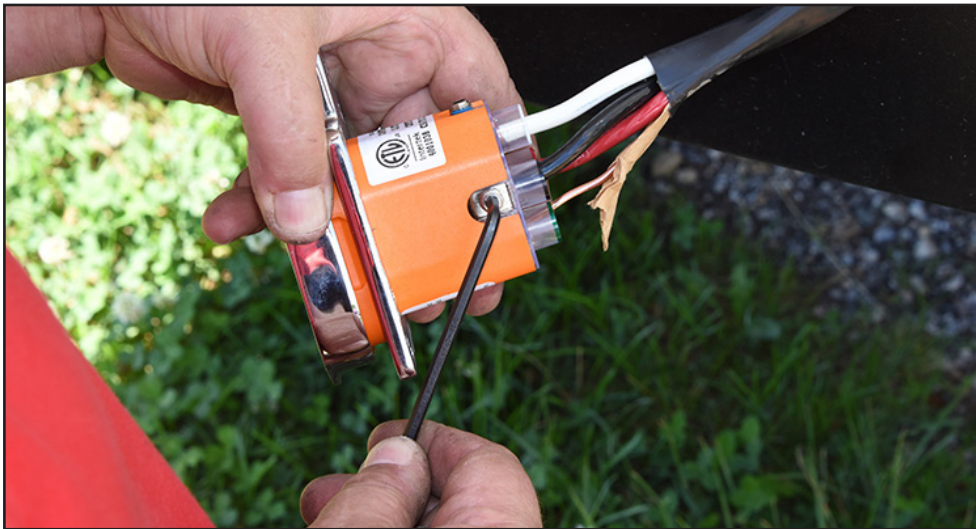
Third, the SmartPlug connection is gasketed and, therefore, watertight — again, eliminating the corrosion that contributes to resistive heating. The system includes a snap-on protective cover on a lanyard to guard against



The receptacle replacement process is pretty straightforward. If you have enough cable, you can just cut the old receptacle off and strip the new wires accordingly. You can also disassemble the old one and — provided it isn't internally broken like the one in this test installation — you can save the step of stripping the cable.



Once disassembled, a broken screw for the L1 hot leg was identified. There was also a stray wire sticking out of the neutral terminal.



Once the old receptacle and gasket are removed, clean the surrounding wall, slide the new gasket over the cable and make the connections. Allen screws are used to secure the wires into color-coded ports with guards to protect against accidental stray wires making contact.



The unit is secured to the wall with user-provided screws. The holes lined up perfectly in this case, but may not always. The old gasket had discolored the fiberglass, but most of the area was covered up by the new receptacle.



To connect, lift the door, press the plug in until the two side metal latches click into place, then lower the door to lock it onto the plug.



The Smart Plug includes a reverse polarity LED on the connector, which can help prevent damage to electric appliances and accessories. **RVE**

Source:

Smart Plug Systems
(206) 285-2990

www.smartplug.com

<https://amzn.to/2Vl1rzw>

When Generators Die Young

Don't wait for bad weather to find that the AC generator you need to power your RV — or, in an emergency, your house — won't start because it wasn't properly maintained

By Mike Sokol
Photos by author

There's no denying that Mother Nature is capable of throwing a curveball on occasion. Sometimes these occurrences are oddities — like snow in Florida — while other instances they have a very real impact. One such impact was the recent winter cold weather snap in Texas. I recently had an extended conversation with tech support from Champion Power Equipment, during which they said the company had been inundated with calls about generators not starting during the Texas winter power outage.

On a less-critical level, this same thing is happening now when so many RV owners are taking their travel trailers out for the first time in more than a year. And to a large extent, the problems can be traced to poor maintenance.

Generators Need TLC

What's the common thread here? Well, according to tech support, many of these generators have sat unused with gas in their tank for two years or more. What then happens is the gasoline evaporates out of the tank and carburetor, turning into a varnish. And no amount of carb cleaner is going to fix that. Fortunately, it really doesn't take a whole lot of effort to maintain your AC genset.



Small engine carburetors are prone to gasoline evaporating from the fuel bowl and leaving a layer of varnish behind. That may force you to rebuild the carb in order to clean out all the gunk.

For starters, it's always best to run your generator's fuel tank dry at the end of the season before you store it — and be sure to add a fuel stabilizer such as Sta-bil anytime you refill it with gasoline. It's cheap insurance that will help stop the frustration the next time you need your generator.

Oil is important, too.

Another common problem, accord-

ing to Champion tech support, is many generator owners never bother to change the oil. So long as they can see there's oil in the crankcase, it must be OK, right? Wrong! Most manufacturers recommend an oil change every 100 hours of operation. Make sure you have extra oil and the tools to change it.

Lastly, your generator will have some sort of air cleaner that needs to be changed or cleaned regularly. Of course, how often you need to do this depends on number of hours run and how dirty the filter happens to be. That



Air filters should be checked regularly and changed every 200 hours or at least once a year. Keep spare air cleaners in your maintenance box.

said, most manufacturers recommend changing the air filter every 200 hours of operation or at least once a year — more often if it's in a dusty environment.

Cummins Onan recommends running a generator under a 50% load once a month. You should run any generator at least once a season (every three months). Running the air-conditioner in your RV is a good load; a 1,500-watt portable electric heater works as well. Just don't leave it unattended.

Every generator manufacturer has a maintenance schedule in their owner's manual. If you've lost your manual, you can download the PDF and print out the maintenance page for reference.

Residential Emergency Use

It's one of the most frequent questions I hear: Can I use my generator to power my house in an emergency?

Well, it depends. If you're talking about a portable generator like I covered in Part 1 of this series, you just need two things: The appropriate dogbone adapter (most generators 3kW and higher have a twist-lock outlet of some kind) and a way to plug it into your house's electrical system. The first part is easy — you probably have dogbone adapters a'plenty from camping. But connecting any generator into your house power panel can be fraught with danger.

The first rule of using a generator to



While you can certainly purchase a male-to-male generator cheater cord online, you never want to use one.

power your house is that your brick-and-mortar home's electrical service panel needs some sort of interlock or transfer switch that will prevent your generator from back-feeding power into your local power grid. Never use a male-to-male generator cheater cord to power your house.

The reason for this is simple. Let's suppose that a tree has come down near your house, shredding the powerlines feeding your home's transformer. That transformer steps down the 7,000 to 11,000 volts coming into it from the local substation. If you don't have a

disconnect and use a male-to-male generator cord to plug into a dryer outlet in your house, that 120 or 240 volts from your generator will be stepped up to 7,000 or more volts on the electric lines in your neighborhood, many of which could be lying on the ground. Then anyone touching a power line that's supposed to be off could be killed.

You need a generator disconnect.

The time to install this is *now*, before you have an extended power outage. These generator connections come in three basic flavors; to determine which one you can use for your house, you'll need to contact your local electrical inspector. And please, hire an electrician to pull a permit and install this for you — it's way too easy to get killed by messing with live electricity.



These manual transfer switches allow you to use your portable generator to power your house in the event of a power outage. You select the most important loads you need to run since it's unlikely any portable generator would run everything in your house at once. Again, the time to install this is now, not when there's an extended power outage.

What most residences probably need is a generator manual transfer switch. They typically come in a kit which includes a weatherproof twist-lock inlet you mount on your house, and a box of 6 or 10 switches you can use to select between generator or grid power. To install it you'll mount this box close to your house service panel, then select which circuits you want to power in an electrical shutdown. You can select the circuits for your refrigerator and freezer, as well as your microwave oven, lighting, well pump, etc. Note that you'll only be able to power your 240-volt AC well pump if you have a generator outputting 240/120-volt AC split-phase power to begin with.

Just realize if you have a 3kW or even a 7kW generator you won't be able to power everything in your house at once. Remember that your residential 200-amp service is capable of supplying 48,000 watts to your house, and even a huge portable generator is no more than 7,500 watts. That means that something's gotta give.



A typical house service panel is wired for 200 amps at 240 volts AC. That's 400 amps at 120 volts AC, which is 48,000 watts of available power. No wonder your 3,000-watt generator can only run a few things in your house.

So, hooking up big power-hungry appliances in your house like the electric clothes dryer is a no-no. The same goes for an electric oven, which could easily use 10kW or more on its own. However, using the microwave oven is fine, as are all your lighting and general outlet power. I'm able to run my dad's whole-house air-conditioner/heat pump from his Honda EU7000 generator as long as he doesn't go crazy with other high-energy appliances at the same time, like the electric water heater.

Depending on your local inspector, you may not be able to install a Generator Circuit Breaker Interlock. But the



Depending on your state and county, you may be able to install a simple Generator-Interlock on your home electrical panel. But you'll need to manually turn off any breakers for circuits that use too much power.

principle is simple: There's some sort of slide bar that forces you to turn off the main circuit breaker, which disconnects your house from the electrical grid. That allows you to flip on the 30-amp/2-pole

breaker from your generator to power the house panel. To reverse the action when the power comes back on you'll then need to turn off your generator circuit breaker, move the interlock slide, then turn the main breaker back on.

Be aware, however, that many states and counties will not allow this unless your portable generator is capable of powering everything in your house at once — and that's not likely.

Whole House Generators

If you installed a pad-mounted whole-house generator, then you already have an Automatic Transfer Switch (ATS). Just like in your RV, it will sense when the generator is running due to automatic startup when it senses a grid outage and, after so many seconds to make sure the power is stable, it will energize a large relay to power your house from the generator. After grid power has been restored for a few minutes, many of these ATS units will switch back to outside power and shut off your generator. But some transfer switches will require manual switching back to grid power.



Any whole-house generator will have an automatic transfer switch, much like the ATS in your RV. But it will be rated for up to 200 amperes of current at 240-volts AC.

Can you use the big built-in RV generator to power your house the same way?

Well, here's the sad story about that idea. While the 5kW to 7.5kW portable generator you have can output split-phase 120/240-volt AC power that your home needs for many appliances (with modification), virtually every built-in RV generator I've looked at doesn't make 240 volts. Nope, it will have two separate circuit breakers on the two windings (such as 30/30 or 50/50 amps), but the generator windings are wired "in-phase" instead of "split-phase." So, if you measure between the two hot lines from a built-in RV generator, you'll find 0 volts instead of the expected 240 volts.

This kind of power doesn't play nicely with your home electrical system, since many branch circuits used to be wired



Just about all installed RV Generators make split-phase 120/240-volt AC electricity you can use to power your house. Most are 120/120 in-phase, so 240-volt AC power for your house isn't possible.

with a common neutral. That makes it possible for your RV generator to over-heat and burn-up neutral conductors inside of your house. No inspector is going to allow you to connect your RV's built-in generator to your house — and no generator manufacturer is going to show you how to rewire your RV generator to make split-phase 240/120-volt power.

However, it's still possible to run a few extension cords from your RV in through a window of your house to power important things like your refrigerator, freezer, microwave oven and WiFi router for your computer. But please, be careful to position any generator (be it a portable or one built into your RV) at least 20 feet from the house window you're feeding the extension cords through. Carbon monoxide is colorless, odorless — and deadly. Installing a CO detector in your house is a great idea since virtually anything that burns hydrocarbon fuel can create this deadly CO gas.



Carbon monoxide poisoning claims the lives of dozens of families every year. Never operate any generator in an attached garage or close to an open window — and keep it at least 20 feet away from your house. It's also a good idea to add a CO detector in your house. **RVE**


RVBUYERSUSA
WE BUY RVs
 2010 & NEWER, DIESEL or GAS
**WE WILL BEAT ANY
 DEALER PRICE!**



CALL TODAY!
(888) 782-8987

WWW.RVBUYERSUSA.COM

**Don't Fight It,
 Get a Grip!**
Combo \$55.00
 plus \$8.00 postage
You Save \$6.98



**Our two best sellers, Hose-Grip &
 25ft. Cable with Grips**

Order Now
www.rvcablegrip.com

J WRIGHT PO BOX 292511
 CONCEPTS Sacramento CA 95829
 916 955-0048
 "TURNING IDEAS INTO PRODUCTS" cablegripguy@gmail.com

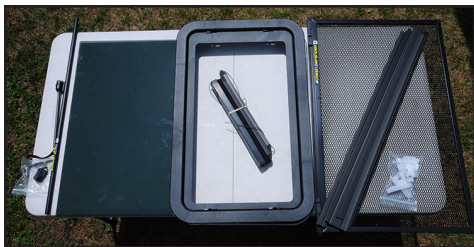
Behind Closing Doors

Lippert's entryway product threesome adds a huge dose of convenience when going in and coming out of a trailer — and then there's the cool factor

By Bob Livingston
Photos by author

Entry doors are taken for granted — and often neglected. Let's face it, a door is as forgettable as it is functional. It has one job: To allow you to easily enter and exit your RV. Not surprisingly, trailer- and fifth-wheel entry doors are pretty bland from the factory. However, Lippert has introduced several aftermarket products of late that make entry doors and screens more convenient, private — and protected from pets who love to plow through the lower screen or, at least, paw the material to death.

Our door transformation started with replacement of the window with a snap-in frame counterpart that can be fitted with a Thin Shade pleated privacy "curtain." From here, we installed the Screen Shot auto-closing mechanism for the attached screen door and, finally, added a Screen Protector mesh panel to the bottom section of the screen door. None of these projects was particularly difficult, but you'll have to spend some time reading the clearly presented instructions to avoid making mistakes. Installing all three products will take about an hour for anyone with a moderate level of mechanical aptitude.



Before starting the door transformation project, all the parts from the three Lippert products were laid out on a table.



Outfitting an entry door with Lippert's Thin Shade/window, Screen Shot automatic screen door closer and Screen Defender mesh insert adds another layer of convenience to this normally mundane RV component. Occupant must go outside to lower or raise the Thin Shade, but a routine can be easily established.

Step 1: No More Peek-A-Boo

Windows in trailers/fifth wheels come in two varieties: opaque and tinted. The opaque-style window eliminates the need for a privacy covering but will still allow in light. It also prevents a clear view to the outside, which could be problematic when identifying strangers knocking on the door. Tinted windows, on the other hand, provide the view and diffuse harsh light, but also put occupants on display at night without some type of privacy cover. Installing Lippert's Thin Shade and frame sections offers the best of both worlds.

You'll have to verify window size to make sure the kit will fit without modifications, but for the most part, the hole opening is universal — chances are the door was made by Lippert, the largest single supplier to the RV industry, so fitment should present no issues.

Popping out the existing window requires removal of the screws around the inner frame and pushing on the outer frame and window. It's best to have a second person on the other side just in case the window gets away from you while popping out. The existing frame may be a little sticky, depending on the age of the trailer, but for the most part it does not require a lot of pressure to get the job done.

Once the window frames are free, the old sealant must be removed. The fifth wheel for this project was fitted with an aftermarket replacement for the stock opaque window, so there was more sealant to contend with than normal. A plastic razor blade scraper (various products are available at Amazon and local hardware stores) was used to scrape away the bulk of the sealant (in this case butyl tape) and the residue was cleaned with alcohol.

The Thin Shade fits into the inner frame (Part No. 786036), which attaches uniquely into the outer frame (Part No. 711862). Barbed studs molded into the edges of the frame are mated to the other side; when pressure is applied the two sides are seated. There are no screws to install into the inner frame as done with conventional counterparts. While the process is easy, you only get one shot at mating the two frames — and it takes quite a bit of pressure to make sure the seal on both sides is tight. The caveat: Don't plan on removing this frame without damaging the barbs and plastic frame. Obviously, we're speculating since we didn't test that supposition. Realistically, there should be no reason to remove the window unless the glass becomes damaged.

Before sandwiching the frames, the



We decided to tackle the window replacement first. To make things easier, strips of sealer to seat the window glass are pre-installed in the outer frame.



Inner window-frame screws are removed with a screw gun. The inner frame is carefully removed, paying close attention to whether the outer frame and window will release on its own.



Since the window on the project fifth wheel was replaced a few years back with an aftermarket version, the outer frame continued to stick to the door panel. A plastic pry bar was used to release the frame from the butyl tape.

glass is positioned, making sure it's seated properly against the built-in seal. Again, a second person can help with placing the three parts of the frame and window, if necessary.

There's an obvious snapping sound as the barbs are seated and we were comfortable that the seal made by the outer and inner frames was tight, but just in case we ran a bead of silicone around the upper edges of the outer

window frame. Clear silicone from a small tube was used to run the small bead and cleaned up with a caulk finishing tool, easily procured on Amazon or from a local hardware store.

The last step was installing the Thin Shade, which could not be easier. Maneuvering it at a 45-degree angle allows the shade to fit between the inner frame and window. Levers on the top and bottom of the frame hold the shade in place. It only takes a minute to accomplish this task. When you want privacy, simply grab the "handle" at the bottom of the shade and pull it down. It moves smoothly with little effort and covers the entire window.

Since the screen has to be separated from the entry door in order to reach the Thin Shade, most owners will have to get into a routine to pull it down before the door is closed. If the shade becomes damaged — through misuse or after exposure to heavy rain — it can be replaced easily without tools. The frames, window and Thin Shade retail for \$99.95.



4a



4b

The outer frame is pulled away from the door panel and set aside, leaving a line of butyl tape remnants. Remember, there's glass in there, so the installer must use care when removing the frame.



5

A plastic razor blade scraper, procured from a local hardware store, was used to remove the remaining butyl tape on the door panel. Factory-installed windows may not leave any residue.



6

Once the bulk of the butyl tape was scrapped off, alcohol was applied to thoroughly clean the door panel around the window opening.



7a



7b

The outer frame is positioned in the window opening and pulled toward the inside to ensure the frame will seat against the panel.



8

The glass pane is carefully placed in the outer frame and pushed against the sealer. A second person on the other side will ensure the frame does not pop out during this process.



9

Although the inner and outer frames were seated via the barbed fittings tightly, a bead of clear silicone sealer was applied to the top edge of the outside frame.



10a



10b

A caulk tool, easily found on Amazon or local hardware stores, was used to smooth out the silicone bead, leaving a nice finish. Spraying water on the silicone will help control the bead. Roadmaster's Voom was used to clean up the surrounding door panel after the job was completed.



11

Finally, the Thin Shade was jockeyed into position between the glass and inner frame and latched in place. Cleverly designed fasteners make this a very simple procedure.



12

Thin Shade is ready to go. It can be lowered or raised smoothly by grabbing the extrusion. The shade covers the entire window.

Step 2: Full Closure

Like the entry door, there's nothing exotic about the screen door that's integrated into the frame hinges. The design has been around forever and, frankly, it works. A common annoyance is having to reach out the door to grab the screen and swing it to latch into the frame. Aftermarket handles are helpful, but many times the reach is awkward. This can be a problem when parking in areas where bugs are on full attack. Lippert's Screen Shot fixes this dilemma by allowing the screen door to automatically close behind you.

The design of the Screen Shot is one of those "why didn't I think of that" products. It simply uses a length of webbing attached to a spring that is secured to the screen frame and door jam. There are a few small parts in the kit and it only takes a few minutes to install (once you figure out how it's assembled). After threading the webbing and spring through a tube, the latch and hinge side-support brackets are attached to the ends before securing (using provided screws) to both sides of the screen door frame. Lastly, the open end of the webbing is stretched across the door jam and a metal screw is installed through the brass eyelet 1/2-inch from the edge. A rivet can be used in lieu of the sheet metal screw; we found no issue with using the screw.

It's a quicky project that nets long-term benefits. The screen door closes by itself, but you shouldn't allow it to swing the entire way; doing so slams the door hard enough to be disconcert-



1a



1b

To start the installation of Lippert's Screen Shot, the webbing and spring are threaded through the plastic tube and the hinge-side support. The hinge side bracket has the notch in the plastic body.



2

The latch-side support is held in place against the screen door frame while the other support is positioned on the opposite side.

ing. Owners will quickly find a "sweet spot" and enjoy the convenience of not having to go through other motions to close the screen door. In fact, there's actually enough spring to allow the entry door and screen door to close by themselves when latched together, which we really liked. The only caution is being aware that the door is closing behind you by itself and can kick you in the rear — or trap your dog — if you're

not paying attention.

Before ordering, you'll have to measure the door from the frame edges and match the size with the proper part number. The Screen Shot (\$23.95) is designed to work on Lippert doors with hinges on the right side, but don't worry — you'd be hard-pressed to find a contemporary RV using something other than a Lippert door today.



3a



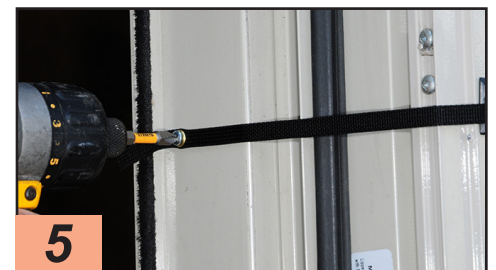
3b

A sheet metal screw is driven into the channel closest to the screen material, holding the latch-side support in place. The same process is repeated for the hinge-side support.



4

The mounting location for the webbing on the door jam is measured at 1/2-inch from the edge and marked.



5

Webbing is pulled across the door jam and a sheet metal screw is driven through the eyelet at the pre-marked location. A rivet, supplied with the kit, can be used in lieu of the screw, which we found unnecessary. Project done.

Step 3: Fido Barrier



Our standard poodle loves to hang out at the screen door, hoping to get an invite to run around outside. Screen Defender protects the screen from errant moves—and looks good, too.

Dogs love to gaze out the lower section of the screen when the entry door is open — and when not scanning the outdoors, they love to lay down against the screen, typically stretching out against the material. More mischievous dogs and cats also enjoy irritating owners by scratching at the material until it rips. Screen protectors are not new to the RV world, but Lippert's Screen Defender reinvented the installation process to make it simple without the use of any tools, except possibly a tape measure.

The Screen Defender is a metal mesh insert that attaches to the bottom portion of the screen, as long as this area is more than 20 inches high. Don't get overwhelmed by the seven pages of instructions: The process is exceptionally easy, taking only a few minutes to accomplish.

First, a determination must be made whether the provided extrusions are needed to fill any gap between the center bar of the screen door and bottom of the frame. To establish the need for extrusions, the metal mesh insert is pre-fit on the screen and any visible gap is measured. We had to put two extrusions together to make a 2-inch gap filler, taking into account the Screen Shot bar installed earlier. This is done by sorting through the provided extrusions and finding the right combi-

nation. For this project, two pieces were pressed together, setting the barbs that are used as fasteners.

Once the extrusions are set, they are placed in the lower portion of the screen door frame and the Screen Defender is simply positioned on top. The spring-loaded latches are then em-

ployed to secure the mesh insert into both sides of the screen door frame. In no time you're done, and the metal mesh insert is solidly in place, ready for the wrath of fido — or even an errant human foot. The Screen Defender has a \$56.95 MSRP.



The Screen Defender is pre-hung on the lower portion of screen door to determine whether extrusions will be needed to fill any gaps. In this installation, a 2-inch extrusion was needed, considering the height of the lower section of screen and the location of the previously mounted Screen Shot screen door closer.



The extrusion was fitted to the bottom of the metal mesh screen protector before placing it in the screen channel.

To make a 2-inch gap filler, two sections of extrusion material were snapped together via the barbed layers of plastic.



The nice-looking Screen Defender is a welcome addition to the screen door. It mounts solidly and is a great dissuader for pets that tend to lean against the screen, or, worse yet, paw the screen material to shreds. **RVE**

Source:

Lippert (574) 535-1125

lci1.com

POP!

Goes the..... Leveling Jack



Hydraulic components for the leveling jacks and slide-outs are usually in an exterior compartment with good accessibility. System configurations vary by manufacturer, but the reservoir is easy to locate.

Loud noises emanating from the hydraulic system can be unsettling; a simple fix restores peace of mind

By Bill Gehr / Photos by author and Chris Dougherty

Loud noises are always disconcerting while RVing, but when they originate at the hydraulic systems driving the leveling jacks and slide-outs, owners — especially newcomers — tend to freak out. Popping noises — which can oftentimes lead owners to believe system failure is imminent — are not welcome, and in most cases are virtually impossible to identify. This condition is a common problem experi-

enced by RVers with hydraulic leveling jack systems, but occasionally hydraulic slideout room mechanisms. In extreme cases, this sound can be quite loud and unnerving, but the good news is that the problem can be traced to couple of different sources — and anytime you can track a problem down, you can fix it.

Cause

Due to the high pressure necessary

to operate hydraulic leveling jacks, micro bubbles in the ram section are the leading cause of the popping sound. A companion problem is caused by static friction or “stiction.” The noises may come and go, leading one to think the problem is going away, but they will usually return. Fortunately, these noises do not lead to system failure, and there is a simple fix that was initially circulated by Lippert, the leading supplier of hydraulic systems to the RV industry.



In some cases, bleeding the system of micro bubbles created by air may lessen or eliminate the popping noise. Loosening the fitting on the leveling jack return line will allow the automatic transmission fluid to bleed out the air. Do not open too far, otherwise fluid will squirt everywhere, making a big mess. Use two wrenches to prevent twisting of the line and make sure the reservoir does not run dry.

There are two ways to eliminate the noise. One is to bleed the micro bubbles (air) from the suspect ram(s) or jack leg(s), while the other requires a little more effort and adding of a couple of fluids (we'll get into that later). In either case, before starting this process, be sure check the entire system for any possible fluid leaks, including the jack leg/ram hoses and fittings. For this project, we directed our efforts at solving the popping sound in the hydraulic system of a fifth-wheel trailer.

Solutions

If you elect to bleed the system, hitch the fifth wheel to the tow vehicle for support and safety. Extend the jacks to the ground and raise the fifth wheel without lifting the pin box off the hitch saddle. Once you are satisfied that you've established a solid stance for the unit you can begin. You've probably been able to ascertain which jack has

been "popping off" by where the sound is emanating from and will have to access the hydraulic lines at the top of the jack (from beneath the unit or from within a storage compartment, depending upon model and jack position).

Using two wrenches on the return line (normally the upper line on the jack leg), loosen the fitting while holding the other wrench to prevent twisting the line. Be careful not to open the return line too much, as the pressure will blow the fluid everywhere. Use several rags or old towels to soak up the fluid as it purges from the jack leg. You may need to perform this process two or three times to purge all the air. Make sure the fluid level in the reservoir is replenished as needed to prevent drawing air into the jack leg.

Once you are satisfied that all the air is out of the system (fluid runs clear), tighten the fittings. Continue using the RV, opening and closing the slideouts and activating the leveling jacks as you normally would. If the popping noise still exists, the next step is to add an anti-stiction fluid like Caterpillar 1u-9891 Hydraulic Oil Additive, which is available online or at the local Caterpillar dealer. I tried using motorcycle fork oil as suggested by some people on the Internet, but it did not work.

The job will usually require ½ quart of the anti-stiction fluid for each jack/ram that's making the popping sound. You will also need some type of siphon pump to remove the fluid from the reservoir. Check with Harbor Freight, Pep Boys, a local auto parts store or shop online for a pump. Locate the reservoir (tank) that holds the automatic transmission fluid and, using the siphon pump, start by drawing out the fluid

in the reservoir to make room for the Caterpillar additive (it's best to remove closer to one quart to prevent possible overflowing). Add a half-quart of anti-stiction fluid back into the reservoir. Cycle the jack up and down two or three times to mix the fluids — but be sure not to run the reservoir out of fluid as this will introduce air into the system. Fill the reservoir to the proper level with automatic transmission fluid (specified by the manufacturer of the hydraulic system) after adding the Caterpillar additive.

Again, continue using your systems as you normally would and give the anti-stiction fluid some time to do its job. If the popping noise persists, repeat the process, adding another half a quart of anti-stiction fluid to the reservoir. If the noise still persists and you believe that the jack/ram has developed air bubbles, try purging air from the jack or ram one more time. The additive will likely prevent micro bubbles from forming inside the system, but you will need to give it some time to be sure that the fix is working.

Another possible source of the problem is overextended jacks, which can be unsafe and lead to a popping noise even though the system is airtight. If you need to extend the jacks near their limit, use blocks or another commercial stabilizing product under each jack foot. Just make sure that whatever you use is wide enough so the jacks cannot slip off — and use wheel chocks to prevent the fifth wheel from rolling.

While there is no definitive answer regarding a permanent cure for this popping noise, the process above seems to have a strong chance of solving the problem. In some cases, the popping sound will not be totally eliminated, but it will be curtailed enough to eliminate jumpy nerves.



If bleeding does not work, it's time to try adding Caterpillar Hydraulic Oil Additive. A siphon pump will be needed to remove the fluid from the reservoir, and you'll need enough automatic transmission fluid to top off the tank.



A siphon pump allows fluid from the reservoir to flow into an adjacent container. This pump is easily found online or at auto parts stores. Do not reuse the fluid removed from the reservoir.



Using a clean funnel, add about half the quart container of Caterpillar Hydraulic Oil Additive to the reservoir. Make sure you removed at least that much fluid from the reservoir first — or, better yet, give yourself some space and remove closer to a quart to make sure the additive does not overflow.



Run the jacks up and down a few times to circulate the additive. It might be necessary to bleed the system again to remove the air bubbles, but that determination might not be immediate.



Top off the reservoir with the automatic transmission fluid specified by the system manufacturer before wrapping up the project. The additive may not work perfectly, but it will likely mitigate most of the unnerving popping noises. Noises were eliminated on this fifth wheel. **RVE**

Upgrade your Adventures

WHEREVER YOUR ADVENTURES TAKE YOU,
TAKE ALONG MORE PEACE OF MIND.



POLAR® 8DC



POLAR® 10DC



Ready for the Road

Engineered for your adventures, styled for your home



Easy Replacement

DC-powered compressor refrigerators easily fit in your existing cutout.



Energy Efficient

Night Mode reduces compressor and fan speed to conserve battery charge and reduce noise



Visit NORCOLD.COM to learn more



Galley Appliance Maintenance Magic



Extending the life of your kitchen equipment isn't difficult — so long as it's done on a regular basis

By Chris Dougherty

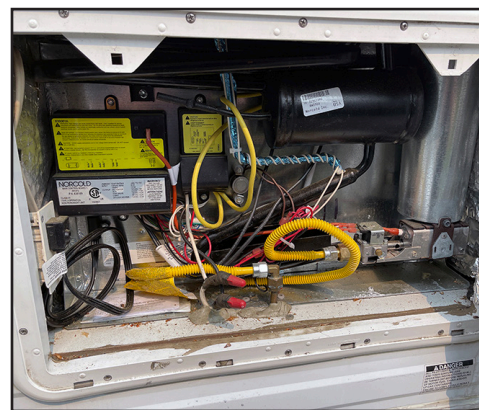
I think it was 1979 or 1980. My family was attending a horse show in Farmington, Connecticut, in our Winnebago motorhome, and it was a rainy day as I recall. My grandparents, who lived nearby, were visiting, and mom was cooking up appetizers in the galley. The wonderful aroma of home cooking that day — of Hickory Farms sausage and sauce in the pan — are indelibly recorded in my mind. The ability to have a family gathering in a field with all the comforts of home is an amazing experience, a feeling that many RVers can connect with.

Manufacturers do their part by equipping contemporary RVs with the same

sort of appliances that are critical to meal prep in a traditional brick-and-mortar home — though they are a bit different. And, all things considered, they are amazingly resilient. However, time does take its toll, especially on equipment subjected to constant pounding during travel, and RV appliances do require more upkeep. Properly maintained, though, they should continue cooking up memories for years.

The Basics — In and Out

In order for your galley appliances to work properly, their source(s) of energy must be correct and within specifications. For the galley, this means the LP-gas (aka propane) supply, 12-volt DC and 120-volt AC electricity all have



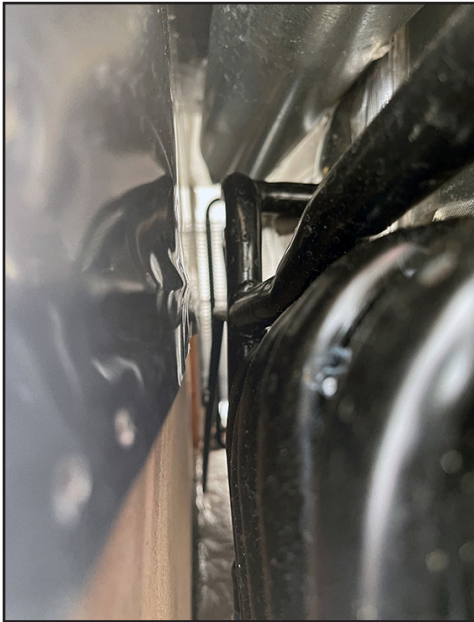
Opening the back vent door of this Norcold Polar 7 refrigerator shows some dirt and dust, but overall it's pretty clean. The chimney tube is on the right, attached to the burner on the lower right.



The Norcold has a swinging burner door, which provides easy sighting of the flame and burner. A severely dirty or corroded burner or a pile of rust will require the fridge be pulled out and the burner, chimney and baffle inspected and serviced by a factory-trained service technician or certified RV technician.

to be within a specific range for the appliances to work correctly.

Propane-fueled RV appliances are set by the manufacturer to function at 10 to 14 inches of water column (a



Using the camera on an iPhone, we were able to shoot up the back of the fridge. When we replaced this fridge, the wall had been compromised, so you can see aluminum tape on the walls around the hotter parts of the unit. The roof vent is nice and clean, and the cabinet spacing is ideal for circulation from bottom to top.

means of expressing a measurement of pressure). Since the gas inside your LP-cylinders is pressurized to as much as 200psi, that's obviously too much pressure to cook with. The LP-gas system on your RV uses a two-stage regulator to bring cylinder pressure down to an industry-standard 11 inches of water column.

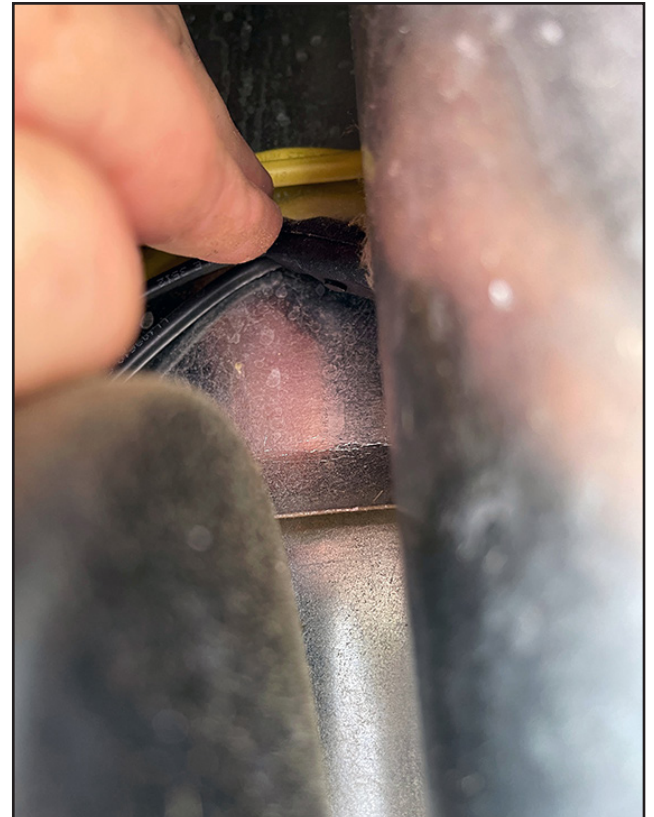
However, these step-down regulators can sometimes fail. Every regulator has a vent on it and sometimes — but not always, by any means — you can hear or smell gas escaping from the regulator. More frequently, though, they simply go out of adjustment. Again, sometimes you might notice this because the flame beneath your pot doesn't look right due to the wrong gas/air mixture, but more often you just won't be able to ignite it.

If your propane appliances aren't functioning correctly, the first thing to troubleshoot is the regulator to ascertain it is oper-

ating at the correct pressure. The only way to test and adjust a regulator is to use a manometer — or, more correctly, to have the system checked by a technician using a manometer. It's not recommended that RV owners perform this test themselves for two reasons: a manometer is an expensive piece of equipment that you'll probably use once a year, at most (yearly analysis of your propane system should be on everyone's annual RV check list) — and getting it wrong can have catastrophic consequences.

There's a lot more to the propane system, to be sure — including the fact that some contemporary propane appliances also include an additional internal regulator that drops the incoming pressure down even further. More information can be found at the website of the late Gary Bunzer, known as "The RV Doctor:" <http://www.rvdoctor.com/2002/01/what-pros-do-propane-system.html>.

The status of the electrical systems can be determined with a multimeter — and this is something you can and should have in your RV toolbox. Generally speaking, most 12-volt DC devices can operate from 10-14-volts DC. The appliance in question will have a spec chart identifying its range. If the values



This Norcold Polar 7 is a 3-way refrigerator, and while hard to see on this model, these are the wires for the 120-volt AC and 12-volt DC heating elements. These can be tested by obtaining amp readings on the wires, or a resistance reading when disconnected from the main board.



Keeping your fridge door seals clean is important, as they are molded into the door in most cases and are not replaceable. If the seal fails, the door must be replaced.

fall below this, the system will not function properly, if at all.

If there is an issue with the LP-gas or power systems, those must be remedied first before further diagnostics can be performed.

RV Refrigerators

Probably the most unique of all RV appliances is the refrigerator which, at its most basic, is a throwback appliance to the days of ammonia-based absorption refrigeration. And, while most RV refrigerators are electronically controlled these days (as opposed to pilot models), unless they are a residential unit (i.e., powered by 120-volts AC) or one of the newer 12-volt DC refrigerators — both of which are compressor-driven — they still function using absorption refrigeration.

An RV absorption refrigerator uses heat to activate the sealed cooling system, which contains ammonia, hydrogen, sodium chromate and water. The heat causes the mixture to boil. The gasses flow through the cooling unit and, as they cool, the mixture condenses and absorbs the heat from inside the fridge then expels it out the back.

As such, these refrigerators are all about rear ventilation and the ability to draw cool air in the bottom, have it move across the cooling unit, and expel it. If this process doesn't work efficiently, the fridge won't work right.

There are a number of factors that need to be checked when an RV refrigerator isn't working correctly. Verify proper power input and gas flow, a good flame on propane and that the chimney and baffle are clear and able to breathe (chimney caps get blocked

by insulation a lot). Also, make sure the electric element(s) are working properly. The spacing and design of the cabinet must be correct and the bottom and top vents need to be clear of obstructions and lined up correctly. The installation manual for the fridge details the specs for the size and spacing of both the cabinet and fridge. Baffles can be installed to better direct airflow, and

circulation fans can often be installed as an aid to ventilation when needed; however, keep in mind that added amp draw is a downside when boondocking.

Refrigerator maintenance is all about cleaning, the most important of which will be done from outside your RV. Remove the rear vent door and, with the refrigerator turned off, take a look at the back of the unit and the compartment. Vacuum out any debris. Some refrigerator designs will allow you to swing a little door open to see the burner; if

there's a pile of rust in there, you can vacuum it out — but it would be advisable to have the fridge pulled and the chimney serviced and inspected by a factory-trained technician. Also, take a good look at the burner itself: The slots should be clear. A lot of rust will mean you'll likely need to replace the burner. If there's a lot of rust on the cooling unit, removing the unit and painting the cooling unit with a rust-preventive paint is recommended.

You can use your smartphone's camera or a mirror to sight up the back of the fridge. Look for insect nests, damaged wall plywood, leaves and other debris. All dirt and debris should be cleaned away. If there are nests behind the fridge or in the top/roof vent, they must also be removed.

The sides and top of the cabinet are insulated with fiberglass. It should not be hanging down onto the top of the fridge or pushed around the burner. If it is, the fridge should be pulled, the fiberglass tacked up tightly, and the fridge reinstalled.

Inside the fridge, maintenance is mostly about keeping it clean. Some frost is normal just from opening and closing the doors, but excessive frost may indicate an air leak allowing warm, humid air into the fresh food compartment or freezer compartment. The same goes with excessive condensate draining.



The inside of the fresh food compartment has the cooling fins on the upper rear. The thermistor, which reads the temperature in the refrigerator, is clipped to a fin in the middle on this model. If your unit isn't staying cold, check that it is attached correctly. It can detach — which will upset the cooling capability of the refrigerator. Under the fins is a molded-in condensate catcher, which drains to the small hose connection in the rear.



On this refrigerator, the condensate drain from the fresh food compartment drains into a tray on the back of the unit. You can redirect the tube to the outside, so if a door is left cracked open and there's a lot of condensate, it doesn't threaten to overflow the tray and soak the compartment.

Pro Tip #1: Speaking of condensate, there is a tray on the inside, under the fins in the back of the fresh food compartment, which connects to a hose that is routed outside the fridge. Often, these drain into a cup adjacent to the chimney. It's recommended that you re-route this through the vent holes in the outside access door outside so excess condensation is removed from the rig altogether.

Pro Tip #2: When you're done with the RV for the season and are storing it, first clean the interior of the refrigerator thoroughly with Clorox wipes to prevent mold and mildew growth — and leave the doors open slightly so the inside dries completely. Some melted frost water may collect in the bottom of the freezer; soak the water up with towels or a wet/dry vac and leave open to dry.

Pro Tip #3: Some doors on RV refrigerators have a mechanism (built-in or a card) that will keep the doors held open to dry. A rolled up towel works also, and once clean and dry, the fridge can be closed up tight.

Ranges & Ovens

Most gas RV ranges and cooktops are a legacy design, with a pilot-fired oven and manual igniter for the cooktop, with propane entering through a 3rd-stage regulator. The regulator reduces fuel pressure to about 10 inches water column into a fuel rail that feeds the cooktop valves and a thermostatically controlled oven valve with pilot valve. These ranges are generally available in 17- to 26-inch models, with three burners.

Of course, the last few years have seen a lot of development in this space, and many higher-end RVs are getting higher-end cooking appliances. Included are sealed-burner gas units with piezo or electric spark ignition; induction; or combination gas and induction cooktops, often combined with convection microwave ovens. The sheer number of options, combinations and brands was unheard-of in the RV space 10 years ago.

Maintenance of your range is, first and foremost, dictated by the manufacturer. Since many manufacturers have changed the materials the appliances

vueSMART™

Wireless Trailer Camera

The only trailer camera that installs in minutes!

- Fits any trailer
- No re-wiring needed
- WiFi to any smart device

Put a Set Of Eyes Behind Your Trailer Today!

◀ **SCAN HERE TO SEE IT IN ACTION!**

or visit www.hopkinstowingsolutions.com/vuesmart for video and additional product information

Part # 50050



Whether new or old, RV gas ranges, which come in various sizes, need to be maintained to operate properly and last a long time. Here, a legacy Atwood range from 2005 is on the left, with a new Greystone range on the right.

are built with, we can no longer offer a one-size fits all approach to maintenance and cleaning the way we could in the past. However, if you have a standard style LP-gas range, there are some things you can do to keep it more functional for the long term.

Cleaning your range, and especially the cooktop, inside and out, is essential. With standard cooktops, the surface is open to the “utility” area underneath and around the burners. A boil over or spill can make for a tremendous mess, especially since there are holes in that space that can allow spills to progress down into the range and the cabinet. A good way to help prevent spill migration, and spillage cooking onto the metal surface, is to line inside the cooktop area with aluminum foil. This way, some spills can be caught on the foil before they get away.

The burners on newer cooktops are solid-state. They can’t be disassembled like your range at home for cleaning. Fortunately, they’re easy to remove and scrub in a bucket of soapy water and a stiff bristle brush if a spill cooks onto the burner and plugs the jets. Just be careful, as they are made of aluminum and can be damaged. Most utilize one screw, and they slide onto the gas orifice on the fuel rail. Be sure to keep the inside of the cooktop as clean as you can, because mice will smell anything leftover and maybe even build a nest in there. That’s quite unpleasant to find when opening your RV for the season.

The oven burner and pilot are pretty much protected from spills. The thermal bulb, which senses the temperature inside the oven box, is usually mounted at the rear. It may get dirty; if it does, it can become less accurate. If this becomes a problem, pull the bulb carefully from the back wall and lightly sand it with emery cloth to clean it up.

Another concern many folks have is the accuracy of the oven thermostat, or lack thereof. This, frankly, isn’t unusual. Using an oven thermometer will allow you to see what the temperatures are in the oven and adjust accordingly. The diminutive size of the oven box in comparison to larger residential and commercial ovens means the flame is closer to the food and in a tighter space. Hot spots are inevitable.

Pro Tip: A great idea that works to not only keep the bottom of the oven cleaner, but also keep your food from burning, is to get a pizza stone for the bottom of the oven. Minor spills fall on it and burn off instead of the metal bottom, and it allows for more even heat in the small oven. Get one that is appropriately sized so it does not block any of the vent holes.

Microwave and Convection Ovens

Microwave and convection microwave ovens are not new to RV use; however, there are many more choices in appliances today than there have been before.

Mobile-use microwaves are installed

in a cabinet or are of the over-the-range type. While the over-the-range models are the same as home models, understand that the built-in versions must be approved for, and have hardware for, building into a cabinet. The venting of the unit is different, and the trim kit acts like a duct system that allows for adequate ventilation. Again, from a maintenance standpoint, keeping the microwave and venting clean is key.

The over-the-range models have a vent hood feature that requires proper setup at installation and regular cleaning of the filters. Units that vent into the living space may have a third filter inside the upper part of the unit (check your appliance’s manual for details). I have seen these ovens installed incorrectly many times, where the fan isn’t adjusted properly for the type of installation. If you think the fan isn’t working right, you may need to drop the unit and check the orientation of the fan assembly.

Pro Tip: For those hood fans that vent to the outside, keep an eye on the flapper door on the side of the RV. Believe it or not, on one trip to Fort Wilderness Resort, a bird built a nest in mine within one day of my arriving because the flapper broke off during the drive! Then, of course, there are wasps and mud daubers. A functioning flapper cover is important — just don’t forget to unlock it before using it.

This isn’t meant as the final word on RV appliance maintenance, by



Some ranges have a deck that lifts straight up. This Atwood deck has to be slid straight back to unlatch it, then lifted to release the spring catches for the deck lid.



If you remove the burners for cleaning, don't lose the burner bushing! It slides off the valve easily.



If you have a big boil-over, you might get the ports full of...whatever you're cooking. Remove the burner and soak in hot soapy water and lightly scrub with a stiff bristle brush to clean, being careful not to damage the jets.

The lower section of this range is pretty messy. The propane gas connection (right), goes through a third-stage regulator to the fuel rail, where all the valves are connected. The burners each have a single screw holding them in place. The igniter wires for each burner pull straight down to disconnect. The igniter needs to be clean for a good spark.

any means. But by following some of these tips, you can help extend the performance of your appliances — and

continue to treat friends and family to the welcoming aromas of home cooking while on the road.

CHUCK AND BUCK NO MORE



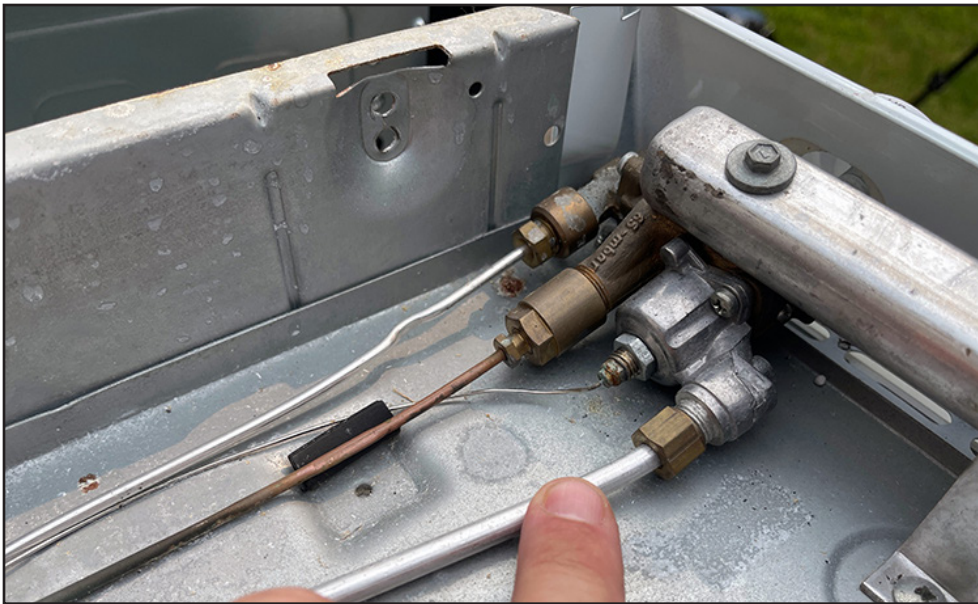
Reduce 5th wheel jerking, chucking and bucking with a **MORryde RUBBER PIN BOX.**



CONTACT US FOR DETAILS:

www.MORryde.com
574.293.1581

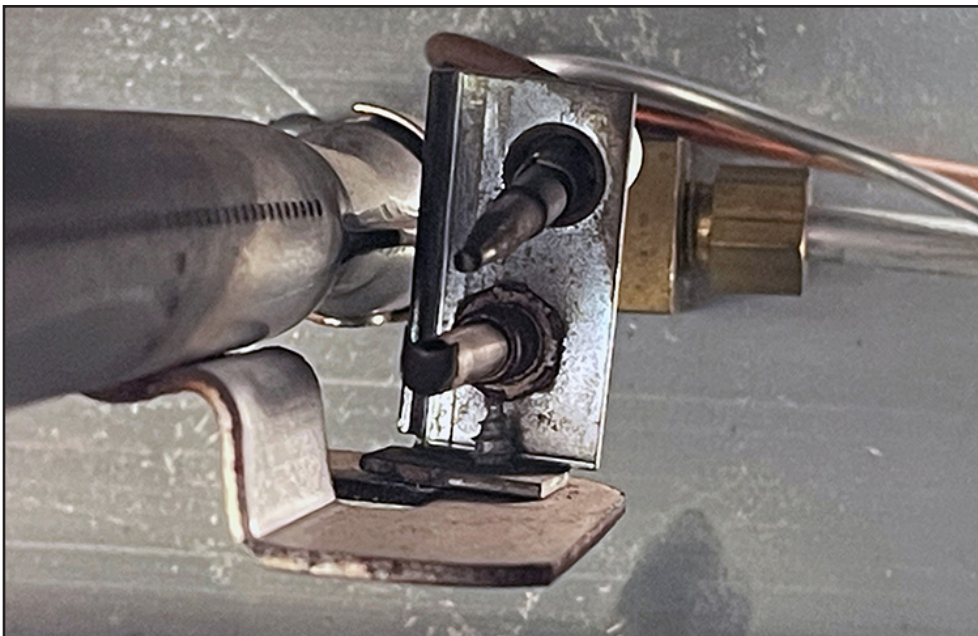




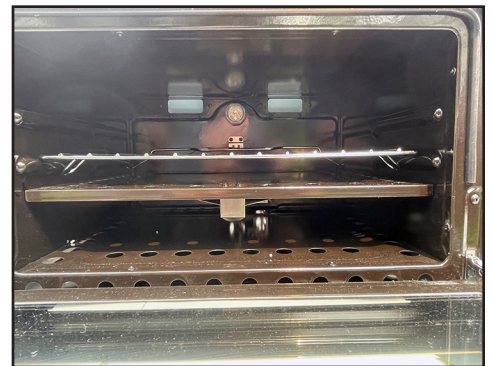
The oven thermostat on most legacy ranges has a main gas tube, pilot tube, thermal bulb for oven temperature sensing and a pilot thermal bulb.



As seen by this Greystone unit, RV appliance design has advanced dramatically through the years. The Greystone's lower deck section is a clean design, with the propane connection on the rear of the unit. And, unlike legacy ovens, this Greystone has an igniter on the pilot — no match/lighter/torch required.



The oven pilot in the old Atwood is shown here. The pilot thermal bulb is covered with soot, and should be cleaned with emery cloth. The main oven burner is to the left.



If you opt to use a pizza stone, it must not cover any of the vent holes on the burner shelf, as seen here.



The oven temperature bulb should also be clean. In this case, it was sitting on the floor of the oven; the bracket for the bulb, which goes in the hole in the back, was missing.



Greystone's range has an integrated glass cooktop lid and deck. Four screws are used to hold it down. It's easy to remove and requires no sliding or trying to get a bent-metal catch to release.



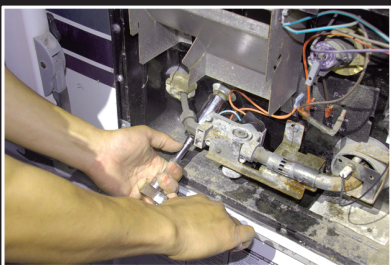
The range hood needs service, as well. Keep the filter(s) clean and check to make sure there are no nests in the hood or duct.
RVE

RV

ENTHUSIAST

NORTH AMERICA'S PREMIER HOW-TO RV RESOURCE

***Created by – and for – hands-on
RV enthusiasts!***



RV Enthusiast magazine was developed to take the mystery out of RV maintenance, repairs and upgrades, as well as providing how-to tips to make RVing better. We get it: Things happen as time and untold miles of bad roads will take their toll on your RV. But we also know that you don't have to be a mechanic to be able to confidently deal with problems that may crop up. All you really need is truly accurate information you can rely on — fully illustrated every step of the way and written in a friendly, conversational manner you can understand.

As this issue shows, each monthly edition of **RV Enthusiast** will be filled cover-to-cover with the kind of information and instruction you need to

continue to enjoy your RV for years to come. In fact, there are nearly 50 pages of 'how-to' stories in this issue — just imagine the wealth of topics to be covered and the knowledge gained in a year's time!

If you like what you see, don't miss an issue. It's less than \$1 a month! Go to our website — www.rventhusiast.com — click the "subscribe" icon risk-free and simply follow the prompts.



Coming in the September issue:

Boondocking is the biggest trend to hit the RV lifestyle in years as legions of campers ahead off the grid in search of adventures.

You don't need a craving for off-road journeys to appreciate the benefits of solar power, however; adding solar panels — and batteries to store the power — is a great way to keep your 12-volt DC system charged no matter where your travels take you. That — and a lot more — is in our September issue. *Available September 5.*

Contemporary Cooking

Replacing the RV appliances can bring new life and efficiency to your RV galley

By Chris Dougherty

Of all the activities loved and shared by RVers, campsite cooking has got to rank near the top. There's nothing like the communal feeling of gathering around a grill or fire with loved ones and collaborating on a memorable meal. However, sometimes time constraints or uncooperative weather make galley cooking more convenient.

That's okay. RV appliances have made great strides in just the last few years as manufacturers continue to adapt appliance components and functions we've grown accustomed to in brick-and-mortar homes to mobile living quarters. Fortunately, you don't necessarily need to buy a new RV to take advantage of newer galley products — most contemporary RV appliances are available in the aftermarket and, with



some work, can be incorporated into most any older RV.

Our 2005 Lance Lite 1025 camper is a case in point. Used by *RV Enthusiast* editors as a test bed of sorts for different products, it's been a workhorse — but it looks it. As the “Lite” version, it only came equipped with the necessities, and the years haven't been kind to the standard white-toned appliances. Worse, it had obviously been neglected by its previous owner(s). The range, for example, suffered from stains, broken components and signs of rodent infestation — and, as was often the case a few decades back, it was equipped with a recycling range hood rather than one that vented to the outside.

Couple that with a yellowing 0.9-cubic-foot microwave that possessed 2005-era technology and an original refrigerator resplendent with burn marks, rust and broken fasteners and, well, it was long past time for galley update.

Range and Hood

Depending on the RV, it may be

possible to redesign the cabinet to accommodate the RV range you plan to install — or even eliminate the cabinet altogether. RV range manufacturers also make cooktops without an oven, freeing up valuable cabinet space or other appliance options. For example, *RVE* publisher Bob Livingston upgraded the RV range and countertop in his 2015 Grand Design Reflection with a combination gas/induction cooktop and an electric oven below.

A truck camper, however, isn't as flexible — due to space constraints we had to stick with a 17-inch RV gas range if we wanted an oven, which we did. Still, several new players have come into the RV space in recent years, which has upped the game as far as design and function are concerned. New features now commonplace to contemporary ovens include glass doors and integrated flush glass countertops, interior LED lighting, digital controls, convection cooking and piezo-electric pilot lighting.

For this project, we elected to use a Greystone CF-RV17 range and



The old galley in our 2005 Lance Lite was serviceable — but barely — and was worn and dated.



The new Greystone range top is made of attractive tinted safety glass with rubber bumpers, and folds into a backsplash.

CXW-30-CZ01 vented hood by WAY. Resplendant in matching black, these two products, offered as a combination package by RecPro.com (RP-2105-KT) for \$514.95, provided a relatively easy swap, requiring minimal modifications inside the camper. We should note that this range doesn't have a broiler function — most likely because of the small size of the oven — but we don't often have use for one anyway.

The Greystone range is a solidly built product that's cleanly and carefully assembled, as evidenced by the under-cooktop-deck layout. Everything is neat and tidy, with more heft than the legacy model we were replacing. The addition of piezo-electric oven pilot ignition, LED lighting and a see-through oven door also combine to make this a much more usable appliance. The folding tinted safety glass lid uses rubber bumpers as both a lock and as a stop when the glass is folded into the backsplash position. Install modifications were pretty minimal; the LP-gas connection is on the rear of the unit, so we had to re-plumb the gas line and add a 12-volt DC circuit for the lighting.

Caring for this range is basically the same as the old model, except that four screws hold the cooktop deck in place instead of springs and a slide catch. In our experience, this setup works much better with less hassle.

The hood is also quite an improvement, with a thinner, more stylish look, an easily removable filter and an LED light. As mentioned earlier, the original

model was not vented to the outside, so we rectified that by cutting and fabricating a wall vent duct and lid.

Thankfully, no cabinet modifications were required. Before considering a range hood and/or microwave, it is important to review the installation instructions and measure the cabinet carefully to ensure that the unit will be properly secured and vented. This range uses the four screws into the countertop like the original one, but the bottom of the unit has venting space. So, two additional screws were used to secure the face of the range to the cabinet. Note also that the manufacturer has cookware size limitations outlined in the downloadable owner's manual.

Once installed, both the range and the hood worked as anticipated. While we can't yet comment on the accuracy of the oven thermostat, the range's cast iron grates, which sit in anti-rattle rubber grommets, also provide a substantial surface to cook on.

Microwave

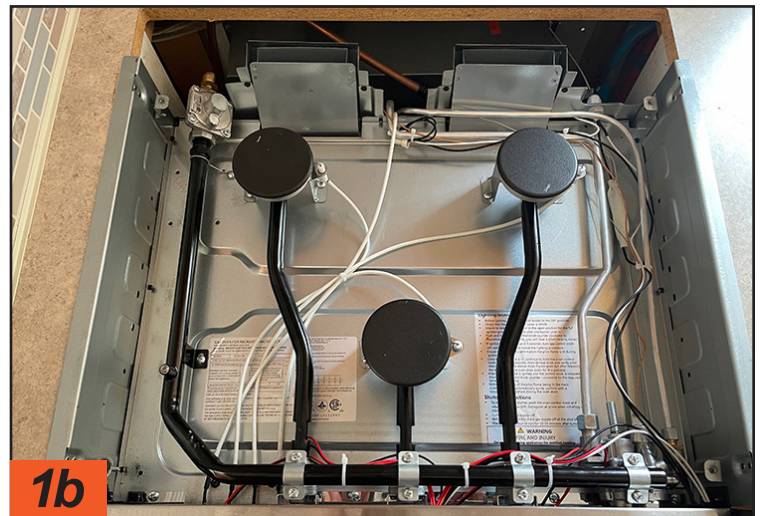
We really wanted to add a convection microwave to this unit, but once again, cabinet size was the limiting factor. While there are products available like the WAY HFK2421A stove and convection oven range, it only fits in a 24-inch range opening and thus wouldn't work in this camper. Likewise, no convection microwaves are available in a size small enough to fit the space occupied by the original 0.9 cu.ft. microwave. Finally, because of the built-in configuration, we had to select a compatible model with a built-in duct and bracket kit. This is very important to ensure proper and safe operation of the oven.

For this project, we opted for the RecPro 0.9-cubic-foot microwave oven (RPM-1-BLK) with a black finish and a retail cost of \$189.95. This 900-watt output (1,350-watt input) unit has all the features we expect in a modern microwave, including a push-button latch door, instant start, 10 power levels, eight express cooking options and so on. It comes with the built-in bracket and duct kit, so everything you need is there. We did, however, have to remove a piece of plastic trim from the cabinet to get the oven's feet to clear.

Refrigerator

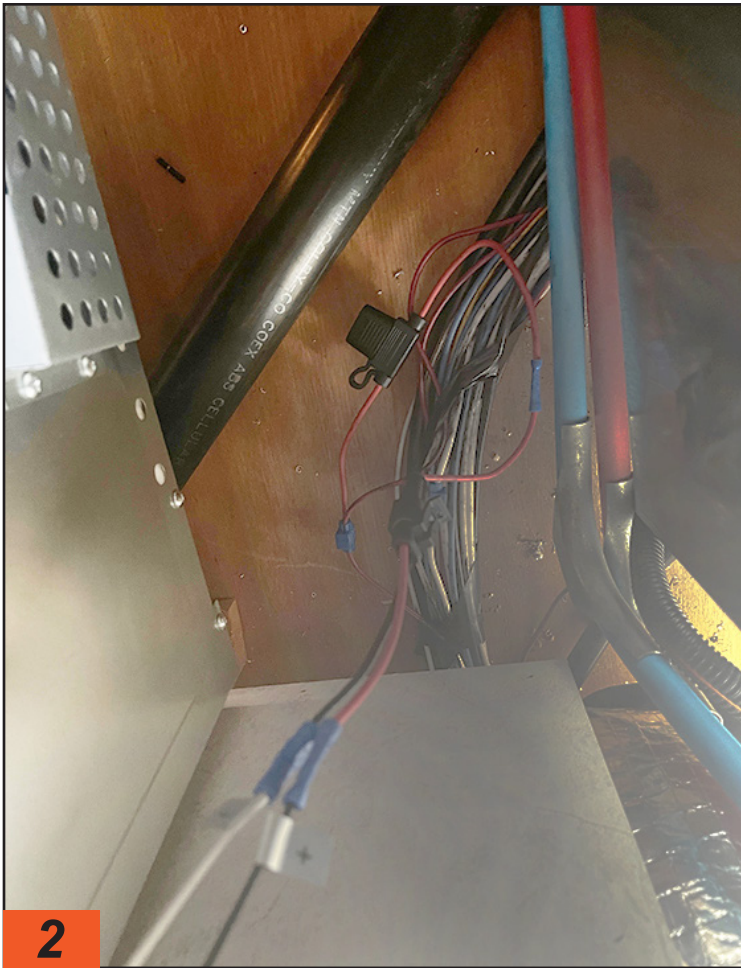


1a



1b

The filthy old top deck of the old range had food and mouse nest material left in it. Some rust was setting in. The Greystone boasts a nice clean layout and the fuel rail wraps from the left side around the front. Each burner is secured with two screws, and all tubing and wires are precisely laid out and secured.



We had to pull power from the unit wiring harness for the LED lights. A lighting circuit was located in the harness, and a 5-amp ATC fuse and holder were installed.

It was an easy decision to replace the old Norcold fridge with a new one. Norcold has a well-deserved reputation for building RV absorption refrigerators, and we'd be able to do an even swap without much work. That was the plan, anyway.

Getting refrigerators into and out of RVs can be a nightmare. If you already didn't know it, appliances are usually fitted into a RV during the manufacturing process, not afterwards. The truck camper's entry door wasn't wide enough to accommodate the girth of the old refrigerator, so we had to remove it. At that, we also had to disassemble the refrigerator completely — including removing the cooling unit, doors and hardware — to squeeze it out the door. Similar disassembly of the new unit is often required, which many people get really nervous about. It's a process that an experienced certified technician can do given time, but is probably not what most RV owners want to tackle.

Fortunately, Norcold has designed its new Polar NA7LX series to disassemble from the front (doors and part of the cabinet) to allow it to fit through the

RV door opening without removing the cooling unit. It's not only ingenious but also makes the replacement of the unit much easier — even if the narrow camper door needs to be removed to affect the swap.

The Norcold Polar NA7LX that we installed is a 7-cubic-foot, 3-way refrigerator — which means it can operate on propane, 120-volt AC or 12-volt DC, the latter being ideal when traveling on the road with a good charge line connected from the truck. The previous unit was also a 3-way, so the 12-volt DC wiring was already designed to handle the load of the 12-volt DC electric element. If you want to

add a 3-way to an RV that doesn't have one, you will have to upgrade the wiring as specified.

The Norcold's new touch controls, modern styling and tall, restyled door panels give the unit a more modern, residential look. The interior is also redesigned, with a molded-in drip tray on the back wall, very usable shelves and see-through door buckets. You can even add an icemaker. Likewise, the electronic controls and LCD display work well and are intuitive. The handles and hinges are hidden, and if you have an older model fridge and want to reuse the door-panel inserts, metal spacers — doubling as "MAGNAstrips" to hold magnets for photos — are included. Our 3-way model was also ordered with a cold-weather kit that allows operation down to 0 degrees Fahrenheit.

Once the old unit was removed, we saw that the paneling in the back of the cabinet had severely degraded and delaminated. We peeled back the paneling and installed new lauan then added a layer of sheet aluminum in the corner as added protection from heat damage. The only other change we had to make

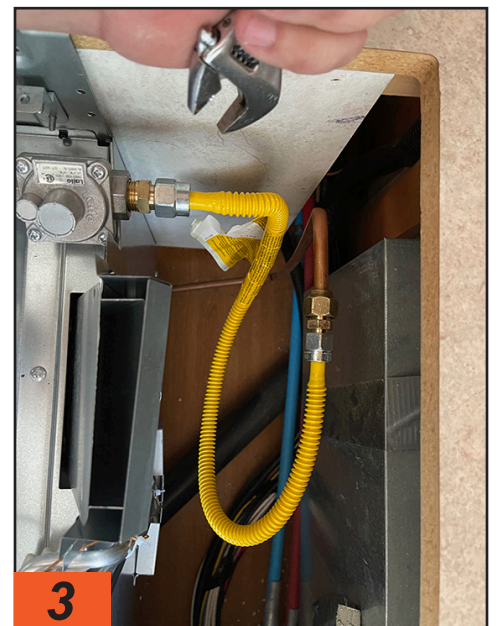
was with the LP-gas connection. As with the range, it had moved, so we added an appliance hose extension to make the connection. The Norcold NA7LX.3F with cold-weather kit and rear fan retails for \$1,838.39.

By the way: anyone contemplating a refrigerator upgrade also should consider the potential benefits of a 12-volt DC compressor refrigerator. These are good options for many RVs that have the battery capacity and solar recharge capability to operate for extended periods off the grid. While we are adding a solar energy system as part of the makeover, there is only space for one battery — and we didn't want to be limited in the amount of time the unit could be used without firing up the generator. Additional batteries could be installed in the bed of the truck and wired in with high-amperage connectors, but that is not currently a part of this project.

Measure Twice, Order Once

All things considered, our galley upgrade went off without a hitch. While we approached it in stages, the entire task required about 12 hours. As noted, we had to make some significant changes to the LP-gas system, and we performed a full regulator and leak down test using a manometer. Each connection was also checked with a leak check solution to ensure a good connection. This type of testing is best performed by an experienced Saturday mechanic or certified RV technician, even if you elect to install the appliances yourself. Don't take chances with LP-gas.

Measure everything, then measure it again before ordering new appliances.



The gas line installed and the range screwed down and reassembled, we tested the LP-gas connections for leaks.



4

A great feature, the oven pilot is activated by a piezo electric igniter, eliminating the need to crawl on the floor and reach in the oven. The oven also has interior lighting. The oven burner plate is solid and recessed in the middle to hold drips.

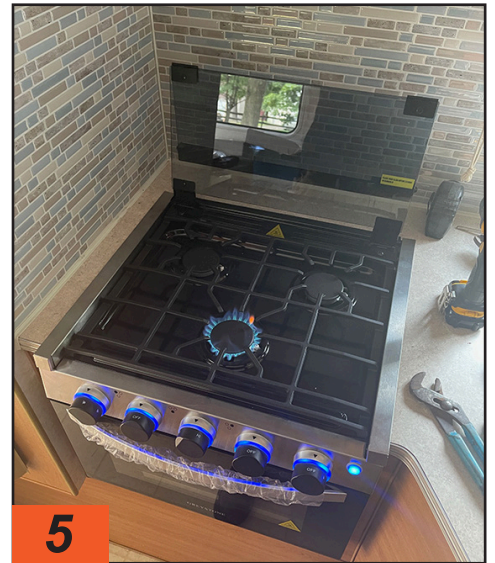
They ship via truck freight, so you really don't want to make a mistake and have to ship them back.

We adhere to applicable RV construction standards when performing this kind of work, which include NFPA 1192 and NEC 551, among others. Re-

search the required procedures to meet code before you begin — your safety is at stake. Thinking about doing things right ahead of time makes all the difference. In the case of the refrigerator cabinet, for example, we went beyond the standards to line the back of the

cabinet with aluminum because of the condition of the paneling.

Overall, we're very pleased with how the upgraded appliances have worked out in this makeover. Total retail cost (not including labor) was approximately \$2,700, but all of the appliances are a marked improvement over the originals — and make the camper a much better place to cook, eat and live.



5

A nice clean LP-gas flame was present on every burner including the oven. The LED lights are a nice touch, but we're glad they're easily turned off with the switch on the right of the control panel.



It's time...

*to reunite with old friends and meet new ones.
for hugs, handshakes and backslaps.
to visit kids and grandkids.
to go places, old and new.*

It's time to hit the road.

***We'll be with you
the whole way.***

Tough USA-Made | Outstanding Customer Service | Award-Winning Design

For over 50 years, Roadmaster has offered a complete, comprehensive line of products for motorhome-to-vehicle towing, including tow bars, baseplates, braking systems and accessories as well as an extensive line of anti-sway bars for motorhomes.

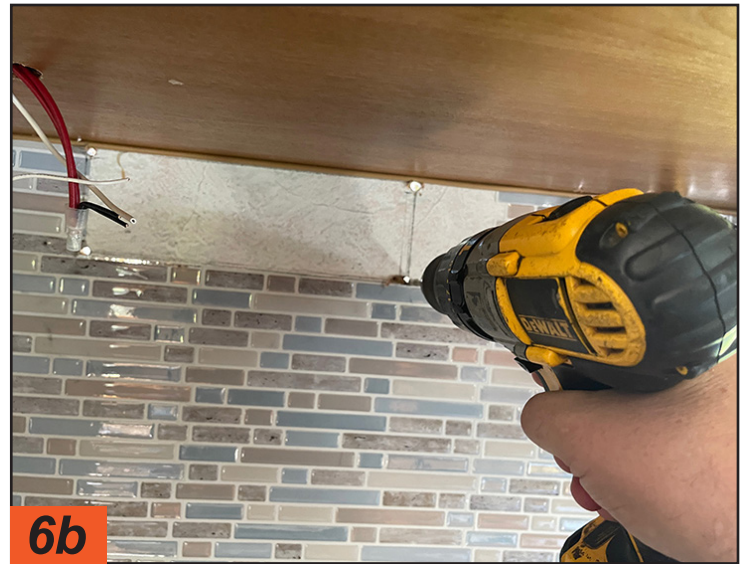


Time Tested • Time Proven
800-669-9690
www.roadmasterinc.com

#6217-00 07/21



6a



6b

The new range hood is a solid, clean design with easily removable filter and LED light. For this install, we upgraded the range hood from a recirculating model to an outside vent. Measure twice, drill and cut once! We spent some time determining how the wall was built and if we could cut in a vent opening, and we could. Every RV is different.



7a



7b

Once drilled from the inside (we had confirmed nothing was in the way in or on the outside of the wall) we used the new vent as a template to trace where we would be cutting. We used an oscillating cutter to make our cuts, starting with the aluminum siding and working inward to check each level.



8

The new vent was thicker than the wall, so we trimmed it to fit.



9

We used a two-wire quick connect to hook up the wiring. We could have just used solderless connectors, but this way it's removable.



10

The new vent is installed, and we used silicone to make a gasket between the hood flange and the vent.



11

When selecting a new microwave that will be built in to your RV, make sure you get one with all the hardware to install. The kit comes with the top vent, cabinet deck duct and face bracket.



12

Make certain the bottom deck is secured to the bottom of the cabinet. A notch in the center of the plate lines up with the centerline of the cabinet.



13

The feet on the microwave wouldn't clear the cabinet, so we removed the plastic trim to allow for clearance.



14

We confirmed the fit and screwed the face into the cabinet, after running the power cord into the adjacent cabinet to plug it in.

HELPING TO KEEP YOUR TIME ENJOYABLE WHILE OUT ON THE ROAD.



parts.revgroup.com/store





15

What a difference! The new appliances go a long way to modernizing the interior appearance of our 16-year-old truck camper — and their performance will definitely bump our galley skills up a notch.



16

From this view, the old fridge just looks vintage 2005. But the unit was well worn, the cooling unit had a ton of rust, freezer bolts were broken off and there were burns on the inside from a hot (something) having been introduced by a previous user.



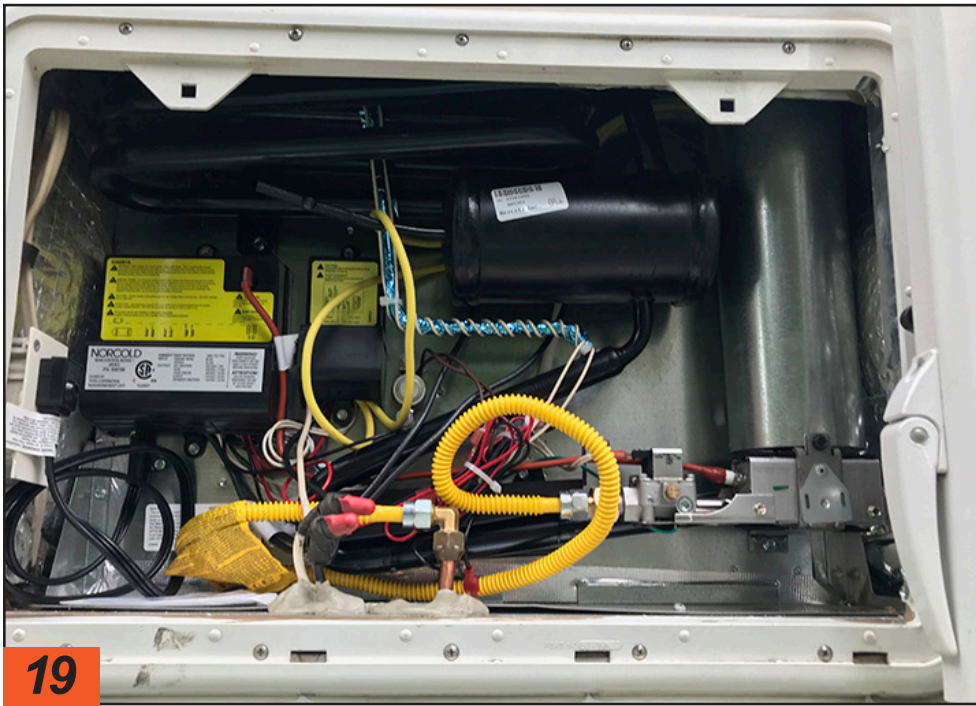
17

The Norcold Polar 7 looks a lot like other units, with the cooling unit and electronics on the rear. When installing into a cabinet in the RV, the rear and top clearances are very specific to allow air to enter from the bottom and pass through the top grill. The chimney is on the right, and the chimney cap must be rear facing as pictured, with nothing impeding the flow of gasses from the chimney. The front of the box, including controls and doors, was removed to get the unit inside the camper.



18

This is the refrigerator chimney, cap, and the baffle, which is down inside and clipped on here. A frequent mistake is spinning this cap accidentally and blocking it with fiberglass insulation, which can cause a fire. Make sure it's clear, oriented to the rear after installation.



19

Once installed, the power and gas lines were connected. We also added a gas line extension here, and all connections were carefully tested for leaks.



20a



21

We could have retained the original wood panels from the old fridge but found that the black plexiglass panels on the Norcold matched the other appliances and looked sharper.



20b

The new Norcold 7-cubic-foot refrigerator has a nice clean look and plenty of upgraded features. Each shelf has a guard to keep things from sliding off during travel. Refrigerator rods (black) are not included, but are great additions to keep things in place. **RVE**

Sources:

Thetford/Norcold
 (800) 543-1219
www.norcold.com

RecPro
 (574) 848-0405
www.RecPro.com

Way Interglobal
 (574) 971-4490
www.wayinterglobal.com

A Direct Current to Cold



Chris Greer, vice president of operations for WAY, with the company's 17-cubic-foot Everchill 12-volt refrigerator, the largest 12-volt DC fridge available.

12-volt DC refrigerators combine the aesthetics and food capacity of a modern residential-style unit while tapping into an onboard power system

By Bruce Hampson

There's no understating the impact boondocking has had on the RV industry in recent years. Whether people choose to camp off the grid in search of adventure, opt for spending time at national and state parks to rediscover America or simply head off-road after being stymied in their efforts to book a campground for an upcoming vacation, "primitive camping" has escalated dramatically in popularity.

It's also perfectly tailored for the growing use of 12-volt DC refrigerators in RVs.

Did WAY CEO Wayne Kaylor have boondocking on his mind when he tasked his overseas engineering team to develop a 12-volt-DC-powered compressor refrigerator in 2015? Who knows — but by the time the company

debuted its first unit in 2017 it was the newest wrinkle in the RV industry.

"When we started out, everyone told us it wouldn't work," said Chris Greer, WAY vice president of operations. "The general consensus was that no one could make a 12-volt DC compressor work — it was going to pull too much current and wouldn't be efficient enough. We disproved all of that — not only is it efficient, but it's the fastest-cooling refrigerator on the market."

As Greer explained, 12-volt compressors were already available at the time "but we really had to work on the efficiency and the noise — we had to refine the compressor." One of the biggest obstacles, he added, was building one durable enough to last in an RV environment prone to vibration.

Today, WAY's original 10.7-cubic-foot 12-volt refrigerator has been augmented by units as small as 3.3 cubic feet

and as large as 17 cubic feet — and WAY shares the 12-volt DC refrigerator market with Thetford's Norcold division, Dometic, Furrion and Vitrifrigo. In the portable refrigerator/freezer segment, these manufacturers also are joined by Truma Corp.

That last segment shouldn't be ignored. While we tend to focus more on the built-in appliances in RVs, portable units like the Truma Cooler not only allow them to be utilized by the wave of smaller "adventure" travel trailers, they also lend themselves well to use in other environments. These smaller portables also feature technology to a greater degree than their traditional-sized counterparts. The Truma Cooler, for example, can be powered by either 12-volt DC or 120-volt AC — drawing just 0.5- to 1.1 amps per hour, depending upon the size of the unit — and boasts intuitive digital display

with set-point/actual temperature and “fast turbo” cooling, individually adjustable temperature zones on dual-zone models, internal LED lighting, Bluetooth app control and even a USB port for charging devices.

Among 12-volt DC refrigerators designed to be integrated into to RV cabinetry, the “sweet spot” seems to be the 8- to 10-cubic-foot size, a landscape populated by all four full-size refrigerator manufacturers. Not coincidentally, these dimensions fit the appliance needs of the largest segments of towable and motorized manufacturers.

At present, only WAY builds a 12-volt DC unit that rivals larger residential-style 120-volt AC refrigerators in size and capacity. As a consequence, its 17-cubic-foot model is finding its way onto fifth wheels and Class A motorhomes — particularly on RVs intended for extended off-grid camping excursions. For example, Alliance RV calls itself “The masters of 12-volt” and claims to offer more 12-volt DC systems in its Valor toy hauler than similar rigs on the market. Between standard equipment and options, virtually everything on the Valor — from the fuel tank pump to the power recliners, slideouts, furnace and, yes, its 17-cubic-foot Everchill refrigerator — can be powered by batteries fed by 640 watts of solar panels.



The portable Truma Cooler is available in single- and dual-zone versions in a variety of sizes from 36- to 105 liters. Models also feature an intuitive digital display with set-point/actual temperature and “fast turbo” cooling, Bluetooth app control and even a USB port for charging devices.

Still, that begs the question: Why opt for a 12-volt DC refrigerator when current RV power sources (using inverters and converters) and gas-absorption models get the job done — even when boondocking?

Two answers that readily come to mind are safety and efficiency. Not everyone wants to travel with their gas-absorption refrigerator operating, and these units tend to take a long time to achieve temperatures cold enough to ensure food safety. Owners of a gas-absorption unit usually turn the refrigerator on the night before they leave on vacation to give it time to cool. On the other hand, WAY’s Greer said a 12-volt refrigerator can achieve its dialed-in temperature in as little as 45 minutes to an hour.

Aside from the cost differential between a replacement gas-absorption unit and a similarly sized 12-volt refrigerator — a matchup that the 12-volt unit will win every time — there’s also the question of capacity. Without the need for a gas-absorption unit’s bulky rear coils and the full metal jacket that typically envelops a residential refrigerator, manufacturers are able to create larger interior dimensions within the same external dimensions as a smaller gas unit.

“What you don’t have is an absorption cooling unit that takes up so much room on the backside,” Thetford/Norcold Product Manager Eric Klein told the RV trade journal *RV Pro*. “Your refrigerator may be the same width and height, but it’s deeper, so you can fit more contents on your shelves.” As Klein explained, the design differences often mean a 10-cubic-foot model, for example, can fit within the enclosure previously home to an 8-cubic-foot absorption unit.

There are other benefits, as well. Compressor refrigerators aren’t susceptible to the same limitations as gas-absorption units, which can malfunction if the RV isn’t level, and aren’t nearly as heavy. Plus, said Greer, they are easier to work on.

“When a typical three-way (12-volt DC, 120-volt AC and propane) gas-absorption unit stops working, it can be tough to troubleshoot,” he said. “It could be 12-volt power, it could be AC power, it could be propane issues — you’re dealing with three different power-supply sources, so determining the fault takes time. We’ve built self-diagnostics into our circuit board; you can test it and it will tell you what to check.”

All other benefits aside, it still often-times comes down to the power draw — especially when you’re camping without hookups.

“We’ve worked with the power



Dometic’s new DMC4101 is a 10-cubic-foot model that uses a “smart” variable-speed 12-volt DC compressor that, said the company, provides class-leading low power consumption.

management system so that we have a long battery life,” Klein told *RV Pro*. “We’ve taken in the power draw and ensure that our refrigerators will run at least 40 hours on a single charge of a battery. If they’re out where there’s no power, they don’t necessarily want the generator running.” WAY has performed similar tests, with even better results. According to Greer, the company ran a refrigerator for 47 hours off a series 27 lead-acid battery. Want more? Furrion claims tests have shown its new lineup of Arctic refrigerators can maintain



Norcold’s Polar 10DC is a 10-cubic-foot refrigerator/freezer that features “night mode” to reduce power usage and compressor noise to a reported 34dB. According to the company, the unit’s freezer can pull down to 15 degrees in just 1.9 hours.

temperatures up to 60 hours with a standard battery.

To hammer home the performance of its 12-volt refrigerators, WAY's Elkhart headquarters includes a showroom for the products the company distributes, including its proprietary brands like Everchill. There, a 17-cubic-foot Everchill 12-volt DC refrigerator/freezer (hooked up to a power converter) is set up alongside a comparably sized Hisense 120-volt AC residential-style unit. Temperature monitors on the front doors of each reveal what's going on inside each. In a 71-degree showroom environment, the Hisense is running at a steady 36 degrees inside. The Everchill? 32



Furrion introduced its Arctic 12-volt refrigerator line in 2019 and updated the 8- and 10-cubic-foot models with a new magnetic fan that the company says makes operation 50% quieter than previous models.



WAY's showroom includes a side-by-side comparison between a 120-volt AC Hisense refrigerator (left) and a 17-cubic-foot Everchill (right) hooked up to a power converter so it can run on 12-volt DC power. As seen from the exterior-mounted temperature monitors, the Everchill keeps the refrigerator at a cool 32 degrees.

Protection you can trust. Reliable power you can use.



EF2200iS
Easy-to-operate generator offers high power output, with superior protection and Yamaha's proven reliability.

NEW! Carbon monoxide detection & shut-off feature

CO SENSOR



©2021 Yamaha Motor Corporation, U.S.A. All rights reserved. Please read the Owner's Manual and the product warning labels before operation.

- 
CO EMISSIONS DETECTION
- 
RELIABILITY
- 
HIGH POWER OUTPUT
- 
EASY TO OPERATE

Q & A with Chris Greer, WAY Vice President of Operations

Chris Greer has been in the RV industry for more than 25 years, with a resume that leans to an engineering focus and product development for companies ranging from Jayco on the manufacturing side to Lippert on the supplier end of things. He's been with WAY for nearly two years, and while his business card reads "Vice President of Operations" he's still heavily involved in product development.

We caught up with Greer recently at WAY's Elkhart, Indiana, headquarters for a discussion of 12-volt DC refrigeration.

RVE: Chris, is there a limit to the size to a refrigerator that can be cooled by 12-volt DC technology?

Chris Greer: Yes, there has to be a limit always to everything, but we have had really good success with our 17 (cubic-foot model). In fact, we will shortly be introducing a new 18-cubic-foot, 12-volt refrigerator. So, I would say that we have not reached the limit yet, but it's getting to a point to where it's a balancing act between compressor and cooling size and power consumption. I think at some point we will reach that limit, where people just don't want to have that size of current draw on a 12-volt compressor. But we've had great success, and R600 freon — I think nearly everyone manufacturing in the cooling side of the world, from air conditioners to refrigerators, has changed over to R600 — it is a more efficient cooling agent, so that actually helped all of our products, including larger-cubic-foot refrigerators.

RVE: How difficult is it to swap out an absorption refrigerator for a 12-volt unit?

Greer: So long as it's approximately the same size cabinet, it's extremely easy. You remove the absorption refrigerator and plug the gas line, obviously, so you don't have any leaks. Then, depending on what size 12-volt wiring is in that cabinet, install the new unit. Sometimes the wiring can be used, while at other times it needs to be bumped up a bit in wire gauge. That's really it, so long as the cabinet doesn't require any modifications. We have several units that fit into the same size cabinets that some of the smaller absorption units do. But even when you are swapping units with the same exterior dimensions, you actually get more storage space out of a 12-volt refrigerator than you ever did

out of the gas absorption refrigerator because the manufacturer can use all of the space — you don't need to dedicate any of it to the coil in the back of an absorption refrigerator.

RVE: Speaking of wiring, what changes might be needed to equip an RV for a 12-volt DC fridge?

Greer: The big thing is distance from the battery or power center to wherever the refrigerator's located. We have a pretty simple chart and follows closely with the RV Industry Association (RVIA) recommendations for wire gauge to current draw and we suggest 10-gauge wire up to 20 feet of wire run. But, again, I'd say please follow the RVIA suggested wire gauge code.

RVE: Is there a comparably sized 12-volt DC refrigerator available for every size of absorption refrigerator?

Greer: I'd say yes. For example, we offer 12-volt refrigerators from 1.7 cubic feet all the way up to now 17 and, shortly, 18 cubic feet of storage space. If we don't have one that fits a buyer's needs I would be highly shocked.

RVE: What do you recommend people do about the outside vents if they switch from absorption to 12-volt?

Greer: Leave them, they won't hurt anything. As a matter of fact, I have an older unit that I put a 12-volt in that previously had an absorption refrigerator. I left the vents. There's no need to plug them or close them off. They aren't needed for the 12-volt unit, but it's a lot of work to try and fill those holes that are cut into the sidewall and the roof.

RVE: How much power does a 12-volt DC refrigerator draw?

Greer: It depends. If the refrigerator has been sitting unused at ambient temperature, it will draw 6 to 7 amps to cool down. One of the nice things about 12-volt DC refrigerators is they cool down quickly; our refrigerators will cool down in 45 minutes to an hour, depending on food load. After it gets to the temperature the customer has set it to, standby mode is going to be much closer to 1 1/2 to 2 amps of current draw (per hour). That number is effected by food load, how many times the kids open and close the refrigerator door and things of that nature, but we've worked very



WAY's Chris Greer with the company's lineup of portable refrigerators.

hard to try and make it very efficient. It doesn't take a long period of drawdown time to get it cold and keep it cold.

RVE: What do you recommend for a battery bank and solar/renewable charging system?

Greer: If you are going to use it in a boondocking type of situation, our standard suggestion for is that you run two group 27 batteries and a minimum of 120-watt solar panel. That will essentially keep the refrigerator running indefinitely.

RVE: What's the expected lifecycle of a 12-volt DC refrigerator?

Greer: We obviously offer a standard warranty on WAY units, but many, many units in the field are now approaching five and six years old with no issues at all. I really think of it like a house refrigerator. I'm not sure what a residential refrigerator lifecycle expectation is, but I've always expected my house refrigerator to last 10 years or so.

RVE: How do 12-volt DC refrigerators compare, cost-wise, to their gas-absorption refrigerator counterparts?

Greer: Traditionally they are much lower in cost than a gas absorption unit. I think gas absorption units are \$1,500 to \$2,000 in the aftermarket — our 12-volt refrigerators are nowhere near that. Once you get into some of the smaller-size 12-volts units like the 1.7-cubic-foot or 3.2-cubic-foot 'mini-refrigerators' the manufacturers are competing with 110-volt-powered units. In that market, 12-volt units will be a little bit more costly just because of some of the technology needed for the 12-volt, but it's not a huge difference. But with our larger 12-volt refrigerators, we can go head-to-head cost-wise with a gas-absorption refrigerator all day long. We feel like it's a very good value and it fits the RV lifestyle. **RVE**



Surge Protection

Electrical surges and spikes can happen anywhere at any time. These products help keep your appliances and other electrical components safe

By Chris Hemer

There's a time-honored proverb that states, "Fire is a good servant, but a bad master." The same can be said for electricity. When properly managed, electricity qualifies as one of the essentials of modern-day life; all you have to do is suffer through a black-out for even a few hours to be reminded of how important it is to us today. However, electrical power isn't always consistent or predictable — especially in an RV application, where you may rely on power sources from a variety of RV parks/campgrounds or power grids throughout North America. And while no power supply is perfect, the biggest enemy to an RV is what is known as a power surge.

The most common cause of a power surge is lightning, which can strike an electrical facility or, more commonly, a power pole or lines. According to the National Electronic Manufacturer's Association (NEMA), other external causes of power surges include utility-initiated grid- and capacitor-bank switching, where the utility company may need to switch the supply of power to another source or temporarily interrupt the flow of power to its customers to aid in clear-



ing a fault from the system. This is often the case in the event of fallen tree limbs or a small animal causing a fault on the line. These power interruptions cause surges when the power is disconnected and then reconnected to the customer loads. These surges, or "transients," are brief overvoltage spikes or disturbances on a power waveform that can damage, degrade or destroy electronic equipment — and can even be delivered during the normal operation of the electric power system.

At a more local level, the campground or RV park where you are staying may

have an improperly wired pedestal or a problematic power supply in general, which can cause spikes and surges. Regardless of the source, a serious power surge can leap across circuit boards and can destroy both 12-volt DC and 120-volt AC systems — and everything connected to them. There are also low-level power surges that can happen several times a day, and while these won't necessarily cause visible damage or failure they can gradually degrade internal circuitry in your RV's appliances until they eventually fail. Anything with a microprocessor is particularly suscep-



Metal Oxide Varistors (the yellow coin-shaped objects seen here) are the sacrificial elements inside of a surge protector. Each surge event causes some deterioration of the MOVs, but a massive surge could destroy all of them. Without MOVs, destructive energy would be passed on to all the electronics in your RV, causing damage that can cost thousands of dollars. Mike Sokol photo

tible, including TVs, computers, microwaves, circuit boards and even some dishwashers and refrigerators.

These are just a few examples of why it's so important to use a surge protector. Not to be confused with an outlet surge suppressor, which is commonly used for plugging in a computer and/or TV at home, a surge protector prevents bad power from entering the RV when hooked up. The essential ingredient in all surge suppressors are Metal Oxide Varistors (MOVs), also known as surge modules, which are sacrificial elements inside the unit with each about the size and shape of a nickel. You'll note that all surge protectors have a joule rating, with each joule being equal to one watt-second (the energy equivalent to the power of one watt sustained for one second). For example, a surge protector with a 2,450-joule rating could withstand 2,450 surges of one joule each — but a massive surge could destroy all the MOVs, which would render the unit incapable of protecting against addition-

al surges.

Surge protectors are available in both portable and permanently installed versions. The obvious benefit of portable models is that they are easy to connect and are a good choice if you have more than one RV. They are relatively inexpensive (especially when compared to the possible collateral damage from a power surge) and can also be used with a so-called dog bone connector, which may be necessary if, for example, your RV is equipped with 50-amp power and the power pedestal is 30-amp. The only real downside of a portable surge protector is that it can be stolen, although most manufacturers offer anti-theft provisions for their portable units. Permanently installed surge protectors cost more initially

and must be installed by a qualified



Portable surge protectors aren't cheap and can disappear if you don't protect yours. Surge Guard's Universal Lock Hasp (model 34590) easily attaches to standard 30-amp and 50-amp plugs. Attach a padlock to the durable, high-quality plastic hasp, and it does the rest. Fits all portable Surge Guard models.

electrician or certified RV technician, but once in place, all you have to do is plug the RV in like usual and you're always protected.

Regardless of what style you choose, a surge protector should be considered a necessity, not a luxury. The trouble and expense it can save are well worth the initial investment. We've compiled a list of various surge protector models (starting with portables), but some companies offer several different models and we don't have room for every one of them here. We would encourage you to browse the different models available from the different companies and contact them with any questions you may have.

Pro Tip: A poor or loose connection can cause the plug to overheat and damage or destroy the receptacle and your portable surge protector. When plugging in to a power pedestal, always make sure that the connection is snug. Do not "wiggle" the plug loose when disconnecting, because this will eventually compromise the connection, making the surge protector susceptible to damage.

Camco Manufacturing

Camco offers just about everything an RVer might need, and now that includes surge protection. The company's **Power Grip 30-** and 50-amp voltage protectors with integrated surge protection help protect the RV and appliances from high (132-volt AC) or low (102-volt AC) voltage levels and power surges of up to 2,800 joules (30 amp) or 4,200



Camco 30-Amp Power Grip

joules (50 amp). If dangerous conditions are detected, it will automatically disconnect, reconnecting only after the normal operating conditions have been restored. Meanwhile, the voltage protection feature guards against reverse polarity, open neutral and other wiring maladies. And as the name would imply, these weather-resistant products include handles with contoured grips that make plugging and unplugging easier.

Hughes Autoformers

The Power Watchdog from Hughes Autoformers is a relatively new product line with some interesting and useful features. The company's PWD30 (30 amp) and PWD50 (50 amp) portable models offer 2,400 and 4,800 joules of surge protection, respectively, with features like an open neutral, open ground and reverse polarity indicators, plus low/high voltage alerts, kilowatt usage monitor, weatherproof construction and more. The PWD30-EPO and PWD50-EPO models offer the same features, the primary difference being the addition of the Emergency Power Off (EPO) feature, which automatically shuts the unit off if voltage drops below 104 volts AC or goes over 132 volts AC. The EPO units also add features like a Smart Circuit Analyzer (shuts down power to the RV if a dangerous event occurs) and other cool features.

The hard wired PWD30-EPO-H and PWD50-EPO-H models offer the same benefits as the portable EPO models, and all models have unique features like replaceable surge modules and Bluetooth connectivity so you can monitor live campground/park power with a free app on your smartphone (available on the Apple App Store and Google Play). In addition, Hughes recently announced the availability of RV Whisper, a feature which allows you



Hughes Autoformers Power Watchdog offers Bluetooth connectivity for monitoring live conditions.

to monitor live conditions and receive notifications from anywhere (requires an RV Whisper monitor station, portable Wi-Fi hotspot or Wi-Fi access and a smartphone/tablet or computer with cell/internet service).

Progressive Industries

Founded by a full-time RVer, the Progressive Industries product line includes everything from basic, portable surge protection for 30- and 50-amp service to portable and hardwired complete RV

tion and more.

Progressive Industries' venerable (and budget friendly) Smart Surge SSP-

power protection. Its newest models are the portable EMS-PT30X and EMS-PT50X, which include an all-weather shield assembly, rugged pull handle, an improved secure locking bracket and an integrated scrolling display, all wrapped in a tough Lexan housing. Progressive's EMS (Electrical Management System) helps protect your RV against voltage fluctuations, power surges and incorrectly wired shore power and features over/under voltage protection, open ground/open neutral/reverse polarity detection and protection, Previous Error (PE) code, A/C frequency protec-



Hughes Autoformer PWD50



Progressive Industries EMS-PT50X



Progressive Industries EMS LCHW50

30X (30 amp) provides three mode, 825 joules and 22,500-amp surge current rating, while the SSP-50X (50 amp) provides five mode, 1,650 joules and 45,000-amp surge current rating. The built-in surge status indicator tells you whether or not the surge protector is functioning properly, and the integrated polarity tester checks the status of the power source prior to use. The company also offers the SSP-30XL and 50XL, which offer similar features, plus the added benefit of an all-weather receptacle shield, locking bracket and a rugged pull handle.

The EMS-LCHW30 30-amp and EMS LCHW50 (50 amp) are the company's hard-wired units offering similar protection as portable units listed above, but are permanently wired into the RV. Modular design makes repairs very user



Progressive Industries SSP-30XL

Surge Guard (Southwire)

Southwire is not only a manufacturer of RV surge protectors, but also a family-owned business that manufactures half of the cable used in the transmission and distribution of electricity across America. Based in Carrollton, Georgia, the company claims that one out of every three homes in the country contains its electrical wiring — so it's safe to say it knows something about electricity. The company also offers RV cords and adapters and Shoreline Reels cord and hose reels to help manage RV hook-ups.

Perfect for pop-ups and travel trailers, according to the company, the model 44280 and 44290 surge protectors feature enhanced diagnostics and test for/indicate open neutral, open ground,



Surge Guard 44280

friendly, according to the company, and the user can bypass the computer circuit in the EMS in the event of a failure, thereby allowing power back to the RV. If mounting in an area where the readout is not readily visible, Progressive also offers the EMS-HW30C and EMS-HW50C, which have the additional benefit of a remote display.



Surge Guard 34830

reverse polarity, open circuit/no power, surge protection status and overheating plug/receptacle. The 30-amp model offers 2,100 joules of surge protection, while the 50-amp model provides 4,200 joules, and both models offer Easy-T-Pull plug handles, an easy-to-read LED fault chart and increased receptacle brass thickness to reduce heat.

The 34830 (30 amp) and 34850 (50 amp) Portable Surge Protectors with LCD Display monitor for surge failure, voltage, amp draw and reverse polarity (such as a miswired pedestal or elevated ground voltage). Compact and easy to use, these weather-resistant models offer 2,450/3,850 joules (respectively) of surge protection, multi-mode surge suppression, a 128-second reset delay to protect the A/C compressor and automatic reset upon power restoration. Thermal protection helps prevent receptacle overheating.

The newest models from Surge Guard — 34931 (30 amp) and 34951 (50 amp) Bluetooth-compatible surge protectors — offer protection against power surges, open ground, open neutral, elevated ground line current, low and high voltage, receptacle overheating, reverse polarity and a miswired power pedestal. Featuring multi-mode surge protection, these units also boast features like a commercial-grade brass receptacle (not brass-plated), an LCD display and Easy-T-Pull handle. Both models are compatible with the company's 40301 Bluetooth LCD display (available separately), which can be



Surge Guard 34931



Surge Guard 35550

mounted wirelessly inside the RV and has a range of 100 feet, according to the company.

Offering full protection from power surges, open ground, open neutral, low/high voltage, reverse polarity and more, 35530 and 35550 are hard-wired surge protectors that continuously monitor and indicate voltage amp/draw and surge failure. An optional remote power monitor LCD display (part number 40300, sold separately) displays voltage and amp draw and features a joystick for easy screen navigation. **RVE**

Sources:

Camco Manufacturing
 (800) 334-2004
camco.net/home

Hughes Autoformers
 (888) 540-1504
hughesautoformers.com

Progressive Industries
 (800) 307-6702
progressiveindustries.net

Surge Guard (Southwire)
 (800) 780-4324
rvpower.southwire.com

 An advertisement for Tim's RV, Inc. The background is a scenic landscape with a sunset over a field. The text "inTech Platinum Dealer 2019" is prominently displayed in the upper left. To the right, it says "Enjoy life camping" with a red underline. Below this, three different RV models are shown: a white travel trailer labeled "Luna", a dark-colored travel trailer labeled "Flyer", and a white travel trailer labeled "Sol". At the bottom, the brand names "Luna", "Flyer", "Terra", and "Sol" are written in a stylized font, with a mountain range icon above "Terra" and a sun icon above "Sol".

Tim's RV, Inc. 15 East Main Street • 413.522.3410 • Erving, MA • TimsRVinc.com

STEP LIVELY

Forget what you know about your trailer's original entry steps — Torklift's scissor-action Smartstep Glowstep Revolution combines solid footing that can adapt to almost any terrain

By Bill Gehr / Photos by the author

RV owners rarely pay attention to how many times they have gone in and out of the entry door, climbing and descending the folding steps, not to mention how many times they pushed them in and pulled them out. As long as they continue to do their job, that's all that matters. Over time, however, the joints holding these steps together will wear out and eventually fall apart — usually at an inopportune time and sometimes making a fall and injury possible. Even if that never happens, the bigger 3- and 4-step models have a tendency to flex and bounce, which many RVers find disconcerting.

If you have compromised entry steps or would like a quality upgrade, Torklift International offers a practical system for all RV trailers and fifth wheels. This versatile and flexible step configuration, called the Smartstep Glowstep Revolu-



The Torklift Smartstep Glowstep Revolution is rated for 350 pounds, which provides plenty of support. The company's three-step version was installed on a 2011 Carriage Cameo.

tion, requires no drilling to complete the installation and will adapt to almost any terrain once deployed.

To start with, Torklift designed an upper pivot point that has three positions for raising or lowering the top step, which provides a level surface — and the space between the top step and the entryway into your trailer is reduced to provide an easy transition without losing one's footing. The steps have a 7.5-inch rise height, which is claimed to be the shortest in the industry. In addition, the

lower section has an additional five adjustment positions via all-terrain landing legs that can easily be adjusted individually to give the best possible support. Perhaps best of all, you will no longer have to tote a portable folding step or a bunch of loose lumber in your storage compartment to enable safe passage into and out of the trailer.

Torklift's unique entry doorstep system has several advantages when compared to a standard factory-installed step. The multi-link design allows for



The original pull-out steps were worn out and not capable of supporting occupants without using a wood-block brace for stability. It was an unsafe situation.

operation in very tight spaces (only 6 inches are needed to deploy), and a cleverly designed bushing at every hinge point promotes longevity — the company promises it won't come loose over time and backs that claim with a lifetime warranty.

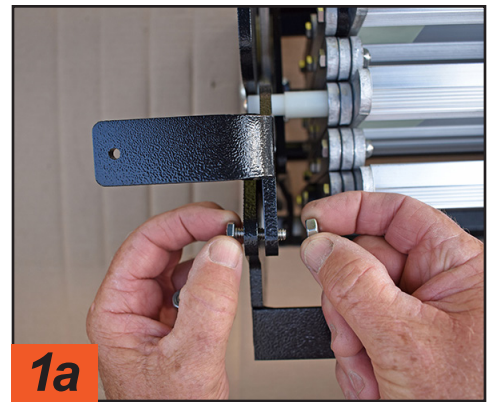
Removing the Torklift step assembly from its frame is the recommended procedure for a one-person install (which is the method we used for this installation); the installation can also be accomplished by unfolding the steps

and resting the adjustable feet on the ground for support while installing the fasteners. If the step is too heavy to hold in place, you can cut a piece of 2x4 lumber to fit between the ground and the bottom step to support the weight. While removing the Torklift step assembly from its frame takes a little time, the recommended procedure makes the most sense.

Start by removing the bolts that hold the pivot arm and latch using the supplied hex key wrench; this will release the step assembly from its frame (save the bolts for when reattaching the steps to the frame later). Mount the step frame assembly to the factory metal enclosure below the entry door using either the 3/8- or 5/16-inch bolts through the designated holes, depending on the requirements and bolt pattern of your make and model trailer. Be sure to torque the 3/8-inch bolts to 25 ft-lb and the 5/16-inch bolts to 15 ft-lb.

Using the bolts previously removed, reattach the step assembly to the pivot arms. A word of caution here: Do not put the bolts through the latch assembly into the pivot arms. Snug the 3/8-inch bolts and Nylock nuts, backing them off approximately 1/4-turn, allowing the step to pivot around the bolt.

With most models, the step can be successfully installed with no modifications. However, to make the install work using the model A8003 step on a 2011 Carriage Cameo (as shown), it was necessary to cut a notch into the factory frame on the sides to provide clearance for the two pivot bolts. Follow the owner's manual instructions to adjust the steps as needed so they are level. Installation time is one to three hours,



After unboxing, the bolt that secures the steps for shipping is removed and the pin that locks the steps in the stored position is installed. The shipping bolt that was removed after unboxing is installed in the top link permanently.

depending on the application and any necessary modifications.

One feature that really enhances safety are the unique glow strips that are embedded into the step. These strips of light are designed glow for up to 10 hours after exposure to at least 5 minutes of light during the day. They do a very good job of guiding you during the night, providing enough light for safe foot placement on the steps. The aircraft aluminum and stainless-steel construction of the scissor-action mechanism is sturdy enough to provide a long life without compromise. And the SureGrip non-slip tread, built into the step surfaces, promotes positive footing.

Torklift offers several accessories that can be added to the Smartstep Glowstep Revolution that makes life easier — think of these clever products as additions to enhance the functionality of the step system. The GlowGlide multi-use handrail adds a big element of stability and safety to users who need a little help when negotiating steps. The SafeStep riser safety panels, meanwhile, install in the rear space between the steps to close them off, which is a big help for dogs unsure of the footing needed to climb aboard. And the Dirt



Torklift's three-step model (A8003) is designed to fit the Cameo Carriage. All the hardware is included for a direct replacement of the original folding steps.



2

Bolts securing the original steps are removed from the factory side frame panels.



3

A hydraulic bottle jack and wood block are placed under the bottom step of the original system to ensure safety when removing the bolts.

Destroyer shoe scraper will remove the muck and leave it outdoors where it belongs.

The U.S.-made Smartstep Glowstep Revolution system is easy to deploy and retract, and the mechanism operates smoothly with no binding. Torklift and its website can guide you through the ordering process to make sure the right steps are purchased (MSRP is \$620.99), which will fit 25/25.5- to 27.5-inch factory step openings (width). The product is available in two-step to six-step applications.



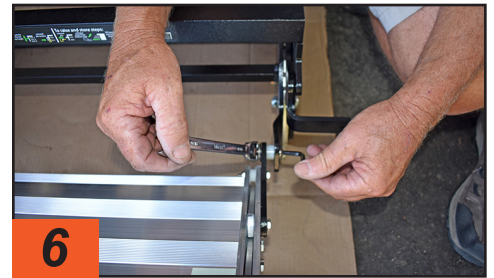
4

Rear bolts in the original step frame were also removed — a procedure that may not be required on other model fifth wheels. These positions do not apply when installing the new step.



5

Once all the bolts were removed, the factory steps are removed from the fifth wheel and discarded.



6

When installing the new steps, the best option is to remove the step assembly from its frame to reduce weight and make it practical for one person to make the swap.



7a



7b

The new frame, minus the step assembly, is positioned into the step well below the entry door. A bottle jack, wood block and brick were called into service to stabilize the structure for proper line up.



8

New bolts are installed through the Torklift frame and into the steel step-well panels.



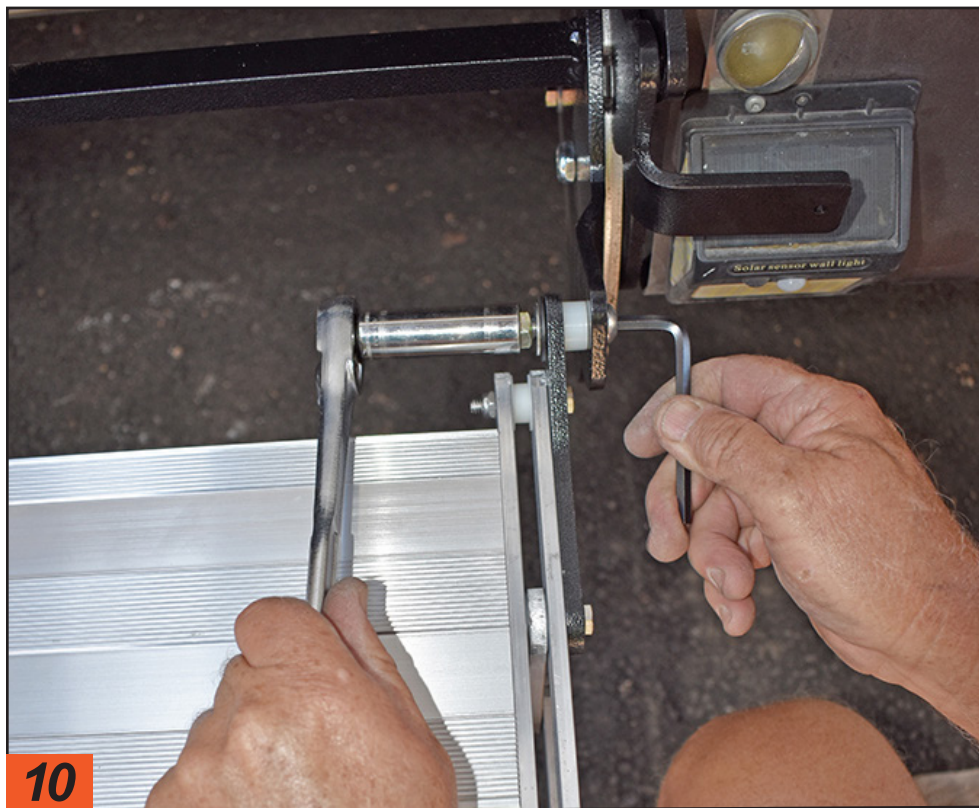
9

After securing the new frame, the step assembly is aligned properly and reattached.



11

The new steps fit nicely and looked like they were ready for action. Well, not so fast. For some reason, the builders of this fifth wheel strayed somewhat from their tolerances for this model and the step would not retract.



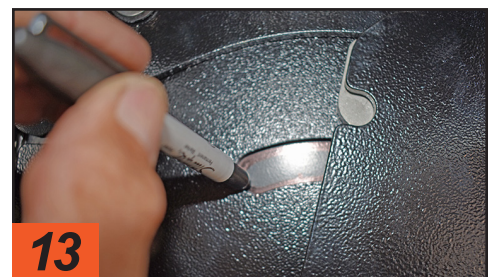
10

Bolts that are integral for the scissor mechanism to move while the steps extend/retract are first snugged and then backed off 1/4-turn.



12

Further inspection revealed that travel for the mechanism was being restricted by the original frame. Here, you can see that the bolt on each side does not have enough travel clearance for retracting the new steps.



13

The new steps were removed and the travel areas were marked on the original step well panel.

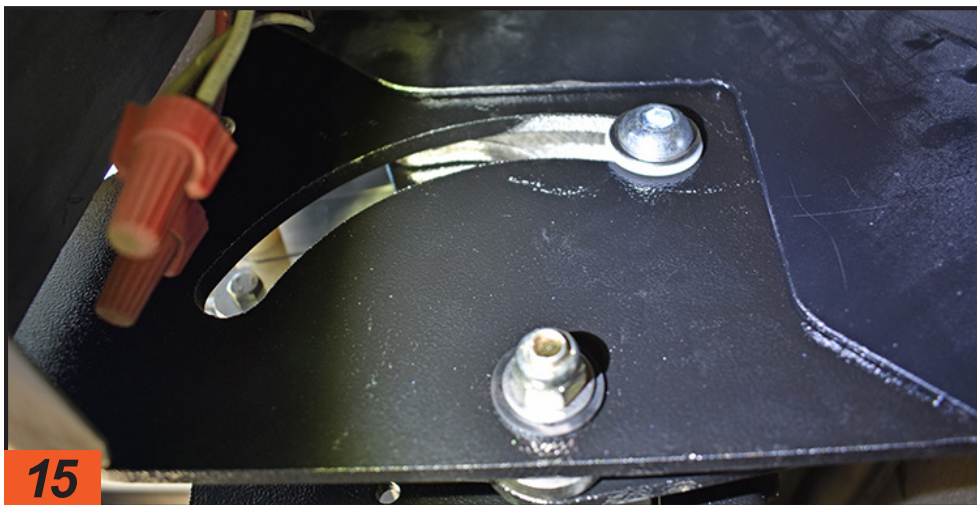


14a



14b

A grinder was used to make the cut. The owners of this particular fifth wheel had to make 3-3/8- x 4-inch cuts in the factory panel.



15

The once-restricted bolts now clear the frame and the step was folded completely in the space under the entry door.



16

Landing jacks can be adjusted to support steps, even on undulating terrain. This feature makes it unnecessary to carry wood blocks for stabilizing the steps.



17

The Torklift steps are very comfortable to negotiate. Space between the door landing and first step is lower than the factory counterpart, and the 7.5-inch rise height between steps makes it easier to enter or exit the trailer.



18

When folded for travel, steps are neatly tucked into the well under the entry door. Only 6 inches of clearance are needed to deploy the steps—perfect for tight storage spaces.



19

An aforementioned pin prevents the steps from unfolding while in storage/travel mode. **RVE**

continued from page 11

Through June, the industry has shipped 300,267 units to dealers — a 70.5% increase versus last year's performance.

And yes, these numbers only detail wholesale shipments — but many of

these units have already been purchased. Keep in mind that while the industry shipped 420,000+ last year, there were 515,819 units sold according to industry analyst firm Statistical Surveys.

Italian 'Wingamm' Headed Stateside



If you've ever ventured to Europe, you know everything is smaller there. That includes the roads and the vehicles that travel on them — including RVs. That's one reason why Class B campervans are much more popular than Class A's overseas.

Now, we're about to see the two combine. Stellantis, a leading global automaker headquartered in The Netherlands — and the folks who brought the Fiat Ducato van to the U.S. as the rebadged Ram ProMaster — is bringing the Oasi 540 from its Italian subsidiary

Wingamm, stateside.

As reported in the online source Gear Patrol, having the ProMaster chassis NHTSA-certified means the company can add its "houses" to the certified underpinnings.

The Oasi 540 — so-named because it's 5.4 meters long (212 inches, or about 17 1/2 feet) — is built with a number of unique exterior storage bays; even the rear bumper area slides out to accommodate things like folded camp chairs. The bed, meanwhile, drops down from the ceiling.

The Oasi 540's diminutive size means it doesn't need a lot of horsepower — the 2.3-liter engine will be available in 140-, 160- and 180-hp versions, hooked up to a 9-speed automatic transmission.

Foaming Deficits



The ongoing pandemic has proved to be a two-edged sword for the RV community. On the one hand, it fueled tremendous growth as the population rediscovered the joys of camping with friends and family — but on the other, it stymied RV production as suppliers ran into delays importing everything from electronics to air-conditioners as other countries similarly shut down to deal with the virus.

Now, you can add one more shortage: foam.

Granted, it doesn't sound like a big deal — until you realize that the current nationwide foam shortage is causing bottlenecks in the supply chain for everything from mattresses and furniture to insulation. In an RV, foam is the difference between comfort and, well, let's not consider the alternative.

According to a recent report by *USA Today*, the shortage began when February's winter storms temporarily shut down production at all five U.S. plants (in Texas and Louisiana) that produce the main chemical — propylene oxide — needed to make foam. The plants have since come back online — but the shortage remains as the companies work their way through the backlog. **RVE**

Advertiser Index

(click on company name to view its ad)

Advertiser	Website	Page
Brazel's RV/Ultra RV Products	urvp.com	11
Curt Mfg.	curtmfg.com	70
Hensley Mfg.	hensleymfg.com	11
Hopkins Mfg.	hopkinsmfg.com	39
Lance Camper Mfg.	lancecamper.com	2
Lippert	lci1.com	7
MORryde	morryde.com	41
Norcold/Thetford	norcold.com	35
REV RV Group – Parts	parts.revgroup.com	49
REV RV Group – Service	revrvserviceandrepair.com	10
Roadmaster	roadmasterinc.com	47
RV Buyers of America	rvbuyersusa.com	25
RV Cable Grip/Hose Grip	rvcablegrip.com	25
Tim's RV	timsvinc.com	60
Truck System Technologies	tsttruck.com	5
Truma Corp.	truma.net	13
Yamaha	yamahamotorsports.com	54

Pony Up

A visit to Assateague Island, shared by Maryland and Virginia, nets breathtaking views — and is home to two herds of feral horses that roam free



Feral horses roam the Assateague Island National Seashore and have become the No. One attraction on the island for visitors to view and photograph. This group of Assateague horses are befriended by a Cattle Egret while grazing along the national seashore. These wild horses are protected and cared for by the National Park Service on the northern end of Assateague Island.

Several years ago while RVing along the east coast of the United States, I planned a visit to Assateague Island. I am a true nature lover, which means I thrive on spending time in the outdoors and photographing wild animals, flowers and scenery. Mother Nature teaches us something new every day, and there are many ways to soak in the beauty of the outdoors, either through hiking, kayaking and canoeing, bicycling, birding or even gardening. To that end, while searching the National Wildlife Refuge System's website ([fws.gov/refuges/](https://www.fws.gov/refuges/)), I discovered Chincoteague National Wildlife Refuge, located on Assateague Island. The National Wildlife Refuges are quite inexpensive to visit (generally \$3-\$5 daily) and will also accept the America the Beautiful Federal Recreational Lands Pass (Golden Pass). A Senior Pass to the National Parks is also acceptable to enter National Wildlife Refuges, as well. Assateague Island was once part of Fenwick Island, a barrier island off the coast of Maryland. Barrier islands often change in shape and size due to coastal storms and conditions that affect their landmass. In 1933, a hurricane hit Fen-

wick Island and separated the area into two islands, creating an inlet between them. Assateague Island was named for the tribes that had lived in the region at the time of the European invasion of explorers. Following the hurricane, jetties were built to keep the two islands separated and to create a navigational channel.

Assateague Island is 37 miles long and located off the eastern coast of Delmarva Peninsula, in the Atlantic Ocean. The island is claimed by two states, with the northern two-thirds of the island belonging to Maryland and the lower portion belonging to Virginia. You can access this island by bridges from either state, but there is no road on the island that connects the northern and southern sections of Assateague. Vehicles must return to the mainland to access either the north or south entrance of Assateague Island.

In 1965, Assateague Island National Seashore was established by the National Park Service to preserve the barrier island, as well as the surrounding waters, and to provide recreational opportunities for visitors. The daily entrance fee for the National Seashore is \$20 per vehicle and the area also offers camping for tents, trailers and RVs

from March 15 through November 15 (the Maryland part of the island is the only area that allows camping). There are two campgrounds in the National Seashore area, offering dry camping (no hook-ups), with picnic tables and fire rings only. You can make reservations up to six months ahead for either Oceanside Campground or Bayside Campground by going to www.recreation.gov. Reservations are through the National Park Service and cost \$30 per night; if you have a Golden Access Pass, you will receive a 50% discount on camping fees.

Maryland's Assateague State Park also lies within the National Seashore boundaries. It encompasses approximately 800 acres and is the most developed part of the entire island. This is an oceanfront state park and camping is permitted from the end of April to the end of October. Assateague State Park campground has 342 campsites, with both tenting and 30-amp electric hook-up sites, depending on which loop you reserve. Maximum length for RV sites is 25 feet. Beautiful bathhouses with dishwashing stations and outdoor showers are also provided in the campground. Reservations can be made for Assateague State Park Campground online at www.parkreservations.maryland.gov. Campsite fees are \$27.50 per night for tent sites and \$38.50 per night for electric hook-up sites.

We visited both the northern and southern ends of Assateague Island, with most of my time spent visiting Chincoteague National Wildlife Refuge on the southern end of Assateague Island. This refuge was established by the U.S. Fish and Wildlife Service in 1943, primarily to provide habitat for migratory birds. It is one of the most-visited refuges in the U.S. and houses the Herbert Bateman Education Center, as



This aerial view of Assateague Island National Seashore highlights the location's pristine beaches. This National Seashore is located on the barrier island of Assateague, owned by both Maryland and Virginia, and boasts the Assateague Island National Seashore, Assateague State Park and Chincoteague National Wildlife Refuge. (Photo courtesy en.wikipedia.org).



Assateague Island National Seashore was established to preserve the barrier island and its surrounding waters. These Caspian Terns, Black Skimmers and American Oyster Catchers enjoy the protected shores of this national seashore area.

well as Tom's Cove Visitor Center. This visitor center is open daily and houses a marine aquarium and touch tank inside, while the education center is open to the public seven days per week and offers a variety of programs for visitors.

One of the more popular programs offered is the Refuge Trek Tour, formerly known as the Wildlife Tour, an 8-mile bus drive to the northern end of the island that takes you into areas not accessible by car. The tour lasts 90 minutes and costs \$14 per adult; reservations (757-336-3696) are strongly recommended. Chincoteague National Wildlife Refuge is located along the Atlantic Flyway and is a resting place for many migratory birds at different times of the year — Snow Geese are especially bountiful here, as well as American Oyster Catchers, Great Blue Herons, Snowy Egrets and Piping Plovers.

While planning our visit to Assateague Island, I learned that the island is best known for its herds of feral horses. No one knows for sure how the horses got on the island, although legends abound. The most popular tale is that the ponies swam ashore to the island from a Spanish ship that ran aground in 1750. Some locals believe these Spanish horses were the start of the now-famous herds of Assateague ponies. The horses on the island are typically smaller than most horses (due to environmental adaptation) and are referred to as ponies.

Today the ponies are split into two herds: a Maryland herd (Assateague horses), owned and managed by the

National Park Service; and the Virginia herd (Chincoteague Ponies), owned and cared for by the Chincoteague Volunteer Fire Company. The two herds are kept separated by fencing along the state line on the island. These feral horses were also popularized by a famous children's book, "Misty of Chincoteague Island" by Marguerite Henry. This novel is the real-life story of the Beebe family and their efforts to raise a filly born to a wild horse in Chincoteague, Virginia. The ponies are now one of the most photographed attractions on

Assateague Island.

Another popular attraction is the Assateague Lighthouse. This red-and-white-striped lighthouse was constructed in 1867 and is located on the southern part of the island, within the Chincoteague National Wildlife Refuge. The lighthouse is a 142-foot-tall structure and is still operational today. It's open to the public on weekends and admission to the lighthouse is free. If you are fit enough to climb the 175 steps to the top, you will be rewarded with beautiful panoramic views of Assateague Island.

Depending on the time of year that you visit Assateague Island, you may want to join one of the annual festivals. On the first Saturday in May, the annual Chincoteague Seafood Festival is held on Virginia's Eastern Shore. This festival has been a tradition for more than 50 years and promotes the seafood industry in Virginia. During the third week of July, Chincoteague hosts its annual Blueberry Festival, followed one week later by the Chincoteague Pony Swim. Approximately 40,000 visitors come to Assateague Island at the end of July to watch the annual Pony Swim. The Chincoteague Ponies are led across Assateague Channel by "Saltwater Cowboys" when the tide is slack calm — when there is the least current, allowing for a safe swim for the ponies to the mainland. The horses are evaluated and separated and some are auctioned off a few days later. The one hundred-plus ponies are then escorted to the channel, where they swim back



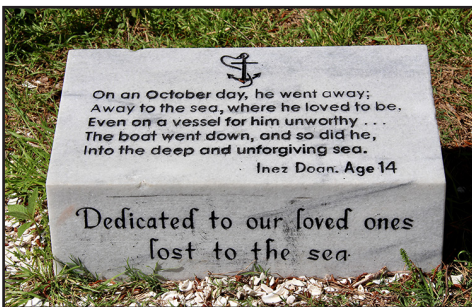
Chincoteague National Wildlife Refuge was established in 1943 to provide habitat for migratory birds. Located on the southern end of Assateague Island, this area is one of the most visited refuges in the U.S. This wildlife refuge, located along the Atlantic Flyway, is renowned for its diverse bird habitat where more than 320 species are known to use this refuge regularly during migration. In this photo you can see a gathering of Osprey and Cormorants.



Assateague Lighthouse stands 142 feet tall and is open to the public on weekends. If you are fit enough to climb the 175 steps to the top, breathtaking views can be seen in every direction.

to their island home. The annual pony swim and auction help manage the number of horses on Assateague and prevents them from adversely impacting the sensitive barrier island and the proceeds from the auction are used to buy new equipment for the Chincoteague Volunteer Fire Company.

If you are RVing and want to spend time on the southern part of Assateague Island, you will need to stay at a campground on the Virginia mainland. Chincoteague Island KOA is closest to Assateague Beach. This KOA (koa.com/campgrounds/chincoteague/) is open April 1 to November 30 and offers 50-amp, full-hookup sites up to 65 feet; fees range between \$60-\$70 per night. Pine Grove Campground (757-336-5200) is a privately-owned



A monument dedicated to loved ones lost at sea reminds us that the sea can be an unforgiving place. Many ships have run aground or even sunk along the shores of Assateague Island, which have created many legends about this area.

campground, also in Chincoteague and is located on 37 acres of land, including six ponds to enjoy while camping. Pine Grove Campground is within walking distance to the town of Chincoteague and is open April-December. We camped at Pine Grove and I enjoyed watching and photographing waterfowl and black swans in the campground ponds.

Before leaving Assateague Island, be sure to spend some time on its pristine beaches, which is the second-most-popular attraction. Kayaking, canoeing and paddle-boarding are all popular water sports in this area, along



Chincoteague ponies and their foals are the most photographed sight on Assateague Island. Here, a feral palomino Chincoteague pony stands with her approximate two-week-old foal.

with boating, fishing and crabbing. I thoroughly enjoyed our four days on Assateague Island, spending my time surrounded by nature and observing the beautiful wildlife that abounds here. It's certainly a good candidate for anyone's bucket list.



A wide variety of species stop at Chincoteague National Wildlife Refuge, along their migratory path. Here, a Snowy Egret takes flight in front of a Ring-Billed Gull (background) and a tiny Piping Plover (foreground).



Sandpipers and their reflections can be seen along the shores of Chincoteague's National Wildlife Refuge. This refuge attracts not only thousands of migratory birds each year, but also thousands of people as well. **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

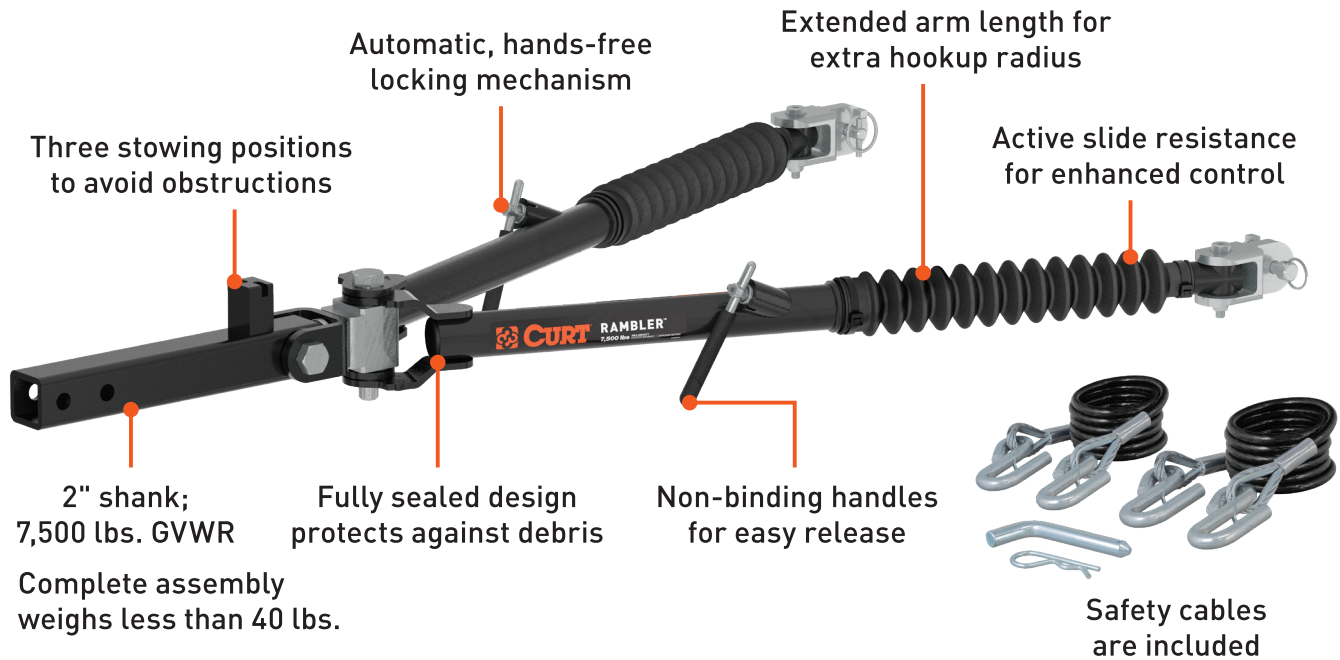


READY FOR ADVENTURE

RAMBLER™ STEEL TOW BAR



Scan to
learn more!



TRUST THE TOWING EXPERTS | curtmfg.com/towbars

