ON A ROLL: ALL ABOUT RV TIRES AND AIR-PRESSURE MONITORS



Extra! Extra! Titan Sidekick Tank Install

Smoky Mountain Christmas Dollywood Turns on the Lights

Winter Hot Spots

Florida: From Key Largo to Key West Mexico: What to Know Before You Go

→ HOW ENGINES KEEP THEIR COOL

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DECEMBER 2015 | VOLUME 75 | NUMBER 12



FEATURES

18 Grand Design Imagine

The upscale 2600BH is a budget-priced lightweight bunkhouse travel trailer built to make it fun for the family and Fido

22 All Keyed Up

Freewheeling along Florida's Overseas Highway from Key Largo to Key West

30 RV Tires 101

Understanding the basics can help avoid costly blowouts and lead to safer travels



Installing an aftermarket tire-pressure monitoring system on tow vehicle and trailer wheels goes a long way toward on-the-road safety and peace of mind

42 RVing in Mexico

Despite border-crossing hassles and bad press, our neighbor to the south is friendlier and more accessible to RVers than you may think. Here's what to know before you go

49 Solid as a Blue Ox

Connecting a trailer to a tow vehicle with SwayPro's improved weightdistributing hitch is easier while imparting safe handling

56

52 Helpful Sidekick

Titan's unique fuel tank can take on 15 gallons of fuel, DEF or water

Waterfront RVing is one advantage of traveling in the Florida Keys. Page 22



Starcraft's Launch is offered in two expandable hybrids and three travel trailers. Page 12

DEPARTMENTS

6 Driver's Seat Keep on Rolling

8 Letters Readers respond loud and clear

11 Around the Bend News, events, places and trends

16 RV Resolutions *Trailer Life* is your referee

56 Hands On Alpenglow LED light fixtures **58 10-Minute Tech** Now why didn't I think of that?

60 New Products Goodies to improve the RV lifestyle

62 Performance Corner Tech, accessories and news

70 RV Clinic Answers from the *Trailer Life* tech team

74 America's Outback Christmas in Dollywood, Tennessee

On the cover: Grand Design's new Imagine trailer at Klines Resort on Portage Lake in Three Rivers, Michigan. Photo by Shawn Spence



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Keep on Rolling

Taking an offensive approach to care and maintenance is your hedge against suspect-quality tires found on trailers



A sk owners of trailers and fifth-wheels what concerns them most about their RVs, and they will likely say "tires." Reported incidents of tire failures and collateral damage running into the thousands of dollars to repair have caused legitimate concern. After all, there's not much more between the trailer structure and the pavement than the tires, and when a tire blows out, everything comes to a halt.

We feel very strongly that owners must take an offensive approach to ensure safety on the road and have devoted a portion of this issue to the proper care, maintenance and inflation of tires (page 30) and the advantages of tire-pressure monitoring systems (page 36). Armed with the knowledge of how to prevent blowouts and premature wear, owners have a much better shot at protecting their investment.

It's easy to blame the trailer manufacturers for supplying unknown tires manufactured in China. A blanket generalization of the quality of goods made in China is unfair; some of the highest quality products marketed to the world are built in China. It's all a matter of controlling the factory with strategically placed personnel. In this arena, Apple is the first company that comes to mind.

Make no mistake; there are a lot of junk tires from China being put on trailers and fifth-wheels these days. And there are some decent trailer tires, too, like the Maxxis and Goodyear Marathon and G614. Not willing to take any chances, I replaced the stock rubber on my new fifth-wheel with Maxxis tires before taking the first trip.

Just because you upgrade the tires doesn't mean you're home free, however. Proper maintenance and inflation are critical, regardless of the brand. My pre-trip routine includes careful inspection of the sidewalls and valve stems before making sure the tires are inflated properly for the load. I then check the lug nuts with a torque wrench, and on trailers with a stock suspension, I inspect the spring shackles for wear. The tow vehicle's tires are also checked for unusual wear patterns and sidewall damage, and the air is topped off. Call me obsessive, but I torque the trailer lug nuts at the beginning of each travel day. I keep getting a visual flashback of my friend's trailer tire freewheeling down the highway. Yep, loose lug nuts.

When it's time to put the trailer into storage, inflation is checked, the sidewalls are cleaned and treated with 303 Aerospace Protectant and covered. Although it always seems like a lot of work, I'm incentivized every time I think about the cost of replacing tires, especially if they are damaged before timing out.

Here's to smooth rolling. 🗭

- Bob Livingston, publisher

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DID YOU KNOW?

Ottawa, Ontario, the sport is something of an obsession. Each winter a 4.8-mile stretch of the Rideau Canal transforms into the world's largest naturally frozen ice rink.



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Mind Your Manners

In regards to "Respect Can Be Contagious," Bob Livingston's October column, it's about time something was said about campground etiquette. I wish more campgrounds would enforce rules on such things as cutting through other people's campsites.

Mark Hughes, Eaton Rapids, Michigan

In reference to Bob Livingston's October Driver's Seat column. we have worked for various campgrounds over the past 10 years. One of the things we have found is the lack of respect some people have for the upkeep of the property. Even though we have signs about not parking on the grass, lots of RVers still do that, making it impossible for our mowing crew to do a complete job. Another thing we run into is when people with dogs don't pick up after them until they leave the site - sometimes after two weeks! Meanwhile, the mowing and fire-ringcleaning crews have to drive through the mess. In spite of these bumps, we have always enjoyed our work.

Jim and Marge Kooima Sioux Falls, South Dakota

You can't teach or buy manners or courtesy. That was everyone's mother's job. If it was not learned there, just pity those who don't have it and go find someplace where folks do. **Noel and Betty Johnson Lexington, Tennessee**

Pay-As-You-Go Problem Solved

I read "The Price Is Not Right," the October RV Resolutions letter about Sue Fordyce's problem with pay-asyou-go billing from Dish network. I had the same issue, but I called in and got a really knowledgeable lady. If I could, I would send her flowers. She straightened out my account and told me there are two billing classifications: Residence and Seasonal Residence. If you are RVing for part of the year and want satellite TV from Dish, make it known that you have a Seasonal

Underworld Connections

Upon arriving in Loveland, Colorado, from our almost-2,000mile trip from Long Island, New York, I noticed excessive wear on the inside of the right-rear tire on our Keystone fifth-wheel. Sensing an alignment or axle problem, I called the nearby Camping World for help. They referred me to where they send RVs with suspension issues, Transwest Truck Trailer RV in Frederick. Lauren from Transwest told us we were welcome to stay in our rig in one of their designated overnight spots where we would be supplied with 30-/50-amp electric service.

Transwest's alignment specialist, Marcus, was at our rig at 7:02 the next morning to check out the problem. He could not see anything obvious, so first he wanted to change out all the bushings because they were the manufacturer's original plastic ones. After doing so, he informed me there was an additional problem. He brought me under the rig to show me the wear in most of the shackles. The round holes where the bolts go through were elongated, some more than others, but one very close to breaking. Had that happened, he explained, the result could have been disastrous.

Marcus said they would need to be replaced, obviously, but by replacing them with new shackles with "wet" bolts, we would be a lot better off. He explained that the wet bolts were greased, and I could regrease them periodically to ensure they would not wear like the original ones. I didn't feel he was just trying to sell me a more expensive setup, because it wasn't a lot

more money. I agreed, Marcus did the work, and we continued another 2,500 miles, all trouble-free.

When we arrived home, we found the September 2015 issue waiting in our mail. What a coincidence to find Chris Hemer's "Underworld" article on bearings, brakes and suspension. Everything that was in the article regarding the bushings, shackles and wet bolts was exactly what Marcus had explained to me. I cannot emphasize enough to my fellow RVers the importance of changing those original plastic bushings and dry shackles. **Thomas Jones, Riverhead, New York**



Residence. (Do not say RV, fifth-wheel, travel trailer, camper, etc.) If you do this, the billing problems will go away. Jeff Glanzman, Bremerton, Washington

Scrub at Your Own Risk

In the "Up Close and Personal" article by Bill and Jenn Gehr in the October issue, the Gehrs suggested using Spic and Span as well as Dawn dishwashing liquid for cleaning the outside of RVs. Car-care professionals have advised me that only soaps made specifically for washing cars and RVs should be utilized. Household cleaners contain oil- and grease-lifting ingredients that will lift off any waxes used to protect the appearance of your unit. **Kenneth Olsen, Poplar Grove, Illinois**

As the Gehrs pointed out, there are many cleaning products specifically

for RV roofs and exteriors. Still. some RV owners prefer using household cleaners for routine jobs. Spic and Span is widely used for cleaning rubber roofs and has been recommended by at least one company that supplies rubberroofing material to RV manufacturers. A solution of 1 tablespoon of Dawn for each gallon of water is an effective cleaner. But, as Kenneth notes, it can remove protective wax, so even a weak solution of Dawn may not be suitable for washing the sides of RVs. — Editors

10-Minute Tech Postscript

Per Jav Kev's October 10-Minute Tech letter, "Keep Connected," yellow reflective tape does help with the visual check of a properly connected hitch and fifth-wheel. I found instructions on my Husky hitch to further prove that everything is connected. After backing the truck hitch onto the pin and engaging the jaw, put the truck in Drive and try to move forward slightly (with emphasis on "slightly"). The weight of the trailer is still on the ground. If the jaw is not engaged properly, the truck will move forward slowly with no resistance. I also check visually, and this tape idea will help.

Marc Hubbard, Raleigh, North Carolina

Pump Up the MPG

I enjoyed reading "Sport Trailering," Bob Carpenter's September review of the Jeep Grand Cherokee diesel and Lance travel trailer. I also have a 2014 Grand Cherokee diesel. Luse it to tow our TrailManor 2417. Bob stated that his mileage was about 12.5 MPG towing the Lance. I have been curious what the difference is in fuel economy between towing a full-height travel trailer and my expandable TrailManor. It consistently gets 21.5 MPG for trips I have taken from Denver west into the mountains - a huge difference in fuel consumption!

I find that engine braking is poor with the Grand Cherokee. I downshift into third or fourth gear at the top of a hill, but the Jeep upshifts soon, so I have little speed control via the drivetrain. Did Bob experience the same with the full-height Lance? Neither of us towed near the rated tow capacity,

and I would not encourage anyone to do so, due to the lack of engine braking on long downhills. Your Grand Cherokee had a modified sway bar, but have you heard of anyone making an exhaust brake for the Grand Cherokee? Duane Russell, Centennial, Colorado

Bob Carpenter replies: Duane, I'm not sure how your driving habits compare to mine, but I can tell you that I was heavy on the throttle throughout twisty

and hilly roads, and rarely drove on flat pavement. The lack of an exhaust brake was not missed. I've looked around and haven't found anyone who makes an exhaust brake for the diesel Grand Cherokee.

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|--|----------------|--|
| Colorado RV Adventure Travel Show | January 6-9 | Colorado Convention Center |
| South Carolina RV & Camping Show - Greenville | January 8-10 | TD Convention Center |
| Mid-America RV Show | January 14-17 | Bartle Hall at Kansas City Convention Center |
| Washington Camping RV Expo | January 15-17 | Dulles Expo Center |
| New Jersey RV & Camping Show - Edison | January 15-17 | New Jersey Convention & Expo Center |
| Minneapolis/St. Paul RV, Vacation & Camping Show | February 11-14 | Minneapolis Convention Center |
| Richmond Camping RV Expo | February 12-14 | Richmond Raceway Complex |
| Atlantic City RV & Camping Show | February 12-14 | Atlantic City Convention Center |
| Harrisburg RV & Camping Show | February 25-28 | PA Farm Show Complex & Expo Center |
| Colorado RV, Sports, Boat & Travel Show | February 25-28 | National Western Complex |
| Greater Atlanta RV Show | March 4-6 | Georgia World Congress Center |
| Rhode Island RV & Camping Show & Sale | March 4-6 | Rhode Island Convention Center |
| Virginia RV Show | March 11-13 | Hampton Roads Convention Center |
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Texas Is for the Birds

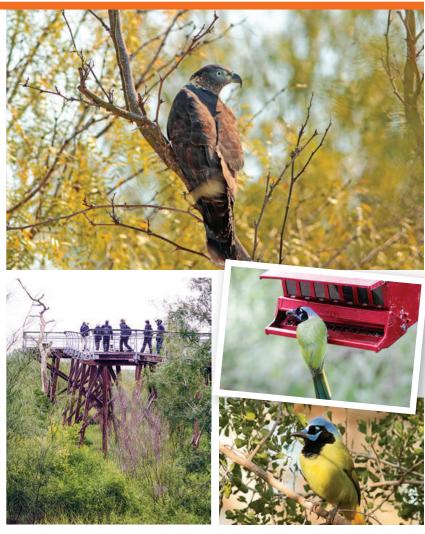
The Rio Grande Valley attracts almost 500 species of our feathered friends as they nest, breed and migrate in this alluvial plain

article by James Richardson

A great place to spend the winter is at one of the many RV parks in the Rio Grande Valley of Texas. And it is an extraordinary bird-watching location, as evidenced by the fact that it is home to the World Birding Center, a series of nine different birding sites, all located in south Texas and all with tropical bird species unique to the Rio Grande Valley and areas southward. Some of those species include the green jay, the plain chachalaca, the common paurague and the great kiskadee. It is a major bird migration corridor and the location where two principal flyways — the Central and Mississippi - come together.

One of center's sites is in the town of Mission. Texas. Bentsen-Rio Grande Valley State Park serves as headquarters for the World Birding Center. The park, which is located near the Texas-Mexico border, is a 797-acre tract that adjoins another 1,700 acres of U.S. Fish and Wildlife Service land, adding to the already abundant birding opportunities.

The park's visitor center has an exhibit hall, a store and a meeting room. The butterfly gardens and hummingbird feeders that surround the center attract more colorful wildlife. Visitors can travel through the park by tram, and walk or ride bicycles on 7 miles of trails. Two enclosed blinds allow people to view



At the World Birding Center in the Lower Rio Grande Valley of Texas, more than 500 species of birds have been documented, including ones not found in other parts of the country. Clockwise from top: A hook-billed kite, two green jays and the two-story observation point.

or photograph birds up close. A wheelchair-accessible two-story observation tower is located at the trail's end. From there, visitors can see across the border into Mexico while scanning the treetops below for birds and other wildlife.

Winter is a great time to visit Mission and the Rio Grande Valley. So much so that winter RVers are welcomed and called Winter Texans. rather than snowbirds. There are many RV parks within the Rio Grande Valley from which to choose. We stayed at Bentsen Palm Village RV Resort adjoining the state park, which has an extremely long list of amenities. It is a 250-site park

offering almost anything an RV traveler could want during a stay. Some of the amenities are free Wi-Fi, free long-distance telephone calling within the United States and Canada, free passes into the state park, complimentary bicycles, a pool, a fitness center, birding blinds and a wood shop.

Bentsen Palm Village RV Resort 956-585-5568 www.bentsenpalm.com/bentsenpalm-village-rv-resort

World Birding Center Headquarters 956-584-9156

www.theworldbirdingcenter.com

'HOTOS BY THE AUTHOR AND COURTESY WORLD BIRDING CENTER

Launch Your Fun

AROUND

Designed to keep RVing simple and affordable for families on the go, Starcraft's lightweight Launch can be towed by properly equipped minivans and small SUVs. Five floorplans weighing less than 4,000 pounds include three hard-sided travel trailers — one with a slideout — and two hybrids with tent expandables.

Sleeping capacity ranges from three in the 20-foot 6-inch front-full-bed 17FB and the double-bunk 18BH to up to seven in the larger Launches. Choose between floorplans with bunks that bookend the living space and either a 60x70-inch or 64x74-inch bed. Or opt for the 17SB with a gueen bed in the streetside slideout.

Launch models have glazed hardwood cabinet doors, a 4-cubic-foot Norcold refrigerator, a two-burner



range, a 54-inch booth dinette that folds into a bed to sleep one or two, an 18,000-Btu furnace, an 8,000-Btu air conditioner and a 12-volt CD/ DVD stereo with USB input. All floorplans



have a 20-gallon freshwater tank, and 15-gallon gray- and 9-gallon black-water capacities, with the exception of the family-oriented 19BHS, which has a 26-gallon freshwater tank and 30-gallon gray- and black-water tanks.

An optional Extreme Package for \$900 (\$1,312 on the 19BHS) includes 5 inches of extra ground clearance and an enclosed underbelly, 15-inch off-road mud tires, Flexfoil insulation in the floor and roof, a front black diamond plate, a double-entry step and an Extreme logo.

Base MSRPs for the entry-level trailers range from \$14,363 to \$18,531. Included in the price is a one-year Starcraft Roadside Assistance program that provides 24-hour dispatch and unlimited distance towing to the nearest network service facility.

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Iceland's Happy Campers A way to travel that won't give you cold feet

article and photos by Bill Graves

Iceland gets my vote as being the best foreign country in which to to camp. The cost savings alone are worth it. A hotel room for a couple averages \$200 a night in Reykjavik, Iceland's major city. You can rent a Happy Campers van that sleeps two for less than that, with includes unlimited mileage. At this writing, the daily rental rate when converted to U.S. dollars started at \$140.

Happy Campers was created by Sverrir Thorsteinsson and his family. There are four camper vans to choose from, and each one has a sink with running water, a heater, a refrigerator and interior lights, all powered by a house battery that is charged by a solar panel or the vehicle's engine. There are



no bathroom facilities in the vans.

The camper van that sleeps two is the most popular, but there's the Happy 3 that sleeps four with its bubble top. All of the vans have manual transmissions. Once, Thorsteinsson had a couple of women from Texas who showed up and neither had driven a straight stick: "My son, Jon, took them out for a 30-minute lesson. Then off they went, returning a week later acting like race-car drivers."

The size of Kentucky, Iceland has approximately 70 campgrounds and three national parks. There are no restrictions on overnight parking in public areas, and crime is close to nil.



Iceland is a sparsely populated Nordicisland country defined by its volcanic landscapes of geysers, hot springs, waterfalls and black-sand beaches. In a country where it rains 15 days out of 30 and summer temperatures rarely hit 60 degrees Fahrenheit, a camper is a good way to travel. The vans have the flexibility and simplicity of a tent, while offering most of the comforts of a camper.

Bedding, pillows, towels, dishes, pots and pans are provided. Just bring clothing and a toothbrush, and you're good to explore the country where fire and ice coexist!

Happy Campers, www.happycampers.is



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*Tax and electric are extra. Email for restrictions and information. Advance reservations required.



Celebrate the Holidays!

Many towns, big and small, go all out to make the season bright by turning their communities into a celebration of twinkling lights, parades, enormous decorated Christmas trees and fun for the whole family. Here are a few places to visit this December that are sure to bring big smiles.

ARKANSAS

The Lights of the Ozarks: November 20 to December 31, 2015 Enjoy a winter wonderland of lights in Fayetteville's Downtown Square. Highlights include carriage and pony rides, hot chocolate, festive music and twinkling lights. 800-766-4626, www.thelightsoftheozarks.com

NEW MEXICO

Holiday Luminaria Beachwalk: December 12, 2015 Thousands of luminarias line the path leading to the beach at Elephant Butte Lake State Park in the town of Truth or Consequences. Visitors can sample pozole, hot cocoa and s'mores while listening to or joining carolers and catching a hayride. At 6:30 p.m. a parade of decorated boats starts streaming down the lake.

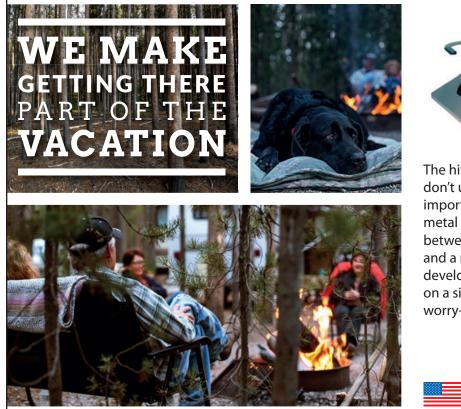
www.newmexico.org/holidays

NORTH CAROLINA

Christmas Town USA: December 1 to 26, 2015 Stroll the streets of McAdenville nightly to enjoy the sights and sounds of Christmas. Live trees from 6 to 90 feet high are strung with hundreds and thousands of lights. An image of Old Man Winter blows snowflakes into the air. a life-size nativity scene is located midtown, and a 9-foot-tall, 70-footlong Santa and his reindeer display will delight the kids. 704-823-2260. www.mcadenville-christmastown.com

TEXAS

Main Street Christmas Parade: December 7, 2015 With more than 100 entries led by live camels, Texarkana's Christmas Parade runs along the state line of Texas and Arkansas in the historic downtown. The parade starts at 7 p.m. and features a nativity scene, Santa Claus in a stagecoach pulled by Clydesdale horses, as well as dance teams, antique cars, a farmers' market and vendors. 903-792-7191, www.mainstreettexarkana.org





The hitch may be small, but don't underestimate its importance. The engineered metal can make the difference between a comfortable ride and a nail biter. That's why B&W developed a line of hitches based on a single goal: creating a smooth, worry-free ride.





NEWSWIRE



Shasta Airflyte Fixes

Forest River, maker of retro-looking Shasta Airflyte 16 and Shasta Airflyte 19 travel trailers, has recalled 1,736 model year 2016 units manufactured between September 26, 2014 and August 17, 2015. There are two issues of concern, according to the National Highway Traffic Safety Administration: The rear-exit window glass may come loose and fall out due to poor adhesion (recall number 53-08282015-0081), and the trailers may have insufficient clearance between the tire and wheel well at the top of the tire tread and at the inner sidewall (recall number 53-08282015-0082).

Repairs, if needed, will be free of charge. Owners may contact Forest River customer service at 574-825-8717.



Intelli-Hitch Wins at NATDA

A new trailer-brake controller from an Amarillo, Texas-based company earned New Product of the Year honors at the 2015 North American Trailer Dealers Association show in Nashville last September. Reportedly, 70 percent of the votes were cast for Intelli-Hitch.

Intelli-Hitch's simple plug-andplay hitch design eliminates the need for brake-control installations and in-cab manual adjustments. The unit constantly monitors the movement between the trailer and tow vehicle, then applies exact proportional braking as needed. Using proprietary Trailer Position Sensor technology, the trailer's brakes are applied based on the trailer's weight and the tow vehicle's stopping characteristics.



perfectly prepared as Florida's Lower Keys. In fact, with everything from primitive waterfront campsites to fully equipped RV lots, it's pretty much made to order. **fla-keys.com/lowerkeys 1.800.872.3722**



3ig Pine Key/Lower Keys, Circle 104 on Reader Service Card

MARATHON

OWER KEYS

Trouble with ST Tires

When the tires on his fifth-wheel failed within the warranty period, a Minnesota reader asked RV Resolutions for help obtaining reimbursement for repairs:

▶ In May 2013 we purchased four ST tires for our fifth-wheel from Harland's Tire and Auto Center in our hometown of Owatonna, Minnesota. In February 2015 the two tires on the back axle blew out, causing damage to both fender skirts. Within a week, one of the other two tires went flat, and both tires had bulges and visible separation.

The fact that all four tires failed on the same trip within a week is not normal, particularly considering that they were less than two years old, had only about 6,000 miles on them and had tread well within the safe limits.

The trailer tires came with a limited warranty from Sutong China Tire Resources, but the warranty claim for reimbursement was rejected. Can RV Resolutions request another review from Sutong, as all four tires were under warranty?

Dennis Hedstrom, Owatonna, Minnesota

Drip, Drip, Drip

A couple of Indiana readers turned to RV Resolutions when repairs to their gray-tank valve didn't fix the leak.

We had a number of things repaired at Total Value Recreational Vehicles of Indiana, but the leaky Valterra graytank valve was not fixed, although we were charged more than \$120 for the repair. We have contacted Total Value without results. Can you help? Don and Joyce Heichel Walkerton, Indiana

THE COMPANY RESPONDS

RV Resolutions contacted Total Value Recreational Vehicles of Indiana and heard back from the dealership's vice president of sales:

The Heichels received a check in the amount of \$121.47 for reimbursement of repair costs. In Total Value's defense, that valve could have been replaced under Valterra's warranty if the leak wasn't due to operator error. Jennifer Schrock Total Value Recreational Vehicles of Indiana, Elkhart, Indiana

Battery Bungle

Following an unsuccessful battery installation at a Minnesota dealership, a reader asked RV Resolutions to help recover his out-of-pocket costs:

► I took my RV to Brambillas in Shakopee, Minnesota, to repair damage to the wheel well from a tire blowout and replace the batteries. A few months later, the technicians at Ziegler Cat in Minneapolis discovered that Brambillas had failed to properly connect the cables to the battery terminals, and the newly installed batteries had fully discharged. I would appreciate it if RV Resolutions would contact Brambillas to recover the \$408.43 I spent at Ziegler to fix their battery work. David Park

Bloomington, Minnesota

THE COMPANY RESPONDS

After contacting Sutong China Tire Resources, RV Resolutions received the following note from the company's warranty manager:



I had Mr. Hedstrom's two front tires

sent to a third-party forensic tire-testing facility. According to the reports, one tire failed as a result of a road-hazard impact, which is not covered by our limited warranty policy. The cause of the second tire's failure was indeterminable. As a goodwill gesture, we tried to offer Mr. Hedstrom half the cost to repair his trailer, but he demanded full payment. **Cathy L. Daricek**

Sutong China Tire Resources, Houston, Texas

Dennis Hedstrom sent the following reply to Cathy Daricek:

We will gladly accept your goodwill gesture of paying for half the cost to repair our trailer — this is the first we were aware of the offer. **D.H.**

J.H.

THE COMPANY RESPONDS

After hearing from David Park, RV Resolutions sent a request-forattention letter to Brambillas RV on his behalf and heard back from the dealership's president:

On June 8, 2015, we accommodated Mr. Park's request by issuing a check in the amount of \$408.43 (copy attached). As of this writing, that check has not been cashed. Today we have issued another check to him in the amount of \$408.43.

Mr. Park has not engaged us in his effort to have his issues resolved but has chosen to rely on an thirdparty source, making it difficult to respond to his claims.

Jack Brambilla Brambillas RV Shakopee, Minnesota 🗣

NEED HELP? » RV Resolutions is a forum for the settlement of conflicts between consumers and RV dealers and manufacturers, accessory suppliers and service providers. After exhausting all other resources without success, please send a typed letter to *Trailer Life* RV Resolutions, 2750 Park View Court, Suite 240, Oxnard, California 93036. Include copies of appropriate bills and correspondence as well as a self-addressed, stamped envelope.

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Imagine This

Known for its fifth-wheels, Grand Design RV builds a lightweight travel trailer for upscale family fun

ometimes, the measure of success isn't what you do right but what you don't do wrong. In the highly competitive world of trailer manufacturing, where features and amenities must walk a narrow tightrope with affordability, Grand Design (GD) has quickly grown a reputation for doing what its customers want ... and not doing what they don't. It's a formula that has worked for fifth-wheels like the company's Reflection, Solitude and Momentum, and one GD no doubt hopes will work for its new lightweight travel trailer, the Imagine.

This 2800BH floorplan (the only one available at press time) focuses on the wildly popular bunkhouse layout, with two bunks at the rear suitable for sleeping a couple of youngsters each, or one not-so-youngster preteen each. The success of these layouts, of course, is the execution, and GD certainly hasn't done anything wrong here. The rear bunks are sturdy, and the thin but comfortable mattresses are covered with a soft, plush material. GD thoughtfully puts a window at each bunk so the kids can observe their surroundings at first light, and each window has its own heavy vinyl covering and privacy curtain for bedtime. One thing to consider is that the foot of the bunks is tapered to allow the rear bathroom door to open, which means that if two kids are to sleep on each bunk, the shorter of the two is going to have to sleep on the side against the bathroom wall.

Only a couple of areas in the bunk-

house could use some improvement. The ladder is strong and very securely mounted to the bunks, which is great; however, a handle for kids to hold onto as they ascend to the upper bunk would make getting there easier and safer. And the fact that the ladder is permanently mounted in the vertical position means it's difficult to get back down; kids are more likely to jump with an alarming thump in the night. Lights and power outlets are at the foot of each bed, which is OK. but the ideal solution would be to place a light at the foot of each bed, then put a secondary light at the back, overhead, along with the power outlet. That way, the kids could read or play on the laptop or tablet while lying in bed.

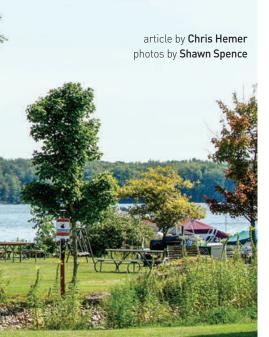
Underneath the two bunks is an open area with a bungee net at the bottom to stop stowed goods from shifting during travel. It works as intended, but it would be nice if the net had clearly marked hooks on it; right now, if you don't pay attention to how it's mounted, it's difficult to put it back in the right position.

GD's designers are masters of creating a high-end look and feel, and this is true even in this lightweight, budget-

TRAII FR

TEST

IMAGINE



priced unit. The dark-brown cabinets provide elegant contrast against vinyl flooring that looks like travertine and laminate counters and table that look like marble. The matching dark furniture has white stitching, and the upper cabinets have white plastic panels and brushed-nickel handles. The appliances all have stainless-steel fronts, except the vent hood. Even the sink, which is plastic, is silver instead of white, and the plastic faucet is highrise and finished to look like brushed nickel. LED lighting and multiuse fabric shades are used throughout. There is no question that the look is successful, but we wonder if it's the right one for a family-oriented trailer. Right now, it looks like an executive lounge rather than a cozy camper, which will be viewed as either a welcome change or a head scratcher by traditional RVers.

The bathroom is conveniently located right next to the kids' bunks, and it has all the essentials including a large fiberglass shower enclosure with shelves and an interesting shower-curtain arrangement. The cloth is secured to a semicircular rail



(Above, from left) The rear bunks have plenty of room for two kids each and storage space underneath for blankets, pillows and the like. The bathroom is well executed with an innovative shower curtain setup and open storage for washcloths, towels and other daily-use items.

at the top, and at the end it has a metal rail that stays in place courtesy of a magnet. It's a clever, low-cost solution that is better than a traditional shower curtain and perhaps even a door. The rail at the top causes the curtain to bow out so it doesn't stick to your body and provides more room to move around. We spilled nary a drop of water out of the shower during testing, so it gets a thumbs up from us. Plus, the fabric is a nice-looking material, rather than the common plastic sheet.

Next to the shower is a tall, narrow cabinet with four deep cubbies that are large enough to stow washcloths, towels and sundry items, and the opposing sink cabinet has more shelves along the wall, plus there's more storage underneath the sink and in the mirrored medicine cabinet. The Thetford toilet is plastic to save weight, but it works well and is positioned in a corner, so there is plenty of legroom. The ceiling fan kept the area well ventilated, and logically placed switches inside the doorway activate the overhead light. All in all, it's an efficient, usable space. The only thing we'd wish for, which we would wish for in every trailer, is a switch for the water pump in the bathroom, just in case you forget to turn it on when you come in the door.

The street side of the trailer has a large slideout that houses a sofa and a U-shaped dinette large enough for four (or possibly six) that converts into a bed for two. The couch is comfortable and nice looking, and the trifold bed suits its intended purpose of accommodating two more guests. It is also directly across from the entertainment center, featuring a Furrion combo CD/DVD player/stereo system and an LCD television angled toward the couch, which made us wish for the theater-seating option.

Behind the TV is another storage area with a bungee net that would be a good place to stow additional blankets or sleeping bags for the kids' bunks. Underneath the TV is a large double-door cabinet with a removable shelf on one side to accommodate hanging clothes.



When the weather is nice, you can bring the party outside with the outdoor kitchen. The two-burner stove slides out in a drawer and is reminiscent of a camp stove with its fold-up wind guards. The small refrigerator has enough room for mealtime food and cold drinks. Exterior speakers keep the party going with your favorite tunes.



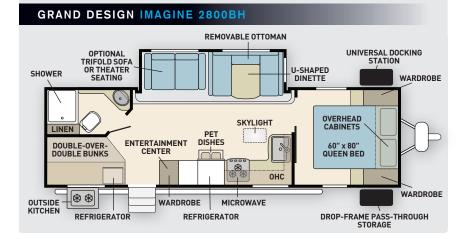


(Above, from left) The elegant kitchen offers stainless-steel appliances and good counter and cabinet space. Positioned above a roomy wardrobe next to the refrigerator, the TV is angled down, facing the couch. With the couch and dinette converted into beds, the 2800BH can sleep up to 10. In the forward bedroom, mirrored wardrobes flank the queen-size bed.

The dinette is adequate for mealtime and has dual posts so it is reasonably stable. However, only the ends of the U configuration are really comfortable for adults; the middle section (which doubles as an ottoman) has a shorter seat cushion, and shorter, thinly padded backrest, so only kids will be comfortable there. We appreciated the overhead light with a manual switch and the 120volt AC power outlet at the seat base, so the dinette can function as a desk.

The kitchen is pretty traditional, other than the stainless-steel embellishments we mentioned earlier, with some notable exceptions. There is a huge drawer underneath the oven and a good-size double-door cabinet underneath the refrigerator for less oft-used items. Underneath that cabinet is a lowprofile drawer that contains — get this — bowls for pet food and water. This is a thoughtful touch and a good use of otherwise wasted space. The only suggestion we would make here is that the drawer should have a plastic liner (almost like a utensil drawer at home) so the wood can't get wet when Rover gets sloppy with his drinking. This would also allow the liner to be removed and washed when needed.

Moving toward the front of the kitchen, there is a cabinet with sliding shelves for utensils and other items like foil or plastic wrap, plus overhead cabinets for dishes, plates, etc. The cabinet beneath the sink is large and has a single shelf in the middle. It would be



nice if there were a cutout for a trashcan, but you could probably make this modification yourself if you found it necessary.

The forward bedroom is adequately sized for this type of trailer and continues GD's elegant style. The champagne-colored bedspread has the sheen of satin and pairs nicely with the dark furniture and padded faux-leather headboard. Small mirrored wardrobes on either side have drawers and power outlets underneath and cabinets and reading lights above. We were happy to find a roomy storage compartment underneath the





bed with a forward section that is easily supported by gas struts. We were able to stow a large suitcase as well as a camera bag and sleeping bag there with no problems.

Utility-wise, the Imagine is also effective. The tank monitor and light switches are right inside the door, although we wish these were a little larger and easier to see and read. And the thermostat control is right across from the entryway, next to the bathroom door. We didn't have occasion to use the furnace during our summer testing, but the single air-conditioning unit worked flawlessly and had no trouble keeping the trailer cool and comfortable on humid, mid-80-degree days.

The outside appearance of this trailer is understated; its plain-white gel-coat exterior with uninspired graphics certainly doesn't tell you this lightweight is anything special. A graphic treatment reminiscent of the other products from the GD family would be a better match for the interior design. However, the exterior works pretty well from a functional standpoint. We liked the sturdy aluminum entry steps and power A-frame jack. The power awning with LED light strip, outdoor kitchen (with a refrigerator and two-burner stove) and exterior speakers made for a pleasant place to hang out and enjoy balmy afternoons.

We also appreciated the large forward storage compartment, which features a utility center on the street side designed to mimic those used in highend fifth-wheels. It offers connections for city water and cable, but the sewer connection and dump valves are at the opposite end of the trailer, which means you might need a long water hose and cable. The leveling jacks, which were manufactured (poorly) in China, did not fit in with the rest of the componentry and weren't mounted securely to the trailer. If this were our personal trailer,

IMAGINE

SPECIFICATIONS

2016 GRAND DESIGN IMAGINE 2800BH

| 2016 GRAND DESIGN IMAGINE 2800BH | | |
|--|------------------|--|
| Exterior Length | 31' 10" | |
| Exterior Width | 8' | |
| Exterior Height | 10' 11" | |
| Interior Width | 7' 9" | |
| Interior Height | 6' 9" | |
| Construction Aluminum cage; gel-coated fiberglass exterior; wood-framed roof; one-piece EPDM roof membrane | | |
| Freshwater Cap. | 52 gal. | |
| Gray-Water Cap. | 64 gal. | |
| Black-Water Cap. | 32 gal. | |
| LP-Gas Cap. | 10 gal. | |
| Water-Heater Cap. | 6 gal. | |
| Refrigerator | 8 cu ft | |
| Furnace | 35,000 Btu | |
| Air Conditioner | 13,500 Btu | |
| Converter | 55 amp | |
| Battery | Dealer supplied | |
| Tires | ST205/75R15 | |
| Suspension | Leaf springs | |
| Weight (water and propar full, no supplies) | ne 6,420 lbs. | |
| Hitch Weight | 580 lbs. | |
| Axle Weight | 5,840 lbs. | |
| GVWR | 7,700 lbs. | |
| GAWR | (2) 3,500 lbs. | |
| Cargo Carrying Cap. | 1,280 lbs. | |
| MSRP, base | \$33,524 | |
| MSRP, as tested | \$33,874 | |
| Basic Warranty | 1 year | |
| | | |

Grand Design Recreational Vehicles

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these would be replaced immediately with more sturdy BAL jacks and mounted with suitable hardware.

Overall, however, we were happy with GD's first lightweight effort, and we think it is a solid contender in the category — in other words, it's just what we would expect from Grand Design.



ALL KEYED UP

Freewheeling along Florida's Overseas Highway from Key Largo to Key West

nboard the glass-bottom catamaran Spirit of Pennekamp, we're hovering above a dazzling subaguatic garden of coral forming the last remaining live coral reef in the continental United States. Brightly colored tropical fish - wrasses, parrotfish and damselfish - swim in synchronized schools among waving sea fans and vibrant colonies of star and elkhorn coral just a few feet below us. It is a mesmerizing scene, interrupted briefly by the appearance of a very large and toothy barracuda, whose presence scatters the smaller fish.

"He's fierce looking," notes our young guide and narrator, Heather, "but harmless to all except the small fish that make up his diet." Regardless, my friend Melinda and I are happy to be on the dry side of the glass.

This is morning one of a five-day RV trip through the Florida Keys made last January, and our first stop is John Pennekamp Coral Reef State Park at mile marker (MM) 102.5 in Key Largo on U.S. Route 1. The country's first undersea park, Pennekamp and the adjacent Florida Keys National Marine Sanctuary protect 178 nautical square miles of reef, seagrass beds and mangrove swamps.

Most visitors come to snorkel. scuba dive or visit the reef. as we did on the park's glass-bottom boat, but you can also rent a variety of powerboats, kayaks, canoes and paddleboards, or bring your own, to explore the park's 50 miles of mangrove wilderness. Boardwalks

and short hiking trails lead into the mangroves and tropical hammocks, and you can swim and sunbathe on picturesque Canon Beach. The park also features a recently refurbished campground with 47 full-service spaces for RVers and tent campers.

Motoring south along Route 1 also known as the Overseas Highway, a marvelous but slow-moving mostly two-lane roadway that links the chain of keys - we arrived in Marathon, the largest community between Key Largo and Key West, home to one of my all-time favorite dining spots, Kevs Fisheries.

Waiting our turn in line at the walk-up counter of this rustic dockside eatery, I was already drooling at the thought of tying into one of KF's succulent lobster Rueben sandwiches. This is a sandwich so popular that the restaurant maintains a signboard counting the number sold — 238,000 at the time of our visit. Mel had conch fritters, and we both finished off this

sumptuous repast with a slice of what else? — key lime pie.

Marathon is made up of about a dozen small islets strung out between MM 63 and 47. Centered on Vaca Kev. the community got its name from workers constructing the monumental Florida Keys Over-Sea Railroad from mainland Florida to Key West in the early 1900s. Working night and day to meet construction schedules, crews reportedly complained, "This is getting to be a real marathon." Nowadays, this mid-Keys region has a lot to offer visitors, families in particular, with such attractions as the Crane Point Museum and Nature Center, the Dolphin Research Center, the Turtle Hospital, Old Seven Mile Bridge and historic Pigeon Key.

We had time on this trip for stops at Crane Point and the Turtle Hospital, and I'll describe what we experienced there in a moment. Based on previous visits, however, I can tell you that both the Dolphin Research Center and Pigeon Key are well worth a look-see.

A nonprofit education and research facility, the Dolphin Research Center on Grassy Key (MM 59) is dedicated to the study and training of Atlantic bottlenose dolphins. For a nominal admission fee, you can observe cavorting dolphins taking part in training sessions and attend edu-





(Background photo) Bahia Honda State Park has a beautiful natural sand beach and three public campgrounds. (Far-left inset) In Key West, folks gather at the nightly Sundown Celebration at Mallory Square and (left) on the bustling main drag, Duval Street.



Boyd's Key West Campground offers oceanfront RV sites just minutes from Duval Street.

cational presentations at the Dolphin Theater. For an additional charge, you can enjoy one of the Center's Dolphin Encounters, allowing up-close, hands-on interaction with these wonderful and intelligent creatures.

At Pigeon Key (MM 47), you'll find one of the Keys' most evocative historical attractions, a well-preserved work camp built by Florida East Coast Railway in the early 1900s to house hundreds of men (and materials) engaged in constructing the original Seven Mile Bridge.

Crane Point Museum and Nature Center (MM 50) is one of the most important historical and archaeological sites in the Florida Keys. It occupies a sandy, hammock-covered 63-acre bayside tract that contains evidence of prehistoric Indian artifacts and was once the site of a Bahamian village.

Visitors enter through the Museum of Natural History with its interpretive displays of local wildlife, marine life and exhibits featuring artifacts and objects of cultural interest. Next, you can hike the center's 1.5-mile nature trail that threads through a leafy hardwood hammock or join a trolley tour narrated by a knowledgeable volunteer. Of particular interest along the trail is the Adderley House, the oldest house in Monroe County outside Key West, built in 1903 by Bahamian immigrant George Adderley, and the Marathon Wild Bird Center, where sick and injured birds are brought to be rehabilitated and released whenever possible.

At the Turtle Hospital (MM 48.5), directors and founders Richie Moretti and Sue Schaf have rescued, rehabilitated and in most cases released more than 1,500 sea turtles — including loggerhead, green, hawksbill and



ROAD TO PARADISE: U.S. ROUTE 1

Mostly two-lane, the fabled Overseas Highway gracefully accommodates RVs — it's slow going for *everyone* — and the route can come to a crawl, especially on weekends and most anytime during the peak winter season. Plan on a four-hour drive from Miami to Key West.

Kemp's ridley — victimized by fishing lines, nets, shark attacks or disease. It is the only state-certified vet hospital in the country dedicated to sea turtles. You can join an informative 90-minute guided tour through the bayside facility for a behind-the-scenes look at the hospital's operating room and rehabilitation area.

Following this busy day, we were relieved to hook up the RV at Curry Hammock State Park (MM 56.2), a small but wonderfully scenic waterfront park boasting a lovely 1,600-foot-long beach and 28 water-and-electric sites capable of accommodating RVs up to 70 feet. Park visitors can hike or bicycle on the Overseas Heritage Trail, swim the shallow waters off the beach or rent a kayak for a cruise along the shoreline or through a mangrove creek.

Continuing on our slow-paced journey to Key West, we crossed the shimmering waters south of Vaca Key atop Seven Mile Bridge (MM 40 to 47), one of the longest segmental bridges in the world, built in 1982 to replace Flagler's original span. Much of the old rail bridge still stands beside the new one and remains open to the public for fishing and strolling. Gulf of Mexico Marathon Key West

FLORIDA

KEYS

Key Largo

It is easily reached from Pigeon Key, site of the old railway work camp mentioned earlier.

Shortly down the road, we pulled into Bahia Honda State Park on Big Pine Key (MM 37). This popular 500-acre park features the largest and finest natural sand beach in the Florida Keys, and we were ready to spread out on it for a couple of hours. Florida's network of 123 state parks consistently ranks among the best in the nation, and this park is a good example why. Among its many features are a snack bar, gift shop, several hiking and biking trails, and a marina offering kayak rentals and daily snorkeling trips to Looe Key National Marine Sanctuary. The park's three campgrounds offer duplex cabins and 80 water-and-electric sites that can accommodate RVs up to 40 feet.

Five miles from the end of the highway, we took

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ALL KEYED UP

up residence at Boyd's Key West Campground (MM 5). The closest RV park to Key West, Boyd's is the largest and, I submit, the finest and best-managed campground in the Florida Keys. Family-owned and -operated since 1963, this sprawling park is situated on a lush tropical peninsula. Reserve a waterfront site, as we did, and you'll find yourself as close to paradise as you're ever likely to get. Among the amenities here are a marina, a heated pool, a private beach, a convenience store, a game room, laundry facilities, four immaculate bathhouses, free Wi-Fi and 24-hour security.

Another great thing about Boyd's is that it sits right next to a stop on the Lower Keys Shuttle route, making it a breeze getting to and from downtown Key West. This is vital to many RVers because a city ordinance prohibits vehicles more than 20 feet long from parking on city streets. Violators are quickly slapped with a \$75 fine.

Our first order of business — which at this latitude translates to pure pleasure — was a visit to Dry Tortugas National Park. We'd never made the day trip to this cluster of seven tiny keys, one of which is home to Fort Jefferson, a massive Civil War fortress situated 70 miles west of Key West.

Although there's a seaplane excursion to the Tortugas, it was too pricey for our pocketbooks. So, as most visitors do, we made the trip aboard *Yankee Freedom III*, a high-speed catamaran that ferries as many as 150 passengers on daily runs to the park. We boarded the stylish twin-deck 110-foot vessel at Key West Bight Marina at 7:30 a.m. for a two-hour voyage that got under way with a complimentary breakfast. En route to the Tortugas, an onboard guide presented an orientation session, filling us in on what to see and do at one of America's most remote, and most unique, national parks.

After docking at Garden Key, right beside Fort Jefferson, we explored the rambling redbrick complex on a 45-minute ranger-guided tour. We learned that it is the largest all-masonry structure in the Americas, comprised of more than 16 million bricks. Constructed in the mid-19th century to defend vital shipping lanes linking the Gulf of Mexico, the western Caribbean and the Atlantic Ocean, it bristled with heavy guns including lethal 15-inch Rodman smoothbore cannons weighing in at 25 tons apiece. A number of these huge guns remains in place at the fort.

Manned by Union forces during the Civil War, Fort Jefferson never saw action in battle, serving instead as a prison, mostly for incarceration of Union army deserters. It also held four men convicted of complicity in President Abraham Lincoln's assassination in 1865. We had plenty of time during the four-hour visit to snorkel among the coral reefs fringing the island (gear provided at no charge), hike along the boardwalk surrounding the old fortress and enjoy a sumptuous buffet lunch served aboard Yankee Freedom III.

During the remaining two days of our stay, we shuttled into Key West, aiming to see some attractions we'd missed on previous visits, including the



Glass-bottom-boat tours at John Pennekamp Coral Reef State Park give visitors a peek at one of the largest coral reefs in the country.

old Key West Aquarium, the Shipwreck Treasure Museum and Ripley's Believe It or Not! Odditorium. Key West Aquarium, built in 1933 as a Works Progress Administration project during the depth of the Great Depression, was one of the city's first tourist attractions and has endured through the years displaying an intriguing assortment of sharks, stingrays, turtles and tropical fish.

The Shipwreck Treasure Museum relives a fascinating era of local history from the mid-1800s when Key West became the richest city in America with fortunes made by "wreckers" who salvaged ships that routinely sank or went aground on the treacherous reefs. There's plenty of authentic booty on

WE LEARNED THAT FORT JEFFERSON IS THE LARGEST ALL-MASONRY STRUCTURE IN THE AMERICAS, COMPRISED OF MORE THAN 16 MILLION BRICKS

A harbor light towers above Fort Jefferson, a Civil War fortress preserved within the bounds of Dry Tortugas National Park.

ALL KEYED UP



(Above, from left) Nightly blues and boogie-woogie at Sloppy Joe's Bar in Key West. In Marathon, the Turtle Hospital gives tours to educate the public on the plight of Florida's sea turtles. (Below) Paddlers explore the mangrove-laced waterways at John Pennekamp Coral Reef State Park.

display, including a 64-pound silver bar mounted to a barbell that you're invited to try hoisting.

Ripley's seems to have a presence in tourist towns everywhere, but we'd never visited one of their Odditoriums, considering them a bit hokey. After being greeted by a man-eating shark and an 8-foot statue of pirate Captain Jack Sparrow made from recycled car parts on the way to view hundreds more exhibits of the bizarre and unusual, the Key West rendition did little to change our perception, but if you have kids in tow, I promise you, they'll love every minute of it.

We made the rounds of some of our favorite haunts — cultural and otherwise — such as the lovely old Custom House Museum with its rotating exhibits of the works of local artists, and the Mel Fisher Maritime Museum with its alluring display of treasures retrieved by Fisher and his sons from the Spanish galleon Atocha that sank in 1622, And, of course, we did the Duval Crawl, as every visitor must do, wandering up and down the city's bustling main drag, shopping, people-watching and bending elbows at legendary Sloppy Joe's, a raffish saloon that gained its fame as one of Ernest Hemingway's hangouts during his residency on the island in the 1930s.

Our final evening was spent taking in Key West's most enduring ritual, the nightly Sunset Celebration at Mallory Square. Joining in with an eclectic mix of visitors and resident Conchs (an endearing reference to locals derived from the large and tasty sea snail), we mingled among a throng of torch jugglers, tightrope walkers, psychics, mimes, musicians and artists, along with vendors hawking everything from feather earrings to fritters.

However crazy and quirky the scene, this is a happy human spectacle that conveys a real sense of harmony and *joie de vivre*. It's an experience that keeps us coming back to Key West time and again.

CAMPING IN THE KEYS

We've stayed at or visited the Marathon and Key West RV parks listed below and can recommend them. Although we haven't camped in the upper Florida Keys, the following Key Largo campgrounds are all highly rated Good Sam Parks and worth checking out.

KEY LARGO Calusa Campground Resort and Marina (Good Sam Park) 305-451-0232 www.calusacampground.com

Point of View Key Largo RV Resort

(Good Sam Park) 305-451-5578 www.pointofviewrvresort.com

Riptide RV Resort (Good Sam Park) 305-852-8481, www.carefreervresorts.com

KEY WEST Boyd's Key West Campground 305-294-1465 www.boydscampground.com

MARATHON

Grassy Key RV Park and Resort (Good Sam Park) 305-289-1606, www.grassykeyrvpark.com

Jolly Roger Travel Park (Good Sam Park) 800-995-1525, www.jrtp.com

Pelican Carefree RV Resort (Good Sam Park)

305-289-0011, www.carefreervresorts .com/rv-parks/florida/pelican

State park campgrounds offer the most affordable accommodations in the Florida Keys with peak-season rates of less than \$40 a night. Campsite reservations, especially during the winter months, should be made well in advance by calling 800-326-3521 or going online to www.reserveamerica.com.

BIG PINE KEY Bahia Honda State Park

www.floridastateparks.org/park/ bahia-honda

KEY LARGO

John Pennekamp Coral Reef State Park www.floridastateparks.org/park/ pennekamp

MARATHON

Curry Hammock State Park www.floridastateparks.org/park/ curry-hammock

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article by Ken Freund

Understanding the basics can help avoid costly blowouts and lead to safer travels

ires on tow vehicles or trailers run the gamut from passenger-car types to truck and trailer rubber — and each has its own specific design, construction and job to do. Problems with tires have become one of the most frequent subjects of letters and emails from Trailer Life readers, so let's learn how to get the most out of those expensive black-rubber doughnuts.

Tires for trailers, tow vehicles and motorhomes come in a wide variety of sizes to fit the wheel diameters and widths used by various manufacturers over the years. Three tire-sizing systems are used on current pickups, SUVs and vans: Euro-metric, P-metric (passenger metric) and LT-metric (light truck metric). Many so-called half-ton vehicles use Euro-metric and P-metric-size tires, while heavy-duty trucks use LT-metric-size tires.

The metric standard of trailer and truck tire sizing uses three numbers followed by a slash, then two more numbers, then an R for radial or B

for bias, then more numbers. Using 235/80R16, for an example, the tire would be 235 millimeters wide, with an aspect ratio of 80 (80 percent as tall as it is wide), and the 16 is the rim diameter in inches.

Euro- and P-metric tires offer lighter weight, lower rolling resistance and smoother riding, and have more fuel-efficient tread designs than typical LT tires. Both Euro- and P-metric tires in the same size (for example, 225/80R16 and P225/80R16) are equivalent in dimensions and have only slight differences in load-capacity calculations and load-inflation tables.

Therefore, if Euro- and P-metric tires share the same numeric size. the same tire performance category and the same speed rating, the two are considered equivalent and interchangeable, if used in axle pairs or full sets.

SUVs and vans have higher centers of gravity and a higher probability of being overloaded than passenger cars. Therefore, a Euro- or P-metric tire rated to carry 2,000 pounds on a passenger car would be down rated to 1,820 pounds when fitted to a pickup or SUV for safety reasons. Depending on the road and weather conditions, you may need tires on your two-wheeldrive tow vehicle (or motorhome) that have different tread designs on the front and back tires. In many cases, a straight-rib highway tire works best on the front, and this type of tread has the lowest rolling resistance and best wear. If you plan to drive only in mild weather

TIRE SIDEWALL MARKINGS



and on good roads, straight-rib highway tires at the rear will also give the best mileage and fuel economy. If you expect to drive in muddy conditions or snow, tires with lug or traction patterns should be used on the rear. All-wheel-drive and 4x4 vehicles must have tires that all match.

For any given size, the higher the load range (or ply rating), the more weight the tire can carry. How much weight depends on the size and construction of the tire, and the inflation pressure. In general, the cumulative maximum load capacity of the tires on a tow vehicle or RV should meet or exceed the maximum load rating (total weight of the vehicle plus fuel, cargo, passengers, etc.). Wheels must also be rated to meet or exceed this rating.

Load distribution is also critical in determining the maximum load carried by tires. Trailers and motorhomes often have uneven weight distribution due to slideout rooms, tank locations, etc. It's important to keep the weight as balanced as possible so the tires each carry a proportionate load. If the load is unbalanced, all tires on that axle should be inflated for the highest weight on any tire on that axle. This is why it is important to weigh the rig, full of water, propane and all supplies, to determine how the weight is distributed. More on this later.

Older tire designs used diagonal or bias-ply construction, whereas most modern tires use radial construction. Radial inner belts cross the tire tread perpendicularly, and the shoulders tend to have a rounder shape than bias-type tires. Radials also tend to have lower rolling resistance and last longer than bias-ply designs. Belts may be made of metal or synthetic cords such as polyester.

Radials and bias-ply tires have different handling characteristics and should not be mixed. Goodyear, for example, recommends using the same size and type of tire on the same axle that is, all radial ply or bias ply, all the same size and tread pattern — as well as approximately the same tread depth. If you decide to change to radials, do all positions at the same time. Manufacturers also vary rubber compounds by mixing various components such as silica, carbon black and other chemicals. This allows tires to be designed for different types of vehicles, driving styles and weather, with a good balance between wear and traction. Harder compounds wear longer but have less grip, and vice versa.

ST Tires

Tires designated ST, which stands for Special Trailer, are designed for the specific needs of trailers. Trailer tires do not have to steer or propel a vehicle, so drive traction is not a consideration; therefore, tread patterns are designed for low rolling resistance. However, trailer tires do have to carry a lot of weight and endure outside storage and weathering for extended periods.

ST tires utilize materials and construction needed to handle the higher loads trailers present. ST rubber compounds typically incorporate more chemicals to resist UV rays and aging, and may also use harder rubber than drive wheel and steering tires. ST tire sidewalls are designed to keep the tire from rolling off or under the rim during tight turns. Cords used in ST tires are larger than those in comparable Passenger (P) or Light Truck (LT) tires. Typically, the steel wires also have higher tensile strength to handle the additional loads. This heavier construction is why ST tires are typically rated to carry more load (for a given size) than LT tires.

Another important distinction between LT and ST tires is their speed ratings — something a lot of RVers tend to overlook. Goodyear, maker of Marathon trailer tires, states in its bulletin PSB 2011-13: "Industry standards dictate that tires with the ST designation are speed rated at 65 MPH under normal inflation and load conditions. Based on these industry standards, if tires with the ST designation are used at speeds

ST (Special Trailer) tires, like these from Goodyear and Maxxis, are available for travel trailers and fifth-wheels, as well as folding campers.

between 66 and 75 MPH, it is necessary to increase the cold-inflation pressure by 10 PSI above the recommended pressure for the rated maximum load. Increasing the inflation pressure by 10 PSI does not provide any additional load-carrying capacity.

"Do not exceed the maximum pressure for the wheel. If the maximum pressure for the wheel prohibits the increase of air pressure, then the maximum speed must be restricted to 65 MPH. The cold-inflation pressure must not exceed 10 PSI beyond the inflation specified for the maximum load of the tire."

Sidewall Codes

Each tire has a number of codes molded on the sidewall, including date of manufacture and country of manufacture.

The U.S. Department of Transportation (DOT) tire identification number is a combination of up to 12 numbers and letters. The first two are manufacturing plant codes. Plant codes are listed online on the Tire Safety Group's website, www.tiresafetygroup.com/ tire-dot-plant-codes-sorted-plantcode. The last four numbers represent the week and year the tire was built (1999 and earlier codes used three numbers, but those tires should be out of service). For example, a tire with a DOT code ending in 4612 was manufactured the 46th week of 2012.

Service ratings consist of two numbers followed by a letter, such as 87S. The 87 can be looked up in the tire manufacturer's specifications to determine the load rating, while the letter needs to be looked up to determine the speed rating in MPH or KPH.







Weight, Load and Inflation

Tires are designed to carry a certain amount of weight according to inflation pressure. In the case of truck tires designed for either single- or dualmounting configurations, they have different ratings for each type of service. When dual tires are on uneven surfaces, one tire carries more of the load than the adjacent one, which is the main reason for the lower rating in dual applications. These weight ratings are printed on the sidewalls for specific inflation pressures. The maximum load carrying capability is also stated at a minimum cold-inflation pressure.

Inflation pressures printed on passenger and other tire sidewalls are maximum pressures, which are necessary only at maximum-rated loads. Never arbitrarily reduce tire pressure just to get a softer ride, as this may lead to catastrophic tire failure. Always carry a to sea level would result in a similar apparent loss of pressure of about 2 to 3 PSI. However, the differences above assume tire pressures are measured at the same temperatures.

Since tire pressures change about 1 PSI for every 10-degree-Fahrenheit change in ambient temperature, tire pressure measured at lower altitudes will likely change when exposed to cooler temperatures associated with higher elevations. This means that, in many cases, differences in ambient temperature may come close to offsetting differences caused by a change in altitude. Drivers may want to simply set their cold tire pressures the morning after arriving at their higher or lower destination, and reset them again after they return home.

The proper way to determine how much pressure to run in each tire should be determined by weighing the fully

TIRES DETERIORATE FASTER WHEN EXPOSED TO SUNLIGHT AND OZONE, WHICH IS FOUND IN GREATER CONCENTRATIONS IN POLLUTED CITY AIR

reliable tire gauge, and if your vehicle has dual rear wheels, make sure the gauge has an offset double head that can reach both outer and inner dual-tire valves.

As a tire's temperature increases, so does the pressure in the tire. Typically, for every 10-degree-Fahrenheit increase, a tire's internal pressure will increase by 0.7 PSI.

Changes in altitude also affect tirepressure readings. For a trip starting at sea level, pressures subsequently measured at 5,000 feet elevation would indicate about 2 to 3 PSI higher. Conversely, descending from 5,000 feet loaded vehicle on a truck scale. The best scales provide individual wheel weights. To help determine the correct tireinflation pressure for your vehicle's tire loading, each tire manufacturer provides load-inflation tables specific to its products. These may be obtained at tire dealers for the brand and online at the manufacturers' websites. Tire-inflation placards on the truck or RV reflect recommended pressures for the chassis.

Wear

Most states have laws regarding minimum allowable tread depth, and

(Far left) Old tires with visible cracking should be replaced to avoid failures. (Left) When trailer tires fail, they often damage surrounding fender skirts, sidewalls, wheel wells and trim. Note that these tires are filled with nitrogen, indicated by green valve caps.

this should always be followed. On passenger-car tires, the wear limit is typically ²/₃₂ inch. Laws may require that only the front tires on larger vehicles be replaced at a tread depth of ⁴/₃₂ inch, while rears and passenger tires can be ²/₃₂ inch. However, wetweather braking and handling are significantly diminished with less than ⁴/₃₂ inch of remaining tread. Tires should also be replaced if they show signs of bubbles, separation, significant weathering or other types of damage.

Rotation

Tire rotation can help keep tires wearing straighter and possibly make them last longer. If all of the tires are the same type, they can be rotated; just refer to the diagram in the owner's manual. If there is a spare tire, and it is in good condition and compatible, it should also be rotated. However, for tow vehicles, if the rear tires have special deep-traction lugs and the fronts have a smoother highway tread, rotation is not recommended. Tire rotation on motorhomes can be expensive, and if the coach travels few miles and the tires are likely to need replacement due to age before the treads wear out, the cost may exceed the benefits.

Balancing

For best performance, tire and wheel assemblies should be balanced, including the trailer tires. Out-ofbalance tires put excessive forces on suspension and steering components, and tend to cup and wear excessively at the heavy spot. Wheel balancing should be performed when new tires are mounted, after a flat repair and any time a tire is dismounted and remounted.

Load Range/Ply Ratings

The load range molded on a lighttruck tire's sidewall (such as D, E or F) is marked with the maximum weight it is designed to carry, along with the minimum pressure required to carry that weight. Load ranges increase in alphabetical order, so, for example, an E-rated tire will have a higher weight rating than a D-rated tire of the same size and can handle higher inflation pressures.

Current load ranges do not count the actual number of ply layers in a tire's carcass. Rather, they indicate an equivalent strength relative to older bias-ply tires. Typical radial passengercar tires have one or two body plies. LT tires (even 10-, 12- or 14-ply rated), have only two or three fabric plies or one steel-body ply. When changing tires, confirm that the load range marked on the new tire is equal to (or higher) than the load range on the original tire, and/or that the new tire's rated load-carrying capacity meets (or exceeds) its share of the vehicle's gross axle weight rating (GAWR).

Wheels

Wheel manufacturers stamp wheels with the maximum-inflation pressure and maximum-rated weight they are designed to carry. When replacing wheels, always use those with ratings at least as high as the original equipment. Offset and backspacing must also be correct for a safe installation. Lug nuts or bolts should be tightened in a crisscross pattern to the manufacturer's specified torque. Wheels should then be retorqued after driving for about 50 to 100 miles and before each trip and after extended storage.

Nitrogen Inflation

Green tire-valve caps denote the tires were inflated with nitrogen instead of atmospheric air. Nitrogen has some limited advantages over air, although no tire manufacturer requires the use of nitrogen. Atmospheric air contains about 79 percent nitrogen, and it's impractical to inflate tires with 100 percent pure nitrogen, because the tire contains some air even when deflated. Therefore, if your vehicle's tires have nitrogen in them, leave it in. Never run with lower pressure than needed due to an unavailability of nitrogen; use air to maintain pressure, if that's what is available.

TPMS

Many blowouts occur because of a slow leak that allows tire pressure to drop while the vehicle is in motion, heating the tire to the point of failure. This can result in a dangerous loss of control. and even if a crash doesn't occur, frequently there is vehicle damage caused by a flailing tire. Tirepressure monitoring systems (TPMS) are available to track both the tow vehicle's and trailer's (or motorhome's and dinghy vehicle's) tire pressures. These provide peace of mind and greatly reduce the chance that low tire pressure will result in a blowout or worse. For a comparison of aftermarket TPMS devices, see page 36.

Valves

Low-pressure tire valves should be replaced each time tires are replaced. Tires that run high pressures require special tire valves, and valves used with dual tires must be designed to be accessible for filling and checking pressure. Special hoses extend the reach to inner dual-tire valves and make it easier to check and adjust pressure. However, these hoses and fittings are subject to leaks, and if a dual loses pressure while driving, it may overheat and fail catastrophically. Extended valve stems are also available and make checking and inflating tires much easier than factory





(Top) Spare-tire covers can help extend the useful life of the rubber by keeping the sunlight off. (Above) A set of tire covers is a good investment and should be put on when the RV sits in one place for a long time.

stems. For safety, it's best to use a TPMS when extensions are used.

Storage

Many RVs sit idle for months or longer. If possible, keep your RV in a cool, dry storage area away from direct sunlight and damaging UV rays. Tires deteriorate faster when exposed to sunlight and ozone, which is found in greater concentrations in polluted city air and near large electric motors, welders, etc. This causes cracking, weathering or "dry rot" — typically between the tread elements or on the tire's sidewalls. Deterioration that extends to the cord, fabric or steel of the tire is a safety hazard.

Thoroughly clean tires with soap and water before storage. To help prevent cracking and flat spotting of the tires, move the RV periodically to bring protective tire compounds to the surface. Ideally, drive the RV

- Keep a log of tire-pressure readings, singling out tires that lose pressure at a greater rate than normal, indicating a valve-stem leak or a puncture.
 - Keep a record of tire build dates and replace tires that are older than seven years. RV tires often age out before they wear out.
- Severe underinflation can cause damage that is not visually apparent; any tire that appears to have been underinflated by 20 percent or more should be removed, unmounted and professionally inspected.



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RV TIRES 101

long enough to get the tires warm. According to Goodyear, tires on RVs in storage should be inflated to the normal recommended pressure plus 25 percent (to allow for leakage loss), but don't exceed the rim's inflation capacity. Reset tire pressures before using the RV.

Tire covers keep sunlight off tires and slow UV damage, and may be purchased from RV dealers and Camping World. Use tire covers if you store your RV outdoors for extended periods. Tire manufacturers do not recommend the use of sidewall dressings that contain petroleum distillates because they contribute to rubber deterioration. However, some products such as 303 Aerospace Protectant have been noted to provide protection from sunlight and UV rays.

Longevity

The older a tire is, the greater the chance that it will need to be replaced due to deterioration. Tires eventually deteriorate to the point that they are unsafe. As a general rule, tires will last longer on vehicles that have been garaged or stored outdoors in the shade with the tires covered compared to those left exposed to sunlight.

Some manufacturers recommend tire replacement at about seven years. Michelin recommends its tires in use for five years or more should continue to be inspected by a specialist at least annually. The company says its tires should be good for 10 years, if they are stored indoors and don't show signs of cracking or crazing.

Tire owners are encouraged to be aware not only of a tire's visual condition and inflation pressure, but also of any change in dynamic performance such as increased air loss, noise or vibration, which could be indications that the tires need to be removed from service. While most tires will need replacement before they reach 10 years, Michelin recommends that any tires in service for 10 years or more from the date of manufacture, including spares, be replaced with new tires, even if such tires appear serviceable, and even if they have not reached the legal wear limit.

Upgrading Sizes

Some owners wish to increase tire sizes or switch to a higher load rating in the same size. Ride quality may be diminished due to the stiffer tire carcasses. Higher inflation pressures may be called for, and wheels must be rated for the higher pressure and be able to handle at least the expected maximum load. Tires having a larger or smaller rolling circumference will affect overall gearing. Changes greater than 3 percent may call for finaldrive gearing changes. They can also affect ABS systems and speedometer accuracy.

To prevent damaging contact and friction when sidewalls bulge, dual wheels must have a certain distance between them, called dual spacing. On vehicles with dual rear wheels and original equipment tires and rims, dual spacing is sufficient. However, if wider tires or custom wheels are fitted, dual spacing must be checked against tire manufacturer specifications. Larger tires may also rub against the body or suspension and chassis parts.

Changing ST to LT

Many trailer owners have experienced multiple tire failures and have decided to use LT tires instead of ST types. If you change to LT tires, verify that they have sufficient load capacity for your travel trailer or fifth-wheel. Two popular LT tires used as replacements for ST tires are Goodyear's G614 235/85R16 and Michelin's XPS Rib LT235/85R16E tires. If you switch to a larger tire size to regain load capacity, check that there is sufficient clearance for larger tires. You may also need different (properly rated) wheels, which can make the cost of switching prohibitive.

Causes of Failure

Plenty of cheap, poorly made tires are on the market. However, many trailer tire blowouts are caused by conditions that owners can control, such as overloaded tires, improper inflation, incorrect alignment and uneven weight distribution. To determine if a tire is overloaded, find a truck scale that can weigh each individual wheel position. An axle may be within its gross axle weight rating (GAWR), yet when tires at each axle end are weighed individually, you may find a tire that is overloaded.

Underinflated tires create extreme heat that leads to tire failure. A big reason tires fail is that they are not properly inflated for the load. The tire may appear normal on the outside, but the internal damage is not visible. Tires with internal damage caused by underinflation can fail catastrophically without warning. If you don't know the exact load on the tires. inflate them to the maximum recommended pressure or the inflation pressure recommended for the maximum load listed on each tire's sidewall. Overinflation may cause a harsher ride and more wear at the center of the tread, but this is preferable to catastrophic tire failure caused by underinflation.

Slideout rooms and full holding tanks often cause uneven weight distribution, both front-to-back and side-to-side. The only way to check this is by measuring individual wheel weights. To correct uneven weight distribution, it may be necessary to move heavy items and/or adjust the weight carried in tanks.

Final Thoughts

Be sure to check inflation frequently and consider getting a TPMS. Every RVer should carry a small portable 12-volt DC air compressor, or some other compressed air source, that can deliver enough pressure to top off tires when needed. Having your own compressor is especially handy, because tires should be inflated when cold, before driving.

Protect your vehicles' tires by avoiding potholes, curbs and other hazards, watching for uneven or unusual tire wear and storing both the tow vehicle and RV properly to ensure the best tire life. **\$**

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Installing an aftermarket tire-pressure monitoring

Installing an aftermarket tire-pressure monitoring system on tow vehicle and trailer wheels goes a long way toward on-the-road safety and peace of mind

hen getting ready to hit the road, RVers should have a checklist that goes beyond snacks, folding chairs and outdoor toys. At the top of that list, which should include ample fuel, a secure hitch and functioning headlights, taillights and turn signals, should be properly inflated tires. Checking tire pressure is an important safety measure, because underinflation not only decreases fuel mileage and tire life, but also makes tires more susceptible to costly and potentially life-threatening blowouts.

With today's tire technology (stiffer sidewalls coupled with a radial design), once the tire begins to appear underinflated, it's likely already severely underinflated and possibly damaged. A visual check may not be enough to ensure that your towing combo is ready to roll safely down the road.

In the past, the best way to check tire inflation was a tire-pressure gauge. Now, that important task — and much more — can be accomplished with the relative simplicity (and advanced electronics) of a tire-pressure-monitoring system (TPMS).

A TPMS is already in the passenger car or tow vehicle you drive, if it was purchased new after September 1, 2007. Sensors are placed on the wheel of each tire to monitor pressure. The sensors send tire data to a centralized control module; if there's a problem with one of the tires, the data is wirelessly transmitted to an in-cab display. These displays feature visual and/or audible alarms when a tire falls below a preset PSI threshold or reaches a certain temperature (assuming the sensors also monitor temperature), allowing the driver to pull over and assess the situation. This enables early detection, which saves money and helps prevent dangerous blowout situations.

Even if your tow vehicle is equipped with a factory system, adding an aftermarket TPMS will allow sensors to be installed on the trailer tires to keep tabs on them as well. Here are some of the more popular systems on the market, including those made specifically for RVs and tow vehicles.



Advantage PressurePro

PressurePro's TPMS sensors screw onto valve stems to provide real-time tire pressure and temperature information. Sensors sample pressure every seven seconds to provide immediate alerts to high temperatures and low/ high-pressure situations via a 300-foot line-of-sight RF signal. PressurePro is capable of monitoring up to 10 wheels on the primary vehicle and six on the trailer. The cell-phonesize monitor comes with built-in RS232 communication protocols and data-logging capabilities. Sensor batteries have an average life of five-plus years, according to the company. For more monitoring capabilities, PressurePro's new Pulse TPMS features an easy-to-read LED display, customizable vehicle configurations and alert levels, and two new warnings: a quick-leak alert and a cross-axle alert. Pulse offers data-logging capabilities utilizing a micro-SIM download and supports up to five stored vehicles and 80 tires.

MSRP: \$505 to \$705 (six-wheel setup) 800-959-3505, www.advantagepressurepro.com

Dill

Dill Air Control Products offers a 40-foot wireless line-of-sight TPMS that is versatile and easy to use. Dill's system utilizes in-wheel valve-stem sensors that are protected from the



elements, impact damage and theft. Dill maintains that, since the sensors are inside the tire's air chamber, true temperature readings can be achieved. Drivers are notified via a 12-volt-DC-powered display once the tires reach 20 percent below the user-set cold-inflation pressure or 30 percent overinflation pressure. The standard two-sensor kit can expand to monitor up to four tires, and the four-sensor kit can expand to monitor up to 10 tires (additional sensors and valve stems are sold separately). When the tires are rotated, sensor positions can quickly be reassigned. The display for the four-sensor system measures 4.5 by 2.1 inches and is less than 1-inch thick. The system has a fiveto seven-year battery life, according to Dill, and an optional signal booster is available for longer setups.

MSRP: Starting at \$230 919-692-2300, www.dillaircontrols.com



Doran

Designed for RVs, the 360RV TPMS from Doran Manufacturing uses valve-stem-mounted sensors to transmit tire pressure and temperature data wirelessly to the monitor. The durable, spin-welded sensors are manufactured with a unique three-piece seal design to maximize valve-core depression and minimize leaks. The LCD display is easy to install and program in less than an hour, according to Doran. The monitor (about the size of a chalkboard eraser) comes with a standard 12-volt-DC adapter plug and has multiple mounting options. Once the baseline PSI is set, visual and audible alarms alert the driver to low- or high-pressure situations. A FastLeak alarm activates with a pressure drop of 4 PSI in less than 16 seconds. A high-temperature alert is triggered if the sensor reaches 175 degrees Fahrenheit. The 360RV comes with a two-year warranty, and up to 36 wheel positions can be monitored on multiple vehicles.

MSRP: \$299.99 to \$599.99 866-816-7233, www.doranmfg.com



HawksHead

HawksHead Systems offers the Talon 22, which monitors up to 22 wheels utilizing either cap or feed-through sensors. Both sensor types mount on the valve stem and come with replaceable low-cost generic button batteries, eliminating the need to purchase new sensors when they no longer function. The monitor has its own rechargeable power pack that allows it to be removed from the cab and used as a wireless tire-pressure gauge. All alarms are both visual and audible, and alarm parameters are user-customizable. Temperature alarms can alert for dragging brakes, wheelbearing issues and overcompensated cab-controller brake adjustments. The Drop Trailer feature allows the trailer (or dinghy vehicle) to be removed from the monitor, which then displays the tow vehicle only. The system comes with sensor locks to avoid theft. For smaller truck-and-trailer combos, the Talon 6 Bi-Mode monitors up to six wheels.

MSRP: \$339. Additional sensors: \$45 888-321-8767, www.tpms.ca

EEZ RV

Tire-pressure sensors for the EezTire T515 system replace the tires' original valve-stem caps. Powered by replaceable batteries with an expected three- to four-year life span, according to EEZ RV Products, the antitheft sensors extend only 1 inch past the standard valve stem, making them a good choice to avoid accidental curb or debris damage. The system's easy-to-read 3.5-inch monitor contains a motion sensor that shuts off the unit after 15 minutes of inactivity. The display automatically cycles through each tire every six seconds, checking for low and high pressure and temperature, rapid pressure loss and catastrophic failure; manual selection is also available. The system can handle up to 22 tires and comes with three mounting options: suction-cup, dash stand or fixed.

MSRP: Starting at \$249. Boosters (recommended for longer RVs): Starting at \$49 510-910-5397, www.eezrvproducts.com



TireMinder

Minder Research has introduced two new models of its TireMinder TPMS. The TM66 and A1A alert when a tire loses 15 percent or more of the baseline, raises above 20 percent of the baseline, loses 3 PSI or more in two minutes, loses 6 PSI or more in 10 minutes, or the internal tire temperature reaches 167 degrees Fahrenheit. Features specific to both models include Disconnect Mode (drop the trailer from the display) and Auto-Search Mode (push-button status updates). The 3.25-inch screen and portrait-style layout clearly show where an issue is occurring. The new interface makes it easy to add transmitters and set baselines, and a signal booster is now paired with every TM66 and A1A kit. Both kits come in four- or six- transmitter configurations that mount on the valve stems with the ability to monitor up to 22 transmitters.

MSRP: TM66: \$362.99 to \$435.79. A1A: \$389 to \$459 772-463-6522, www.minderresearch.com/tireminder





Tire-SafeGuard

Tire-SafeGuard, manufactured by HCI Corporation, offers a wide range of TPMS systems including those with a portable or fixed two-piece monitor, with sensors mounted inside the rims, inside the valves, on the valve's external dust-cap and even valve-stem-mounted flow-through caps. All Tire-SafeGuard units monitor tire pressure up to 199 PSI and continue to monitor even when the vehicle is parked. The sensors detect rapid pressure changes, slow leaks and high temperatures in tires, and the system immediately alerts users to abnormal tire situations, identifying the location of the problem.

MSRP: Varies based on type and number of tires 818-400-9976, www.tiresafeguard.com



TST

Offering an internal valve-stem-mounted solution similar in design to those used in cars and passenger trucks, TST (Truck System Technologies) systems spare users the rigors of broken internal bands and the subsequent shrapnel that can circulate within tires when the banded sensors fail, according to the company. TST systems monitor both tire temperature and PSI in real time, notifying for gradual and sudden changes. Customizable alerts can be set to accommodate tires with PSI ranging from 10 to 175. TST makes systems for RVs and commercial trucks, and is the exclusive aftermarket TPMS of PACCAR, parent company of both Peterbilt and Kenworth. Kits come with a three-year warranty.

MSRP: Starting at \$259 (four-sensor 507) 770-889-9102, www.tsttruck.com

TireTraker

The TireTraker TT-500 TPMS features a large, easy-toread display, continuous pressure and temperature monitoring, automatic update and the ability to monitor any tire from 0 to 232 PSI. The TT-500 provides visual and audible alarms for low pressure, high pressure and high temperature, as well as rapid pressure loss. The rechargeable monitor is reminiscent of a smartphone display and incorporates USB charging.



The .5-ounce sensors mount on the valve stems and are powered by user-replaceable batteries to avoid buying new sensors when the original batteries lose their power. The TT-500 is backed by a lifetime warranty, the only one of its kind in the industry, according to the company.

MSRP: Starting at \$289 (four-wheel setup) Additional sensors: \$35 each 866-200-9773, www.tiretraker.com



Valor

Valor's TPMS features sensors mounted internally on the wheel rims for accurate temperature and pressure ratings. Valor has designed the unit to display individual tire and axle positions for an at-a-glance user interface. Sensors last from five to seven years, according to the company, and offer real-time, round-the-clock monitoring for high and low pressure, rapid and slow air leakage, and high temperature. The system is easy to set up, reports Valor, and can be utilized on a number of applications, making it easy to keep tabs on multiple sensor-equipped recreational trailers.

MSRP: Starting at \$670 (truck and trailer) 800-568-9188, www.valortpms.com 🗭



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RVING IN MEXICO

Despite border-crossing hassles and bad press, our neighbor to the south is friendlier and more accessible to RVers than you may think. Here's what to know before you go

or the past eight years, I have spent every winter towing my 25-foot travel trailer throughout Mexico, both on my own and as a wagon master for two RV caravan companies. My parents, who at first thought I had lost my mind, are finally coming around to the realization that I am safe. Like my folks, many RVers are apprehensive about traveling south of the U.S. border, but I assure you that Mexico is a viable RV destination, particularly if you do some preparation in advance.

Let's get the subject of safety out of the way first.

SAFETY

Violence always seems to be the first concern of anyone planning to travel to Mexico in an RV. I am not going to whitewash the problems down there, but in almost a decade of traveling all over Mexico every winter, I have yet to witness a single violent incident. There are certain areas of the country you do want to avoid (check the U.S. Department of State's Travel Warning for Mexico at www.travel.state.gov), but most RVers return from their first trip to Mexico wondering what all the fuss was about. You do not see random acts of violence in Mexico to the extent you do north of the border, and those are probably more of a threat to your well being than any drug war.

Keep in mind that Mexico is a poorer country, and your risk of becoming a property-crime victim may be greater, so it's wise not to call attention to yourself with expensive gadgets or jewelry. I can say with confidence that the vast majority of Mexicans are lawabiding, family-oriented people who are eager to help.

BAJA OR THE MAINLAND?

For their first venture into Mexico, most RVers choose to visit the far-western Baja Peninsula or the resort town of Puerto Peñasco (Rocky Point), about 200 miles south of Phoenix near the north end of the Sea of Cortez. Baja is what I call Mexico Lite and has the false perception that it is really not a part of Mexico and is therefore safer. It is a good destination to get your feet wet, but the mainland has more variety and is much more interesting.

One advantage of Baja is that no vehicle permits are required, making it a lot easier to visit from a paperwork point of view. The same is true for the state of Sonora, which includes Puerto Peñasco.

PRICES

Mexico is no longer an inexpensive destination, although Mexican RV parks are cheaper to stay at than ones north of the border, and the recent rise in the value of the U.S. dollar against the peso does help.

The biggest surprise to many first-time visitors is that Mexico is not really a Third World country. It has a rapidly growing middle class, and this is reflected by the vehicles on the road. Gone are the thousands of beat-up cars and trucks and the old joke about

THERE IS SOMETHING ABOUT MEXICO THAT IS ADDICTING TO RV TRAVELERS, AND I THINK IT'S THE SENSE OF ADVENTURE In the western state of Michoacán, Janitzio Island on Lake Pátzcuaro is a tourist magnet. At the top of the island, a statue honors one of Mexico's heroes, José María Morelos. For scenic views, visitors can climb the stairs inside the statue.

Mexican air conditioning. Mexicanowned RVs are also starting to appear in greater numbers each year. Of course, all this new affluence means higher prices.

FUEL

Fuel costs in Mexico are now higher than in the United States, thanks to the Mexican government's effort to bring them up to U.S. levels to encourage competition to the state-owned Pemex. Competition is scheduled to occur in 2016 and may bring prices down a bit. When world oil prices collapsed, Mexican fuel prices were maintained artificially high. Add in the cost of tolls, and it is more expensive to drive in Mexico these days than it is north of the border.

Much of Mexico still does not have ultra-low-sulfur diesel (ULSD). It is available in northern Baja, the





northern parts of the mainland, Mexico City and Guadalajara. Lots of RVers on our caravans ignore this, and none has had fuel issues; other caravan operators report the same experience. Using regular low-sulfur diesel instead of ULSD will not harm the engine, in my experience, but it will induce an earlier regeneration cycle in the particle filter. If you're thinking about driving a diesel vehicle in Mexico, take a look at the information provided by Ted White at www.mexicorvforums .com/diesel.php and search the Mexico forums at www.forums.trailerlife.com.

If your vehicle requires diesel exhaust fluid (DEF), you need to take an ample supply with you. DEF is not available in Mexico, and you will consume more of it than normal. Take twice what you think you need and be mindful that DEF should be stored out of direct sunlight in a dry, wellventilated place.

Note that diesel pumps in Mexico are black, and gas pumps are green, the opposite of the United States. Fortunately, islands are separate at nearly every station. You do not pump your own fuel, and I advise tipping attendants 10 to 15 pesos. They appreciate it.

PERMITS AND PAPERWORK

Mexico has strict rules on vehicle importation, and bringing an RV in for the first time can be a daunting prospect, a good reason to consider

(Left) RVers on a guided caravan tour enjoy happy hour in the West Coast state of Jalisco. (Below) A former fishing village on the southern tip of the Baja Peninsula, Cabo San Lucas is now a famous beach destination for celebrities, spring breakers and RVers.



RVing in Mexico





(Far left) In the northern state of Chihuahua, an aerial tram descends into Copper Canyon, four times larger than the Grand Canyon. (Left) A Mexican-style St. Patrick's Day parade marches through a town in Jalisco. (Below) In the coastal city of Melaque, Jalisco, the Bungalows Laguna del Tule resort accommodates hotel quests and RV owners.

an RV caravan (once you've done it, it's easy the next time). Make sure you have the original registrations and titles for all vehicles. If you do not own the vehicles you're traveling with, and it indicates that on the registration, notarized permission from the leaser or lien holder will be required.

If you tow a travel trailer or fifth-wheel, you will need two permits: a 10-year permit on the trailer (about \$55) and a 180-day permit on the tow vehicle. The latter permit will require a deposit in cash or credit card of between \$200 and \$400, depending on the year of the vehicle. You will get this back, provided you leave Mexico within 180 days. Motorhomes require the 10-year permit, and dinghy vehicles require the 180-day permit. Truck campers are a gray area. You might get away with counting a truck and truck camper as a single RV unit, but probably only if you get the permit online.

Permits are issued at the border or just south of it but also can be obtained at www.banjercito.com.mx/registrovehiculos



GOING SOLO OR WITH A GROUP?

Pros and cons of RVing on the Baja Peninsula and Mexican mainland on your own or with an escorted tour

I went to Mexico for the first time as an independent traveler. I have to admit, it was a hassle, and I am not inexperienced when it comes to traveling in out-ofthe-way places. For the average RVer, a guided caravan tour is a good idea for the first trip. Beyond providing tour leaders who are with you every mile of the way, the caravan company will help handle the paperwork and take you where your RV is safe from physical hazards.

One big advantage of caravans is sightseeing tours. Tourist attractions in Mexico are not set up with facilities for RVs. A caravan company will usually bus you to attractions that would be difficult to get to — or even *find* — on your own. In Mexico, of course, there is also the language barrier. It is not that difficult for English speakers to get by, as English is widely understood, but nearly every French-Canadian RVer in Mexico is on a caravan tour.

The disadvantages of caravans are that they are expensive and provide less opportunity for spontaneity. At least they seem expensive, but when you add in all the tours and the fact that most RV park fees are covered, they are not as pricey as you may think. Fees do vary from company to company. You can easily figure out the per-day costs, but keep in mind that shorter caravans will cost more, and caravans that include expensive side trips, such as Copper Canyon, will also cost more per day.

Compare what you get. Does the company count every stop on a day tour as a separate tour (one tip-off here is if they refer to them as "events"), or when they say 10 tours, does that actually mean 10 full days of tours? Are proper sit-down meals included in tours, or do you just get a soggy sandwich and a bag of chips? Are RV park fees included?

Some RV caravan companies tour Baja, some tour the mainland, and some do both. Those that offer Bajaand-mainland combo trips likely use the ferry between the two. This is extremely expensive, especially for a long RV, and you need to factor that into the cost.

Reputable companies exclusive to Baja are Baja Amigos (www.bajaamigos .net) and Baja Winters (www.bajawinters .com). Companies exclusive to the mainland are Caravanas de Mexico (www .mexicocaravan.com) and the French-English Amigos Rodantes (www.amigos rodantes.com). Companies that do both are Adventure Caravans (www.adventure caravans.com), Fantasy RV Tours (www .fantasyrvtours.com) and Vagabundos del Mar (www.vagabundos.com). ahead of time. They are extremely difficult to cancel, unless you are there in person, so I advise against getting one online unless you live close to the border or are 100 percent certain you will not cancel your trip. The permit consists of a hologram you apply to the windshield. Do not throw out the paperwork that comes with it; you will need it when you exit Mexico.

Make sure you have valid passports and any other paperwork you can think of (I saw somebody asked for their marriage certificate once). Take two credit cards, in case one is declined, and notify the card issuers when you will be traveling in Mexico.

VEHICLE INSURANCE

Your U.S. or Canadian auto and RV insurance is not valid in Mexico with two exceptions that I'm aware of, Progressive and Blue Sky. They will cover you for collision, but you still need to buy liability insurance from a Mexican insurance broker. Recent changes in Mexican liability laws mean you should cover yourself for \$500,000. Expect to pay about \$125 for each \$10,000 insured for a six-month policy covering both collision and liability. Some companies will rebate you on your own insurance for the time the vehicle is in Mexico.

One thing to check is coverage for labor rates, especially if you have to take the vehicle north of the border to be fixed. Most companies cap at \$38 or \$75 per hour. RV repair rates in the United States run around \$125 an hour. The only two companies I found that have no cap are Qualitas (sold by Lewis and Lewis Insurance Agency) and HDI Seguros. If you are in an accident, call the insurance company immediately and do not move the vehicle until the police arrive, even if it's blocking traffic.

DRIVING

A trip to Mexico is a good excuse to do some of those suspension upgrades you have been putting off, like airbags or suspension stabilizers. Mexico is known as the Land of the *Tope* (giant speed bump), and there are more than a million of them. Most are well marked, but it is the unmarked one in the shadow of a tree that will get you. On free roads, you will find at least three of them next to any sort of habitation.

Train your copilot as a *tope* spotter, and watch oncoming vehicles and vehicles ahead of you as indicators that they are present. If you travel with a truck camper, I strongly advise framemounted tie-downs, such as those made by Torklift, rather than the bedmounted style. Other big hazards are low tree branches and archways. Know the metric height of your RV, and be especially vigilant on the passenger side for low-hanging trees. You can avoid most hazards by sticking to toll roads, which are up to U.S. interstate standards but are costly. The more axles you have, the pricier they are. Balance the cost against the time and fuel spent on a meandering free road doing 20 MPH behind a sugarcane truck.



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ROADSIDE ASSISTANCE

Providing roadside assistance, the Angeles Verdes (Green Angels) patrol Mexico in official vehicles that carry tools and automotive parts. They are government employees and charge for parts but not labor. They cruise the main highways, especially toll roads, and their primary purpose is to assist travelers with breakdowns, accidents and medical emergencies.

The Angeles Verdes have quasipolice powers and can block traffic. They have an excellent reputation for being innovative mechanics, and we use them as tail gunners on our caravans. They simply do not give up on a problem.

This service can be reached at 078 from phones in Mexico. All of the phone operators are bilingual, and the mechanics speak at least some English.

BRIBERY

Bribery of public officials, or *mordida*, is still present, despite being illegal,

but it is less widespread than it once was. It certainly is not endemic anymore with the federal police (*federales*). I have been pulled over on a few occasions, and the police officer simply wanted to shake my hand and welcome me to Mexico (no kidding). Bribery can be an issue with some municipal police and transit police (*transitos*), who are underpaid. In many cases, they are simply trying to feed their families.

In a worst-case scenario, if they want you to go to the police station and you do not want to risk taking a large rig into a small town, ask them to pay the fine for you. You are not technically bribing them, but do not expect a receipt.

FIREARMS

Don't even consider taking firearms or ammo into Mexico; you will be in big trouble if you are caught. There's a good chance that your vehicle will be searched at least once during your visit.

COMMUNICATIONS

Cell-phone service is extensive in Mexico, and the best coverage is from Telcel. The prepaid plan is cheap, but an option I also like is AT&T GoPhone, which roams on Telcel for 25 cents a minute, allowing you to have a U.S. number.

Telcel also sells pay-as-you-go USB modems (*banda ancha*) that provide mobile broadband and are easy to recharge at any OXXO, a chain of convenience stores in Mexico.

Wi-Fi is common in many Mexican RV parks. If you have Dish or DirecTV satellite service, do not expect it to work farther south than Mazatlán.

WATER

Nobody drinks the tap water in Mexico, and for good reason. Fortunately, it is available everywhere in 5-gallon containers and is cheap enough so you can pour it out before moving on, if you want.

Many campgrounds have water





CAMPING, MEXICAN STYLE

South-of-the-border RV parks run the gamut from rustic campgrounds to full-fledged resorts

RVing in Mexico is a unique opportunity to experience a foreign culture, especially if your previous south-of-the-border trips have been confined to destination resorts. Traveling in an RV, you see the real Mexico. Staying in RV parks, you relive the halcyon days of American camping, before all the rules. No park in Mexico cares if your rig is more than 10 years old or how long your dog's leash is.

Mexico has more than 500 campgrounds, from primitive sites to full-service RV parks and hotel complexes that accommodate RVs. Sites range in price from about \$5 a night at barebones campgrounds to \$40 at destination resorts. Don't expect a pull-through campsite or 50-amp service; most sites are 15- or 30-amp. And don't expect to be able to run air conditioners everywhere.

RV-park design is in its early stages in Mexico, and you will find places where the pedestals are too far away or on the wrong side, so extra-long power cords, sewer hoses and water

hoses are needed. Take electrical adapters that go both ways. I have had to go from a 30-amp pedestal plug to a 15-amp extension cord then back to the 30-amp plug on more than one occasion. Make sure you do not overload the power cord.

Boondocking is not advisable unless you are in a large group or camping at Bahía Concepción in Baja. Use RV parks, and if you are stuck, you can stay overnight at most Pemex fuel stations. Try to find a busy, well-lit one that's open 24 hours. They often have a security guard that you can pay 100 to 150 pesos to watch your rig. Do not park off in a dark corner. Try to stay under the lights and where traffic is close by.

Find a copy of *Traveler's Guide to Mexican Camping, Fourth Edition*, by Mike and Terri Church. Although the book is now six years old, it is still an invaluable guide to the country's RV parks. The *Good Sam RV Travel and Savings Guide* and www.goodsam camping.com provide up-to-date listings for 250 RV parks in Mexico with annual ratings for facility, restroom and appearance.

pressure that is too low for RV city-water hookups, so get used to filling the holding tank and using the internal pump. Pass it though an exterior RV water filter (I use the blue one from Camping World) and add a bit of bleach or hydrogen peroxide to provide some additional sterilization. Just use it for showers and washing dishes. When you return home, add a good dose of bleach and flush out the tank.

Water delivery is common at many RV parks in Mexico, as is propane.

PETS

Small animals may be brought into Mexico but require an international health certificate from a licensed veterinarian that includes proof of vaccination against rabies and distemper.

A wide variety of pet food is available, but be sure to bring a flea-control treatment that also protects against ticks. Pet-waste bags are not readily available, so pack enough for the trip.

Always give your pets bottled water in Mexico. Use a leash. Be careful walking your dog at Pemex fuel stations; there can be packs of dogs hanging around. It's not a bad idea to have a collar ID tag engraved with your email address and any Mexican cell-phone number you have.

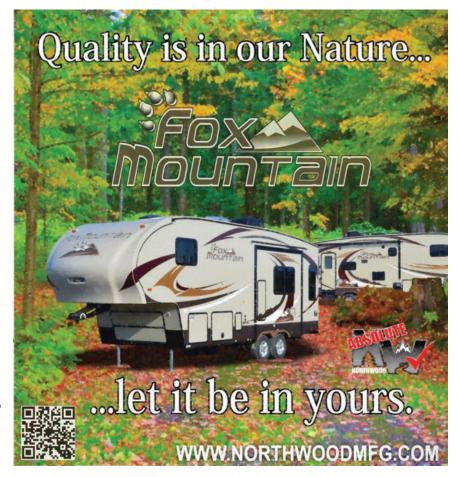
WHAT ELSE TO TAKE Grocery stores are well stocked, but diet soda is rare. Bring ant powder and ant traps for beach locations where ants are common. Anti-itch products like AfterBite and calamine lotion are also hard to find, and suntan lotion and insect repellents are expensive.

Despite the fact that there are Ram,

GM and Ford dealers in Mexico, they do not sell diesel trucks or anything over a half-ton pickup. Regardless of whether you have gas or diesel, I advise carrying extra oil, filters and probably a spare serpentine belt. Tires can be hard to find, so an off-rim extra spare, even a



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RVing in Mexico



For a thrilling crossing of Copper Canyon, the swinging bridge at the Divisadero lookout spans the chasm and the Urique River below.

bald one, is not a bad idea.

RV parts are also hard to come by in Mexico. I picked up a spare RV water pump for less than \$50 before I left. If yours packs it in, it is one thing that is difficult to live without. An extra sewer hose and spare fittings are also a good idea. Look for a 5-gallon water jug with a screw top, although they are available in Mexico.

Electricity in Mexico is unreliable, so purchase a Surge Guard RV surge protector to keep appliances and other electronic devices from getting damaged.

WHY MEXICO?

Despite all the hoops you have to jump through, most people who RV in Mexico for the first time find they are no longer satisfied parked in the Sunbelt for the winter. There is something about Mexico that is addicting to RV travelers, and I think it's the sense of adventure. When Americans tell me there is still too much of the good old USA to see, I know they really mean, "We wish we had the nerve to travel in Mexico, but we don't." They do not know what they are missing.

As far as the Mexican people are concerned, I have lost count of the number of times I have pulled over to the side of the road for a break and had a local stop and ask if I needed assistance. My first year down there, I took a wrong turn and ended up in a cornfield. The farmer escorted me back to the highway and refused the \$20 I offered him. You will hear similar stories from almost every RVer who has traveled in Mexico.

SOLIDASA BIGUE DE OM

Connecting a trailer to a tow vehicle with the improved SwayPro weight-distributing hitch is easier and imparts safer handling

uccessful — and safe — towing is dependent on the connection between the trailer and tow vehicle. The use of weight-distributing (WD) hitches and, if necessary, some sort of sway control are the norm. Most hitch assemblies have employed the old faithful spring-bar and friction sway-control setup for a tried-and-true hitch infrastructure. Using these hitches requires multiple initial adjustments, a one-time process the first time you set up the hitch, just as with the Blue Ox, and precautions every time the trailer is connected, and while making maneuvers like backing up in a tight campsite. In this case, it's possible to bottom out a friction sway-control device, if not removed prior to backing. Of course, the intense pressure on the spring bars when latching to the A-frame hangers can hurt a user who's not paying attention or not following directions precisely.

Years ago, when Blue Ox designed its SwayPro WD hitch with built-in sway control, it introduced a different way to hitch up a trailer and a product that requires no attention when backing up sharply. Recently, the company refined the hitch, adding improvements that make the SwayPro system lighter, with slimmed-down spring bars and a redesigned hitch head (ball mount) that's more user-friendly.

Blue Ox has managed not only to shave weight wherever possible, which is always a plus, but also took the guesswork out of establishing ball angles by presetting and casting the angle into the remodeled hitch head. Another improvement was made to the rotating latches with larger locking pins that are easier to manipulate, and the addition of a rubber cover made it more comfortable while operating.

All the necessary hardware, the hitch pin and the mandatory tool to provide total function are provided with the reshaped hitch-head assembly. What isn't present in the new SwayPro kit is the ball. It's up to you to find the correctly rated ball for your individual trailer, but there is an included spacer in the kit, if needed.

As far as installing the new SwayPro system goes, you can expect all the usual steps from the previous edition, with measurements and mounting the rotating latches, but without devoting time to finding the correct ball angle.

Without a weight-distributing hitch, the trailer's entire hitch weight is carried by the tow vehicle, creating a nose-up attitude and unstable handling. A weight-distributing hitch shifts some of the weight forward and to the trailer axles, creating a level towing attitude.



Solid as a Blue Ox

To begin, start by parking the tow vehicle and trailer on flat ground and chocking the trailer tires. Before the SwayPro assembly can proceed very far, the hitch head and shank must be married at the appropriate height, making sure to allow for the truck's suspension to settle post hitch-up. To accomplish this, take a measurement from inside the trailer coupler to the ground and set the hitch head's height approximately 1 to 2 inches above that point. The shank can safely be placed pointing up or down, depending on specific needs. Once the correct height is determined, the hitch head and shank formation can be secured via the ¾-inch bolts. lock washers and nuts. The nuts are torqued to 257

GETTING HITCHED: The Blue 0x SwayPro weight-distributing hitch kit includes an adjustable shank, hitch head, rotating latches, spring bars and a tool for winding spring-bar chains. Hitches are available in capacities that start at 3,500 pounds and go up to 20,000 pounds for today's larger trailers.



ft-lbs.

The next step involves locating the two clamp-on rotating latches on the trailer A-frame for spring-bar placement and chain tensioning. The easiest way to find mounting locations for each rotating latch is to draw a centerline from left to right across the top of the trailer coupler and measure from there, along each side of the A-frame to a point that's 29 inches from the coupler. When drawing a line onto the dark colored frame, use a silver marker for contrast and easy visibility.

There's no drilling required to mount the rotating latches, which take the place of the standard issue



1) The shank is designed to fit in standard 2-inch hitch receivers and has numerous bolt holes to facilitate proper ball height. It can be placed up or down to accommodate different tow-vehicle and coupler heights. 2) Once the ball height is established (measuring level trailer at the inside of the coupler to the ground), the hitch head is mounted to the shank using the supplied bolts. Setting the ball angle is no longer necessary; therefore, no need for cams, spacers or shims. Nuts are torqued to 257 ft-lbs. 3) A hitch ball is not supplied with the kit components. The weight rating for the ball is stamped on the top and should be matched to the rating of the hitch and sized for the trailer coupler. This one is rated for 10,000 pounds.



4) Once the location for mounting the rotating latch is established (measuring 29 inches from the center of the coupler to the center spot on the sides of the A-frame), a set bolt is torqued to 40 ft-lbs to secure each one to the A-frame, followed by tightening of the jam nuts. In this case, the rotating latches cleared the plate that holds the LP-gas cylinders and the battery box. Blue Ox claims that the length of the spring bar is designed to clear the LP-gas cylinders and battery boxes on most trailers. If not, modifications will have to be made. 5, 6) The ends of the spring bars are beveled to fit snugly into the pivot arms on the hitch head (ball mount). Grease contained inside the pivot arms helps eliminate messy handling. Dots on the end of the bar are used to identify the weight rating; here, three dots are code for a 1,000-pound rating.

7) Spring-bar chains are first placed in the rotating latches, leaving three links free; this is a good starting point for making the final adjustment. Once the starting link is identified, it can be marked with paint — or by counting links and writing down the number for future use. 8) A special tool that comes with the kit is used to wind the chains into the rotating latches. Pressure is first taken off the spring bars by lifting the tow vehicle and trailer using the A-frame jack. This makes the process easier. There is no need for clips or pins to lock in the spring-bar chains. 9) Once the spring-bar chains are wound into the rotating latches, the tow vehicle and trailer are lowered using the A-frame jack. If the tow vehicle and trailer are lowered using the A-frame jack. If the tow vehicle and trailer are lowered using the A-frame jack. If the tow vehicle and trailer are lowered using the A-frame jack. If the tow vehicle and trailer are lowered using the A-frame jack. If the tow vehicle and trailer are level, you're all set. If not, the spring bars can be adjusted one link at a time until all is level. Note the position of the links in the rotating latches after the spring bars are tensioned, and future hitch-ups will be simple.

spring-bar hangers used for most WD hitches. These brackets will clear the LP-gas cylinders and battery on most trailer A-frames, according to Blue Ox; they cleared the configuration on the test trailer.

To mount the rotating latches, the square head set bolts are aligned on the premeasured marks on the A-frame and tightened to 40 ft-lbs. A jam nut prevents the set bolt from backing out. That's basically it, as far as assembly/installation is concerned. Now it's just a matter of safely hitching up and setting the proper spring-bar tension.

The procedure for hitching up follows the same sequence as any WD hitch with spring bars. Before proceeding, grease the ball with the recommended molybdenum-based grease. Once coupled to the hitch head, the truck and trailer can be lifted with the A-frame jack to make the spring bars/chains easier to wind into the rotating latches, a step that is performed with a special tool.

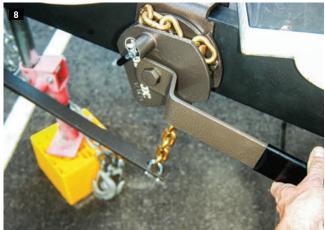
With the spring bars placed into the hitch head and the rotating-latch chain slots facing the bottom, the chains can be positioned into the slots, having at least three full links showing as a starting point. It is imperative that the chains are straight up and down, both in the slot and while centered in the rotating latches, once in the final towing position. There are no pins or clips to deal with — or lose.

The hitched-up truck and trailer can be let down off the A-frame jack to verify a level stance. If the truck and trailer are not sitting level at this point, adjustments in the spring-bar tension will be required — one chain link at a time until reaching level. Once we got the hitch adjusted properly, the subsequent process for hitching up the trailer was easy and fast.

There is no additional hardware needed for controlling sway. Reducing sway is achieved by a proprietary four-point system that keeps the trailer from moving laterally while towing, especially in conditions that can affect handling. Blue Ox claims that the geometry of the pivot ball mount/ pivot arms and tension, along with precise pitch angle, help to reduce sway.

We enjoyed the fact that the rotating latches eliminated noise when turning and backing, and that the grease is trapped in the pivot head on the ball mount, which keeps things much cleaner until the trailer is unhitched — at which point the greasy hitch ball must be covered to avoid a







possible mess. Overall, the components look and feel stout, and quality control of the build is very good.

Once you experience the marked difference in towing ease, smoothness and ultimate controllability of the Blue Ox SwayPro, you'll be hooked, literally. The SwayPro hitch is available in weight ratings starting at 3,500 pounds and tops out at 20,000 pounds (350- to 2,000-pound hitchweight capacities). The kit sells for around \$600.

Blue Ox

800-228-9289, www.blueox.com/trailer-towing/swaypro

article and photos by Kevin Livingston

TITAN'S UNIQUE FUEL TANK MOUNTS IN LITTLE-USED SECTIONS OF A PICKUP BED AND CAN TAKE ON 15 GALLONS OF FUEL, DEF OR EVEN WATER

250

GASOLINE

105EL

Pickups are unquestionably the most popular tow vehicles, and for good reason. They are built to tow a lot of weight, are reliable and, these days, are loaded with creature comforts. Improvements in drivetrain technology have made gasoline and diesel engines more efficient, and fuel economy is better than ever. But the capacity of factory fuel tanks has always limited driving range — and when you're towing a big trailer, frequent fuel stops, especially for gasoline-powered engines, are not always convenient. Most stock tanks in pickups can hold around 35 gallons of fuel or less, which doesn't provide that much range when burning through a gallon every 7 or 8 miles.

Adding fuel capacity to a truck can be done in a number of ways, with one of the more popular approaches involving the installation of a transfer tank in the bed, right behind the cab. There are also replacement and supplemental tanks on the market, which are installed under the bed, within the chassis framework. Titan Fuel Tanks,

The uniquely shaped Titan Sidekick transfer tank mounts between the wheel well and the front or back of the truck bed and doesn't take up valuable bed space or interfere with a fifth-wheel hitch.

within the uel Tanks, the bed. The tank holds 15 gallons, and it's easy to fit one on each side without encroaching on valuable space in the bed or interfering with a fifth-wheel hitch. As a matter of fact, there are four usable locations in the bed, so the owner can mount one or more of these tanks, depending on need and how much other stuff is carried.

additional fuel tanks.

The Sidekick tank is crafted of black military-grade, cross-linked polyethylene and is exceptionally durable and

a supplier of in- and under-bed fuel

tanks in a number of configurations,

Sidekick mounts easily in front of or behind the wheel well in the truck's bed

and provides versatility uncommon with

First of all, the unique shape of

the Sidekick tank takes advantage of

the usually unused space where the

wheel well breaks up the continuity of

has introduced a different approach to adding fuel capacity: the Sidekick. The



resistant to the elements. It's ideal for safely transporting just about any kind of liquid, like gasoline, diesel, DEF, kerosene or even water. This should be especially interesting to owners of trucks with gasoline engines. Few replacement and supplemental tanks on the market are certified for transporting gasoline; most are designed for diesel fuel only.

Versatility is the key here. The Sidekick can be used to transfer fuel into portable generators or replenish stock tanks when the fuel level is low and service stations are not in the immediate area. It also can be used to carry additional water for those who like to boondock; install two of these tanks, and there's 30 gallons of water available to extend any stay when facilities are not nearby. Of course, care must be taken not to mix liquids, and be sure to use clear labeling to prevent mistakes.

Getting the contents out of the Sidekick might be considered a little basic, and maybe even on the primitive side for some people. There are no transfer systems, pumps and valves to fool with, because the tanks are not certified for this type of use. Tapping into the fuel system on a truck with a gasoline engine is considered

(4) The kit includes the necessary bolts and nuts, and self-drilling bolts needed to install the Sidekick to the bedrail and floor of the pickup bed. (5, 6) Pilot holes are drilled for the bolts that are used to mount the front bracket. This bracket, nearest the filler neck, will be bolted to the front rail behind the truck cab. (7) A toe clamp is bolted to the floor of the pickup bed to secure the tank and keep it from moving laterally.



(1) The Titan Sidekick tank is lightweight and designed to mount in the little-used space in front or back of the wheel well in a pickup bed. The tank's polyethylene material is very durable and resistant to the elements. (2, 3) A bumper used to stabilize and level the tank is attached to a fitting that's molded into the material. Height is easily adjustable with a wrench. Once the bumper stop is adjusted correctly, the tank will sit level in the bed of the pickup — and feel secure.

tampering with the emissions system and will cause the Check Engine light to signal a problem. Beyond that, the flammability of gasoline makes this practice unsafe.

To get the fuel out of the Sidekick tank, the company provides a shaker siphon tube. This is a clever hose with a special end that's immersed in the liquid. To start the flow of liquid for siphoning, the user shakes the end in the liquid. A ball in the apparatus moves up and down, pushing the liquid into the tube until the siphoning action keeps the liquid flowing on its own. This beats sucking on the end of the hose to start the flow of liquid, but it's still rather crude. Care must be taken not to spill fuel, and, again, the hoses must be marked clearly if one tank is used for fuel and the other for water, for example. The other issue is the length of the hose. If the tank is mounted on the other side of the bed from the fuel filler in the truck body, the hose may not reach. We brought that to the company's attention, and Titan promised a solution by offering longer hoses as an option. 3

The real beauty of these tanks is







HELPFUL SIDEKICK







the simplicity of installation. Once the location is established, the bumper stop that comes with the kit is assembled and installed on the underside of the tank. This will be used to make contact with the wheel well and level the tank. Once leveled, the first upper mounting bracket can be positioned and secured to the adjoining wall of the bed near the filler cap, using the only place where screws can physically go. The tank can then be seated onto this bracket before finding the place to mount the other upper bracket. It's easier to have someone hold the tank steady while marking the location for drilling two screw holes to mount the bracket on the other end of the tank.

After both upper brackets are secure, the remaining bracket (toe clamp) can be placed into the notch on the side of the tank, while running the The other end is attached to a nearby bolt used to mount the bracket. Any paint or bed-liner material should be scraped off to make sure there's a good ground connection. This is an important step to avoid issues with static electricity. (9, 10) The tank fits snugly in front of the wheel well and does not interfere with the function or access to the fifthwheel hitch. Contours of the tank work nicely with the shape of the truck bed.

(8) A wire with a ring terminal is attached to the lug next to the filler neck on the tank.

last two screws into the bed floor. The brackets are made of galvanized steel and are powder-coated for durability and good looks. Make sure to hook up the ground wire to the provided stud near the filler cap and connect the other end to a bracket screw. To ensure proper grounding, remove a little bit of paint from the bed and bracket, where they contact each other. This is a critical step to prevent static electricity from igniting the fuel during filling or siphoning.

There are no extensive step-by-step instructions provided with the tank, so it takes a few minutes to figure out the bracket strategy. In the end, the installation couldn't be easier. Although the Titan Sidekick may not be the cheapest spare tank around (\$487), it certainly is high quality and the most versatile of its kind — as long as users understand the limitations. And it's a lot cleaner than hauling spare 5-gallon fuel jugs. It's possible to install an optional bulkhead drain kit (\$49), but this stainless-steel hardware is designed to be used for diesel fuel, DEF and water only; it cannot be adapted for gasoline or any other flammable liquid.

The Sidekick is sure to save the day for people who like to push the distance between fill-ups, and there's the side benefit of taking on more fuel in areas where prices are cheaper. Titan's warranty for the Sidekick tank is five years.

Titan Fuel Tanks

800-728-4982, www.titanfueltanks.com

(11) The shaker end of the siphon hose is routed through the filler neck and immersed into the liquid. Once in the liquid, it's moved up and down aggressively to move the ball inside the fitting that pushes the liquid into the tube to start the siphoning process.
(12) Once the flow of liquid is started, the siphoning effect will empty the contents of the Sidekick tank into the truck's fuel tank in a matter of minutes. Obviously, it's important that there's enough free space in the stock tank to handle the amount of fuel being siphoned from the Sidekick.











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See the Light

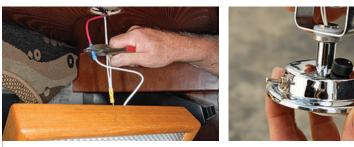
Alpenglow's easy-to-install LED fixtures brighten RVs with warm light

| DIFFICULTY | 1 2 3 4 5 |
|----------------------------|----------------|
| TIME TO COMPLETE 30 MINUTE | |
| | PS SCREWDRIVER |

OR SCREW GUN DRILL BIT, 12-VOLT DC TEST LIGHT, CRIMPING TOOL, HEAT GUN

ighting up the interior of an RV has become a science of late, namely because of the plethora of LED fixtures that has flooded the market. Until LEDs became cost-effective and provided greater intensity - the choice was simple; you either used incandescent or fluorescent, the latter embraced mostly by those who frequented primitive locations. Alpenglow, a company that made its mark building overhead and bulkhead reading lights for the marine trade, has recently branched out into the RV field with two interesting lighting options. One is a surface-mounted fixture in two sizes, and the other is designed to appeal to readers.

The overhead lights take their cues from the marine industry and are framed in hand-rubbed wood offered



(Above left) The Alpenglow installation requires connection of 12-volt DC positive and negative wires. Don't rely on color coding; check polarity of power leads before butt connecting wires. (Above right) Alpenglow's Caribbean Reading Light has a metal on/off rocker switch and rheostat to adjust intensity of the light, a feature that gives users better control for reading in bed.

in teak, cherry oak and mahogany. Built into the frame is a curved prismatic lens that is designed to handle rugged conditions and will not yellow over time, according to the manufacturer. The lens is sealed into the wood frame, which means it won't be dislodged while the RV is on the road; screws go through the wood for mounting, making the install solid.

There are two models; the Tuscany measures 10 by 6 by 2 inches, and the Catalina is 7 by 7 inches but only 1-inch thick. We mounted the larger light under the overhead cabinets in the galley because this area was inherently dark due to poor lighting fixtures from the factory. The transformation here was dramatic with plenty of diffused lighting covering the entire galley counter. The rocker switch allows the user to select between high and low outputs or 600 and 300 lumens, respectively. Power consumption is .5 amps on high and .25 amps on low.

The Catalina was installed above a work desk, tucked into a cubbyhole in the bedroom. Again, the area was dark, and the 400-lumen output of the new fixture made a big difference.

> Even the low, 200-lumen setting improved the lighting in the area. Both fixtures can be ordered with a built-in red nightlight with high and low

outputs — controlled by a separate rocker switch.

Alpenglow also offers a Caribbean Reading Light that definitely has marine styling and function. We installed the chrome fixture above the bed where the 3⁷/8-inch-diameter articulating shade (up and down and side to side) showers the area with enough light for two people to read. It's on the big side, so placement is important to keep from hitting your head when sitting up in bed. A rheostat allows the light to be adjusted from dim to bright, which is key to its operation, in our opinion.

All the lights are rated at 2,700 kelvin and have a warm glow, rather than more harsh daylight LEDs. Installation is quick and simple, requiring connection of only two wires, which were exposed when we removed the old overhead fixtures; it took a little more effort to fish wires to the reading light. Polarity is clearly labeled on the back of each fixture.

Opting for the night vision adds \$15 to the \$129 and \$119 price tags for the Tuscany and Catalina fixtures, respectively. The Caribbean Reading Light sells for \$119, or \$149 with the dimmable feature. These fixtures are obviously not cheap, but they are very high quality and will likely outlast the RV. **\$P**

Alpenglow Marine Lights 406-889-3586, www.alpenglowlights.com

MUST-SEE Originally designed for marine use, Alpenglow's overhead and reading LED fixtures can be installed in RVs with minimal modifications.



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10-MINUTE TECH



Hat's Off to Little Things

My husband was always leaving small items around our RV after emptying his pockets. I bought a hanging hat rack from Lowe's for \$11.99 and hung it on the wall in the bedroom. It works wonderfully for safekeeping all these little things. It has been a real blessing, as he no longer wonders where he put things. **Mary Granlee, Marion, Ohio**

No-Stick Drain Valves

Even with regular use of expensive drain-valve lubricants that are poured in tanks, I've struggled for years to operate sticky dump valves. Removing and lubricating at least the black-water valve once a vear. and sometimes even replacing valves, was just a temporary fix. Then I came up with a simple and very effective solution: 1) With the valve closed, drill a small hole on the handle end of the valve. 2) Insert

the strawlike nozzle that is typically supplied with spray lubricants into the hole and fill the cavity behind the valve slide gate with the lubricant. 3) Operate the valve several times to be sure to distribute the lubricant, which will make the valve easy to open and close. 4) Seal the hole with a small screw. 5) After a number of uses, when you notice that operating the valve takes more effort again, relubricate. I use white lithium grease or a silicone lubricant.

I wish I had come up with this idea 25 years ago! I can tell you from firsthand experience that it is not fun to lie down under the trailer at a dump station and remove a firmly stuck valve when your RV's black tank is full.

Ralph Clark, Albuquerque, New Mexico



Scout's Trick to Staying Warm

In last December's issue, Gary Bradshaw offered a tip about adding a 1½-inch-thick foam insulation board between the plywood on top of the bed platform and mattress in his RV to help keep warm during the night.

Here's a Boy Scout's solution to the problem of sleeping on a cold mattress: ½-inch closed-cell foam pads, like those used as exercise mats, will keep you warm as toast. If you camp outside and sleep on the ground, that ½-inch foam will keep you warm from the bottom, and with a good sleeping bag, you'll be cozy.

We have used this while RV camping during winter. We paid about \$20 for each 72x20-inch mat — three laid side-by-side under the mattress did the trick. We used double-sided carpet tape to keep the mats attached to the plywood, and left a gap at the hinge to allow the plywood to open to gain access to the storage below.

Bradshaw's idea works great if you have a thinner mattress, but this works if you have a thicker mattress. Cold does not come through closed-cell foam as it does with open-cell foam.

David and Kathy Hagen Roseau, Minnesota 🗣

To send your submission, write to 10-Minute Tech, 2750 Park View Court, Suite 240, Oxnard, California 93036 or email 10minutetech@trailerlife.com. Please include an illustration or photo, if applicable. *Trailer Life* will pay \$35 for original 10-Minute Tech ideas.

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Plug That Leak

Flat tires happen at the most inopportune times. Ideally, they should be repaired from the inside out, but in an emergency, that's not always possible. The Stop & Go Deluxe Tire Plugger is designed for on-the-wheel repair to virtually any tubeless tire, according to the company, and it seals the puncture on the inside. A spring-loaded gun drives the plug into the hole, and the shaft of the plug expands under pressure to fill the puncture. At the same time, the mushroom head of the plug seats on the inner wall, preventing leaks. The kit contains everything needed to repair the tire. Components are easily stored in a hard-sided plastic case with a molded interior that measures 6x9x1 inches and weighs less than 2 pounds.

MSRP: \$49.95

815-455-9080, www.stopngo.com/ deluxe-model-tire-plugger Circle 131 on Reader Service Card



Under Pressure

One of the most common problems on Dodge 47RE and 48RE automatic transmissions is a failed governor pressure transducer, particularly when the transmission has been modified to run higher line pressure. The Pressure Transducer Upgrade kit from BD Diesel replaces the plastic transducer found on 2000 to 2007 trucks with the metal transducer found on pre-2000 transmissions. This unit can handle higher line pressure without failure, according to BD. Plus, the electronic adapter will prevent overpressure codes and has a built-in temperature sensor for improved reliability. The kit (part number 1060602) includes the transducer, gasket and retainer clip. The adapter fits 42RE, 44RE, 46RE, 47RE and 48RE transmissions.

MSRP: \$154

800-887-5030 www.dieselperformance.com Circle 132 on Reader Service Card



Squeaky Clean

As much as RV owners dread cleaning the roofs of their rigs, most realize that the task is necessary to prevent ugly streaking down the side walls and maximize longevity. A variety of chemical products on the market are designed for this purpose, but the way we apply them is usually a run-of-themill bristle brush. Awesome Products says it has developed a faster, easier way to remove dirt and crud with the new Love Bug Eraser RV roof cleaning pads, which it claims are eight times more effective than a brush. Designed for rubber, vinyl and fiberglass, the pads are so efficient, you'll need half the cleaning product you normally use, according to the company. Two kits are available: one to clean just the roof and another to clean the roof and the rest of the RV.

MSRP: \$39.95 to \$49.95 (plus shipping)

904-280-1499, www.lovebugeraser.com/ rv_roof_cleaning.php Circle 133 on Reader Service Card

Clear the Air

A good vent fan inside your trailer is important for a variety of reasons. It can keep the interior free from smoke and odor while cooking, and when kept open during storage, it can help prevent mold and mildew from forming. But for those of us who store our rigs outdoors, leaving roof vents



open isn't always an option, as rain, dirt and debris may find their way in. A good solution is the MaxxFan Deluxe ventilator system with a patented, industry-exclusive built-in rain shield. The vent fans, which come in manual- and remoteopening models, feature a high-powered four-speed motor for efficient exhausting of air, keypad controls at the ceiling and a white or smoke-tinted lid. Like all MaxxFan models, the MaxxFan Deluxe comes with a standard two-year limited warranty and a lifetime warranty on the lid.

MSRP: Manual: \$335 to \$353. Remote: \$456 to \$471 316-832-3400, www.maxxair.com Circle 134 on Reader Service Card 🗭



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Engine Cooling Systems

Vehicles hauling heavy trailers or campers put extreme demands on their cooling systems. Running hot and overheating are always a concern, especially in hot weather and when climbing mountain grades. A basic understanding of how this critical system works can allow owners to maintain their engines properly and reduce the chance of overheating (and freezing) while minimizing unnecessary expenditures.

Internal-combustion engines gasoline and diesel — require some way to remove the excess heat given off by burning fuel. Some older models such as Volkswagens have used air cooling, but virtually all modern tow vehicles employ liquid cooling to transfer the engine's heat to the ambient air. The basic cooling-system design hasn't changed in decades, although many details have evolved over the years.

System Overview

Coolant flows from the water pump through passages within the engine block, and then through the head(s) where it absorbs the heat produced by combustion (and some friction). Next it flows out through the thermostat, through the upper radiator hose and into the radiator. Coolant then flows through the tubes that make up the core of the radiator and is cooled by air flowing through the radiator. It then flows out of the radiator through the lower radiator hose and back into the water pump. At this point, the cycle begins again.

Some vehicles use cross-flow radiators, where the coolant flows from one side to the other, while others flow from top to bottom. Other vehicles route coolant to the cylinder heads first and then through the block. These systems have their pros and cons, but the basic principles remain the same.

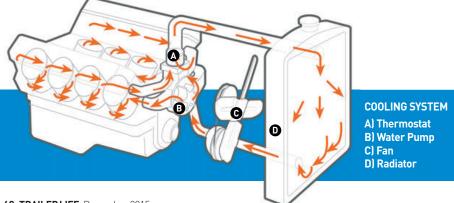
The cooling system's capacity is engineered to match the type and power output of the engine and its anticipated workload. The larger and more powerful the engine and the heavier the vehicle, the more cooling capacity it needs.

Components Radiator

The radiator transfers heat from the coolant to the surrounding air. Most modern radiators are made of aluminum, and on each end of the radiator core is a tank, usually made of plastic. When a leak occurs, it is often at this interface between end tanks and cores. Older radiators were typically made of copper and brass, which has become prohibitively expensive.

On a larger vehicle, the radiator must also be larger, with more surface area and more tubes for the coolant to flow through. The radiator is also wider and taller to capture more airflow.

Vehicles with automatic transmissions usually have a separate heat exchanger mounted inside one of the



end or top tanks. Fittings connect this heat exchanger via tubes and/or hoses to the automatic transmission. Automatic transmission fluid (ATF) is pumped through this exchanger to be cooled by the coolant flowing past it before returning to the transmission. This helps warm up the fluid more quickly when it is cold, helps maintain it at operating temperature because of the coolant thermostat and absorbs heat from the fluid when it gets hotter than the coolant temperature.

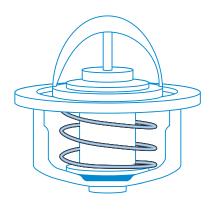
One of the problems with this design is that, if the coolant is already too hot, adding more heat from the transmission can lead to overheating the coolant and ATF. A popular solution is to add an external auxiliary transmission cooler; some also include a thermostatically controlled fan.

Fans

Fans keep the airflow moving through the radiator while the vehicle is idling and going slow. On older and traditional systems, the fan is mounted on the front of the water pump and turns whenever the engine is running because it is belt-driven. Many light trucks use this system, with a thermostatically controlled fan clutch that fully engages the fan when hot air from the radiator flows over the bimetallic coil mounted on the front of the hub.

Many vehicles now have electric fans that are controlled by the vehicle's computer. A temperature sensor monitors coolant temperature, which then goes to the onboard computer. When the computer decides the fan should be on, it actuates it via a relay.

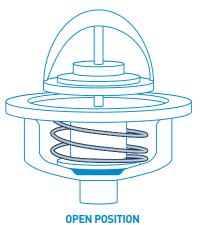
Most tow vehicles have air conditioning with a condenser mounted ahead of the radiator, which also needs to be cooled by the airflow entering the engine compartment. When the air conditioner is turned on, an electric fan often will be running all the time, even if the engine is not hot. This is to increase airflow through the airconditioning condenser to improve its performance.



CLOSED POSITION

Thermostat 🔺

A thermostat is located between the engine and the radiator to maintain the coolant at a preset temperature. On most emission-controlled vehicles, that temperature is about 195 degrees F. If coolant temperatures are below this, the thermostat closes, restricting coolant flow, which directs the flow through a bypass and back to the engine. Coolant will circulate like this until the thermostat reaches its opening temperature, at which point it will allow



coolant to flow through the radiator. If a thermostat is stuck open, the engine will not reach full operating temperature, especially in cool weather. If it is stuck closed, the engine will get hot, but the upper radiator hose will remain fairly cool to the touch.

Antifreeze/Coolant

Coolant that circulates through the engine and radiator must withstand temperatures far below zero without freezing. It must also endure temperatures higher than 250 degrees F without boiling. Additionally, the coolant must lubricate the water pump and prevent rust and corrosion.

Most coolant presently used in motor vehicles contains a 50/50 mixture of ethylene glycol and water one part antifreeze to one part water, which is what is recommended for most automotive engines in normal service. This provides protection from -34 degrees to 265 degrees F for 50 percent (by volume) propylene glycol diluted with water and a 15-PSI pressurized coolant system. Vehicles used in extremely cold climates where the temperatures can drop below -34 degrees F may use as much as 75 percent antifreeze and 25 percent water, but not more. Pure antifreeze does not transfer heat well and can cause overheating.

Having insufficient ethylene glycol in the antifreeze/coolant mixture will lower the boiling point too much. This often happens when water is added to replace

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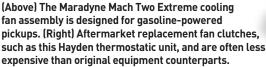
PERFORMANCE CORNER

the antifreeze mixture lost due to leaks or boiling over. Running mostly water in a cooling system also accelerates water-pump wear and can result in rust and corrosion inside the engine. When freezing weather sets in, the radiator, engine block and heads may crack due to freezing coolant, if freeze protection is insufficient. Coolant should be tested for freeze protection and condition. Old coolant becomes corrosive and must be flushed and replaced every few years, depending on type and whether or not it is long-life coolant.

Ethylene-glycol antifreeze is toxic and should be kept away from humans and animals, especially dogs and cats that may be attracted by the sweet taste. If ingested, ethylene glycol can cause renal failure and death.

Many diesel engines require low-silicate coolant. Ford Power Stroke diesels up to 2002 also require an anticavitation additive such as Motorcraft VC8. Be sure to refer to the owner's manual and use approved coolants in the engine.





Problems and Troubleshooting

Modern trucks that are commonly used as tow vehicles have received extensive engineering and design work to maximize their cooling systems' performance. Rigorous testing is now routine, including towing heavy loads and trailers up torturous mountain grades in extremely hot weather in places like Death Valley, California, and Arizona. As a result, these vehicles have far fewer problems with overheating



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than trucks did in the past. Running hot is still a problem for some owners, but, fortunately, many cures are available.

Engines that run hot when they are idling and moving slowly in traffic but are at normal temperatures at highway speeds typically suffer from insufficient airflow. This is often caused by fans that are too small or have missing or broken fan shrouds, slipping belts or air gaps that allow incoming air through the grille to bypass the radiator. Fan clutches that no longer engage properly or electric fans that aren't coming on when needed also can cause this. When the engine is running too hot, check for fan operation. Mechanical fans should roar when the engine is revved up in neutral, and strong airflow should be felt in front of the radiator.

Engines that run hot on the highway but are at normal temperatures when idling and in slow traffic typically are suffering from radiators that are too small or are clogged internally or externally.

If the engine began running hot only recently and the vehicle was towing the same load without heating issues, the problem is likely age- or mileagerelated. Often, an accumulation of dirt, insects and road debris builds up on the forward side of the radiator. Sometimes this crud gets between the air-conditioner condenser and the radiator, so it may be difficult to see and remove. Often the best way to clean it is to direct a garden-hose water spray from the engine side forward. Avoid using highpressure washers, as they can flatten the cooling fins.

The other common culprit is a

PHOTOS COURTESY OF THE MANUFACTURERS

buildup of rust and/or mineral deposits from the water on the inside of the radiator tubes. This crud reduces heat transfer and often completely blocks some tubes. Blocked tubes will feel very noticeably cooler than ones that have coolant flowing through them. This can be detected with an inexpensive handheld infrared spot thermometer or even by lightly touching your hand to the radiator surfaces shortly after the engine is shut off and the key removed for safety.

Most radiators have air-conditioning condensers and transmission coolers, etc., in front of them, allowing access only to the back side, reaching through the fan shroud. If you don't feel comfortable doing this, take it to a radiator shop. Some partially blocked radiators can be "rodded out," while others may need to have the core replaced or be "recored," which is typically less expensive than replacing the entire radiator.

If your tow vehicle is fairly new or has had the same heating problem since it was new, you may need to change some parts. Many light trucks have optional towing packages available from the factory that include larger radiators, and in some cases larger fans. Check the options list to see if your vehicle has the heavy-duty cooling option. If it doesn't, you may want to order a larger (thicker) radiator and heavier duty fan. Also check if there is a different fan shroud available. If your tow vehicle is equipped with the HD parts, consider adding one or more electric pusher fans to the forward side of the radiator.

If your engine is running hot, another tip is to shut off the air conditioning. Many people don't realize that the heater core is actually a small radiator that gets its heat from the coolant and transfers it into the interior of the vehicle. In a pinch, when the coolant temperature starts getting dangerously high, putting on the heater at maximum output can reduce engine temperatures, often by about 20 degrees, enough to nurse a hot-running vehicle in for repairs or get over the summit without overheating. However, you must use the heater mode, not defrost, which also runs the air-conditioning compressor and adds stress and heat to the engine.

Last but not least, never attempt to drive an overheated engine just because it is inconvenient to stop. Heed the warnings in the owner's manual. Never attempt to open a radiator cap on a hot engine. Do not drive if the coolant gauge is in the red zone or if the temperature is about 235 degrees F or hotter. Automatic-transmission operating temperatures should never be allowed to exceed about 250 degrees F, with 275 degrees being the absolute maximum. Pull over as soon as it is safe. activate vour warning flashers and allow the engine to fast idle in Park, or Neutral with a manual transmission.

Overheating can quickly damage an engine (or transmission), including blown head gaskets, warped or cracked heads and block, scored or seized pistons and more. The hassle and cost of a rebuilt engine and the time it takes is far greater than shutting down in time and waiting for a tow truck.

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READER SERVICE

ADVERTISERS' INDEX

PAGE#

ADVERTISER

RS#

| K2# | ADVERTISER | PAGE# |
|-----|-----------------------------|-------|
| 101 | American Medical Sales | |
| | & Repair | 9 |
| 102 | B&W Trailer Hitches | 14 |
| 103 | Bardahl | 47 |
| 104 | Big Pine Key/Lower Keys | 15 |
| | Camping World | 39-41 |
| | Chevrolet Motor Division | 77 |
| | Classifieds | 68-69 |
| 124 | DISH Network | 7 |
| 105 | Desert Gardens RV Park | 13 |
| | Good Sam Extended | |
| | Service Plan | 26 |
| | Good Sam Media & Events . | 10 |
| | Good Sam RV Loans | 61 |
| | Good Sam Roadside | |
| | Assistance | 57 |
| | Good Sam Travel Assist | 55 |
| | Good Sam Visa | 29 |
| | Harbor Freight Tools | 17 |
| 106 | Hensley Manufacturing Inc. | 73 |
| 112 | iBall Hitch Cam | 65 |
| 107 | KZ Inc | 76 |
| 108 | Lippert Components | 12 |
| 109 | Lippert Components | 63 |
| 110 | Maxxis International | 24-25 |
| 111 | Northwood Mfg | 48 |
| 113 | Park It 360 | 45 |
| 114 | Progress Manufacturing, Inc | 35 |
| 115 | Progress Manufacturing, Inc | 35 |
| 116 | Progressive Insurance | 5 |
| | RAM | 2-3 |
| 117 | RV Armor, Inc | 34 |
| | RV Marketplace | 66-67 |
| 122 | RV One Superstores Inc | 75 |
| 123 | Riverside Resort & Casino | 59 |
| 118 | Sea Eagle | 73 |
| 125 | Titan Tire | 46 |
| 119 | Titan Tire | 65 |
| 120 | Transfer Flow Inc | 48 |
| 121 | Truck System Technologies | 64 |
| | | |

EDITORIAL PRODUCT INDEX RS# PAGE#

| 132 | BD Diesel | 60 |
|---|-----------------|----|
| 130 | Grand Design | 18 |
| 134 | Maxxair | 60 |
| 133 | Love Bug Eraser | 60 |
| 131 | Stop & Go | 60 |
| While every effort is made to maintain accuracy and completeness, ast-minute changes may occasionally result in omissions or errors. | | |



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FIFTH-WHEEL TOWING WITH GAS

I have been towing my 2011 Pacific Coachworks Tango 256 RKS trailer with my 2003 Chevy 2500 HD with a 6-liter V-8 gas engine. I have had no problems pulling the trailer, which lists at 5,500 pounds dry weight and 7,400 pounds gross vehicle weight rating (gvwR). I am looking at buying a fifth-wheel shorter than 30 feet. Friends tell me that you should not pull a fifth-wheel with anything less than a diesel truck. My Chevy is in good shape, is well maintained and has less than 100,000 miles on it. What is your opinion on this - gas or diesel? John Giller, Quincy, California

According to the 2003 Trailer Life Guide to Towing, \Lambda your truck, depending on its axle ratio, body style and so on (you didn't supply these details, so we can't pin this down any closer), can tow in the 10,300-pound neighborhood when fitted with a 4.10:1 axle. I'm not sure why your friends would suggest you need a diesel to tow a fifth-wheel (they may be talking about the extra-large



and extra-heavy models), but for your needs, the 6-liter gas engine will do the job, as long as you don't overload the truck.

When looking at your next trailer, don't choose it based on its dry weight, because that number may not be accurate, depending on how the trailer is equipped, and you don't tow the trailer dry and empty, except home from the dealer. A stop at a public scale, after loading for a typical trip, is the only way to know for sure what a trailer weighs. If this isn't an option, make sure the truck is rated to tow the trailer's gvwr. — Jeff Johnston

STABILIZING JACK LEVELING

I was told by my dealer never to level the trailer with the scissor jacks but to use them only as stabilizers, which is what I've done. While sitting at campgrounds and watching others level their trailers. a lot of them use the scissors to level and are actually pulling tires off the ground with the scissors. Would this be better to keep the trailer from having a slight floating feeling as someone walks across the floor? I use 4x4 boards to put under the scissors and just snug them up after I level with boards.

Carl Ingram, Minnesota City, Minnesota

Most trailer stabilizing jacks are not designed for leveling a trailer, and this warning is usually clearly

stated in the owner's manual or paperwork. You may see some RVers using them for leveling, but it's not safe, and the jacks are not designed to support that kind of dead weight. Your procedure of snugging them up after leveling the trailer is not only the right thing to do but the smart thing to do. - J.J.

REFRIGERATOR EFFICIENCY

In the October 2014 issue, Trailer 🖵 Life ran a Hands On article, "Blue Light Special," about using an internal fan from Smart RV Products to circulate air inside the refrigerator. I immediately bought one and installed it with good results. But there was still the problem of not being able to use the cupboards above and beside the

THE TECH TEAM

KEN FREUND: Ken is a former ASE Certified Master Technician, service manager and shop owner who has authored numerous books on automotive repair.

JEFF JOHNSTON: Jeff served as technical director of Trailer Life for 20 years and has been an RV enthusiast, mechanic and writer since he could hold a wrench.

refrigerator, due to excessive and unsafe heat. The internal temps were not where I needed them to be, even with the fan setting on its coldest point.

So I was highly interested in RV Clinic's two July letters, "Refrigerator Fans Revisited," regarding refrigerator efficiency and the attendant manufacturers' screwups. Don Frank's and Michael Gleason's letters really got me motivated. I had the same issues and resolved them with great success.

I discovered the internal paneling blockage issue that Don Frank described on my 2012 Redwood 36R. It took me all of five minutes to put my stepladder in place and remove the paneling piece with a linoleum knife. I discovered two auxiliary fans beneath the paneling.

I also installed the external shade that Michael Gleason asked about. It is now 102 degrees outside with the sun shining brightly on the wall behind my refrigerator. My ice cream is solid, the refrigerator is at 37 degrees, and the thermostat is no longer at the coldest setting. As a bonus, I now have two usable storage cupboards at the top and side of the refrigerator. We all win (except for the factories that keep chasing away buyers with poor workmanship and "don't care" attitudes). Jim Stoll, Searchlight, Nevada

A We're happy that you've been able to work out a series of upgrades for your trailer's refrigerator, Jim, and that it's working to your satisfaction. Congratulations on your success in that regard, and thank you for detailing the steps that other readers may find helpful. — J.J.

GEARBOX BATTERIES FAILING

We have a 2006 Fleetwood Gearbox 385FS2G fifth-wheel. The issue I am having is with the 12-volt DC lights while dry camping. The four lights on the battery indicator will show full charge, but in a very short time — half an hour — will be down to the last light, and the interior lights are dim.

Thinking the batteries are just about drained, I start the generator, which turns over like the batteries are fully charged. Once the generator starts, the lights go bright. The cables for the generator are a straight shot from the batteries. Is there something, perhaps a regulator or distribution panel between the batteries and the interior lights, that would cause this? **Bob Schneider, Anderson, California**

A If the batteries are the same ones that came with the trailer, Bob, they're nine years old, and that would indicate they're about worn out. But the fact that the lights go dim and the generator still turns over and starts with enthusiasm is puzzling. You said "batteries," so it seems there are two or more. If you bought one new battery and connected it to a much older one, the older one may not be holding a charge and will be a parasitic drain on the newer one. All connected battery sets should be replaced as a group.

Those four battery-level indicator lights are not accurate as indicators of battery condition, but in this case, they seem to agree with the evidence of the dimming lights in the trailer. Is it possible your trailer has a separate battery for the generator and one or more for the other accessories and appliances, similar to how some motorhomes are set up? That would help explain the seemingly dead house battery that still starts the generator.

To troubleshoot this, you can start by going over all the basics, meaning the batteries are topped up with water, the connections are clean and tight, and they're fully charged via an auxiliary battery charger. Check the voltage in each battery, after disconnecting one of the connection lines as needed, so you can isolate the batteries. It should be 12.6 volts DC or more. Now reconnect the batteries and check the voltage at one of the lights. It should be very close to that 12.6 volts DC you read at the battery.

If not, it's time to start some circuit tracing to look for a corroded or damaged wiring connection or two. If all the lights go equally dim, check the light power connection at the fuse box, as well as the incoming 12-volt DC supply from the batteries and the ground connections. Given your rig's age, corrosion could easily be a factor.

Your trailer has some circuit breakers in the battery lines. Be sure to check these, making sure one isn't tripped, and verify that they provide a solid connection. Some of these can go bad with time, and it's worth taking a close look.

The lights turn bright when the generator starts because it's powering the converter, which supplies 12 volts DC for the trailer accessories. That detail alone would point to bad batteries or poor connections.

Have your batteries tested for condition, in addition to going over the procedures mentioned above, and replace them as needed. — J.J.

WATER-FLOW CONUNDRUM

There are a couple of problems with my 2013 Flagstaff 29RKSS by Forest River. We never go dry camping and are always connected to shorepower and city water. I always use an inline water-pressure regulator for protection. I do keep a few gallons of water in the fresh tank for use on the road. After about eight to 10 weekend trips, the freshwater tank will fill to the point of running out the fill opening.

The other problem is low water pressure from the galley sink faucet for both cold and hot water, even both together. All the other faucets in the trailer have good pressure, including the shower, the bath sink, the outside sink and the outside shower.

Do you have any idea what could be causing these problems and could they be related?

Glenn E. Chance, Beaumont, Texas

A Many RVs have some kind of selector valve to route the freshwater coming into the trailer. If there's not a separate gravity fill for the fresh tank, you connect the city-water line and move the valve lever to Fresh Fill (or the equivalent) to fill the fresh tank or City Water to run the RV from the citywater connection. It's possible the valve may be defective and is allowing some water to sneak into the fresh tank, or the valve may not be fully engaged in the City Water position. If you aren't sure where this valve is, your dealer can help with it in no time at all.

Regarding the pressure loss, first check the filter screen in the faucet assembly. It's really easy for a small quantity of debris to get in the lines during the manufacturing process or over time — and clog the screen. We've seen this happen more than once. This is an easy fix.

That rear kitchen in your trailer is a long way from the plumbing hardware near the bathroom at the forward part of the unit, so there are a lot of opportunities for the lines to become pinched, kinked or otherwise partially blocked. I'd inspect the lines from their source near the water pump and water heater all the way back to the kitchen to see if there's some damage along the way. If the lines are OK, there may simply be too much flow restriction due to the length of the lines and all the corners and angles between the source and the faucets. There's also a good chance that the pressure regulator is bad, which is what I would check first. — J.J.

AXLE FLIP

I am thinking of flipping the axles on my 2002 Sunline Solaris for better ground clearance. Will this affect the way my trailer tows, and would you recommend any specific hardware? Dani, Beach Lake, Pennsylvania

An axle "flip" or repositioning does not raise the trailer enough to have a significant effect on its handling. There are no kits to accomplish this job, although parts, such as new spring perches and new U-bolts, are available from aftermarket sources.

Unless you're comfortable with chassis fabrication projects, you might want to leave this one to a qualified professional. Check with your local RV service center or a suspension/hitch shop to do this kind of work. — J.J.

GOOSENECK-HITCH CONVERSION

I have been towing a travel trailer for 15 years and am now thinking of getting a fifth-wheel. I bought a used 2013 Ford F-250 that has a B&W framemounted gooseneck hitch in the 8-foot bed. I would like to use it along with a fifth-wheel/gooseneck conversion kit but have heard conflicting stories regarding voiding the warranty, bent king pins, etc. My other thought is that this setup would be easier to install/remove than a standard fifth-wheel hitch. **Bill Wilson, Henderson, Nevada**

A Gooseneck hitch adapters are popular accessories for fifthwheel owners with gooseneck-ball commercial or agricultural towing setups. There are a variety of these on the market, both permanently installed models that replace the hitch pin box and ones that clamp onto the existing fifth-wheel pin box.

As for warranty problems, any potential damage to a trailer would need to be traced directly to the gooseneck adapter in a cause-and-effect situation. It's best to check with the manufacturer of the fifth-wheel to make sure the frame/structure is capable of handing the additional leverage presented by the gooseneck. — J.J.

PLUG IN OR NOT?

We have a 2013 3260RS Heartland Bighorn fifth-wheel. When it is parked beside our house, should the power cord be plugged in? I was told that leaving it plugged in would ruin the converter. I check the battery fluid at the first of each month. I'm also wondering if I should disconnect the batteries? Our trailer sits beside the house for two or three months at a time.

Roy Johnson, via email

A Some newer RVs have converters with smart chargers, which have multistage charging for storage. If yours has this, you can leave it connected. Of course, the longer you leave an appliance on, the greater the chance of it failing. If your RV does not have a smart-charging feature, unplug it and keep the batteries on a maintenance charger. — Ken Freund

DODGE DIESEL GEAR HUNTING

I have a 1993 Dodge D350 club cab pickup with a Cummins 5.9-liter diesel and A518 automatic four-speed transmission. It has 151,000 miles, half of which is highway mileage. It is in very good condition overall. I tow a 30-foot trailer and always lock out overdrive when towing.

When the truck is operating solo, it hunts between third and fourth gears between 40 and 50 MPH. At least five or six throttle-position switches have been replaced. Recently the switches have been only a few months old when the problem starts again. The last shop, a diesel specialist, found that most of the settings on the linkages were not correctly done. A new factory TPS (throttleposition sensor) was installed, along with all the settings being redone, and the truck behaved perfectly for about 10 weeks. Now the problem is back again.

It tends to happen on any kind of

road, some days more than others. Sometimes it's almost continuous until I lock overdrive out to stop it. The truck had an aftermarket low-stall converter installed when it was a year old. It also has an oversize transmission pan with a temperature gauge and has had regular maintenance done on it. Larry Coulter, Tucson, Arizona

Initially, I was thinking there may A have been a bad batch of TPS units, but a call to my friends at Turbo Diesel Register (www.turbodieselregister.com) indicated that faulty new replacement switches were not a known problem, although there have been plenty of problems with old switches. Coulter and I wound up discussing the situation, and after more diagnosis and hair pulling, the problem was finally found. The plug that connects the TPS wires to the harness was loose in the sockets. There are three wires, and after these were fixed, the "hunting" problem went away. — K.F.

ADDING A WINDOW

We have a 2006 Keystone Zeppelin Z191 travel trailer. This trailer has no front window. I'd like to buy a front window with a stone guard. The size is about 48x20 inches. I would like to install the window myself, but I can't find a window with a guard on the Internet. I tried several dealers, but no luck. Can you help me find where I can buy one new or used?

Peter Kutschker, Escondido, California

A The problem you are up against is that the front panel of your trailer is curved. If it were flat, it would be easy to adapt a window assembly from another trailer that has a flat front. If you really want one, you may be able to find a company that makes custom Plexiglas windows, as these can be curved quite easily. They may be able to fabricate a guard, but since the window won't be glass, it won't be as prone to breakage. An alternative would be to find another model trailer that has a similar curved front panel and order a replacement window for it. Window installation is critical, especially on the front, since driving into rainsqualls can result in interior and wall damage, if the windows aren't sealed properly.

Check with Motion Windows (360-944-4446, www.rvwindows.com) for RV windows built to customer's specs. — **K.F.**

INVERTER USE

We are new to RVing and have a question. Is it best to leave the inverter turned on constantly, or is it best to turn it on only when its use is needed? Thad Thomas, Scranton, Pennsylvania

A Inverters draw some current whenever they are on, and this draws down the batteries. Therefore, I suggest that you switch it off when not needed. — K.F.

SANITIZING THE WATER SYSTEM

I believe the water system on my travel trailer has become contaminated from using dirty hoses when filling the 50-gallon tank or from an RVpark hookup. It seems to me I have read that adding a gallon of chlorine bleach in the freshwater holding tank, pumping it through the water lines and leaving it to sit for 24 hours will do the trick. **Selma Roth, Houston, Texas**

A You have the right idea, but that amount of bleach is overkill. The general recommendation is ¼ cup per 15 gallons (based on tank size). However, if you want to "shock" the system, you might double up on that. Afterward, drain it and refill with fresh water. If it still smells strongly of chlorine, flush it again and add some baking soda to freshen it up, which is what RVers normally do after a bleach water-system treatment. — K.F. \$

HAVE A QUESTION?)) Email our experts at rvclinic@trailerlife.com or write to RV Clinic, 2750 Park View Court, Suite 240, Oxnard, California 93036. Include your full name and hometown. No phone calls, please.



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article and photos by Bill Graves

Christmas in Dollywood

The 130-acre theme park at the foot of the Great Smoky Mountains is aglow with lights and merrymaking during the holiday season



am in eastern Tennessee at the opening of the annual Smoky Mountain Christmas Festival at Dollywood. Pigeon Forge's down-home theme park is the most-visited ticketed attraction in Tennessee, celebrating its 30-year anniversary in 2016. During November and December, Dollywood is transformed into a musical celebration

of Christmas — one that for many families has become a tradition to be experienced year after year.

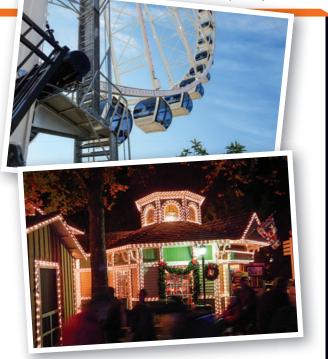
The Christmas holidays are the year's busiest days at Dollywood, which says a lot because the thrill rides and water park are not even operating because it's too cold. "It's all about the lights," I'm told. The whole place closes for a week in November just to put them up -4 million in all.

Granted, the lights are spectacular, but Dollywood's Christmas makeover goes beyond what requires darkness to fully appreciate. Holiday music is everywhere, often synchronized with lights to create dynamic effects. Seven theaters here have original live performances with Christmas themes. Even restaurants have the flavor of Christmas, enhanced by rich Southern cooking — sweet potato pie, cornbread dressing and sweet-tea baked chicken.

Entertainer Dolly Parton is a co-owner and the inspiration behind Dollywood, which is not far from the Gatlinburg entrance to Great Smoky Mountains National Park. The national park gets more than 10 million visitors a year, making it the most visited of our national parks. It is also our largest, with 816 square miles divided almost equally between Tennessee and North Carolina.

Dolly grew up in the Great Smokies, the fourth of 12 children. Music was important to her, even in those years, and as a young girl she sang in a "holy roller" church where her grandfather was the preacher. Her career began as a child performer on the radio, and her first single was recorded when she was 13. The day after she graduated from high school in 1964, she moved to Nashville and went on to become the most-honored female country performer of all time.

Pigeon Forge predates Dollywood and Dolly Parton by well over a century, but today Dollywood is the biggest employer in town. And Dolly is considered something



(Top) The Great Smoky Mountain Wheel in Pigeon Forge rises 20 stories above the city. (Above) Dollywood's annual Christmas festival runs through January 3, 2016, with performances that include an adaptation of Dickens' classic *A Christmas Carol*.

between a local girl made good and a patron saint.

The Dixie Stampede in Pigeon Forge is part of Parton's company. It's a dinner theater where the audience eats chicken at long tables that are on three sides of an arena in which horses are the main performers. Most of the time, it showcases a Wild West revue, but during the last two months of the year, it stages a Christmas show.

Pigeon Forge is focused on tourists, with the emphasis on families. Lots of people stay here while visiting the national park, as the park has limited accommodations, with just nine campgrounds that allow RVs, all with restrictions on length. Fifteen RV parks in and around the mountain resort city offer more options.

The Island in Pigeon Forge has a spectacular Ferris wheel they call the Great Smoky Mountain Wheel. I took a ride in a gondola that seats six, is mostly glass, and is air conditioned during the summer and heated in the winter. Because there are 42 gondolas, I thought the wheel would be stopping constantly for people to get on and off, but they load and unload six gondolas at a time.

The Great Smoky Mountain Wheel has a million different colored LEDs that go on and off constantly, creating various combinations of color. The Ferris wheel is 200 feet tall — not the biggest in the world, but it's the biggest that I have seen.

I'd like to wish you a Merry Christmas from the Great Smokies, and welcome to America's Outback. 🗭

KEEP IN TOUCH To connect with Bill, email roadscribe@aol.com



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