

Subject:

Dec 2021 Newsletter from Air Safe Hitches

December 2021

Newsletter

12/1/21

New Survey Identifies RV Owners' Internet Needs

November 24, 2021

In a recently conducted survey from *Outdoor Miles*, RV owners across the country identified the importance of access to reliable internet for their everyday camping needs.

Out of all survey responses, 51 percent of participants said they camp with a travel trailer. The second-highest response came from the "motorhome/coach" category at 24.5 percent, with 16.3 percent camping in a fifth wheel.

Regarding camping styles, 36.7 percent of RVers indicated being full-time, while 28.6 percent are taking several extended (week or longer) trips per year.

The survey said while it's no surprise full-timers value internet access highly, respondents who fall in the "weekend warrior" group rated the importance of reliable internet access the lowest of all groups.

Another survey question spotlighted what RVers are using internet access for. The highest response, at 29.2 percent of respondents, said they video stream. Eighteen percent said email and communication was most important, while 25.8 percent said remote work.

The RV mobile internet market is ripe for change, with surveyed RV owners saying they are willing to pay for stand-alone or bundled internet plans.

EV Towing: Can You Tow A Camper With An Electric Vehicle?

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Electric vehicles (EV) are becoming more and more popular across the world. Multiple brands have developed cars that are hybrids or purely electric and it's becoming quite common to see charging ports next to gas stations. But what does this mean for people with trailers and campers? Is EV towing possible, let alone realistic?

Well, when it comes to towing, electric vehicles and gas-powered vehicles have pretty similar specifications and tow capacities. An EV can definitely tow a camper as long as it's within the weight limits. However, it may lose up to 30% of its battery efficiency due to the extra load.

Tesla is one of the leading brands that creates electric vehicles, and their Model Y Camp365 can travel over 300 miles on a single charge. So, even if you lose some efficiency, a model like

this would still be able to tow a camper for about 210 miles or more. This is usually more than enough to get to your favorite campground or get started on a family road trip. *(Source)*

Other brands are developing vehicles that specialize in EV towing as well, such as the Atlas XT, which can haul up to 35,000 lbs. of weight. We'll discuss some of the top vehicles for EV towing below, as well as additional details about important specifications and the future of camper travel.

Important EV Towing Specifications

If you have a camper and are looking for an eco-friendly vehicle to tow it, there are some important measurements and vehicle specifications to watch out for.

Towing capacity

Towing capacity is one of the most important specifications to look at for any tow vehicle. This measurement refers to the maximum amount of weight that your vehicle can safely tow. You need to know what range of weight you can tow so you can narrow down your camper options. Smaller cars that don't have hitch attachments might not be able to pull anything, while a massive truck could haul a fifth wheel that weighed over 20,000 lbs.

Staying within your vehicle's towing capacity is important, particularly if you're using an electric vehicle. The more energy an EV expends, the sooner it has to recharge. Pushing beyond any vehicle's towing capacity means risking its long-term integrity and your own safety. You'll also drain the battery/fuel tank more quickly and will have to take more frequent stops.

Payload

Payload is a measurement that mainly applies to trucks, but since electric trucks are making an entrance now, you'll need to keep it in mind as well. A vehicle's payload limit refers to the maximum amount of weight that a truck can carry in its bed.

This is important when you're thinking about truck campers or fifth wheel hitches (both of which place a lot of strain on a truck bed).

Unladen Vehicle Weight and Gross Vehicle Weight Rating

The tow vehicle's specifications are important, but you also need to consider the suitability of your camper. That's where the unladen vehicle weight (UVW) and gross vehicle weight rating (GVWR) come into play. These two specifications refer to the base weight (AKA shipping weight or dry weight) of your camper and the total amount it will weigh when it is filled to capacity.

You need to make sure that your camper's UVW does not exceed the tow vehicle's towing capacity. If it's already too heavy when it's empty, it will definitely be too heavy once it has been loaded with water, cargo, passengers, and anything else you pack along.

The GVWR is handy to know because it tells you the upper weight limit to expect with any given camper. If the GVWR is lower than your EV towing capacity, you're in good shape! Don't push the limits too far, though. A lighter camper will be easier to haul and it will place less strain on the vehicle's structure and battery charge. As a rule of thumb, it's a good idea to keep your camper's weight at 15% below your towing capacity.

Battery charge

Battery charge is important to know for every electric vehicle, but particularly if you're going to be doing some EV towing. Once you know what your maximum charge is, you'll be able to predict how long you can drive with an extra weight behind you.

Battery charge refers to the number of miles/length of time your EV can drive before it needs to recharge. High-end electric vehicles (such as Tesla models) can reach up to 500 miles per charge. These models are usually quite lightweight and streamlined, so they aren't ideal for heavy towing. 250 miles per charge is closer to the average you would expect to see in other electric vehicle models.

An EV battery charge will last for a shorter period of time if you push the vehicle very hard. Towing can drain the charge a long time before the usual recharge period would occur. Plan to make more frequent stops if you tow a camper with an electric vehicle.

For a list of the most energy efficient EVs of 2021, check out this list.

Aerodynamics

Unlike the previous entries, aerodynamics in campers isn't really a specific measurement, but it refers to how easily the camper will be able to avoid wind resistance. Large flat surfaces catch air easily and will be harder to push forward. A tow vehicle can expend a lot of extra energy to move a camper that is bulky and boxy.

When you're considering a camper, make sure it will be able to travel with decent airflow and avoid catching large gusts. Look for rounded designs and surfaces that are tapered. Some campers may have channels built into the outside to direct the airflow. The more aerodynamic your camper is, the less energy it will take to tow it.

Electric SUVs

Electric SUVs are popular in many demographics because they offer a good amount of interior space as well as a decent towing capacity. These vehicles are good for day-to-day driving as well as EV towing. They are also handy for drivers that want to travel with large families or groups of passengers.

Some of the best electric SUVs for towing include:

- 2021 Audi Q7/Q8: 7,700 lbs. Maximum Towing Capacity
- 2021 Porsche Cayenne: 7,716 lbs. Maximum Towing Capacity
- 2021 Chevrolet Tahoe: 8,400 lbs. Maximum Towing Capacity
- 2021 Infiniti QX80: 8,500 lbs. Maximum Towing Capacity
- 2021 Ford Expedition: 9,300 lbs. Maximum Towing Capacity

Check out this list for more great SUVs that are specialized for EV towing.

Electric Trucks

Electric trucks are a bit newer to the EV scene, but there are already lots of great options on the market. These trucks are able to pull massive amounts of weight, which is ideal for people who want to bring their campers on adventures. Some of these trucks could even handle a bulky fifth wheel, which are notoriously hard to find a suitable vehicle for.

Some of the best electric trucks for towing include:

- Lordstown Endurance: 7,500 lbs. Maximum Towing Capacity
- Ford F-150 Lightning: 10,000 lbs. Maximum Towing Capacity
- Rivian R1T: 11,000 lbs. Maximum Towing Capacity
- Tesla Cybertruck: 14,000 lbs. Maximum Towing Capacity
- Atlys XT: 35,000 lbs. Maximum Towing Capacity

Check out this list for more great trucks that are specialized for EV towing.

The future of EV towing

Electric vehicles are still evolving in the automobile market. They aren't as widely available as other options and their price and charging needs may make some customers avoid them for a while. However, customers already have a lot of great options for towing their campers. Plenty of electric vehicles will be able to handle the weight and more are coming out all the time.

But I foresee that an electric car future is not far away, as charging stations become more common and manufacturers continue to make more efficient and powerful models. Keep your eye on this industry!

RV Internet Access: What the RV Community Needs

November 14, 2021 by Tom

We are living in a connected world in almost every aspect of our lives. Whether for work, home, or travel, we are usually just a pocket reach away from connecting. Not surprisingly, camping is not much different. While it is a way to disconnect from the world, most of us do

that marginally. Reliable internet is a service that the RV community wants. Don't believe me? Take a walk around any campground and count how many people you see sitting in a camp chair on a smartphone. RV camping is not off-the-grid living for most of us. Rather, I think it's more about being selective in how we want to stay connected.

Do you want to do a fun little experiment to see how much you rely on the internet on any given day? If so, when you leave for work in the morning, keep your phone at home. Carry a note pad and every time you reach for your phone or think about checking it, mark it down. I bet your score will be a little bit shocking.

I always assumed that most people who enjoy RV camping have some desire to stay connected. Look at any RV discussion board, forum, or social media group; internet access is a frequent topic of discussion. However, it was only an assumption. If I wanted to know for sure, I needed to do a little research on this topic.

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I put together a short survey with ten questions related to RV internet access. I reached out to the RV community through various RV-related forums and social media groups and asked members to share their opinions. Over a few days, I received 49 survey responses from a diverse subset of the RV community. While this is not a scientific study, it does provide some interesting insights into the RV community's thoughts on reliable internet access.

Below, I'll attempt to describe some of my findings in detail and do my best to interpret what they mean.

The Data on RV Internet Access I first wanted to find out more about the people taking the survey. I was curious if different types of campers had varying internet needs. The first question asked about their style of RV. Out of all the survey responses, just about half of the participants camp with a travel trailer. The second-highest number of responses came from the motorhome/coach community. I don't know how this compares to the overall distribution of the RV community, but based on my observation when camping, it seems close to what I would expect.

The next question focused on camping style. I wasn't sure what to expect here, but I did receive a good mix of different types of responses. Surprisingly, and perhaps this is due to the nature of the survey, the highest amount of responses came from full-timers. Close behind were the folks who take several longer trips per year- I like to think of them as the vacation crowd. The other groups include the once-a-month campers, weekend warriors, and infrequent campers. However, for the importance of interpreting the survey results, you should note that most of the responses came from frequent campers; these individuals are on the road quite a bit.

Realizing that over 90% of people taking this survey are frequent campers, I was curious to see what they thought about having access to reliable internet. Overall, more than 80% of responses indicated that reliable internet access is very important to them (identified by a score of 8 or more on a scale of 1-10). There were not many people who indicated the opposite.

If we dig into this question a little deeper, we can look at how it relates to the types of camping styles of the participants. It was no surprise that full-timers value internet access very highly.

What was surprising was the weekend warrior group. They rated the importance of reliable internet access the lowest out of all groups (although still moderately important). It's only an assumption, but perhaps shorter trips on a frequent schedule make it easier to be disconnected for a couple of days. I also wonder if these campers are staying closer to home and are more knowledgeable of the places around them, lessening the need for internet access. On the flip side, if you're on the road for extended periods, you probably want an option to connect more frequently.

Realizing that people want to stay connected, the next obvious question to ask is why. How are people using the internet when camping? Since there are multiple ways that we all use the internet, I asked participants to select their top two needs. There were three primary categories identified: Video streaming, email/staying connected with others, and working remotely. It is not overly surprising, but it does help to identify some trends that we're seeing in the RV community.

One of those trends is remote work. The responses probably would look much different if people had answered that question a few years ago. As a result of the pandemic, I think it's safe to say that people are and will continue to earn a living on the road. I also wasn't surprised at the large number of responses that the survey received for video streaming. Outside of camping, people have been cutting the cord and relying on streaming services for their entertainment. The other surprising category identified was connected devices. With the advent of SMART RV appliances, I only expect this need to grow. Some unique uses that I have read about include Wi-Fi thermostats and pet monitors. I'm curious about other gadgets that are available or will be in the future.

The next question asked pertained to upload speed. Is it important? I included this question because many of the available internet options have starkly different limits for upload speed vs. download speed. With increases in remote working and video conferencing, I see this as a limitation of the available internet connection options. More than half of the responses indicated that upload speed is of importance to the RV community. I am guessing that they spend a lot of time on Zoom.

Next, the survey asked about download speeds. What do folks consider to be an adequate speed for their internet needs? More than half of the responses stated that 50 Mb/sec was enough for their needs. Only about 15% of people indicated they require more than that amount. Nobody responded as needing more than 75 Mb/sec. Surprisingly, about 60% of individuals indicated that they would be happy with download speeds that provide at least 25 Mb/sec.

The next couple of questions focused less on internet needs and more on how people are currently connecting. With the limited available options, I was curious what steps people are taking to stay connected. Nearly 90% of campers rely on cell service data to connect. Either through a phone-based hot spot (40%) or a dedicated device such as a GSM modem (48%). Only 9% of people rely on campground Wi-Fi, which is best categorized, in my experience, as very unreliable (and slow). Interestingly, one person mentioned using satellite internet (Starlink) in a fixed camping location.

Since most campers connect via cellular service, I asked if they have a dedicated plan just for camping. Almost 60% of responses indicate that they are using a dedicated line. I was surprised by this since these plans can be expensive.

Lastly, after learning more about the needs, uses, and ways the RV community connects, I was curious about what people are willing to pay for reliable service. 14% of responses indicated that they don't want to pay for additional services and are content using their phones. Of the folks who would pay for reliable service, most (37%) would be willing to pay up to \$50/month. Not far behind, 33% of people would only pay \$30/month. The higher-end options of \$75-\$100/month were only viable for about 16% of campers. This data tells me that the sweet spot for a reliable service is probably around the \$40/month range if the download speed was within the 25-50 Mb/sec range.

Make-away from this effort

Reliable internet while camping is not just a luxury; it is something that the community wants, and in many cases, needs. It is not only about connecting to the world but also surviving in it. While most members of the RV community travel for recreation purposes, many individuals make their living and provide for their families from the road. I can only imagine that this trend will continue to grow in the years to come.

There are not many reliable options available for meeting this need, but hopefully, that will change in the future. One significant change on the horizon will be the advent of mobile satellite internet services, such as Elon Musk's Starlink. In the interim, people are doing what they can to stay connected. Cellular service is still the most reliable way to do it, but it's not an option for everyone. Also, over the past several years, that option has become more cumbersome and expensive. Tethering limits and data caps make cellular service a less desirable solution.

For the internet providers out there, the market is ready. Not only is there a demand, but people are willing to pay for it. The data needs aren't excessive; if there was a reliable option out there, I think the RV community would jump on it. The sweet price point seems to be around \$40/month for about 25-50 Mb/sec download speed. Also, don't forget about upload speed; that is important too. If you're listening, AT&T, I just helped you with some market research.

Technology is interesting. If someone were to revisit this topic in a few years, I would guess that the feedback would look much different. However, there is one thing that I don't think will change; that is demand. We live in a connected world that will only continue to get more connected in the future.

How to Determine Your Vehicle's Towing Capacity

Vehicles and Their Towing Capability

Almost any vehicle can tow some amount of weight if it is connected to the load and then operated properly. But how much can they actually tow safely?

You would never consider attempting to tow a large heavy camper, of any kind, with a small under-powered vehicle, or over-load a vehicle with an obviously excessive weight.

Not only can these extreme conditions cause serious damage to your towing vehicle and even your towed trailer, but they could put you and anyone else on the road with you in serious danger.

The problem for so many of us RVers, whether a novice or an expert, is that we often do not know how to calculate the true and safe weight limits for what their existing vehicle can tow, or know how to quickly decide whether a vehicle they are about to buy can safely tow their trailer.

The things you'd need to first determine are

1. Your state's rules for towing.
2. Your camper's weight (GVWR and its true weight).
3. Your towing vehicle's weight.
4. The towing capacity specs of the vehicle you have or are considering buying.
5. The weight your tow hitch (or tongue) can handle.

Each State Has its Own Towing Laws

First of all, if you are going to tow anything, regardless of whether it is a small trailer, a camper-trailer, or a big fifth wheel, you need to know your individual states' rules for towing.

Most states' requirements are very similar, but some are very different.

It is easy to use this quick reference by Brake Buddy on towing laws by state.

And of course, you can always check at your local DMV for more on your home state's specific rules and regulations for towing.

Understand the difference between Towing Capacity and Payload

GVWR? And Other Confusing Abbreviations? Somewhere on every vehicle out there, you can find a label that includes specific data on the vehicle itself, including the VIN (Vehicle Identification Number), the vehicle's Curb Weight, and its GVWR number.

Every towing vehicle and trailer should have a **GVWR**, or **Gross Vehicle Weight Rating**, written on it. GVWR is the legal maximum gross weight of this vehicle and its contents,

essentially passengers, and all of its cargo (but not of a vehicle it is towing).

You need this number in order to calculate what you can safely and legally carry and tow. Typically it's seen as a maximum, but the vehicle owner who travels in hilly country or mountains should take care to give themselves plenty of margin for a more enjoyable and safe trip.

How Things Work has a more detailed discussion of GVWR.

Gross Vehicle Weight is the weight at any given time of a vehicle and its contents. It changes when people and things go in or out of the vehicle. In contrast, the GVWR (the rating) never changes.

Curb Weight is what a vehicle weighs sitting at a curb, with little or nothing in it: some say only a driver weighing 150 pounds, others say a full tank of gas and other fluids needed to operate the vehicle.

GCWR, a characteristic of the towing vehicle, stands for the Gross Combined Weight Rating: the maximum allowed weight of a vehicle and its cargo including a trailer or camper and its contents.

GTWR, a characteristic of a trailer, is Gross Trailer Weight Rating, the maximum allowed weight of a trailer, by itself, and its various contents. Note that sometimes camper manufacturers will use GVWR or GTWR for a camper to indicate the empty weight of the camper.

GAWR stands for Gross Axle Weight Rating. GAWR is the maximum allowable weight on an individual axle of a vehicle or camper.

What Is Your Camper's or Trailers GVWR?

As I mentioned above, trailers and campers will have either a GVWR or a GTWR number assigned by the manufacturer.

As I said, in the world of campers, the number they give you is often the empty weight of the camper unloaded. This means no water or other fluids in the tanks, and no clothes, no food, no beach chairs, no unattached cargo of any kind.

Be aware that a typical RV couple can easily add 1000 to 2000 pounds of extra cargo before towing a trailer. Think about it;

1. Your water holding tank might hold 60-100 gallons of fresh water and at 8-pounds a gallon that is 480-800 extra pounds by itself.
2. Add another 400-500 pounds for canned goods, pantry items and all of the foods you packed into your fridge
3. Then add another 100-200 pounds for clothes, linens, etc.
4. And, all of those folding chairs, barbecue grill, tools, folding tables, lights, water and sewage hoses and connectors, and such you stuffed into your storage compartments could easily add another 400-500 pounds.

My little list ended up with over 1500 pounds and I didn't even try to add everything a couple might take on a vacation trip.

So my **True Camper Weight** will be significantly higher than the manufacturer's empty weight, which they may tell you is its GVWR.

Confirm Your Camper's Weight

After speaking with several sales people and getting several different answers from them, I realized that I needed to educate myself if I wanted to be sure I picked the right vehicle to tow my camper.

So, the first thing I did was crawl around on the inside of my fifth-wheel camper until I had found the right label and confirmed that the campers **GVWR was 12,000 pounds**. This is not a "dry" or "curb" weight, but the weight of a camper full of the amount of stuff it is rated to carry.

Now this is a big number but my fifth-wheel is a big camper, so I now knew that I had to get

what was right for towing a camper of this size and weight.

Dump Your Holding Tanks before a Trip

Always remember that your water holding tank might hold 60-100 gallons of fresh water, and at 8 pounds a gallon, that is 480-800 extra pounds you may be towing around.

Look Up Your Vehicle's Towing Specs?

I had a relatively large fifth-wheel camper, and I was looking into purchasing a new pickup truck which would have the power, accessories, and safety items necessary to tow my camper safely.

I had to spend a while on the web to find the right data to compare the different trucks on the market today and find the right one for me. Since my wife and I were looking at a Ford truck, we found the **Ford 2016 Vehicle Towing Guide** useful.

Once I found this data sheet I was able to use its data in my own towing decisions and even my camper selection.

5th Wheel Towing and selecting the right Truck Using Specs to Calculate Your True Towing Capability

My wife and I had already decided for personal reasons that our desired vehicle would be a crew cab truck, with a large diesel engine and a single rear wheel axle (SRW).

These personal preferences, plus cost, limited my choices to a 3/4-ton or a 1-ton truck. As it happened, the data sheet gave me the same towing specs for either truck, the 3/4-ton or the 1-ton, with the same drive train and engine.

I ended up with a Fifth Wheel towing weight limit of 15,900 pounds for either truck.

If I had wanted to take the next step up, I would have to move up to the DRW (dual rear wheel) option, which as I said earlier, I didn't want to be driving around town when I wasn't towing a trailer.

Either truck also had a towed trailer (fully loaded) weight maximum of 14,000 pounds.

As my trailer's GVWR rating was 14,000 pounds, I understood the trailer wasn't supposed to weigh more than 14,000 pounds loaded.

So this "loaded" GVWR of 14,000 pounds was 1,900 pounds under my allowable maximum towing limit for the fifth wheel; I concluded that the combination would work.

What Is Tongue Weight?

But, hold on, there is another spec to consider here and that is the **Hitch Maximum Weight Load** (or **Tongue Weight**).

Ford recommends that this number be 10%-15% for the loaded trailer, or 15%-25% for a loaded fifth-wheel camper.

You need to make sure that this number is also met when you make your hitch selection.

For instance, if you are towing a trailer that weighs 12,000 pounds, your hitch and its mounting must be designed to handle a "tongue weight" of at least 15% of 12,000, or 1800 pounds.

And with a fifth wheel hitch, it must be able to handle a "tongue weight" of at least 25% of 12,000, or 3000 pounds.

Tips on Towing in the Mountains

Types of Hitches

Different types of hitches include the ball hitch, tri-point or "tow bar" hitch, the "goose neck" hitch, and the fifth-wheel hitch.

Even if Your Weight Is Under the Limits, Towing May Be a Slow Process

So, with my newly calculated towing capability numbers being 1900 pounds under the maximum, am I OK?

I am OK, but maybe not very speedy. My fifth-wheel towing friends say I should be able to tow

my fifth-wheel camper easily and efficiently on flatlands, rolling hills, and coastal areas, but if I go into any serious mountains, I am going to be that slow truck and camper you always see trying to pull up and over every steep and long grade.

The truck I had picked would do the job, but it will be a noticeably slow process with each serious hill and somewhat more costly in fuel costs.

I had thought about using a "dualie" or DRW version of the same truck, because this configuration greatly increases the towing load capability. But I decided not to, because even with the dualie option, both of the trucks (SRW or DRW) would have the exact same drive trains and engines. So, from my perspective, all I would gain would be the added load carrying capability. Either truck would be slow on hills.

It is ultimately a personal decision.

Towing a trailer: Everything you need to know

From selecting the right tow vehicle to hooking up and loading a trailer, here's our how-to guide for towing safely.

So, you're looking to buy a truck and some toys, and planning to tow them out to the lake or the wilderness for a bit of fun. Here's everything you'll need to know about finding the right tow vehicle, how to hook a trailer up and tow it, and all the new technology that makes trailering easier than ever before. Be sure to check out your state's local towing laws, too.

Vehicle weight and configuration

The most important four letters here are GCWR. This stands for Gross Combined Weight Rating, and refers to the weight not only of the vehicle, passengers and cargo, but also the trailer and its load. This number is determined by a car or truck manufacturer to be the maximum safe weight that a vehicle can tote all-in, so it's important not to exceed this guideline.

Towing all comes down to configuration, with drivetrain, wheelbase, engine, hitch and gear ratios all playing their part. Here are some key things to know:

- Four-wheel-drive trucks and SUVs are heavier, which can diminish towing capacity. If you don't need four-wheel-drive capability, stick to rear-wheel drive for maximum towing ability.
- Longer-wheelbase trucks and SUVs can tow more than their shorter counterparts, and generally offer better control when a trailer is hooked up.
- When it comes to power, for towing, it's all about torque. That's why diesel-powered trucks tend to have higher tow ratings than their gasoline counterparts.
- Many trucks and SUVs offer different axle ratios. A higher ratio means better pulling power, but can come at the expense of fuel economy. A lower axle ratio works the opposite way.

Example: A 2019 Ram 1500 with two-wheel drive, a 144.5-inch wheelbase, a 5.7-liter V8 and a 3.92 axle ratio is rated to tow 11,540 pounds. Switching to four-wheel drive reduces that number to 11,340 pounds. Switching to four-wheel drive and choosing the 3.21 axle ratio lowers the numbers further to 8,240 pounds.

Choosing a trailer

Flat trailers: When towing cars, all-terrain vehicles or general cargo, a flat-floor trailer works just fine. Single-axle trailers are better for light loads, up to about 2,500 pounds, while double-axle trailers are best for heavier items. Enclosed trailers are better for hauling general cargo, but are heavier than open trailers.

Towing a car without a trailer: If you've ever driven long distances on one of America's

highways, you've probably seen an RV pulling a Jeep, dinghy style. Generally speaking, you can attach a tow bar to a rear-wheel-drive, manual-transmission vehicle and pull it with the towed vehicle in neutral. A four-wheel-drive vehicle with a two-speed transfer case can also be towed this way, in neutral. Check your vehicle's owners manual to see if it's able to be towed with all four wheels flat on the road, or if you may need something like a drag-behind single-axle tow dolly.

Travel trailers: If you want to take your home on the road, a conventional travel trailer, or camper, might be your jam. These can be tiny little things weighing 2,500 pounds or 30-foot Airstream trailers tipping the scales at 10,000 pounds or more. These are attached to a standard hitch. You may also want a fifth-wheel or gooseneck trailer (see the next section for more information), which is more substantial, but its unique hitch setup means it's a bit easier to tow.

Hitches and balls

There are five different classes of conventional hitches, able to tow different levels of weight:

- Class 1: Up to 2,000 pounds
- Class 2: Up to 3,500 pounds
- Class 3: Up to 8,000 pounds
- Class 4: Up to 10,000 pounds
- Class 5: Up to 12,000 pounds

Most cars and crossovers come with Class 1, 2 or 3 hitches, while larger trucks and SUVs can be equipped with Class 3, 4 or 5 hitches. Each conventional hitch has a different sized receiver tube.

This is where the ball and ball mount go.

- Class 1 and 2: 1.25-inch receiver tube
- Class 3: 2-inch receiver tube
- Class 4 and 5: 2- or 2.5-inch receiver tubes, depending on configuration

The important thing is making sure your trailer sits level, front to back, and ball mounts can be purchased that lower or raise the ball as needed.

Ball sizes are determined by the weight of the trailer. Many manufacturers label the ball size right on the coupler. Common ball sizes are 1 7/8, 2, or 2 5/16 inches. Always use a ball with a weight capacity that exceeds that of your loaded trailer.

Should you need to tow more than 12,000 pounds, you'll likely need a heavy-duty truck with a gooseneck or fifth-wheel hitch. The hitch and ball are placed in the bed of the pickup truck, just over or in front of the rear axle.

- Gooseneck: This uses a ball-type setup and can handle up to 30,000 pounds.
- Fifth wheel: This uses a horseshoe-shaped mount -- think of it as a smaller version of what's found on a semi truck -- and can generally handle up to 25,000 pounds.

Hooking it up

If you're a first-time tower, it's perfectly normal to go through this checklist a couple of times before getting it right. Follow these steps to safely connect a trailer to your tow vehicle.

- Secure the ball mount in the hitch's receiver tube.
- Line up the vehicle so it's directly in front of the trailer coupler.
- Be sure the trailer coupler is higher than the ball on the hitch.
- Back up slowly so the ball is directly under the trailer coupler. Use your vehicle's backup camera for this, or have a friend spot you.
- Put the tow vehicle in park and set the parking brake.

- On the trailer tongue, you'll find a twist handle that can raise or lower the metal bar/pipe -- the one your trailer rests on when not attached to a vehicle. This is called the jack. Twist the trailer jack to lower the coupler completely onto the ball.
- Use the attached cotter pin on the latch to secure the coupler to the ball.
- Lift up on the tongue to make sure everything is connected.
- Raise the trailer jack up and out of the way completely.

Once the trailer is attached, you'll want to secure safety chains from the trailer to the vehicle in a criss-cross pattern, and be sure the chains don't touch the ground. You will also need to plug the trailer's electrical connector into the vehicle. Always check the trailer's brake lights and turn signals before driving away.

Loading the trailer

The key thing to remember when loading a trailer is weight distribution. Too much weight at the rear of a trailer can cause it to fishtail. Too much weight up front can cause the vehicle to sag, which results in poor handling and reduced braking power.

Check out this demonstration video to see the dangers of a poorly balanced trailer.

In general, the "tongue weight," the weight at the front of the trailer, should be roughly 9 to 15% of the total weight. You can use a tongue-weight scale to determine this, and some ball mounts even have a built-in scale so you'll know right away if you're loaded up correctly.

A few other things to remember:

- Use ratchet straps or tie-downs to ensure your load is secure.
- Adjust your mirrors. If you're towing a wide trailer and you can't see around it, consider adding telescoping tow mirrors to your vehicle.
- Make sure the trailer has actual trailer tires -- *not* passenger car tires -- and that they are properly inflated and in good shape (plenty of tread, no dry rot, etc.). Check your vehicle's tires while you're at it, too.
- Keep your trailer wheel bearings greased so as not to risk damaging the axles.

Towing on the road Because you're now driving a vehicle that's both longer and heavier than before, you need to take extra precautions. If your vehicle has a tow/haul mode, engage it with heavier loads to put your engine and transmission into its optimal setting. Additionally, remember these best practices:

- Plan your route carefully to avoid impediments that could be even more frustrating with a trailer: Dense city traffic, construction and steep hills and mountains are all things to consider.
- Consider filling up your vehicle's tank before hooking up the trailer and starting your towing -- it'll be easier to fill up without having a trailer in tow.
- Make sure you've got a roadside safety kit with things like flares or reflectors, first-aid supplies and so on.
- Drive as slowly as is safely possible. Most trailers have a recommended top speed of 55 miles per hour.
- Brake early. You have a lot more mass to stop.
- Stick to the right lane, or slow lane.
- Initiate lane changes early and be patient. Always use your turn signals.
- Take turns wider than you might think.
- When pulling into a parking lot, consider the length and maneuverability of your vehicle-and-trailer setup to avoid getting stuck.
- When driving downhill, downshift your transmission to slow speed, rather than riding the brakes and risking overheating.
- If your vehicle starts to fishtail, reduce throttle input a bit, but don't hit the brakes.

Backing up can be daunting, but there's an easy way to do it. The best practice is to grip the steering wheel from the bottom. If you want the trailer to go right, move your hand to the right. For left, move your hand to the left. Remember that a little effort goes a long way with steering. And thankfully, many modern trucks and SUVs have specific trailer-steering tech to aid with

this process.

Towing tech

Modern trucks and SUVs have lots of features that make towing easier than ever before. Many automakers even offer tow/haul packages, which can automatically add the proper hitch, trailer brakes, larger mirrors and upgraded cooling systems to your vehicle. (This varies by manufacturer.)

Some specific examples of new towing tech include:

- **2019 Ford F-Series:** Pro Trailer Back-Up Assist can help with reversing when a trailer is attached. Ford also offers trailer tire pressure-monitoring and blind-spot monitoring systems that cover the vehicle and the length of the trailer.
- **2019 Ram trucks:** A self-leveling air suspension helps keep the truck and trailer stable. Ram also offers trailer-length blind-spot monitoring and a trailer tire pressure-monitoring system.
- **2020 GM Heavy Duty trucks:** The latest Silverado HD and Sierra HD have "see-through" Transparent Trailer View technology that stitches together camera views to let you see what's behind the trailer while towing. Plus, if your trailer is ever stolen, GM's OnStar system can help recover it.

Be sure to ask your dealer what sort of towing tech is available when buying a new vehicle.

AirSafeHitches.com



Why Use an Air Hitch?

AirSafe is committed to giving you the safest and most comfortable ride possible. We offer the largest selection of air hitches in the industry, including 5th wheel hitches, gooseneck hitches, and receiver hitches for trailer hitches for trucks.

Our hitches utilize the most innovative engineering and design available on the market today. With a fully height adjustable design, AirSafe hitches are easy to use and don't cause any headaches.

Air Safe Hitches also delivers the ultimate in safety.

With only 10% trailer inertia, our hitches make your vehicles sway a lot less. By evenly distributing the weight between the trailer and the tow vehicle, you will have more ability to brake and steer safely.

AirSafe Hitches are the safest way to tow anything, and they provide the most comfort of any ride. If that isn't enough to convince you, these hitches are also affordable. With AirSafe Hitches, you get safety, comfort, and savings all in one.

[5th Wheel Hitches](#) - Omni-Directional 4 air bag vs competitor 2 air bag system. A four-air bag hitch is designed to allow the hitch head to move on the air bags in any direction based on articulation from the trailer itself. The result of such continuous motion results in a smooth ride and decrease chucking and surging forces from the trailer on the truck. In addition to the movement from the trailer, the 4-airbag hitch support 100% of the pin weight, increasing the

effectiveness of the air springs. This results in a smooth and controlled motion for the trailer on the truck.

[Receiver Hitches](#) – If you want a smoother ride and the ultimate in control, then you need the advantage provided by Air Safe Hitches with the Receiver Hitch by AirSafe™. With an Air Safe Receiver Hitch you will get a 90% smoother ride than with a traditional hitch, which can save you money. Glide across the highways and roads avoiding the constant bouncing, which leads to a decrease in gas mileage and early wear and tear on your tires. Our Air Safe Receiver Hitches also reduce stress on your truck and trailer suspension and help eliminate breakages inside the trailer. Our design allows total air ride vs the Shocker Hitch with the hinged approach.

[Gooseneck Hitches](#) – Air Safe offers the industry's largest selection of air hitches. Innovation and engineering insures you receive the safest and smoothest ride. "Enjoy the ride, arrive alive." With AIRSAFE™ you stop the flow of shock flow between the tow vehicle to the trailer and greatly reduce the explosion of energy when these two forces meet. The patented AIRSAFE™ hitches are engineered so the connection to the trailer is separated from the connection to the tow vehicle by an industrial strength airbag. Air Safe Gooseneck Hitches by AIRSAFE™ are simply the best air product money can buy. They are engineered with you and your precious cargo in mind. Simply remove your existing gooseneck tube and coupler and replace it with the AIRSAFE™ system. Available in round and square necks.

[Click to check out the benefits of an air hitch vs a rigid hitch.](#)

Tow Vehicles for Horse Hauling

Weighty Matters

- When hauling horses (live cargo), stay below 70%-75% of the vehicle's maximum tow rating.
- Choose a tow vehicle based on the weight, size and type of trailer, and the weight and number of horses you'll be hauling.
- Consider the truck and tow vehicle as a single unit, and make sure all parts are compatible, including hitch, brakes and tires
- In hilly or mountainous terrain, braking power is as important-or even more important-than the horsepower required to drive up the slopes.
- When it comes to selecting a tow vehicle, safety is far more important than fuel efficiency.

You happily load your horse into your new trailer. It is more substantial than your old one, and Ol' Butterpat doesn't have to "scrunch up" anymore to let you fasten the butt bar behind his ever-increasing back end. You stop to pick up a buddy and her horse before heading to your favorite trail in the state park.

As your truck labors more than usual climbing Heartbreak Hill, an impatiently weaving line of cars forms behind you. You and your friend joke about needing a new truck to match the trailer and give a small cheer as you reach the top. The cheering, however, rapidly turns to silence, white knuckles, and white faces as you begin your descent. Although you have the brake pedal pressed to the floor, you are, in fact, speeding up, your steering isn't working right, and you are not in control of upwards of 10,000 rapidly moving pounds with a hinge in the middle. Oh, and your top-heavy cargo shifts when it gets nervous.

This is the stuff of nightmares. We are going to be generous here and give thanks this situation involved a hill, not a mountain; that you, your friend and the horses made it safely to the bottom; and that there was a more level route home. We are also going to assume that, as an intelligent person, you bite the financial bullet and go shopping for a different truck the very next day.

The National Highway Traffic Safety Administration (NHTSA) notes that "Most SUVs, pickup trucks, vans, minivans and passenger cars can be equipped to tow a trailer." It does not, however, say what kind of trailer that might be.

Know What You Need

Towing horses is a specialized task. Some people assume that because their SUV has a tow package, it should be able to pull their horse trailer. Others think a pickup can haul anything. Still others have been assured by a salesperson that, "This baby can haul elephants!" The phrase "but not necessarily safely" can be tacked onto each one of those statements.

We will not presume to tell you what vehicle is best for your situation. Your requirements will be determined by many factors, including the size of the trailer, how many horses you haul, the ratings of your tow vehicle's hitch, distances traveled, terrain, altitude, whether it includes living quarters, and, to a lesser degree, style and fashion.

You probably won't haul elephants, but it certainly can seem like that when things go wrong. So we asked horse trailer dealers for advice on appropriate tow vehicles for pulling two-horse and four-horse trailers.

The technical details mustered in defense of our experts' choices boiled down to the following:

1. You must know the exact capabilities of what you are driving.
2. You must know exactly how much weight you are hauling.
3. You must make sure that the entire unit-truck, trailer, hitch, brakes and tires-is correctly rated, balanced, compatible and in good working order, because safety is determined by the weakest link.

Although many people purchase a truck first, it actually makes better sense to know your trailer and its requirements before you invest in a vehicle to ensure it will have ample capacity to pull it. Be aware that although it is a blow to anyone's budget, it is extremely unlikely that anything safe to pull horses is also going to be a gas-efficient, run-around-town vehicle.

There are many factors that do not actually affect how much you can tow, but might make towing easier, safer or more economical. For instance, according to both manufacturers and dealers, four-wheel drive may give greater traction in mud or snow, but can actually reduce the tow rating, as it makes the truck heavier. A dually truck will give more lateral stability, but not necessarily more towing capacity. But don't overdo it. A dually truck, pulling a two-horse, non-dressing room, tag-a-long trailer with only one horse can give him a mighty rough ride. All else being equal, gasoline or diesel does not have significant impact on towing capacity, but may affect your short or long-term budget.

Tow Packages & Ratings

"Tow packages" are specific adaptations that are made to a vehicle to withstand the added weight and strain of towing. These vary from manufacturer to manufacturer. If you are buying a used vehicle, the VIN (vehicle identification number) can lead you to find exactly what was originally built into it.

"Tow ratings" state the maximum weight a vehicle is designed to pull and, more importantly, designed to stop. Any number of trucks can look identical, but may have very different tow ratings, depending on engine size, transmission, axle ratios and wheelbase. The actual rating is posted inside the edge of the drivers' side door. Remember that the hitch rating is separate from the tow vehicle rating. A rear frame mounted hitch (rear hitch for tag-a-longs) could have a much lower rating than the tow vehicle, if not fitted with the right equipment.

Unfortunately, tow ratings can be seriously misleading when applied to horse trailers. It would be easy to assume that if your truck has a tow rating of, for instance, 6,500 pounds, you should be able to load a 4,000-pound trailer with a couple of 1,200-pound horses. Actually, while you could certainly load that much, it would be exceedingly unwise to pull out of the driveway with it.

"Tow ratings are made for travel trailers or boat trailers on flat terrain, with one person in the vehicle and a stable load that is heaviest on the bottom," notes Neva Scheve, co-owner of EquiSpirit Horse Trailers in Southern Pines, North Carolina, and the author of three books on horse trailers, including *The Complete Guide to Buying, Maintaining and Servicing a Horse Trailer*. "Horses are a top-heavy, shifting, live cargo that has a mind of its own. A horse can lose its balance or throw a tantrum that can create a dangerous driving situation that is not a factor with other kinds of trailers."

Scheve also notes that hills, mud, snow and wind can put an additional burden on your rig.

While many people seem to expect less handling ability when pulling a trailer, experts dispute that. As Scheve says, "For safety reasons, the tow vehicle should be able to perform as well with a trailer as without. The chance of an accident is increased when the tow vehicle is sluggish."

It is vastly safer to be well within your rig's combined capacity than it is to haul weights even close to your maximum tow rating. As a general rule, Scheve recommends having a tow rating that would technically allow you to pull 25%-30% more weight than you are actually hauling.

What's Actually Back There?

The Gross Combined Vehicle Weight Rating (GCVWR), which is determined by the tow vehicle manufacturer, is the maximum combined weight of the tow vehicle and trailer that can be hooked up and pulled safely. This means you must know the weight of the entire hauling "package": vehicle, trailer and contents.

Chances are good that the combined weight is much more than you might think.

Neva Scheve, author of *The Complete Guide to Buying, Maintaining and Servicing a Horse Trailer*, notes that the weight listed on your trailer's certificate of origin is usually calculated before optional equipment is added. Floor mats, spare tire and extra modifications can add hundreds of pounds more. The only way to be really sure of your trailer's base weight is to weigh it on a truck scale.

Then you must add the weight of your tow vehicle, passengers, fuel, horses, gear, feed and any miscellany. A bale of grass hay can be 50 pounds, alfalfa more. Saddles vary considerably in weight, but it would not be uncommon for a stock saddle, blanket, bridle and breastplate to run another 50 pounds; double that if you are bringing a friend's gear along. Then there is probably a tack box of some sort. If you are hauling a water tank as well, remember that each gallon of water weighs a bit more than 8 pounds. If you are camping, add corral panels and coolers filled with ice.

Altogether, you can easily add the equivalent of a fat pony to the load you thought you had and actually be at or above your tow rating.

An even greater margin of safety is prudent in some parts of the country. Joe Robertson, of Scott Murdock Trailer Sales in Loveland, Colorado—a state with highway mountain passes that can top 10,000 feet, with 5,000-foot drops coming and going—notes that "getting it going [up the mountain] isn't the issue as much as coming down the other side." He prefers working with a tow rating that is 30%-40% higher than the maximum weight you expect to pull.

Both Scheve and Robertson recommend at least a half-ton pickup to pull a two-horse tagalong trailer, with at least a three-quarter-ton pickup with a gooseneck hitch if pulling four horses or more. In a gooseneck, or "fifth-wheel" hitch, a significant amount of the combined weight is distributed throughout the body of the truck, giving greater stability and enabling the entire combination to handle more as one unit.

Tom Svejcar, of Colorado Horse Trailers in Longmont, Colorado, is an advocate for Brenderup Trailers. Developed in Europe, where the ubiquitous American pickup is rarely seen, Brenderup trailers rely on balance, a low center of gravity, and a specialized braking system to produce one and two-horse trailers that can be hauled by smaller vehicles. Brenderup's tow vehicle requirements include an engine that develops a minimum of 120 horsepower, a wheelbase of at least 93 inches, and a caution to never exceed the vehicle maker's recommended tongue weight.

Chain Reaction: Tires, Tongue, Brakes & Hitch

This brings up an issue frequently overlooked: Never exceed the capacity of the "weakest link" in the vehicle-, hitch-, brake-, trailer-, tire-combination.

"Tongue weight" is the amount of the trailer's weight that presses down on the trailer hitch. According to NHTSA tow guidelines, too little tongue weight can cause the trailer to sway. Too much tongue weight can cause insufficient weight on the front wheels of the tow vehicle, resulting in poor steering. The shorter your wheelbase, the more important a weight-distributing hitch can be to distribute the tongue weight among all tow vehicle and trailer axles.

Brake types vary. Brenderup's Inertia™ four-wheel brakes operate as the driver lets up on the accelerator, but before the brake pedal is applied. Electronic brakes have a controlling device in the tow vehicle. Surge brakes are independent, hydraulic-activated with a master cylinder at the junction of the hitch and trailer tongue. Which type is appropriate for your situation will depend on your trailer and tow vehicle's manufacturer recommendations for the weight you will be hauling.

NHTSA further recommends that all trailer tires be of the proper size, type and load-range found on your trailer's certification label. They should also be properly pressurized and of the same type, size and construction. Do not mix bias-belted and radial tires.

As with so much in horsemanship, safety and balance are two sides of the same coin when it comes to horse tow vehicles and trailers. Making sure your combined unit is balanced and adequate to haul your precious cargo requires developing a serious margin of safety that will not only get you and your horses up the hill, but down the other side safely.

The Unfortunate Truth About RV Solar Power

Written by Nikki Cleveland in Beginner Info, Product Reviews, RV Power

The Unfortunate Truth About RV Solar Power

Like most things, RV solar power has pros and cons. RVers will need to carefully consider all the factors before buying expensive panels for the roof.

RV solar power is much quieter and more eco-friendly than using a generator. It is also a great option for boondockers looking to go camping off-the-grid. But there are still some unfortunate truths about RV solar power that many people are not aware of.

The high cost of RV solar power

Quality RV solar panel kits are not cheap. Prices have gotten a bit more reasonable in recent years. However, a system can still get pretty pricey if you want a good RV solar power setup.

A few 100-watt panels can add up fast. Add on some deep-cycle solar batteries to store power and a charge controller to keep them from overcharging. Don't forget an inverter to turn the DC power into usable AC power. When it's all over, you may be looking at a \$1500+ investment.

Off-grid RV power is a little complicated

Setting up your RV solar power is a little more complicated than pulling in to a campsite and hooking up to shore power. Before you even buy anything, you will need to know about how much power you use on a daily basis. That lets you figure out how much power your solar panels need to generate.

Ronnie Dennis from Do It Yourself RV shared an in-depth guide on every step of the solar power setup:

- [DIY Solar: What Is It, And Do You Need It?](#)
- [Installing A Solar Power System: What Components Will You Need?](#)
- [DIY Solar Power: How Much Do You Need?](#)
- [How To Install A Solar Panel System On Your RV Roof](#)
- [How To Install The Interior Components Of A Solar Power System](#)

You'll need a battery bank

With shore power, you never really need to worry about backup power. Once you're hooked up at the campsite, you can just plug in your laptop or coffee maker like you would at home. The weather or time of day doesn't affect your life at all.

On the other hand, if you have solar panels, you'll need a battery bank. This provides power for nighttime, cloudy days and when you want to park out of the sun. Lithium-ion batteries, though more expensive, are a better option for solar energy storage than lead-acid batteries. They're lighter, more compact, and have a longer lifespan.

Parking in the shade can be tricky

On a hot summer day, you're probably dreaming of parking the RV in a nicely shaded campsite out of the blistering hot sun. However, if you have installed solar panels on your roof, they won't generate nearly as much power if they are not getting direct sunlight.

Portable solar power units might give you the best of both worlds IF you don't need tons of power. It's often easier to set up since it doesn't require drilling holes in your roof. Quality portable solar electric systems are made by Renogy, Acopower, and Eco-worthy. Goal Zero also makes portable power stations, to use with their solar panels. What's nice is they have a built-in inverter and outlets for your electronics. Do you already own rooftop panels? Check out this easy mod from Do It Yourself RV on how to make them portable.

Is solar power worth it?

Don't get me wrong, RV solar power has some downsides, but it is absolutely worth the investment. While it is a hefty cost upfront, it gives you the ability to go boondocking on public land rather than having to stay in a crowded RV park with hookups.

From what you'll save on camping fees as well as on electricity costs, it will make up for the expensive initial investment. Solar power is also completely silent unlike a generator, and maintaining your RV solar panels is easy once everything is set up.

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