What can I tow?

You have a vehicle you'd like to tow a trailer with, but you're not sure how much you can tow. So, you ask yourself, "What can I tow?". Most look at the "tow rating" or "towing capacity" found in the owner's manual or in a sales brochure. Many don't read, or don't understand, the fine print that usually goes along with those ratings…

"…Maximum trailer ratings are calculated assuming standard equipped vehicle, driver and required trailering equipment. The weight of optional equipment, passengers and cargo will reduce the maximum trailer weight your vehicle can tow."

So what does this mean? It means the manufacturers are using a stripped down vehicle in order to get the highest possible rating. The problem is many people don't realize this, and do not consider the weight of all those options added to the "standard" model. Options can add up to 1,000# to some vehicles!

"Tow ratings" and "towing capacity" numbers should only be used as a starting point for shopping for your RV. Do not use them as the only method for determining what you can tow!

For example, a vehicle could have a "tow rating" of 10,000#. But by the time you account for the other factors outlined below, that 10,000# capacity could easily shrink to 6,000# or less!

If you think that weight limits are over-rated, or think that figuring out what you can safely tow and stay within the weight limits is a waste of time, read “Weight limits…big deal!!!” It may change your mind.

Before we go any farther, you need to understand what all the weight abbreviations are and how they are used to determine just how much trailer you can tow.

(Use of the word "trailer", unless specifically defined, is used here to represent either a travel trailer, pop-up, hybrid or fifth wheel.)

UVW (Unloaded Vehicle Weight) for tow vehicles.

The easiest way to get this number is take your tow vehicle to a weigh station or truck stop that has scales large enough to drive onto. You can usually find them along many interstate highways. Other locations could include larger recycling centers or waste transfer stations. Some locations may charge a small fee for this ($5-$10). When you do this, have a full tank of gas in your tow vehicle.

If you cannot get your tow vehicle to a scale, look in your owner's manual or sales

brochure for a "dry", "curb" or "unloaded" weight. All of these weights are usually for the "base" model, the one with the smallest engine and no optional equipment. For any options that you have, try to estimate what the weight might be. Since this will involve guessing the weight of several things, guess high. Options can add up to 1,000 pounds to the weight of some tow vehicles, so it would be best if you could get your tow vehicle to a scale to be sure of its actual weight. On a new vehicle, the dealer may be able to tell you what the delivery weight was when they received it from the factory. The factory may have only put 5 gallons of fuel in the tank, so you'll need to calculate what the additional fuel weight would be at about 6 pounds per gallon.

If you can take your tow vehicle to a scale and if possible, take along all the people and cargo that would normally be in the tow vehicle when going on a camping trip. If this is not possible or you're not sure what stuff you would be taking with you, you can calculate it later, but it may not be as accurate. (Calculating it will also not give you an accurate picture of the weight on the front and rear axles which you may also need to consider, especially if you are considering towing a fifth wheel trailer.)

See the section on "How to weigh" your tow vehicle and/or trailer at a scale.

The UVW plus the weight of all passengers and cargo will give you the…

GVW (Gross Vehicle Weight)

Most of the following weights can usually be found in an owner's manual or on a label somewhere on the tow vehicle or trailer. If you cannot find these numbers, it may be necessary to contact a dealer or the manufacturer.

GVWR (Gross Vehicle Weight Rating)

This can be found in several places: a label on the inside frame of the driver's door, in the engine compartment, or in the owner's manual or sales brochure. For trailers, you may find a label towards the front of the trailer on the left side. This is the maximum the tow vehicle can weigh.

GCWR (Gross Combined Weight Rating)

You may find this rating along with the GVWR as outlined above. If you cannot find it here, you may need to contact a dealer or the manufacturer to research what the GCWR is for the vehicle. This is the maximum the combination of tow vehicle and trailer can weigh.

If the vehicle does not have a GCWR (as many cars and mini-vans do not), this may be the only time that you can add the "tow rating" or "towing capacity" weight to the vehicle GVWR to get a GCWR. However, if you do this, you must also stay under the

recommended "tow rating" or "towing capacity" number to avoid any other possible problems.

TGVWR (Trailer Gross Vehicle Weight Rating, not a common term (and won't be found on any label or in any owner's manual), but used here to distinguish between tow vehicle GVWR and trailer GVWR)

Similar to the tow vehicle, the TGVWR can be found in a sales brochure, on a label on the inside of an interior cabinet door, or somewhere on the outside of the trailer, usually on the left side near the front of the trailer. This is the maximum the trailer can weigh.

UVW (Unloaded Vehicle Weight) for trailers.

Sometimes referred to as the **"dry"** weight**.** This is what the trailer supposedly weighs completely empty. Like the tow vehicle, this weight usually represents the weight of the trailer without any options or upgrades that might have been added by the manufacturer or the dealer. This may also not include the weight of the empty propane tanks (up to 50#) and the batteries (up to 100#).

The difference between the dry weight and the TGVWR is known as cargo carrying capacity, or **CCC**. It is another important weight. You will have to determine what you will take with you in your trailer and how much it weighs, and add that to the dry weight to make sure you stay under the TGVWR. There are the things that may stay in the trailer, or be carried back and forth from the house. Such as; television, radio, CD player, videos, laptop computer, cameras, games, books, dishes, pots, pans, towels, tools, blocks, hoses…you get the idea. It all adds up to more weight in the trailer. All this stuff can weigh more than you think, maybe as much as 500 pounds or more! Figure an additional 50-200 pounds per person depending on the size of the trailer and the length of your average trip for food, clothes and other personal items. Will you be carrying fresh water in the holding tank with you? Add another 8.25 pounds per gallon. Are you still under the TGVWR? Good!!!

TGVW (Trailer Gross Vehicle Weight, not a common term either, but used here to distinguish between tow vehicle GVW and trailer GVW)

Similar to the tow vehicle, the TGVW is the weight of the trailer all loaded up and ready to go camping.

TW (Tongue Weight for travel trailers, or Pin Weight for fifth wheels)

You may find this rating along with the UVW for the trailer, but it may not be accurate. It may not include any options or upgrades added at the factory or by the dealer. And it will

be a "dry" weight, meaning all holding tanks are empty and no propane. An average 30# propane tank weighs about 25 pounds empty, while the weight of the propane is about 24 pounds when full. Batteries vary a bit, but figure 30-50 pounds for each battery. When loaded properly, the tongue weight for travel trailers will be about 12%-15% of the TGVW, while the pin weight for fifth wheels will be around 20%. For fifth wheels, also add about 200 pounds for the weight of the hitch in the truck bed. For other trailers, if your tow vehicle does not already have one installed, add about 100 pounds for a receiver hitch platform, and another 100 pounds for a weight distributing hitch with spring bars and sway control.

So, "What can I tow?" you say. Now that you understand what all the weights are and have gathered the numbers for your tow vehicle, let's look at the following formulas:

#1. GVWR - GVW = allowable tongue weight.

First, you need to know how much tongue weight you can afford to add to your tow vehicle with the above formula. Take the available tongue weight and divide it by 0.12 to get one figure for your maximum trailer weight. (You will get the second figure in a moment.) Since most trailers have a tongue weight in the 12%-15% range, I suggest the 0.12 factor because this will also take into account the use of a weight distribution hitch if one is needed. If you are considering a fifth wheel trailer, use a factor of 0.20 since most fifth wheels have a pin weight around 20% of total vehicle weight.

#2. GCWR - GVW = TGVWR

This tells you the second number for your maximum trailer weight. Compare this number to the one from formula #1 and use the smallest number as your maximum trailer weight.

When you go looking at trailers, I suggest you look at the trailers that have a GVWR less than or equal to this number. Although the trailer you may be looking at may have a large carrying capacity, using the GVWR will give you a bit of a cushion, both for towing performance and in case you pack more stuff than you think you will.

The reason for this is that the trailer manufacturers do the same thing that vehicle manufacturers do, they want to get the best "cargo capacity" numbers they can so they use the dry weight of a bare-bones trailer subtracted from its GVWR. Just like with your tow vehicle, the weight of options, accessories and upgrades all add additional weight. Some manufacturers provide a list of estimated weights of options and accessories, but not all do.

Another set of weights that was mentioned earlier were the front and rear axle weight ratings (or GAWR), which you can usually find in the same location as the GVWR. These are the "rated" weight capacity for each axle. It is important to know what the actual axle weights are to determine if you will exceed the rated capacity or not when you hitch up your trailer. Knowing the actual axle weights would be another good reason to take the vehicle to the scales.

While you are checking the GAWR's, check the load ratings on the tires. Make sure the load rating for the 2 rear tires adds up to more than the rear GAWR, and the same for the front. If the tire load ratings do not add up to more than the GAWR, you may need to upgrade the tires to a higher load rating. But if the actual weights of the axles do not exceed the tire load rating of the tires, then you should be okay.

For fifth wheel's, almost all of the pin weight will be placed directly on the rear axle, while a very small amount will go up front. Is the rear GAWR enough to handle the load?

For trailers that do not use a weight-distributing hitch (usually when the TW is less than 500 pounds), all of the TW will be placed on the rear axle. Is the rear GAWR enough to handle the load?

For trailers that do use a weight distributing hitch (TW over 500 pounds), the TW should be distributed between the front and rear axles of the tow vehicle as well as some moved back to the trailer axle(s). Are the GAWR's enough to handle the load? Just for argument sake, lets assume the worst situation. This would not be an ideal situation, but it could happen, where the weight-distributing hitch is not set up properly or is unable to distribute the TW to both front and rear axles and the TW is places entirely on the rear axle. Is the rear axle strong enough?

The front and rear GAWR's usually do not add up to equal the GVWR. Why? The axle ratings are based on a combination of the capacities of the tires, wheels, shocks, springs and axle components while the GVWR is for the vehicle as a whole. Don't add the front and rear GAWR together to get a higher GVWR to justify a bigger trailer than what the vehicle is capable of towing.

Hopefully, you can see the importance of understanding how all of the different weights interact with each other. And now you can see why those "tow rating" or "towing capacity" numbers are so inflated!

Here is an example of how bad the tow ratings can be. I was chatting with a fellow online about his 2003 Ford Excursion with diesel engine. He said it has a maximum tow capacity of 11,000#. So he thought he could pull a toy hauler trailer that would end up weighing around 10,000#. He takes the truck to a scale and finds out that it weighs 8,100# with him in it and plans on another 500# of family and stuff in the truck, putting him at a total of 8,600#. The truck's GVWR is 9,200#. That leaves only 600# for tongue weight. When you back into the maximum trailer weight for 600# of tongue weight, the

absolute maximum would be 6,000#, which is no where near to his dream trailer. The GCWR of 20,000# and a tow rating of 11,000# was very misleading in this case.

I strongly recommend that you stay under the GAWR's, GVWR, GCWR and TGVWR. The manufacturer's came up with these numbers for a reason, and there is plenty of debate as to the validity of these numbers. Performance from the tow vehicle will begin to suffer the closer you get to the GCWR. When possible, get more tow vehicle than you think you will need to give you that extra margin of performance and safety. In other words, don't get "just enough" vehicle, get a bit more. You may be sorry if you don't!

I would also suggest you check out the "Horsepower" page. There have been some interesting online discussions about tow ratings verses horsepower. You may find that your selected tow vehicle may or may not have enough horsepower to pull your intended trailer. I am not advocating that you use the horsepower calculations to overrule the manufacturer's weight ratings. I'm just suggesting that it could be used as another way to answer the question, "What can I tow? " This could be very useful if you live or travel in hilly areas.