

Before You Buy That RV, Truck or Other Tow Vehicle

Your guide to matching any tow vehicle to any towable.



"It's not rocket science!"



THE SCOOP

"I'm sorry sir, that truck can't tow this trailer."

From my personal experience and the comments of others I've read on several forums I wonder if you'll hear those words come from a salesperson - unless you pointed over to a Toyota Tacoma like I did. Of course, I was joking.

Any salesperson's job is to sell. As a buyer, I believe that it is important to have as much information in-hand as possible before purchasing. In some instances, NOT ALL, a salesperson may say whatever is needed to get you to buy without regard to what tow vehicle you have. After informing the salesman I had a 2008 Dodge Ram 2500 diesel, he perked up and assured me my truck was big enough for the 41 foot toy hauler I had my eyes on. "We tow these trailers all the time with 2500s," the salesman said. To keep a long story short, I'll tell you this; his untruthful sales pitch was revealed when I saw the bed of my 2500 nearly drop to the axle after raising the landing gear for the first time.



This was my first purchase of any RV. Although I had done some research on towing RVs, I learned quickly how little I knew. I've learned a lot since then. Now, I hope to pass along some helpful information to you.

One of the most common questions for RV buyers is something like this, "Can my truck tow that?" For some time I've avoided creating a calculator. During my research I continued to hear or read stories of how a buyer learned too late that they had purchased the wrong towing combination. Recently I completed a survey asking this question:

"Would you benefit from having a handy free calculator that provides peace of mind when purchasing a new tow vehicle or RV that's readable on all smart devices and answers, 'Can I tow that?'"



An overwhelming 86% of the participants said yes. After reading these results I developed a web-based calculator that should be usable on any mobile device. Hopefully, from now on, buyers and dealers using the Before You Buy RV calculator may avoid the mistake of matching the wrong towing combination. The buyer and dealer can each have peace of mind for the purchase and sale of the vehicle.

My personal opinion is that websites attempting to assist RVers with estimating towing weight are using an entirely wrong approach. Estimating is just that, estimating. I recommend you not waste your time with weight estimation. You need to use numbers that actually mean something. In connection with towing weight safety the five most important numbers you need to use are Gross Vehicle Weight Rating (GVWR), Gross Combined Weight Rating (GCWR), Gross Vehicle Weight (GVW), Gross Axle Weight Rating (GAWR) and a new rating I present to the RV industry, Gross Hitch Weight Rating (GHWR). I'll explain more about the new rating below.

The published dry and pin/tongue weight for trailers have little value when calculating towing capabilities of a tow vehicle.

Maximum towing capacity - don't trust it!

It certainly appears to me that automotive companies are duping buyers with their so called "improved" vehicle brochures, web sites and now, towing videos. They have done nothing more than create situations that could lead the buyer into thinking they can tow any trailer that weighs less than the listed maximum towing capacity. Some are no longer publishing the various certification ratings that are vitally important in choosing the right tow vehicle. In my experience, I have yet to talk to an automotive sales person who knew anything about axle ratings in conjunction with towing capacities. My impression is that automotive companies have no idea their published information may fail to reveal that some vehicles' rear axle ratings will be exceeded by the pin or tongue weight of some trailers. I really don't fault the salesperson for this error. The sales people know only what they have been taught.

Always pay close attention to the gross axle weight ratings. Be careful not to assume the vehicle's maximum towing capacity will handle the pin or tongue weight of any trailer. There are more details below that will assist you with understanding axle weight limits.

Another important matter you need to know is that for most vehicle brands, the maximum towing capacity is calculated assuming only a 150 pound driver is in the tow vehicle and that it has all the required trailering equipment. Any added weight over the 150 pounds calculated for the driver, plus that of additional optional equipment, passengers and cargo in the tow vehicle must be subtracted from the maximum towing capacity.

The safest towing combination for 5th wheel, gooseneck and conventional trailers is when there are acceptable conditions in both Step 1 and Step 2.

(Step 1 of 2) FINDING MAXIMUM TOWING CAPACITY

Option A: (The best method.)

This is the most recommended method of knowing your maximum towing capacity. This method takes into account the actual weight of your tow vehicle. Simply drive your fully loaded tow vehicle with the cargo and appropriate tanks filled and all expected passengers aboard, just as if it were ready to tow to a trip destination, onto a truck scale near your location and obtain the scaled weight from the weighmaster. If you don't have a 5th Wheel or gooseneck hitch installed, add 200 pounds, if no conventional hitch add 100 pounds.

(Tow vehicle)

Gross Combined Weight Rating (GCWR)

- (minus)

Gross Vehicle Weight (GVW)

= (equals) maximum towing capacity

If the manufacturer-specified maximum towing capacity is less, then it takes priority.

Option B: (Simple method and commonly used by dealers, but strongly discouraged.)

It is your responsibility to find the towing guide for your specific vehicle model. In most cases, you can use the "Tow Ratings" resource provided at FifthWheelSt.com. The information you need to find in the tow ratings guide is your vehicle's maximum towing capacity.

In order to find the maximum towing capacity for your vehicle you'll need to know the following information.

- Vehicle make
- Year
- Model
- Body style/trim
- Type of drive
- Bed/box length
- Engine size/type
- Transmission model
- Axle ratio

For example, if you have a 2008 Dodge 2500, Quad Cab SLT, 4WD, 8.0 Ft. Bed with a 6.7L I6 Cummins Turbo Diesel Engine and 6-Spd Automatic 68RFE Transmission with an axle ratio of 4.10, your maximum towing capacity is 12,750 pounds.

Will the tow vehicle tow the trailer?

Now you need to look at the on the trailer and find the trailer's Gross Vehicle Weight Rating (GVWR). (Note: Do not rely solely on the trailer brochure or an Internet listing.) If the trailer's GVWR is greater than the maximum towing capacity of your vehicle, then the trailer is too heavy. Always ensure that the trailer's GVWR is less than the maximum towing capacity for your vehicle. Likewise, if you are buying a new tow vehicle, ensure that the vehicle's maximum towing capacity is greater than the trailer's GVWR. Remember, some vehicles' rear axle ratings will be exceeded by the pin or tongue weight of some trailers. Step 2 will explain how to check the tow vehicle axle ratings.

(Step 2 of 2) VEHICLE REAR GROSS AXLE WEIGHT RATING

The missing link revealed.

Some vehicles may have a high GCWR and Maximum Towing Capacity but the tongue weight or pin weight of some trailers may exceed the vehicle's rear GAWR. It's best to weigh your rear axle with all the expected cargo. If you don't have a 5th Wheel or gooseneck hitch installed, add 200 pounds, if no conventional hitch add 100 pounds, to the rear axle weight. Below are the calculations to help you ensure your vehicle's rear axle will carry the weight of the trailer's pin or tongue weight. Also note that adding air bags and/or additional springs to the rear axle or changing the axle ratio will not change your certification label ratings on your vehicle. (Read [The Truth about Altering Vehicle Weight Certification](#) for more details.)

Most RV dealer websites and trailer brochures list the hitch weight or tongue weight of the trailer they're selling. That listed hitch weight is based on the trailer's dry weight. You and I know that no RVer will be towing a dry RV to a campground. Using the dry weight and hitch or tongue weight provides little value to knowing if you're looking at a safe towing weight combination. Again, I express that estimating how much cargo you'll carry in the trailer is a poor choice. It's a fact, over 50% of the RVs on the road exceed one or more weight safety ratings.

This new second equation is calculating the trailer's **Gross Hitch Weight Rating (GHWR)**. The GHWR is the maximum allowed weight of the trailer's load pressing down vertically on the TV hitch ball or fifth wheel and subsequently on the TV rear axle. Below are the calculation formulas to obtain the GHWR for 5th wheel, gooseneck and conventional trailers.

Examples:

Fifth Wheel/Gooseneck Trailer (GVWR X 25 percent(.25) = **GHWR**)

$$\begin{array}{r} \text{GVWR:} \quad 18,000 \\ \quad \quad \quad \times .25 \\ \hline \text{GHWR=} \quad 4,500 \end{array}$$

(4/13/2014 Note: The latest data indicates the average scaled pin wight of fifth wheel trailers is 20 percent. I encourage you to never use a multiplier less than 20 percent.)

To ensure the safest standard, use only the 25 percent multiplier.

Conventional Trailer (GVWR X 15 percent (.15) = **GHWR**)

$$\begin{array}{r} \text{GVWR:} \quad 9,000 \\ \quad \quad \quad \underline{X.15} \\ \text{GHWR=} \quad 1,350 \end{array}$$

Once you've calculated the trailer's **GHWR** you need to ensure the vehicle can tow this amount of weight by not exceeding the vehicle's rear Gross Axle Weight Rating (GAWR).

Some truck brochures or owner's manual or towing guides will show the curb weight of the rear axle. Unfortunately these listed weights are not realistic. Therefore I recommend you weigh your vehicle's rear axle at the nearest scale to obtain an accurate rear axle weight. To ensure your rear axle can safely tow the trailer's GHWR, perform the following calculation.

$$\begin{aligned} &(\text{GHWR} + \text{Rear Axle Weight}) - \text{Rear GAWR} = X \\ X &= (\text{A } \mathbf{\text{negative is good}} \text{ and you're under GAWR}) \\ X &= (\text{A } \mathbf{\text{positive is bad}} \text{ and you're over GAWR}) \end{aligned}$$

Although I spent a few years of my life as a Field Engineer operating and maintaining tracking equipment for satellites, rockets and the Space Shuttle, clearly you don't need to be a rocket scientist to figure out what your towing requirements are. But rest assured, for those wanting the web-based calculator usable on most Smartphones and larger mobile devices; bookmark BYBRV.com on your device.

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