

## Safe Trailering Tips For Mobile Generators

Pulling a trailer is not as easy as it seems, especially if you want to do it safely. Most of us simply couple a trailer to our car or truck, hook the tow chains to the hitch, plug in the lighting connector and off we go. In many cases that's about all the thought we put in to the tow equipment or the equipment being towed until the trailer starts to sway, or worse, something goes really wrong.

Selecting the proper tow vehicle and trailer hitch is probably the most important part of the safe trailering equation. You might argue the selection of the right trailer component is equally important, and it is, except that in most cases the trailer manufacturer has already selected the right components based on the load ratings or mobile equipment specifications. The users/operators of the trailers only have to worry about loading the trailer with proper balance and weight restrictions and hooking it up to the tow vehicle.

Selecting the proper tow vehicle doesn't have to be a lot of work. Most vehicle manufacturers place the maximum safe towing weights right on the vehicle's nameplate. In most cases there will be several ratings listed:

*Gross Vehicle Weight Rating (GVWR)* – The total allowable weight of the vehicle, fluids, options, occupants, hitch, cargo, and any trailer tongue weight.

*Gross Axle Weight Rating (GAWR)* – The total allowable weight on any given individual axle including the weight of the tires, wheels, brakes, and the axle itself.

*Gross Combination Weight Rating (GCWR)* - The total allowable weight of the vehicle, trailer, the cargo in each, fluids, and occupants.

*Maximum Tow Rating* – The manufacturers weight limit for towed loads. For conventional trailers the maximum tow rating normally includes a tongue weight limit; for fifth wheel trailers the pin weight should be applied to the trucks GVWR and rear axle GAWR.

### Tow Vehicle Classifications and Licensing

Tow vehicles are classified and licensed based on their Gross Vehicle Weight Rating. The different classes are as follows:

Class	Gross Vehicle Weight Rating (GVWR) in lbs	
1	0 – 6,000	
2	6,001 – 10,000	
2B	8,500 – 10,000	
3	10,001 – 14,000	
4	14,001 – 16,000	
5	16,001 – 19,500	
6	19,501 – 26,000	
7	26,001 – 33,000	<i><u>Requires CDL License to Operate</u></i>
8	33,001 – 150,000	<i><u>Requires CDL License to Operate</u></i>

Most cars fall in the Class 1 category, while most half-ton pickups fall into the Class 2 category. The Class 2B category covers light duty trucks three-quarter ton and one ton pickups. Yes, even large dually pickup trucks are considered light duty!

Notice that Class 7 and Class 8 vehicles require drivers with a Commercial Drivers License (CDL) to operate them. Special driving requirements and knowledge are required to operate this large of a vehicle. In the US, the individual states issue and monitor CDL licensing and regulations. Even though most states have similar regulations and laws, the exact interpretation is left up to the individual state. However, a CDL issued in one state will be accepted in other states as well. One area that differs slightly from state to state is how large of a towed vehicle can be pulled without requiring a CDL license.

Even though the National Highway Transportation Safety Administration (NHTSA) defines the basic rules for CDL licensing, they only imply a weight limit for towed vehicles with a GVWR of 10,000 pounds. Several states such as California are more direct in stating that towing a vehicle with a GVWR of 10,001 pounds or larger require the driver to possess a CDL license. Rather than try to list all the states and their requirements, I would encourage you to check the transportation department website for your state and verify the wording and regulations for your area. When in doubt, use the trailer weight limit of 10,000 pounds for CDL licensing.

### **Where To Find More Information On Vehicle Tow Ratings**

Trailer Life Magazine provides a yearly guide vehicle tow ratings and they post it on their website. The guide lists all the popular vehicles by vehicle model year. The website also has archives of previous years guides that go back 7 or 8 years. You can find Trailer Life Magazine on the web at:

<http://www.trailerlife.com/output.cfm?id=42175>

So what's the largest towing capacity of a pickup style truck for 2006? According to the Trailer Life Guide, the Chevrolet/GMC 3500 are shown to have a Tow Rating as high as 12,000 lbs, the Ford F-350 Dually are shown to have a Tow Rating as high as 15,000 lbs, while the Dodge Ram 3500 shows a Tow Rating up to 16,400 lbs. All of these ratings are for conventional bumper pull trailers. The tow ratings are slightly higher for fifth wheel trailers.

### **How Big Is That TS Mobile Generator?**

So which of the trucks listed above can pull a TS250T that weighs 8900 lbs without fuel? All of them based on tow ratings, but you still need to check the rear axle rating, and hitch ratings to be sure.

So which of these trucks can pull a TS400T that weighs 15,400 lbs without fuel? Only the Dodge Ram 3500! But are you really going to pull a generator to a job site without any fuel in it? By the time you fill up the 420 gallon fuel tank, you add 2982 lbs to the base weight of 15,400 lbs to bring the total GVWR of the TS400T generator to 18,382 lbs. Check the Ram's Tow Rating again!

Hopefully you also recognized in both of these cases the generators exceed 10,000 lbs in gross weight. If you are towing in a state that requires a CDL to pull a trailer as large as these mobile generators, make sure you are properly licensed, and should I mention insured?

### **What Else Do I Need to Know?**

We've already touched on axle ratings and the need to stay within their ratings. We also should mention there are various types of hitches available for tow vehicles. In most cases you're best bet is to purchase the largest available hitch from the vehicle manufacturer. The most capable hitch will usually come from the vehicle manufacturer as a "tow package" that generally includes special axle ratios and weight ratings, larger engine cooling packages, and increased electrical systems and wiring.

When you hitch the trailer to the tow vehicle, the ride height of the tow vehicle should remain essentially the same before and after the connection of the trailer. Excessive trailer sway may occur if the ride height is reduced or increased by just a couple of inches. Reducing the ride height reduces the weight on the front axle of the tow vehicle and may cause erratic steering. Conversely, increasing the ride height will increase the weight on the rear axle of a tandem axle trailer and may cause erratic trailer braking. Adjusting the hitch height of the trailer coupler in many cases will allow the ride height to be corrected. Otherwise the suspension of the tow vehicle will need to be corrected or the use of a weight-distributing hitch may need to be considered.

Hitches are generally classified by weight and capability:

<b>Class</b>	<b>Tow Rating in lbs</b>	<b>Tongue Weight in lbs</b>
I	2000	200
II	3500	300
III	5000	500
IV	10000	1000
V	Custom Engineered	Custom Engineered

The ratings shown above are typical. Some variations may be found from manufacturer to manufacturer. In most cases Class V hitches are considered fifth wheel, although some manufacturers will claim a bumper pull Class V in the range of 12,000/1,200 lbs. Notice that in most cases the Maximum Tongue Weight is approximately 10% of the Tow Rating. For good trailer balance the Tongue Weight is typically set to around 15% of the GVWR of the trailer and generator. So in the case of towable generators, you should expect the Maximum Tongue Weight to be critical in sizing the proper vehicle.

As an example, if you use a Class IV hitch as shown above, and a mobile generator with a 15% tongue weight, the Maximum GVWR of the generator cannot exceed 6600 lbs. A fully fueled TS130T weighs about 6,850 lbs.

Also notice that in our TS250T and TS400T examples from earlier, we would expect to need a custom engineered trailer hitch. Ever wonder why a three inch Pintle Hitch is standard on these large mobile generators?

## **Conclusions**

Large mobile generators are, well... LARGE! They need special attention when selecting the proper tow vehicle. Exceeding the tow vehicles ratings as stated by the manufacturer is not recommended. Be sure to check your local laws and regulations to insure compliance based on vehicle size and licensing requirements.