

## 5 / YOUR TOW VEHICLE AND EQUIPMENT

There are some other important things you should know about towing your trailer.

Towing a trailer will subject you to new and different challenges on the highway than you may have ever experienced before. An accident with a tow vehicle and trailer can have much greater consequences than carelessness with a small car. Take your responsibilities as a tow vehicle driver very seriously. Learn all you can about doing the job safely and well. Balancing the load and preparing the trailer and tow vehicle are critical to safe handling.

The combined weight of your trailer and tow vehicle must never exceed the **Gross Combined Weight Rating (GCWR)** as specified by the tow vehicle manufacturer. A load heavier than this limit could exceed the tow vehicle's ability to pull and stop the load, could damage the tow vehicle chassis structure or drive train, and possibly lead to a vehicle crash. Remember, ***you cannot increase the tow vehicle's towing capacity by changing the capacity of the hitch.*** Weights heavier than the limit can change your handling, could restrict your warranty coverage, and could possibly lead to a crash.

Remember that you must stop the trailer with the tow vehicle's brakes in combination with the brake controller and trailer brake system. This is extremely critical when driving in hills, mountains, sharply curving roads and irregular road surfaces.

Another critical aspect of safely operating a trailer is knowing the weights involved and where they are placed. You must determine that the load you intend to tow is within the capacities of the equipment you are using. The location of the load in the trailer is also critical to the way your rig will handle on the road.

There are some basic loading and towing rules that you must follow for safe towing. If a trailer doesn't tow properly when all the basic rules have been followed, the answer can be very complex, because the result can be an oscillating or swaying trailer. Swaying is usually caused by a trailer that is "tail heavy", and moving cargo to increase tongue weight will usually cure the problem. The moment

### **NOTICE**

**In connection with the use and operation of Genesis Supreme RV recreational vehicles, Genesis Supreme RV customers and owners of Genesis Supreme RV recreational vehicles are solely responsible for the selection and proper use of tow vehicles. All customers should consult with a motor vehicle manufacturer or dealer concerning the purchase and use of suitable tow vehicles for Genesis Supreme RV products. Genesis Supreme RV further disclaims any liability with respect to damages which may be incurred by a customer or owner of Genesis Supreme RV recreational vehicles as a result of the operation, use or misuse of a tow vehicle.**

**NOTE: GENESIS SUPREME RV's LIMITED WARRANTY DOES NOT COVER DAMAGE TO THE RECREATIONAL VEHICLE OR THE TOW VEHICLE AS A RESULT OF THE OPERATION, USE OR MISUSE OF THE TOW VEHICLE.**

your trailer shows any tendency to sway, you should slow down and determine the cause. Swaying can be a very complex problem because several components working together can cause it. Speed and wind are two of these components, so you should **never drive faster** to try and eliminate swaying or any other problem.

### **YOUR TOW VEHICLE**

You likely already have the vehicle you will be using to tow and you may have based your trailer purchase on its capabilities. It is up to you to determine if your tow vehicle is really big enough to have the brakes and suspension it takes to safely tow your trailer. There isn't any good way to overcome a problem such as this short of trading up to a vehicle with more capacity. Adding bigger tires, more springs or better shocks will not help. If the suspension isn't heavy enough, the brakes are probably inadequate for the load you intend to tow. Just because a half-ton pickup may be able to carry 1000 pounds of weight in the bed, it probably cannot support 1000 pounds at the hitch without special modifications to the suspension. There is a difference between "load" (actual weight applied) and "load rating" (maximum engineered design load limit). Gross Vehicle Weight Rating (GVWR) is determined by the manufacturer in the design of the vehicle. **GVWR cannot be changed.** The addition of heavier components does not change the legal GVWR of your vehicle. **Any load exceeding these manufacturer's rating values is both unsafe and illegal.**

You can't always correct a swaying problem by moving the trailer load forward if the tow vehicle isn't capable of handling the required hitch weight. Moving the load back in the trailer could make for a very unstable and dangerous condition. Too much weight on the hitch can also cause a dangerous situation where the tow vehicle doesn't have enough weight on the front wheels to keep the vehicles under control. When you hit the brakes, the trailer dives lifting the front of the tow vehicle even more, and you lose most of your braking and steering at the same time. Weight distribution hitches are available that can dramatically help your handling by spreading the forces to both axles, **but they can not compensate for inadequate towing capacity or overloading.**

A basic rule of trailer towing is:

**The tow vehicle and hitch must be capable of safely handling at least 15% of the gross weight of the trailer (total weight of trailer plus contents). Fifth wheel trailers usually have up to 25% of the gross weight on the hitch.**

## TOW VEHICLE AND TRAILER BRAKES

You can't have too much braking power. You should be able to stop your rig on a hill without the trailer brakes.

When learning, get on a lonely road without any traffic and try practicing panic stops. Of course, you shouldn't just slam on your brakes. You should try to slowly shorten your stopping distance by applying more pressure. Don't take it to the point that you lose control, just enough to get a feeling what it takes to make a quick stop and the distances involved. Don't ride the brakes going down hills as this overheats brakes, causing them to lose effectiveness. Use the engine and lower gears to control the downhill speed on long hills. Learn how electric brakes work and how to adjust the controllers that actuate them. Remember that the slightest pressure to the brake pedal will apply the electric brakes. Keep your foot off the brake pedal unless you intend to use them.

## THE HITCH

Before towing anything, have your hitch inspected by a qualified hitch installation company, and have them determine what the maximum tongue weight can be if it is not plainly marked on the hitch. This is usually 15% of the rated hitch capacity (25% for fifth wheels). Note that this is the hitch capacity, not the ball capacity. A ball is rated by its towing capacity. A hitch is rated by not only its towing capacity but also by the trailer tongue weight.

## THE HITCH, BALL, AND SAFETY CHAINS

The hitch pin plate or ball should be located so the trailer sits level when connected to the tow vehicle. The vehicle should be able to accept the loaded trailer tongue weight without a major change of attitude. The

### **NOTICE**

Be sure the tow vehicle is large enough for your trailer or fifth wheel, and has the needed power and heavy duty running gear. It must be rated by the vehicle manufacturer to tow the gross weight, and to carry the hitch weight of the fully loaded trailer or fifth wheel.

**NOTE:** Heavy duty commercial vehicles larger than one ton may be used **only** if an energy absorbing hitch, such as the Air Ride Hitch™, is used to couple the trailer to the tow vehicle. The rough ride of the larger trucks can cause structural problems to develop in recreational trailers if an energy absorbing hitch is not utilized.

hitch pin plate or ball should be lightly greased so the pin box or coupler rotates smoothly on it. Safety chains are required on all trailers except fifth wheels; they should be long enough for tight turns and be crossed under the ball (right to left and left to right). This will help keep the tongue off the road if the ball and coupler become disconnected and will help maintain control while stopping. Never allow the chains to drag on the pavement, because they can be ground to an unsafe condition very quickly. Always inspect the hitch and tongue for cracks when hooking up. Rust is your enemy and can cause premature failures. Check lights and brakes each time the trailer is hooked up. Try to do things in the same order each time and use a checklist. ***Don't forget to retract the tongue jack and stabilizer jacks. Don't ever hook a trailer up half way or you may forget to finish the job. Don't start if you can't finish, and never leave the receiver pin out for a minute, or forget to latch the pin and coupler.***

### EQUIPMENT SELECTION AND PREPARATION

#### **For conventional travel trailers:**

Use a weight distributing hitch rated for not less than the trailer Gross Vehicle Weight Rating and with spring bars rated not more than the ratings shown in the table below. The hitch must be equipped with a 2-5/16" diameter ball. Keep the hitch ball as close as practical to the rear bumper to minimize rear overhang. Do not add hitch extenders to the rear of your tow vehicle.

Use a sway control system installed and adjusted according to the sway control manufacturer's instructions.

Refer to the hitch installation instructions for detailed preliminary ball mount adjustments.

#### **For fifth-wheel trailers:**

Use a hitch and receiver assembly sized for the 2" SAE king pin and rated to pull not less than the Gross Vehicle Weight Rating of the fifth-wheel trailer. The receiver should be attached to the truck chassis. No weight distributing or sway control devices are needed with a fifth-wheel hitch.

**For all trailers:**

Use a brake controller that automatically applies the brakes in proportion to the tow vehicle brakes and also has a hand control for applying the trailer brakes only.

Use outside mirrors installed and adjusted to allow a clear view of the area at both sides of and behind the trailer. Locate them as close as possible to the driver to provide the maximum field of view.

If your trailer is wider than your tow vehicle, you will need extended side view mirrors to see rear and side approaching traffic.

**STATE AND LOCAL REQUIREMENTS FOR TOWING**

States and municipalities may require special permits and licenses based on the size and weight of your trailer, especially if it is over eight feet wide. Some states require additional equipment for the tow vehicle, such as side and rear view mirrors. Inquire at your local motor vehicle administration to find out what requirements affect you.

If you plan to travel in another state, don't forget to check its requirements also. There may be weight, height, and width limits for using certain roads, bridges, and tunnels. Be aware of restrictions regarding the transport of propane gas and other volatile gases or fuels in tunnels. Contact your insurance company to make sure you have the proper coverage.

**NOTICE**

**Fifth-wheel hitch extenders (also called “gooseneck tongue adapters”) are not to be used with Genesis Supreme RV fifth-wheel trailers. Use of a hitch extending device may cause structural damage to the trailer pin box assembly or chassis. Damage caused by the use of a hitch extending device may affect your warranty coverage under the Genesis Supreme RV Limited Warranty.**

