



AIR SPRINGS (bags) are one way to improve a tow vehicle's rear suspension. They are easy to install and can be adjusted for different loads.

as on a sticker or card pasted inside the glove compartment or doorjamb. It's best to check with a dealer as to where you can locate and how to decode a number that refers to the axle ratio.

SUSPENSIONS

A vehicle's suspension not only helps the driver maintain control and provide for passenger comfort, but it can affect the trailering performance. Too soft a ride when towing can make the vehicle's rear end sag, bounce and even sway. This is why factory supplied towing packages include heavier-duty suspensions.

Usually, springs with higher spring rates (stiffer), heavy-duty shocks and larger diameter anti-sway bars are included in these factory towing packages. Often, though, even factory towing packages may need to be supplemented with additional equipment such as aftermarket air spring (bag) systems, performance shock absorbers and

anti-sway bars — particularly if your towed load is large and heavy.

ADDITIONAL MAINTENANCE

Towing places extra stress on any tow vehicle. You need to pay closer attention to routine maintenance than normal. Manufacturers have a separate maintenance recommendation for heavy-duty use, such as towing, which is outlined in the owner's manual.

Most importantly, you need to change engine and transmission oils and filters more frequently, and lubricate components and check cooling systems at shorter intervals than you would on a vehicle used strictly for passenger duty.

If you have the appropriate equipment on your tow vehicle, and are prudent when it comes to an accelerated maintenance schedule, it should offer you many happy, carefree trailering miles.

Leveling, Loading and Driving

How to Set Up and Drive with a Trailer Behind Your Tow Vehicle



A trailer tows best when level, so do your level best to get it that way when attached to your tow vehicle by adjusting the hitch ball height. This can be done using a dropped or raised drawbar, or with an adjustable hitch.

Weight distribution can affect trailer handling, too. Make sure the trailer is properly loaded — front to rear, and side to side. Because most of a boat's weight is over the axles, it will generally be properly balanced when empty. Due to the engine, however, a small boat is often heavier at the rear. In this case, gear is usually packed in the forward section to offset the heavy weight at the stern. If the loaded boat is not properly balanced on the trailer, the bow stop and axles can be moved fore or aft to alter tongue weight.

For camping trailers, it is usually recommended to add cargo to the front to increase tongue weight. Bicycle racks and other gear storage appliances can lead to trailer sway if not mounted properly, especially with lightweight trailers that are more susceptible to changes in weight distribution. With bike racks or storage boxes mounted at the rear, the tongue weight of the trailer is lightened. Again, be aware of the total weight you are adding to the trailer.

SWAY CONTROL

Camping trailers — and some large boat trailers — often use sway controls. These usually mount to the drawbar near the hitchball and reach to a point on the trailer tongue. A damping device (such as a shock absorber or friction pad) is used to control side-to-side movement and help keep sway in check.

Passing trucks, gusting crosswinds, steep downhill grades, and excessive speed can cause sway. Slow down before approaching downhill sections and areas of gusty wind. To reduce the tendency of a trailer to sway, keep tongue weight between 10 to 15 percent of the total towed weight for camping trailers; boat trailer tongue weights of 5 to 8 percent are recommended. Keep the tow vehicle's tires and trailer tires inflated to the maximum cold pressure stamped on

their sidewalls. On larger trailers, it's a good idea to install a sway control device.

If your trailer starts to sway, SLOW DOWN, but don't stomp on the brake pedal. Turn the steering wheel as little as possible while maintaining control of the vehicle. Because of your natural reaction time lag, counter-steering can actually increase sway. If the trailer has electric brakes, use the hand control to apply them; this will help keep the vehicles aligned. Stop as soon as possible and check tire pressure, sway control and spring bar adjustments, and look for cargo weight shifts or mechanical failures.

Until the problem has been corrected, keep your speed down to maintain full control. Keep in mind that one of the greatest factors involved in the inducement of trailer sway, other than incorrect weight distribution, is excessive speed.

TOW VEHICLE LOADING

The load carried inside a tow vehicle is an integral part of the vehicle's tow rating. Two critical figures you should be aware of are front and rear



SAFETY CHAINS SHOULD BE as tightly strung as possible, without hindering the trailer's turning ability, and crossed to act as a cradle to catch and keep the trailer's tongue from hitting the ground if it comes loose from the hitch ball.

Gross Axle Weight Ratings (GAWR). These figures tell you how the vehicle is designed to handle a load. In light-duty vehicles, the rear GAWR may be less, which means you can only carry a limited amount of weight back there. Overloading the rear axle with gear and/or passengers can affect towing stability and safety.

The more crucial figure is the Gross Vehicle Weight Rating (GVWR). If you add up the two GAWR figures, you'll find that they exceed the GVWR. The reason for this is to give you the flexibility of where to stow extra weight. However, never exceed the GVWR. These weight figures can be found on a placard on the edge of the driver's door.

TIRES AND WHEELS

People often forget to check tow vehicle tire and trailer tire pressures. These should be considered your lifelines to the road. Tire failure is the cause of most towing accidents. Under-inflation is the prime cause of trailer-tire failure because the excessive sidewall flexing creates overheating that can lead to blowouts. It is recommended you maintain proper cold tire pressure on trailer tires, as indicated on the tire sidewalls or the trailer manufacturer's certification label. Always check

CHECK ALL LUG NUTS prior to every trip you take with your trailer boat or camping trailer.



TIE-DOWN STRAPS SHOULD BE used on the bow and stern to make sure the boat stays securely settled on the trailer during travel.

air pressure when tires are cold, before moving the trailer. Tires heat up and air pressure increases after traveling only a short distance.

Wheel nuts must be tightened to a specific torque rating so they won't rattle loose. Too loose or too tight can be a bad thing; they must be just right. This is best done with a torque wrench, not the air-impact wrench your tire shop probably used. Your automobile owner's manual or the wheel manufacturer (in the case of custom wheels) should be able to furnish the proper tightening settings and procedures. And always retighten the nuts after the first 25 miles. Tandem axles on trailers do not steer, so their wheels tend to flex and loosen more than single-axle trailers. Check and retighten them frequently.

READING THE LABELS

Now, let's look at the fine print on the trailer's labels. First, federal law requires trailer and tire registration information. So fill out any forms you get from the dealer and mail them to the appropriate source. This makes it possible for the manufacturers of the various products — tires, axles, coupler and so forth — to issue a defect notification, if applicable. It is insurance for you so you'll know about a possible problem in time to have it corrected.

Now, check the metal or plastic certification label attached by the manufacturer to the left forward side of the trailer. It will show the maximum permissible loaded weight of the trailer. Known as the Gross Vehicle Weight Rating (GVWR), it is the load-carrying capacity plus the empty weight of the trailer. This total weight includes all options, gear and fluids in the trailer. Remember that fluids add weight.

Many camping trailers have 30-gallon water tanks and 6-gallon hot-water tanks. Water weighs 8.3 pounds per gallon. And don't forget the weight of the filled propane bottle(s), and all the gear, luggage and other cargo you've loaded into the trailer. Do not exceed the GVWR! If you do, you stand a good chance of breaking something. If you don't know how much it weighs, take it to a public scale and find out.

LAWS, SAFETY AND COMMON SENSE

Trailer laws covering such things as brakes, lights, safety chains and licenses vary from state to state. Be sure that your trailer is in full compliance with your state laws.

One of the most often overlooked trailering laws is that regarding safety chains. The purpose of safety chains, of course, is to keep the trailer from becoming detached from the tow vehicle while towing. Some



EXTENDED SIDE-VIEW MIRRORS are especially useful when towing large boats or camping trailers.

trailers come with only one chain, which is only partially beneficial. With two chains, you should cross them to form a cradle. Should the coupler come loose from the hitchball, it will drop into the cradle and not drag on the pavement, which gives the driver better control and usually minimizes potential damage.

Now that you know what can happen when the coupler comes loose, let's take a look at what needs to be done to prevent it. Most importantly, make sure the coupler matches the hitchball. The coupler will be stamped with the hitchball size it will mate with: 1 $\frac{1}{8}$ inches, 2 inches or 2 $\frac{1}{2}$ inches. If the hitchball is too small, the coupler will hop off when the trailer bounces up and down on uneven road surfaces. Most couplers either have a locking device that can be activated, or a hole into which you can insert a bolt to keep the coupler from popping open.

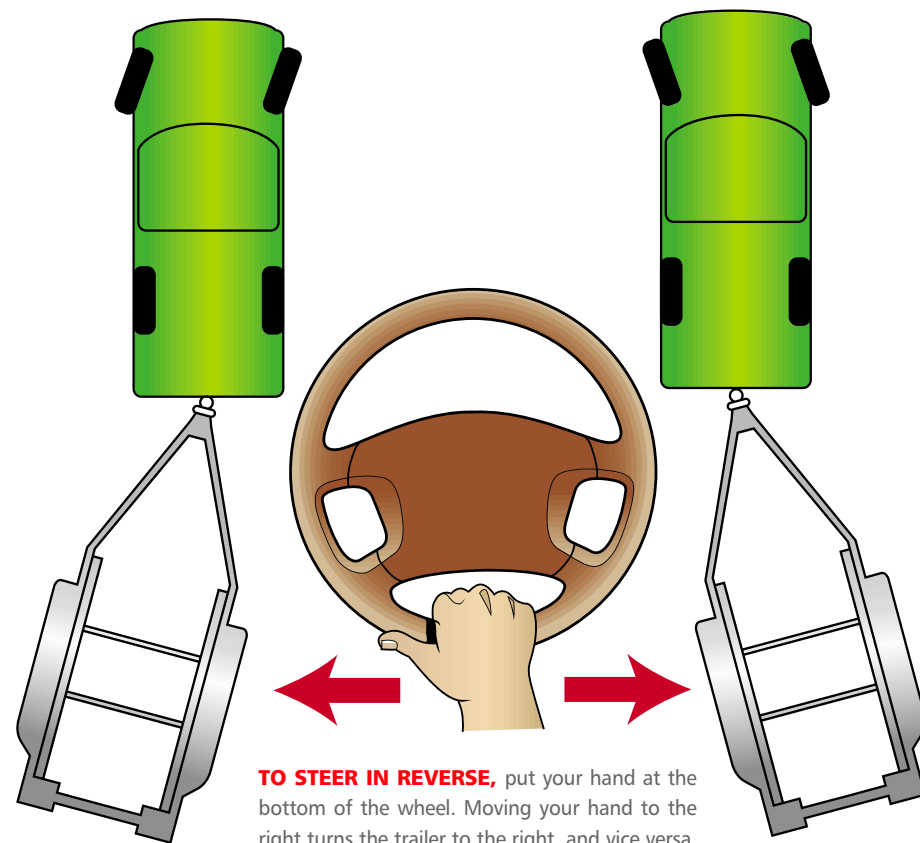
Additionally, don't forget to securely attach the breakaway trailer brake cable to the tow vehicle's hitch. Usually it can be hooked to the same steel

loop on the receiver hitch that the safety chains are hooked to. And always plug in your trailer's electrical harness to the receptacle on your tow vehicle. Then make sure all lights, including turn signals, brakes and backup (if your trailer has them) are operating correctly.

These topics — overloading your tow vehicle, tongue weight, sway control, and proper attachment of the trailer to the tow vehicle — are all things that should be carefully considered before setting out on any towing adventure.

DRIVING WITH A TRAILER

If you're unfamiliar with trailer towing, don't feel overwhelmed. With a little practice, it really isn't that difficult. In fact, with a properly set up trailer and tow vehicle, you'll hardly notice you are towing, until you get into tight spaces. Just keep in mind that you are now driving with a vehicle that's a lot longer and heavier than it was before.



TO STEER IN REVERSE, put your hand at the bottom of the wheel. Moving your hand to the right turns the trailer to the right, and vice versa.

You will notice reduced acceleration, longer stopping distances, lower fuel economy, some blind spots in your mirrors (especially with large trailers) and a much wider turning circle.

The wider turning circle becomes evident when rounding sharp corners. Your trailer will not turn in the same arc as the tow vehicle. You'll need to make a much wider swing to avoid curbs and road signs.

Also be aware of the extra length required when changing lanes or passing. Watch your mirrors closely to make sure there's enough room to move over, and always use your turn indicators. Courteous drivers will flash their headlights at you to indicate there is adequate clearance.

When it comes to stopping, remember to keep your distance. Look farther ahead than usual and anticipate your — and others' — actions. When towing, your stopping distance will increase dramatically. This is not the time to tailgate. Also be aware that after retrieving a boat

from the launch ramp, the trailer brakes will be wet, temporarily reducing their effectiveness.

SIDE MIRRORS

One of the first things you'll learn is that your main rearward vision will be from the side mirrors. On most vehicles designed to tow heavy loads, the standard side mirrors should be adequate until boat or trailer width exceeds 8 feet. Extended mirrors (available from boat or RV dealerships) will become a valuable accessory. Vertical mirrors are often the best choice since they offer a better view of the tow vehicle and trailer wheels. A convex "spot" mirror on the passenger side helps a lot, too.

BACKING UP

Driving a trailer in reverse can be challenging, even for the experienced. Our best advice is to plan ahead and limit the amount of backing you will have to do.



TIRES DESIGNED FOR USE ON trailers are designated with an “ST” sizing, and usually have sturdier side walls to help handle the heavier loads of boats and camping trailers.

Try to leave yourself plenty of room, and if you have to turn while backing up, back to your left (driver’s side). This way you’ll be better able to see the trailer’s movements. Also remember the trailer will go in the opposite direction of the tow vehicle when backing — this is often the hardest thing to get used to.

An easy way to help you through the learning process is by concentrating on the steering wheel. Try placing one hand at the bottom of the steering wheel. Watch your mirrors. Move s-l-o-w-l-y! If you want the trailer to move right, move your steering hand to the right. If you want the trailer to move left, move your hand to the left.

Some people are uncomfortable with this procedure. An alternative would be to turn so you can see through the rear window and watch what you are doing, but this can be awkward. Try both, and decide which is most comfortable for you.

Either way, your best friend is practice. A friendly spotter standing at the rear of your trailer helps tremendously. Empty parking lots with parking stripes are great for practicing. Always back slowly — the faster you go, the more difficult it becomes. The nice thing about a vacant parking lot is that you can concentrate on how to move the trailer without having to think about striking another object.

This is also a good time for driver and partner to

coordinate their hand signals. Working together as a team makes backing up a trailer much easier. This becomes important in tight situations such as campgrounds, or when launching and retrieving a boat. When you first work out signals, be sure you can see your assistant — otherwise, the person could be waving frantically only to find his signals ignored because you can’t see them.

One important tip to remember when backing: If the trailer heads in the wrong direction too abruptly, stop, pull ahead and try again. This is much easier than trying to correct your mistake, which leads to the zigzag pattern you see so often from novices.



GIVE YOURSELF PLENTY of braking room when towing, especially on downhill grades.

