

9 / AXLES, SUSPENSION AND BRAKES

AXLES

The axle weight ratings are listed on the DOT placards and tags located on the front left side of the trailer. The axles are designed to last the life of the trailer without service, except for lubrication of the wheel bearing, adjustment and inspection of the shackles, shackle links and springs. "Easy lube" fittings are installed under the hub caps to make maintenance easier. A complete guide to axle maintenance requirements and procedures is in the **"Care and Maintenance"** chapter, and in your Owner's Package. Never weld on or near the axles.

The axles are a hollow-tube design and may be cambered by the axle manufacturer. Cambering means that the axle has a slight precision bend that compensates for the trailer load. You may notice a slight outward tilt at the top of the wheels when the trailer is unloaded. This is caused by the cambering. As the trailer is loaded, the axle will straighten and the wheels will be straight up and down. If you continue to load the trailer beyond the axle load ratings, the axle may bend the other way, and the wheels may appear to have an inward tilt. If you see the tops of your wheels tilting inward, this is a sign of axle overload.

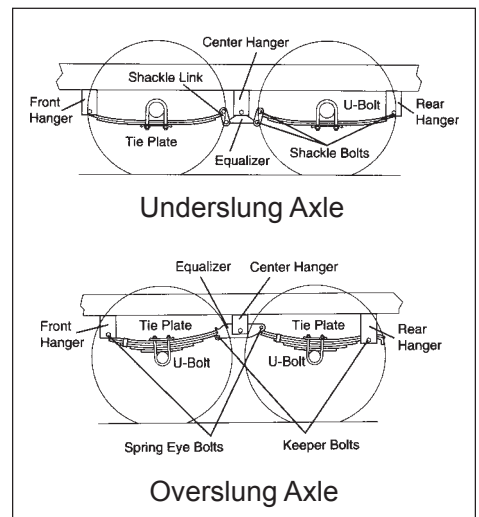
SUSPENSION SYSTEM

Most MVP RV trailers use double-eye leaf spring suspension. An equalizer assembly between the springs transfers the load from one axle to the other while the trailer is moving, and helps to smooth out variations in the road surface.

Bump stops may be attached to some trailer frames to limit the upward travel of the axle(s). Please note that the total axle vertical travel is only about 1-1/4". Keep this in mind when traveling. Although you may not feel irregularities in the road because of your tow vehicle's longer springs, the trailer's stiffer suspension doesn't absorb bumps and potholes the same way. The springs on your tow vehicle are considerably longer and have a much greater total vertical travel. This is what helps give your tow vehicle a smooth ride. Under certain conditions, you may see your trailer "bounce" more than you expect.

NOTICE

Do not lift or support the trailer on any part of the axle or suspension system. Lifting the trailer at the axle tube can cause permanent damage to the axle, which will not be covered under the warranty.



NOTE: The brake controller is not supplied with the trailer. If you have not chosen and installed a brake controller in your tow vehicle, see your trailer dealer.

VP

NOTE: Check brake shoe adjustment regularly. They should be in the same adjustment as the tow vehicle brakes. Loose, worn, or damaged wheel bearings are a common cause of “grabby” brakes.

Generally, this is normal. If you travel in areas where road conditions are severe, slow down to reduce the possibility of damage to your suspension system, the trailer structure or items inside the trailer.

ELECTRIC BRAKES

Your trailer is equipped with electric brakes. They are similar to the drum brakes in many trucks and cars. The basic difference is that rather than using hydraulic pressure for activation, your trailer brakes are actuated by an electromagnet.

A controller (not supplied with the trailer) is installed in your tow vehicle that controls the amount of electrical current sent to the trailer brake assemblies. Some older controllers are connected to the tow vehicle brake system and react to the hydraulic pressure when you press the brake pedal. Most controllers currently available operate by sensing how much you are slowing down and apply the trailer brakes accordingly. These are referred to as “inertia” type controllers. Other controllers operate by applying the trailer brakes proportionately to how long the brake pedal has been pressed, and are called “time-based” controllers. Although you can choose whichever type controller best suits your needs and budget, the inertia-type is recommended. This type controller will give you the most natural feeling brake application, and provides trailer braking that more closely follows your tow vehicle braking.

No matter which type of controller you use, under most towing conditions, the trailer brakes are operated by 12-volts DC from the tow vehicle electrical system. The 7-way power cord carries the electrical power to the trailer brakes, and the cord must be connected at all times while towing. The diagram shows a typical brake system electrical schematic.

The controller in the truck cab can be adjusted to affect the rate of application of the trailer brakes. This adjustment does not affect the maximum braking capacity of the brakes. It should be adjusted so that the tow vehicle and trailer brakes are balanced, and provide a safe, comfortable stop. The trailer brakes should usually just slightly lead the tow vehicle brakes. Always adjust the controller according to the manufacturer’s instructions. When it is properly adjusted, you should feel no sensation

of the trailer pushing the tow vehicle nor of the trailer pulling the tow vehicle during a stop. See the axle operation and maintenance guide in your Owner's Information Packet for details on brake and controller synchronization.

The breakaway switch is a special trailer brake control that operates the trailer brakes in case the trailer ever becomes uncoupled while towing. Power for the breakaway system comes from the trailer batteries and is supplied to the brakes through the switch. The switch is located on the A-frame coupler (pin box on fifth-wheels). It has a steel lanyard which must be fastened to a rigid part of the tow vehicle frame or hitch assembly. Should the trailer become unhitched, the switch is activated when the cable pulls the pin out of the switch, applying the trailer brakes. Towing the trailer with a defective breakaway switch is both dangerous and illegal in most places.

Test the operation of the breakaway switch periodically. To insure safe operation, the cable must be secured properly to a rigid part of the tow vehicle frame or to an unremovable part of the hitch on the tow vehicle. Do not loop the breakaway switch lanyard over the hitch ball or to any removable part of the hitch assembly. **Never use the breakaway switch for parking, or remove the pin from the switch.** This will apply the trailer brakes and run down the trailer batteries, and possibly damage the switch contacts and brake shoe magnets. When disconnecting the trailer from the tow vehicle, remove the lanyard from the tow vehicle.

The magnets, brake shoes and related components on the trailer axles are what actually stop your trailer. The magnets and brake shoes are "wear" items meaning that over time they wear out and you have to replace them as a part of normal maintenance. Please note that trailer brakes do not have the same life expectancy as the brakes on your car or truck. They will typically last 10,000 - 20,000 miles depending on your towing conditions. Certain conditions will shorten the life of the brake components. If you travel mostly on paved roads and operate the brakes properly with a properly adjusted controller, you can expect the maximum life. If you travel mostly on dirt roads, in sand or in other harsh road conditions, or if your controller is not set up properly you can expect shorter

CAUTION

Be sure the trailer batteries are charged before traveling, and that the charge line from the tow vehicle is connected. Proper operation of the brakes by the breakaway switch requires fully charged batteries, or connection a power source equivalent to or greater than an automotive type 12-volt, 12-amp-hour wet-cell battery.

WARNING

Do not loop the breakaway switch lanyard over the hitch ball or to any removable part of the hitch assembly.

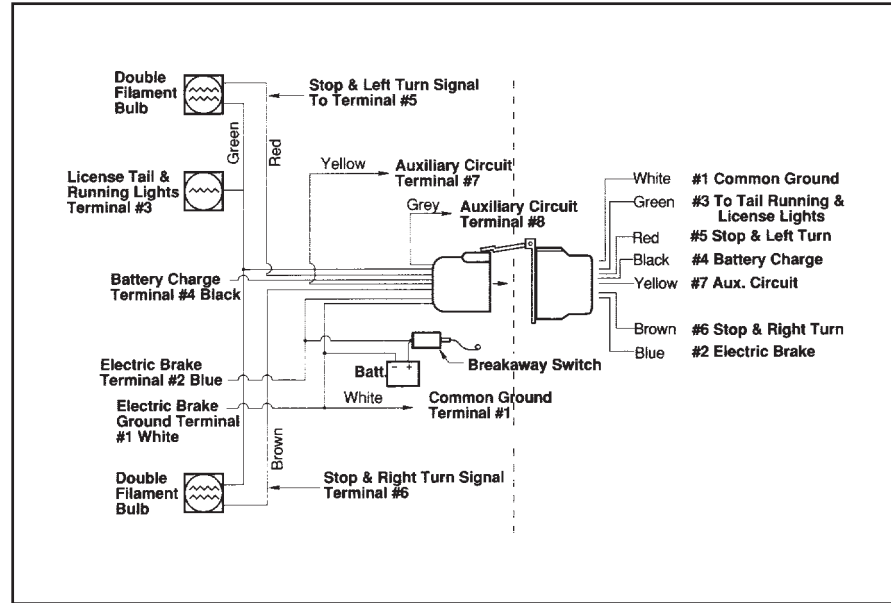
CAUTION

Do not use the breakaway switch as a parking brake. The trailer batteries will be discharged rapidly and the brake magnets may be damaged.

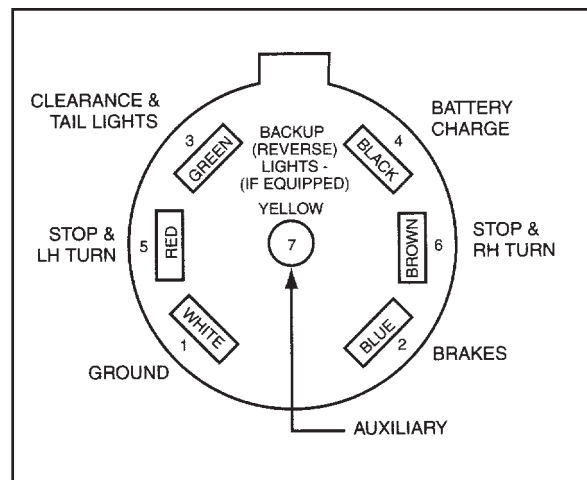
NOTICE

Failure to disconnect the unit from the 7-way tow vehicle cord prior to testing the breakaway switch may cause damage to the brake controller.

brake component life. Your driving technique will also significantly impact the life of your brakes. Hard stops from high speeds will shorten brake life. Also note that **the trailer brakes are not self-adjusting** as are most car and truck brakes. The trailer brakes will need periodic adjustment. Please follow the recommended inspection, adjustment and service intervals as outlined in the axle operation and maintenance guide.



Typical trailer brake system schematic



7-Pin Wiring

(View is looking into the tow vehicle-mounted connector)