Truck Mount Trailer Guide

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Hookup & Safety

When connecting your trailer to your tow vehicle, it is vitally important that you adhere completely to all of the following steps to insure both your safety and that you will not incur damage to your trailer or tow vehicle.

• Insure that the tow vehicle and hitch are rated for 5,000 lb total trailer weight and a tongue weight of at least 350 lb.

• The coupler on your trailer is made to accept a 2” ball. Do not use a smaller ball as the trailer could come uncoupled while towing. Insure that the ball is rated for the load.

• Insure that when the trailer is connected to the tow vehicle, it is sitting approximately level so as not to cause undue wear to the front or rear tires. A good starting point is to set up the hitch so that the top of the ball is approximately 20” from the ground with the tow vehicle sitting on a level surface.
• With the jack, raise the front of the trailer high enough to clear the hitch ball.

• Position the tow vehicle with the ball directly under the trailer coupler.

• Using the jack, lower the coupler onto the ball and crank the jack to the full up position to insure that it will not drag when driving over dips and rises as this could bend or bind the jack causing permanent damage.
- Lift the lever on the coupler and secure the latch by pulling forward until the latch drops over the front of the coupler. Insure that the tabs on the latch have dropped into the slots on the coupler and secure the latch with the pin lock which is provided to prevent it from opening while in motion. If the latch will not completely close, you may have to rock the trailer back until the tabs drop into the slots. **Do NOT hammer on the latch as this may VOID your warranty.**

- Secure the safety chains to the slots or rings provided on the hitch insuring that the connecting links are fully closed and secured. Note that it is recommended that the chains be crossed to the opposite sides when securing to provide a “cradle” for the tongue should the coupler ever become disconnected while in motion.
Plug the electrical connector from trailer into the socket on the tow vehicle insuring that the connector is fully inserted into the socket and the tab on the socket cover drops in to lock the connector in place.

Your trailer is equipped with a safety breakaway system which will apply power to the brakes should the trailer ever become disconnected from the tow vehicle while underway. There is a small 12 volt rechargeable battery located in the black box on the trailer tongue. This battery should be periodically charged with a “float charger” or “battery maintainer” such as are used for motorcycles or jet skis when in storage. There is a breakaway switch located on the trailer tongue which is activated by a cable connected to the tow vehicle.
• The cable for the breakaway switch must be secured to the tow vehicle independent of the safety chains in order to operate effectively in the event of a trailer disconnect. Do not loop it around or through the chains or attach it to the safety chain couplers.

• In order for the electric brakes on your trailer to be operational, you will need to have a brake controller installed on your tow vehicle. The Master’s Touch strongly recommends that you utilize the trailer brakes both for safety and to prevent excessive wear to your tow vehicle’s brake system. The following is a brief description of the different types of brake controllers and how they work.
Spare Tire Recommendations

Your trailer package does NOT include a spare tire.

You should consider obtaining the following items before you begin towing your trailer:

• Spare Wheel & Tire
  • Wheel - 15” x 7” / 5 on 4.5” Bolt Pattern
  • Tire - 205/75R15 ST

• Lug Wrench - 19mm
• 2 Ton Floor Jack

If you would like The Master’s Touch to put together a Spare Tire Package for you, please contact your Business Advisor for further information.
How Brake Controllers Work

Introduction to Brake Controllers

If you've ever gone roller skating at the rink with a large group of friends, you might very well have started a train. With everyone in single file and holding onto the person in front of him or her, the train continues in a circle around the rink. As long as everyone skates together at the same relative speed, the line will move along safely.

The group can't go on skating in circles forever, of course. So when someone needs to take a break, the best way the whole train can slow down at the same time is if the person at the front of the line sends a signal to rest of the skaters to slow down. This way, each skater stops at about the same time, avoiding any collisions. If the front skater had decided to stop on his own without letting those behind him know of his decision, the full force of the train's momentum would cause his fellow skaters to crash into him, creating a massive pileup and probably tripping up any nearby strangers.

You can think of a truck towing a trailer in a similar way. If you simply hitch your trailer up and head out on the road, slowing down becomes more difficult because of the extra weight behind your vehicle. Fortunately, most states require drivers to equip their trailers with brakes and devices known as brake controllers. When a driver presses on the brake pedal in his truck, the brake controller lets the trailer's brake system know how much braking power is needed to stop the trailer.

What types of brake controllers are there? How do you know how much power goes into the trailer's brakes? How are brake controllers installed? Read on to learn about brake controllers.
Types of Brake Controllers

Although there are several different styles, we can divide brake controllers into two distinct groups -- proportional brake controllers and time delayed brake controllers.

**Proportional brake controllers** use a motion-sensing device to detect how fast the tow vehicle is stopping. The moment the driver applies the brakes, the brake controller applies the same amount of braking power to the trailer's brakes -- if the truck is stopping quickly, the trailer will stop quickly; if the truck stops slowly, the trailer will stop slowly. In a situation that requires heavy **braking**, for instance, a proportional brake controller will cause the trailer to stop at exactly the same time as the truck does. This type of brake controller provides the smoothest braking, and because both systems are doing the same amount of work, it reduces the amount of wear on each vehicle's braking system.

Proportional brake controllers are also known as **pendulum brake controllers** because of the way they sense motion. These devices use the position of a pendulum as a motion-sensing device, and drivers typically need to calibrate them before using them. When the vehicle is on a level plane and the pendulum is pointing straight down to the ground, the brake controller doesn't sense any motion and won't send any signals to the trailer's brakes. When the vehicle moves, however, the pendulum points toward the rear of the vehicle. As soon as the vehicle brakes, the pendulum swings forward. Depending on how far the pendulum swings, the brake controller sends a degree of power to the trailer's brakes.

**Time delayed brake controllers**, on the other hand, provide a pre-determined amount of power to the trailer's brakes when the truck stops. The power is set beforehand by the driver and depends on how much trailer weight he's towing. A delay will always occur when the brakes are pressed; however, a sync switch allows the driver to adjust the length of the delay. Time delayed brake controllers put more wear on braking systems, but they're less expensive and easier to install than proportional brake controllers.
Brake Controller Monitors

Sometimes simply hooking up a brake controller to your trailer isn't enough reassurance. It helps to know how much brake power you're applying during a stop or whether the trailer brakes are even functioning at all. Brake controllers almost always have some type of monitor built in, which, if placed correctly -- often under the instrument panel, near the driver's right leg -- is easily viewable from the driver's seat.

Digital display screens show the voltage delivery going from the brake controller to the trailer's brakes. The more you press down on the brake pedal, the more power will go toward the trailer's brakes; if you give the pedal a softer touch, less power goes to the trailer's brakes. The brake controller monitor reflects the amount of pressure and power you're applying to the brakes. Brake controller monitors help you make sure your trailer is properly connected and will notify you of any electrical problems that could put you in danger.

As technology improves, newer brake controllers, specifically electronic ones, offer more monitoring options. Some models come with LCD screens that give specific, continuous diagnostics and important warning signals to drivers. Often, displays are customizable, with language options in not just English but French and Spanish -- some even offer color choices.
Installing Brake Controllers

Installing a brake controller is a fairly easy task. The first step involves simply mounting the brake controller in an area that is easy to access. Most people choose to place it under the dashboard and directly above your right leg; this keeps the brake controller in view, where you can monitor any potential problems.

Brake controllers typically come with a four-wire configuration, which can be hooked up to the braking system's wiring. The four separate connections are:

- **Trailer feed** - supplies brake power to the trailer connector
- **Ground** - connects the brake controller to a negative, grounded source
- **Brake switch** - the wire that transfers power once the brake pedal is pressed
- **Battery power** - supplies power to the brake controller

If you're not comfortable with bundles of wires, you might want to have a trained professional take care of your brake controller installation; however, if you know what you're doing and follow the directions provided by the device's manufacturer, installing a brake controller shouldn't be a problem.
Truck Mount Trailer Wiring

7 Way Systems
Round 2" diameter connector allows additional pin for auxiliary 12 volt power or backup lights. Uses: heavy duty landscaping trailer, car trailer, boat trailers, horse trailer, travel trailer, construction trailer, etc. Check with a test light or VOM.

These diagrams assume you are facing the connectors as shown in the pictures below:
FAQ's And Trailer Wiring Problems

When I have the headlights on and apply the brakes, all the lights on my trailer go out.

You may have a weak ground problem. A poor ground that is strong enough to provide some lighting functions but not all. When the taillights and brake lights are used at the same time, it creates the maximum amp load of the lights on the trailer. If a ground problem exists, it will show at this point. The places to check grounds are as follows:

1. The connector on the tow vehicle should have a ground wire secured tightly to a clean unpainted surface on the frame. A wire attached to an insulated body sheet metal panel, a surface with undercoating or rust can cause a ground problem. Test with an ohm meter for the path of least resistance. (battery disconnected from vehicle)

2. The t-connector from the tow vehicle should have a ground wire and should be secured tightly to a clean surface on the trailer.

3. Each tail lamp assembly at the back of the trailer also must be grounded. This is done in one of two ways. The first is by a separate wire coming from the back of each taillight lamp assembly being secured to the frame. The second, and most popular, ground is achieved through the bolts of the taillight lamp assembly. In this case, the lamp housing must be attached to the metal frame of the trailer. If the lights are mounted on wood or plastic material, the light circuit will never receive a ground.

4. **Note:** The trailer hitch ball of the tow vehicle should never be considered sufficient ground.

When I use one turn signal the other one blinks.

This is usually related to one of two things. The first could be a short somewhere in the system. All trailer wiring and the tow vehicle connector should be checked and tested. The second, which is the most common problem, is a weak ground in the system.

My interior trailer lights don't work.

This usually results from not having a hot 12 volt wire connected to the #4 terminal of the tow vehicle connector (see above diagram). The interior trailer lights are not powered by the battery in the trailer and are only operational when the trailer is connected to the tow vehicle.

I am blowing fuses / circuit breakers on my tow vehicle.

Possible live wire shorting to ground. Check all wires for bare copper or places where a wire or cable could be pinched. Possible overload of too many lights on the trailer. Calculate the amp load your trailer is pulling, see below. Most cars are equipped to handle only standard lighting on trailers; one rear turn / brake signal on each side and 1 set of left and right marker lights. Large trucks, vans or SUVs can handle more.
Interior Lights Not Working?

The interior trailer lights are not powered by the battery in the trailer, they will operate only when the trailer is connected to the tow vehicle. If your inside lights fail to operate, please check for voltage on the “one o’clock” terminal of the electrical connector on the tow vehicle as shown in the picture below. If you do not have a constant 12 volts DC at this terminal, you may have a missing or blown fuse or your vehicle may not have been wired for interior lights when the connector was installed. All trailer lighting is tested prior to shipping, so please check for power at the connector before calling regarding inoperable interior lights.