



L-R: box cutter, screw drivers, volt tester, wire cutters, fuses for truck & trailer, cable adapters, spare cable connection parts, and electrical tape.

Tech Corner: Getting your truck-to-trailer cable connection working properly

If you want to ride a horse and take it somewhere in a trailer, eventually you will need to make repairs and adjustments on your truck and trailer. Eventually, we will all get stuck somewhere on the side of the road, and just like that, truck and trailer repair becomes paramount. This column is designed for the average, non-mechanic, non-engineer, rider who may need to MacGyver his/her way out of a bad situation.

Your toolbox

It starts with your toolbox, assuming you have one. If you're a woman and your husband has a toolbox, but you never had your own, get your own toolbox now, and don't let anyone borrow a tool without replacing it! Buy your own tools and spare parts (even if they duplicate your husband's), and make sure they stay in that box, which you will carry in your truck or trailer. A \$2 fuse can be the difference between getting on the road fast and losing a day in transit.

You have a problem with your cable or fuse if your lights, brakes, running lights, or 12V power are not working properly. This can mean your brakes are locking up, your left blinker makes your right blinker blink instead, your lights or your brakes on your trailer don't work. You also have a problem if your trailer works on your truck, but not on someone else's. This is because either one or your trucks or trailers isn't wired to manufacturer's specs. It can also mean you have blown the fuse for the trailer **tow/turn stop relay** (a 20 amp fuse on my truck), or the wiring is loose or dirty; or there is a short.

Some of this is easy to fix, some not so easy, but it may be something you can do yourself. Even if you can't fix it yourself, simply having the replacement parts on hand will make a tremendous difference. Unfortunately, this is not as straightforward as it could be because the wiring color coding is not standard.

Trucks usually come from the factory wired for a four-pin cable. Three of the colors are standard across all trucks and trailers. **Brown is tail and running lights, aka Marker Lights (ML). Yellow is left turn and stop (LT). Green is right turn and stop (RT). The other color is usually white for ground (GD), but it can also be black or gray.** Most horse trailers will be six or seven-pin connectors, but they are built on the standard four-pin set.

Older horse trailers usually have a six-pin cable, and the connector is usually round. In RVs, it is usually square. On newer horse trailers and RVs, there will be a seventh wire, so the connector is bigger. Again, these are usually round on horse trailers.

On a six-pin trailer, the other wires control 12V power (may also be labeled AX for auxiliary) and the electric brake (labeled EB). On the seven-pin, the auxiliary and 12V are not the same. You could also see auxiliary labeled on some diagrams as "spare," or "S."

On the seven-pin trailers, you will have the standard four, as well as reverse lights

(AX, used on RVs to power reverse lights or cameras), and the other two on the six-pin—the brake controller (EB) and the 12V power. This varies depending on the type of trailer connection you have. See the diagrams to find your trailer type.

Because the wiring isn't standard, and is even different on the truck side and the trailer side, this gets very confusing. It can be worse if someone has used non-standard colors to extend wiring on the truck side. This will require testing to figure out what they did, and/or taking the wiring apart to see what they did.

If you have to have someone else haul your trailer, buy adapters that will allow your trailer to be hauled by the other type of connection. Two are in the photo above, on the right side of the fuses. You can probably haul a trailer a short distance without any brakes or lights if it isn't dark or hilly. However, in either case, you wouldn't be able to do it.

On your connection cable, there will be one ground wire cable. It is the largest hole in the inside piece. When studying your diagrams, that larger hole will help you orient it correctly. The ground wire must be grounded to the metal on the truck, or the system won't work properly. See photo for example on how to do that.

On the trailer side, there will be a wiring diagram on your trailer. Take a picture of it and put it on your phone and/or print it out and put it in your glove box. Most likely, this side will be color-coded to factory specs, because the factory will have installed it. Still, it is possible that

those colors could be wrong, too. Don't expect the wires to the truck cable and the wiring on the trailer side to be the same. They won't be.

If you drive off and forget to unhook the connector, you will probably need new parts, so add them to your toolbox before you leave home.

To repair your cable, you'll need a wire cutter tool that will allow you to cut through the rubber coating and insert the tiny copper wires into the housing. This part of the connector piece is labeled with codes (GD, LT, RT, EB, ML, TL, AX, 12V, BU, S) to help you. These connections need to be tight and the same length. There may be an inline fuse on your trailer, too. If you have to rewire either the truck or trailer side, you can disconnect the proper fuse while working to keep from getting sparks. The shock is small, but if any wires touch, it will spark.



On the truck, the first thing to check is the fuse, if your trailer lights and brakes aren't working. This fuse is in the fuse box under the dashboard of your truck. Some trucks also have a fuse box under the hood. On my truck, the fuse was a rectangular, blue 20-amp (see picture). In your truck's manual, you will find a fuse box diagram and a fuse color chart. Replacing the fuse may be all you need.

If you have to rewire your connector on either the truck or trailer side, start with the four wires from the factory. Check underneath your truck that the ground wire really is attached to the metal on the truck (see top photo above).



Purchase a circuit tester with LED lights (photo above) available from etrailer.com (and some auto stores) that plugs into your truck's connection socket. If the trailer is wired to factory specs, the LED light for each wire will come on. There isn't a light for the ground. These tools are about \$20 and should be part of your toolbox. The six-pin and seven-pin circuit testers are different and can't be interchanged. [Etrailer.com](http://etrailer.com) also carries a circuit tester that will test any circuit. That sells for about \$54.

In your toolbox, you'll also want to include a

wire cutter and stripper, extra wire in 12 and 16 gauge (even if it's not the right color), a set of small regular and Philips head screwdrivers, extra connector parts for both the trailer and truck sides, a box of extra fuses for the truck and trailer, a roll of electrical tape, possibly a magnifying glass, headlamp, and Ziploc bags for the tiny screws while you work.

Refer to the diagrams when trying to rewire these. Replace any fuses, clean all connections, and between the diagram and the tester, you should be able to figure out how to wire it. If it still doesn't work, then you likely have a short.

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<https://www.etrailer.com/faq-wiring.aspx>

The blinker lights and the brake lights are controlled by the same wires (top and bottom of the light fixture). The brake refers to the trailer brake itself, not the brake light. After that, the colors can vary depending on the age of the truck and trailer, make and model of truck, and the type of connector you have. Refer to the diagrams and charts for the correct factory specs. These are from the etrailer.com link above. There are more specs for vehicles on that link.

On older six-pin trailers, the auxiliary (AX, center) may be blue; electric brake (EB) may be red. Ground (GD) may be black. Diagram shows newer trailers.

