



## REPLACING IN LINE ACTUATOR

This is a fairly straightforward job, and takes 30-45 minutes at the most, plus another 30-45 minutes for manually bleeding the brakes when done. A separate set of instructions for bleeding the air out of the brake lines is available. If the trailer is equipped with drum brakes, only some snap rings and one brake line are involved. If the trailer is equipped with disk brakes, there is an electric backing solenoid at the rear of the actuator that will involve some minor ground and power wiring. If the trailer has a swing (folding) tongue and you fold the trailer tongue open, you can often see the brake line and solenoid and how they are connected. On a non-swing tongue trailer, you will have to work wiring and brake line plumbing from underneath the tongue, so be sure the trailer tongue is securely supported before climbing underneath.

### Tips:

1. These actuators and backup solenoids are very reliable. The vast majority of brake or backup issues are not the fault of the parts. Check for a pulled emergency brake cable, lack of fluid or air in the brake lines, or a wiring problem to the solenoid. Press up on the brake release tab on the bottom of the actuator and see if it releases the brakes. Before going to the trouble to replace the actuator, it is worthwhile to check these three issues out.
2. Be sure you have the correct replacement actuator, as the drum, single disk, tandem disk, and triple disk versions look similar, but are different. There is a part number sticker on the actuator. A single disk actuator will work fine with drums. However, a tandem or triple disk actuator may be too sensitive for a light single brake trailer.
3. Also, if swapping parts between actuators, be very sure the correct brake line fittings are used. The trailer brake line connection is an inverted pipe fitting with straight threads on the brake line side. The threads going into the master cylinder are a similar, but tapered pipe thread. The drum actuator has a special brass adapter fitting in the back of the master cylinder to make the pipe threads match. The disk actuator takes care of the fitting adaptation in the backup solenoid. Don't try to screw a brake line directly into the master cylinder body if it is missing the brass adapter fitting. The lines will appear to fit together, but will leak under pressure.

### Actuator Replacement Procedure:

1. Have some rags handy to catch any brake fluid and keep it off trailer paint. Disconnect the brake line going from the solenoid or back of the master cylinder to the trailer. If it is a brake hose, you may have to loosen the hose to metal brake line joint on down the line so the hose will swivel out of the solenoid as you loosen it. When the hose is disconnected, plug the end of it to keep brake fluid from running out with a golf tee or other plug. This will save time later during bleeding the brakes.
2. If a disk actuator, disconnect any ground wire to the solenoid base and the blue signal wire going to the solenoid.
3. Remove the snap rings from one side of the two 3/4" diameter slider pins for the brake actuator. Don't over stretch the snap rings. With a punch or other driving tool, drive the



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slider pins out the other side of the actuator. Set the pins, washers, and snap rings aside for re-use. On late model trailers, the front washers are plastic, and the rear is steel.

Tip: These pins hold the inner workings of the inner slide together, so handle gently and slide the inner member forward and out of the outer member housing, keeping it together. Put the pins back in as soon as you can. Don't flip the assembly over after pulling it out, or the rollers and other parts may fall out. A GOOD TRICK: If you can easily make some (slightly shorter) temporary assembly pins out of approximately 3/4" round WOOD dowel, exactly 3 inches long, use them to drive the original pins out, and leave them in place to hold the actuator inner slide together as you pull it out and work on it.

4. Once you have the actuator out on a workbench you can work on it. An owner's manual with a parts breakdown is available separately and on line at [www.ufpnet.com](http://www.ufpnet.com).
5. Reinstall the actuator inner slide into the trailer, being careful to keep the pieces in place. Be sure the top wear pad(s) go in correctly. It is a good idea to put some anti-seize on the pins before installation. Install the front pin first. You may have to wiggle the pin slightly to line up any rollers and the shock in the front. Once that pin is in, pull the actuator all the way to the front of the slide, and install the rear pin. Again, you may have to wiggle the pin around to align the rear rollers and master cylinder. If you have some major alignment issues with the pin, don't force it. If you have to force a pin, something is out of place and needs to be fixed or the brakes might drag later.
6. Reinstall the main brake line to the back of the solenoid. It seals with a double flare into a brass fitting, and only needs to be snug. It is much easier to tighten it some more if you have a leak than to strip or break off a fitting.
7. Reconnect the blue signal wire to the solenoid. If the solenoid does not have a ground wire factory installed to the bottom of the solenoid body, it is a great idea to add one now for future long term wiring reliability. Zip tie and secure the wiring as required.
8. Bleed the air out of the solenoid and main brake line to the first branch/caliper on the line, per the procedure in the actuator owner's manual or separately provided. If in question on the brake bleeding, tow the trailer around after bleeding and then bleed all calipers again to get any trapped air bubbles out and the most responsive brakes.
9. Important: Now that you are done, be sure and depress the brake release lever one more time on the bottom of the actuator to be sure the brakes were not inadvertently left on by the bleeding operation. Be sure any swing tongue hose is not kinked, and folds neatly into the tongue when shut.
10. Road test the trailer to be sure the bleeding was complete, there are no leaks, the brakes go on and off correctly, and the reverse solenoid wiring was correct.



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