



# SwayLOC™

## Installation Document

**Off Road Only**

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### TJ Dual Rate Manual

SwayLOC™ is a dual rate Anti-Sway bar system that allows the operator an easy method of changing from on-road rate to off-road rate. The on-road rate is similar to the OEM Anti-sway bar but allows a more compliant ride on highway. The SwayLOC™ will absorb some of the jarring that may be transmitted to the vehicle thru the OEM Anti-sway bar. The off road rate is unique in that the SwayLOC™ will allow full range of articulation on most vehicles, but will continue to provide resistance and will usually deliver a more balanced feel of the vehicle. This balanced feel is especially apparent when used with a rear anti-sway bar.

The SwayLOC™ utilizes the front cross member on the Jeep TJ and YJ frames for mounting. If your Jeep is equipped with a bumper that covers or obstructs that area, you may have to clearance enough to achieve the room necessary to install your SwayLOC™.

#### **Please INSPECT PACKAGES before starting installation.**

The package contains all of the parts as seen in the picture below.



**Figure 1 SwayLOC™ kit components**

- |  |                        |
|--|------------------------|
| A. Latching Passenger Arm                                    | E. Hardware kit        |
| B. Frame Bushings (2x)                                       | F. Solid torsion bar   |
| C. Link assemblies: 4 rod ends, 4 studs and 6 anodized links | G. Tubular torsion bar |
| D. Driver side arm, Dual Hub                                 | H. Inner passenger arm |



## MECHANICAL INSTALLATION

1. Inspect the front frame area where the tubular crossmember crosses just ahead of the steering box. The SwayLOC™ is housed inside of this crossmember and adequate clearance is required for the SwayLOC™ arms to be assembled and operate just outside of the crossmember opening as shown in Figure 2.

**NOTE:** Bumper was removed for clarity of photos, bumper removal may not be necessary, but it may make the installation easier.



**Figure 2 Side view**

**NOTE:** To determine if there is enough clearance on your bumper, figure a 3" diameter cylinder, extending 2" outward from the crossmember edge. If a cylinder of this size fits, then there should be enough room to install SwayLOC™, provided there are no aftermarket items mounted to the side of the frame from the crossmember to the front spring mounts on the frame. Air controlled version shown.

2. Lube the inside of the bushing with the supplied Viper lube. Insert one of the frame bushings into the D shaped tube in the frame. Drive the bushing fully into place using a wooden block and mallet if necessary.
3. Insert torsion tube from opposite side, into the installed bushing, being sure to make the flat part of the tube face the rear as seen in Figure 3. Once tube is through the frame rail, lube and install opposite frame bushing and drive into place with large socket to fit over tube if necessary. You may also use the arms to 'push' the bushings into place.



**Figure 3**



**Figure 4**

- Center the Torsion tube in the frame bushings, side to side, with approximately  $\frac{3}{4}$ " of the tube extending thru the bushing when it is fully seated up to the frame crossmember. Apply Silicon Lube to the torsion bar, as seen in Figure 5 and 6. Insert the bar into the bushing from the passenger side to the driver side and it will extend beyond the bushing as shown in Figure 7. With the grease that has come past the edges of the bar, smear a bit of grease on the face of the bushings, where the arms will rest against them.



Figure 5



Figure 6



Figure 7

- Install the driver arm (the dual hub arm) onto the torsion tube as shown on Figure 8.



Figure 8

- Install the  $\frac{3}{8}$ " clamping bolts and top lock nuts into the hubs at this time. Snug the inner hub bolt to keep the arm from sliding off the torsion bar, but not too tight, as you'll need this to slide as you put the end cap bolts in place. With the driver side arm on, it should look like Figure 9, snug to the outer torsion tube. As shown in Figure 10, now take a  $\frac{5}{16}$ -24  $\frac{1}{2}$ " bolt along with a fender washer and thread the bolt into the inner torsion bar. You want to tighten it just enough so the fender washer develops a dimple (about 15 ft/lbs.).



**Figure 9**



**Figure 10**

7. Return to the Passenger side and you may need to even out the Viper Lube on the torsion bar. Locate the inner passenger arm, place this on the outer torsion tube as shown in Figure 11. The inner passenger arm should be flush with the bushing. Install the 3/8" clamping bolt and top lock nut into the inner passenger arm and snug it up.



**Figure 11**

8. Now, locate the latching passenger arm. For manual versions, simply flip the lever that has the coil spring attached to it above the latch toward the tapered end of the arm, the latch will move away from the torsion bar end.
9. Place the latching arm on the torsion bar next to the inner passenger arm. Install the 3/8" clamping bolt and top lock nut into the latching arm and snug that up. The two arms should be flush with the bushing, as shown in Figure 12.



**Figure 12**



10. Once again, take a 5/16-24 1/2" bolt along with a fender washer and thread the bolt into the inner torsion bar. You want to tighten it just enough so the fender washer develops a dimple (about 15 ft/lbs.).
11. Now that all the arms are in place, you can now tighten the 3/8" clamping bolts. Approximately 45 ft/lbs., or as tight as you can get them with a 9/16 combination wrench.
12. Assemble the links. Using the 1/2" studs, put together any of the 2.5", 3.5", or 4.5" link pieces in any combination to get the desired length. Screw the stud in until the dimple hits the end of the link. Figure 13 shows the dimple on the stud. Screw the next link onto it. When done, you should be able to twist them together by hand until both links meet, leaving no gap.



Figure 13



Figure 14

13. You may reference Figure 14 to see the proper way to install the rod ends to the arm and the axle. Please note that the links you have received are not like the one pictured. When you have the correct length desired, tighten the rod ends at the arm and the axle.

**NOTE:** When selecting the linkage length, please make the links as long as possible so that the arms are as far away from the tires as possible. The worst case scenario is when the tires are turned toward the arms, and that tire is stuffed. If the tire contacts the arm, damage may result as the lug will grab the arm and push or pull it side to side. If the arm is adjusted as far as possible from the tire, contact will not happen. The one thing to watch, as the tire compresses, the arm will move upward to the inner fender and MAY make contact with the arm. You can shorten the linkage to clear that contact, or you can clearance the inner fender support to gain clearance. Either way, keep the arms off of the tires!!

Also, on some short height applications, or on deep backspacing wheels with smaller tires, it may be necessary to move the passenger side rod end to the inside of the SwayLOC™ arm, as the rod end may contact the tire as well.

### Operating the SwayLOC™ with the Manual Lever

The manual lever system is very simple and should be very straightforward. The grey lever that sits above the latch itself that has the small coil spring attached to the back of it controls the pressure of the spring upon the latch. When the lever is flipped forward, the coil spring pulls the latch forward toward the keyed slot and will hold it engaged once the latch passes over the slot. To disengage for off-road flexible mode, simply lift the coil spring end of the grey lever, and rotate toward the rear of the Jeep, and the lever once over center will flop down against the arm. If the latch is not loaded with the Jeep being slightly twisted, then the latch will clunk as it moves to the rear and disengages. IF the latch does not move once the arm is flipped to the rear, then there is most likely pressure on the latch, keeping it engaged. Simply rocking the Jeep side to side may result in enough movement to lessen the force on the latch and allow it to clunk open. If the Jeep is parked with the front axle slightly twisted to the frame, then you may need to drive for a short distance before it will unlatch. Please listen for the clunk or stop to verify that it is disengaged before you force the Jeep to flex, as failure to disconnect may result in failure, most likely to the linkage attachment to the axle brackets.



To re-engage for highway use, simply flip that lever from the rear toward the front. Now when the latch passes over the slot, it should slide into place and deliver great on road performance. If the latch does not line up with the keyed slot, do not worry. During driving, it will slip into the keyed slot.

## **MAINTENANCE**

Once installed, the only real maintenance to the system is to keep the latch clean and operating. With the air controlled, simply listen to the sound of the engagement and release. With 50 PSI or greater the SwayLOC™ disconnection should report a resounding “bang” as the air cylinder forces the latch open. Switching the SwayLOC™ off should result in a sound of air rapidly escaping, but you will most likely not hear the tab actually engaging. Any change in the sounds should be a key telling you that it may be time for maintenance.

With the manual lever control, simply flip the lever unlocked, and rock the Jeep slightly if the latch is loaded to get it to unlock. AT that point, you should be able to move the latch assembly fore and aft rather easily. If it is sticky or resisting movement, then cleaning is needed.

Maintenance is as simple as keeping the latch clean. After some mud encounters, you may be able to free things up by flowing water thru the latch area, washing out the silt that is collecting. In the event that there is more debris inside than you can flush out, simply removing the socket head cap screws will allow you to disassemble the latch from the arm, and then can clean and rinse the area out well. We are currently resisting from lubing the latch area, as we feel that most lubricants will attract dust and cause more problems. The only lube that we’ve found that we like is the dry lube that you can get at bicycle shops for bike chains, as this stuff will not wash off or attach dust, usually, and this has worked well, but filling the latch slot full of mud will still prevent the latch from operating as designed.

We’ve had a large amount of graphite impregnated in the frame bushings we use to reduce noise, but occasionally, dirt will build up and some squeaking will occur. The best thing to do is to disassemble and remove the torsion bar assemblies, clean the bushings and bar, lube the bar where it contacts the bushing and reassemble.

**NOTE: Forcing the Jeep to articulate with the SwayLOC™ engaged may result in component failure, please ensure that when you disengage the latch, that it does in fact disengage. This is typically determined by listening for the “clunk” as it moves to the extent of travel.**

**Thank you for your purchase of the SwayLOC™ Dual Rate Swaybar.**



# SwayLOC™

Supplemental Installation Document

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## All Dual Rate SwayLOCs

The long term operation of the SwayLOC is dependant on the proper positioning of the arms (the hubs actually) onto the torsion bars.

When the bushings are installed into the frame, if the bushings don't get pushed far enough into the frame they will prevent the hubs from slipping onto the torsion bars to full engagement.

There is a package of parts that contains the spacer as well as nut, bolt and washer to effectively "Pull" the hubs and bushings into place.



Figure 1 SwayLOC™ install kit components

Follow the normal directions up to the point of installing the latching side arms. Ensure that the torsion bars are fully seated on the opposite side by glancing into the hub slot to see that the hollow bar extends all the way to the smaller hub, as seen in the following photo.

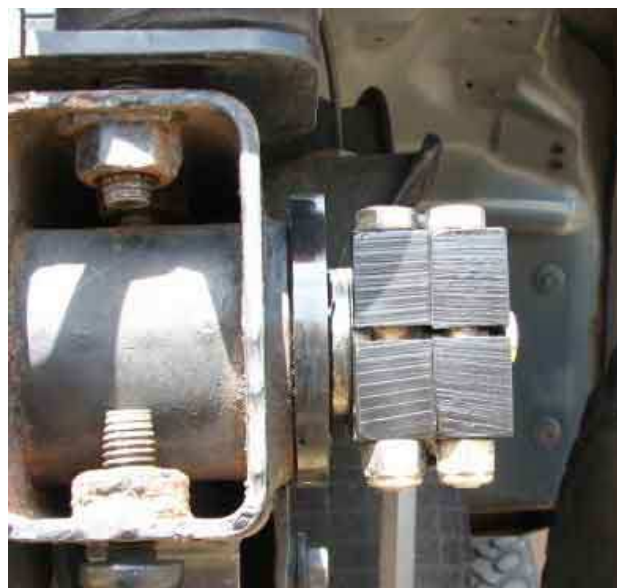


Figure 2 Showing proper hub engagement on dual hub arm



Once the dual hubs both have the torsion bars fully seated, install the large flat washer and 5/16" nut to bring the inner bar flush with the outside of the small hub. Then, install the cross bolts and tighten as recommended in the manual. This will hold the dual hub side tight to the torsion bars while you work on the opposite side.

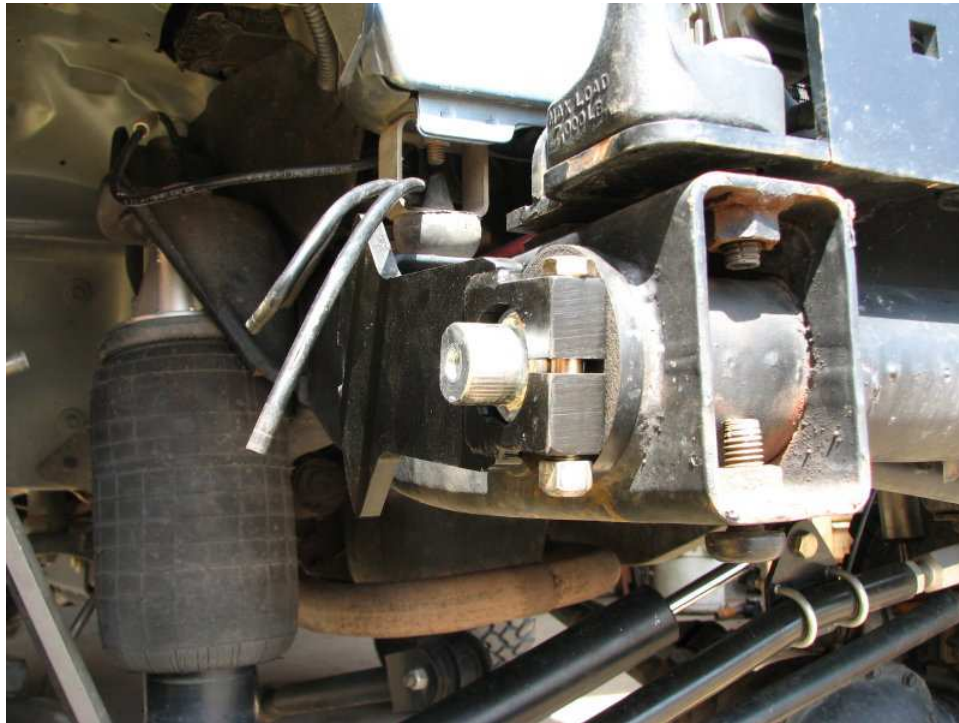


Figure 3 Notice the hollow torsion bar is not flush to the edge of the hub.

In Figure 3, you can see that the short arm hub is not fully engaged to the torsion bar, installing the system in this manner will cause the hub to torsion bar connection to fail and will fail in a manner that can be identified and not warrantable.

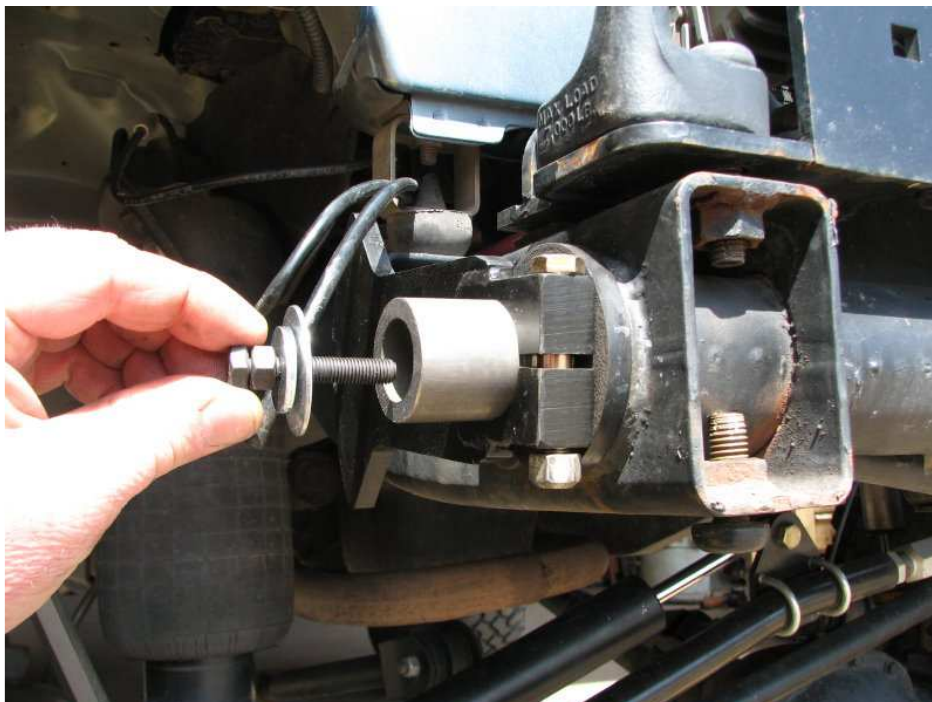


Figure 4 Slide the spacer over the inner torsion bar as shown, assemble washers and nut and bolt as shown.





Start the pulling process by sliding the spacer onto the inner torsion bar and assemble the nut, bolt and washers as shown in Figure 4. Note: The large flat washer is part of the SwayLOC install kit. Start the bolt in the threads in the inner torsion bar. Turn the nut as far towards the head of the bolt as possible to allow as much thread contact in the torsion bar as possible. IF there is less than 3/16-1/4" of thread engagement, please tap the bushings in a bit farther with a hammer before using this install process, failure to get enough thread engagement in the torsion bar may result in damaging the threads in the torsion bar.

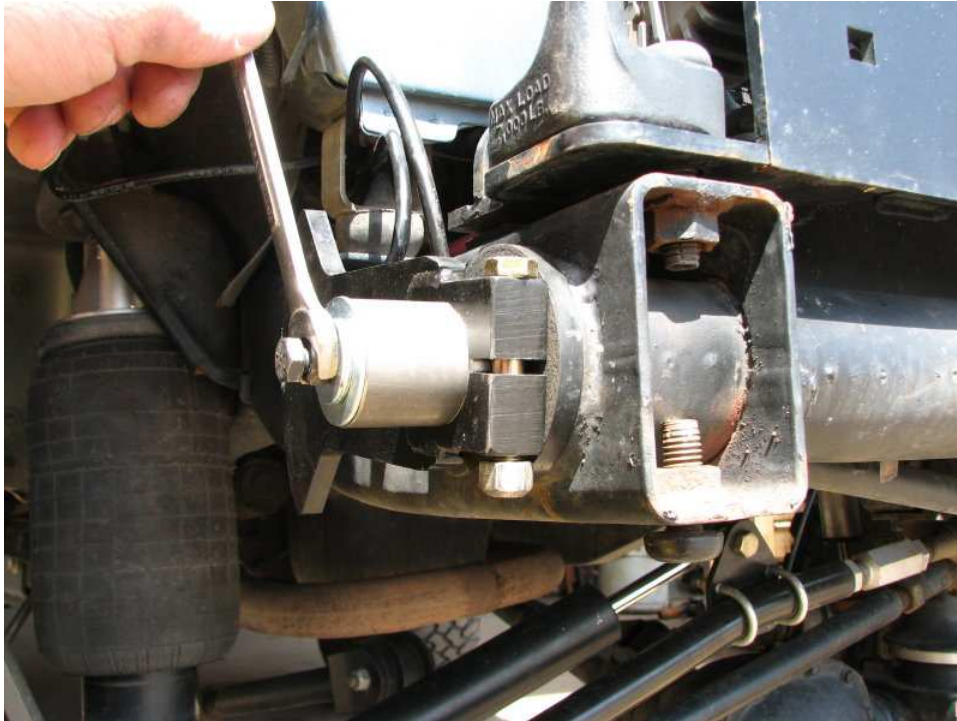


Figure 5 Turn the nut to pull the bar into the hub.

Now, with the bolt screwed into the torsion bar, use a 1/2" wrench to turn the nut to pull on the torsion bars into the hubs. Watch the hollow torsion bar thru the slot as it slides into place, do not over tighten the nut, stop once the hollow torsion bar gets to the edge of the hub. Once it is in place, tighten the 3/8" bolt accordingly.

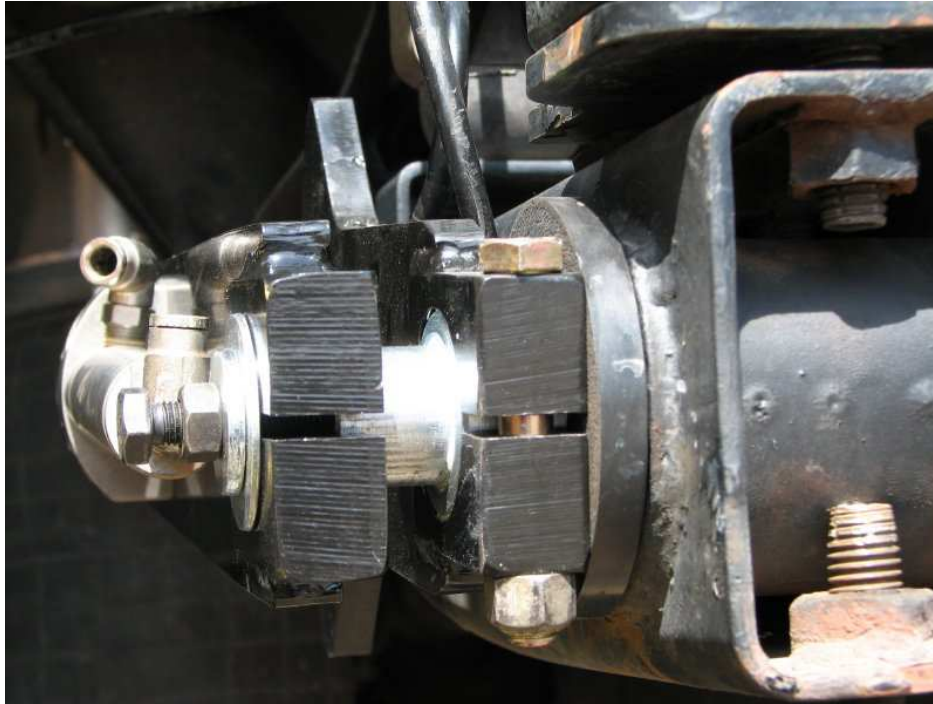


Figure 6 Install outer arm, use bolt and washers again if necessary.

Now, with the bolt screwed into the torsion bar, use a ½" wrench to turn the nut to pull on the torsion bars into the hubs. Watch the hollow torsion bar thru the slot as it slides into place, do not over tight



Figure 7 Finished install, note the gap between the inner and outer arms.

Note the gap present between the inner and outer arms in Figure 7, this gap is necessary to ensure the torsion bar can move freely. Failure to have this gap will result in the arms making contact and possibly failing the torsion bar. Now, finish the installation following the install manual provided. If there is not a gap as shown between the two arms, then loosen the inner torsion bar hub (outer bolt) on the dual hub arm, remove the 5/16 bolt and large flat washer, install the smaller 5/16 flat washer under the large flat washer and reinstall. This will shift the torsion bar the thickness of the washer towards the opposite side



to allow the gap. Tighten the 3/8 bolts as necessary.



Effective Immediately:

The new SwayLOC systems have the ability to grease the wear points thru the torsion bars while assembled.

Ensure that the inner bar is assembled to have the greaseable port on the latching arm side. Assemble the system utilizing the install tool and provided instructions to do so.

Once the SwayLOC arms are all clamped in place and tight, remove the outer bolt and washer for the latching arm side and then the grease zerk (with the thin washer supplied) will bolt into the end of the torsion bar. Again, this should be the latching arm end of the torsion bar. Once assembled, simply squirt some grease into the zerk and grease when monthly depending on use.

Please see the image below to see the affected areas.

