

TERAFLEX

Installation Guide for TeraFlex three and four-inch Lifts

Think safety first when installing your new suspension system.

Use these instructions to install the TeraFlex 3 or 4-inch lift kits. Information regarding the installation of the TeraFlex "System" Components are included after the lift installation instructions. The TeraFlex 3 and 4-inch lift kit, or the 3 and 4-inch TeraFlex System Suspension you are about to install was designed specifically for the Jeep TJ.

Attention:

To eliminate drive line vibration on the 4-inch kit, a slip yoke eliminator (short shaft kit - part number 231SS) is mandatory.

Spring Spacer Warning:

The combination of spring spacers larger than the SSTX75 with any TeraFlex spring will void any applicable warranties. Spring spacers may also adversely affect vehicle handling and performance.

Three-Inch Lift



Four-Inch Lift



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Getting Started

Before starting installation, make sure that your kit contains all the correct parts.

Your kit should contain:

- 2 rear springs (6.50" OD)
- 2 front springs (5.25" OD)

One installation kit including:

- 2 rear sway bar links
- 8 rubber bushings
- 4 plastic sleeves
- 5 flat washers (1/2" SAE)
- 2 self-tapping bolts (3/8" x 2")
- 2 front bumpstop spacers (3" OD x 2.25" tall)
- 1 rear track bar bracket
- 1 rear track bar spacer (1.5" x 1" OD x .5" ID)
- 7 bolts (1/2" x 3" nc)
- 7 lock washers (1/2")
- 6 round spacers (1.25"OD x 1.25" tall)
- 6 beveled washers
- 2 bolts (5/6" x 1" nf)
- 2 lock nuts (5/16" nf)
- 2 flat washers (5/16" SAE)
- 1 drop pitman arm (for power steering only)
- 1 bolt (10mm x 75mm)
- 1 lock nut (10mm)

Special items for the 3-inch kit:

- 2 bolts (10mm x 55mm)
- 2 rear bumpstop spacers (1.75"OD x 1.5" tall)

Special items for the 4-inch kit:

- 2 bolts (10mm x 75 mm 1.5p)
- 2 rear bump stop spacers (2" OD x 2.25" tall)

Optional items/System Components:

- Front and rear lower FlexArms
- Swaybar quick disconnect links
- Steering Box Skid Plates

Some tools you might need:

- Torx bits (T50 & T55)
- Pitman arm puller
- Electric hand drill
- 5/16" and 13/32" drill bits
- Jack stands and a jack
- Other standard hand tools

Note: Most 2.5L installations do not vibrate. If your TJ has a 2.5L engine, you may wish to leave the transfer case lowering kit off. If you experience drive shaft vibration, go ahead and put the transfer case lowering kit in.

Warning: For proper installation, the rear must be installed first.

Rear Installation (first)

1. Jack up the rear of the TJ by the frame and secure with jack stands.
2. Remove the rear shocks.
3. Remove the rear sway bar links.
4. Remove the rear rubber bump stops by grasping the bump stop and pulling down with a side to side motion.
5. Use a 15mm socket to remove the bolt inside both bump stop cups.
6. Remove rear springs.
7. Install rear bumpstop extensions. **3" kit installers:** With a 16mm socket and new bolt (10mm x 55mm 1.5 pitch) remove the bump stop cup, and place the spacer (1.5" OD x 1.5" tall) between the bump stop cup and the bump stop pedestal. **4" kit installers:** follow the above directions using new bolt (10mm x 75mm 1.5 pitch) and spacer (2" OD x 2.25" tall).
8. Remove the plastic dust shield that covers the bolt securing the rear track bar to the rear axle housing. You will no longer need this shield.
9. Remove the size T55, Torx headed bolt and set it aside. (Note: It is easy to remove and replace the front and rear track bars with the TJ on the ground.) Tie the track bar end up out of the way while you install the track bar extension bracket.
10. Hold the rear track bar bracket extension over the axle bracket positioned as show in Figure 1. Using one of the bolts (1/2" x 3" nc) and the spacer (1.5" x 1"OD x .5"ID) insert them in the hole vacated by the Torx headed bolt. Use the spacer to fill the spot the track bar once occupied. This will keep the bracket from collapsing when the new bolt is tightened.
11. With the track bar bracket in place, the two (2) smaller holes in the bracket should line up close to the holes in the axle bracket vacated by the plastic shield removed in Step 8.
12. Using a 5/16" drill bit, drill out the small holes upper and lower to make room for installing the (5/16" x 1") bolts and nuts and washers all 5/16"nf. Install and tighten the bolts and nuts.
13. Line up the track bar with the upper holes in the new track bar bracket and use the Torx bolt and nut you removed in Step 9 to secure the bar in place.
14. Install the new TeraFlex rear springs (6.50" OD).
15. Install the replacement shocks. When using the Doetsch Tech MV series shocks, mount the shock with the canister up for improved clearance on the axle housing. Do not mount other brands upside down.
16. Install the new longer sway bar links using two rubber bushings on each end of the link. Reuse the bolts you took out of the stock links to install the new longer ones. Push the plastic sleeve over the shank of each bolt. Insert the bolt with sleeve into the bushings in the link ends. Use one of the (1/2" SAE) flat washers between the sway bar and the rubber bushing. This will cause the bushing to compress more. Using the nut you removed, tighten the sway bar links into place.

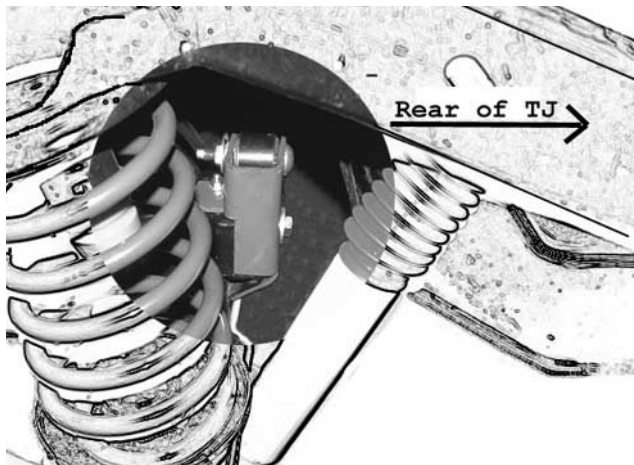


Figure 1



Rear
Trackbar
Bracket

Front Installation (second)

Rear Installation Complete.

1. Jack up the front of the TJ by the frame and set stands in place.
2. Remove the front shocks. Remember to save those lower bolts.
3. Disconnect the lower end of the front sway bar link to allow the front axle to drop.
4. Remove the spring clamp and bolt and set aside.
5. Remove the front springs. Passenger side first.
6. Remove the bump stop cushions and the bolts in the bump stop cup. You will be putting these back after the new springs are in place.
7. Remove the stock pitman arm from the drag link and the steering gear. You will most likely need a pitman arm puller. We recommend renting a good one from a tool rental place rather than buying a cheap one.
8. Using an electric hand drill and a 5/16" drill bit, locate the center of the front, lower spring pad. The impression in the center works well as a guide. Drill a hole through the guide in the pad as shown in Figure 2.
9. Using the aluminum spacer as a guide, screw one of the self-tapping bolts (3/8" x 2") into each hole to cut the threads and then remove the bolt and set aside.
10. Install the front TeraFlex springs. Right side first. Set the aluminum spacer (3"OD) inside the TeraFlex spring as you put it up into place. Once the spring is in place, rotate the spring so the bottom end of the spring butts up against the stop in the axle pad support.
11. Replace the spring clamp and bolt taken out in Step 4.
12. With the aluminum spacer resting on the lower spring pad, center the spacer and secure with the self-tapping bolt used to cut threads in Step 9.
13. Replace the upper bump stop cup, bolt and cushion removed in Step 3.
14. Install the front shocks.
15. Install the new TeraFlex drop pitman arm.
Do NOT connect the drag link yet.



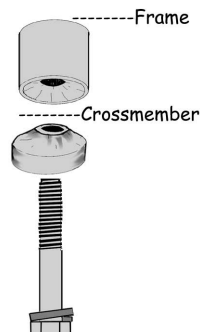
Figure 2



Figure 3

Transfer Case Lowering Kit Installation Guide

1. Install the six spacers (1.25"OD x 1.25" tall) between the frame and the cross member with the flat end of the spacer up against the frame. The 1/2" lock washer goes onto the 1/2" x 3" bolt first followed by the tapered washer with the flat end of the tapered washer against the lockwasher.
2. Put the tires and wheels back on if needed and lower the TJ to the ground.



Straightening the steering wheel

There are two ways to straighten the steering wheel. Our goal is to find the neutral location for the front axle. If we do this, the steering wheel will be very close to center.

First method:

Make sure the Jeep is on flat, level ground.

Remove the passenger side (right side) of the front track bar.

With the Jeep on the ground and the steering wheel locked in its center position bounce the Jeep up and down. Use the front bumper to do this. After you have done this the front suspensions and steering should be in a neutral position.

Without moving any other components raise the lower end of the track bar up into its mountain bracket. Using the track bar center hole as a guide mark the bracket.

If you have room in the bracket so the hole does not overlap and edges go ahead and drill the hole out. Make sure you are drilling at a right angle to the bracket when drilling through to the rear half of the bracket. Use a 13/32" drill bit. If you drilled the hole in the correct location you should be able to just lift the bar up and insert the new 10mm x 75 mm bolt.

You should now connect the drag link to the drop pitman arm.

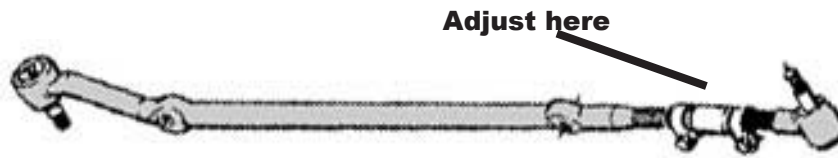


Note: If you can't get enough area clear of the old hole to drill and you don't have a press available to perform the second way, then go ahead and reconnect the track bar. Drive the Jeep, if it feels okay then leave it. By not changing the track arm lower mounting location you may sacrifice some ride quality. Your Jeep is still safe to drive mechani-

Straightening the steering wheel (cont'd)

Fine tuning the steering:

Adjust the sleeve on the front drag link by loosening the clamps and twisting the sleeve in a direction that causes drag link to become shorter. Find a place you can drive that is flat and straight. Adjust the sleeve and test drive the TJ until your steering wheel is centered to your satisfaction and tighten the adjuster sleeve clamps.



Note: If your Jeep is not level when you put it back on the ground, loosen all bolts and retighten with the Jeep on the ground.

Troubleshooting

Bump steer

The first thing to do is to find the neutral position of your suspension. First find a flat and level place to work. Then with all the weight on the Jeep (winch, full tank of gas, dog or whatever) disconnect one end of the drag link so the steering arm does not influence the neutral position. Remove the front lower track bar bolt. With the bolt out, let the track bar end fall down. Jounce the TJ up and down. Now, lift the track bar end into the bracket and reattach the track arm. Use the new bolt and nut to attach the lower end of the arm. The stock bolt tends to gauld and bind, giving the feeling of a "tight bolt" but in reality, it is not.

If you can't get a clean hole, measure the distance center to center between the original hole and the hole in the center of the track arm bushing while holding the track arm so the bushing hole is level. Remove the track arm and press out the needed length as described in the TeraFlex Installation Guide.

After the front is finished, loosen the rear track bar bolts. Jounce the rear of the TJ. Check the bolt that goes through the rear track bar (pan hard arm) bushing to see if it has any resistance on it. With a mallet lightly strike the bracket from side to side. If the bolt still has resistance, remove it and jounce the TJ again and note what change is needed to get the whole alignment needed. Modify the hole slightly if needed.

Troubleshooting (cont'd)

Driveline vibration

This section applies if the stock driveshaft is used. If a CV style driveshaft is installed this section will not apply.

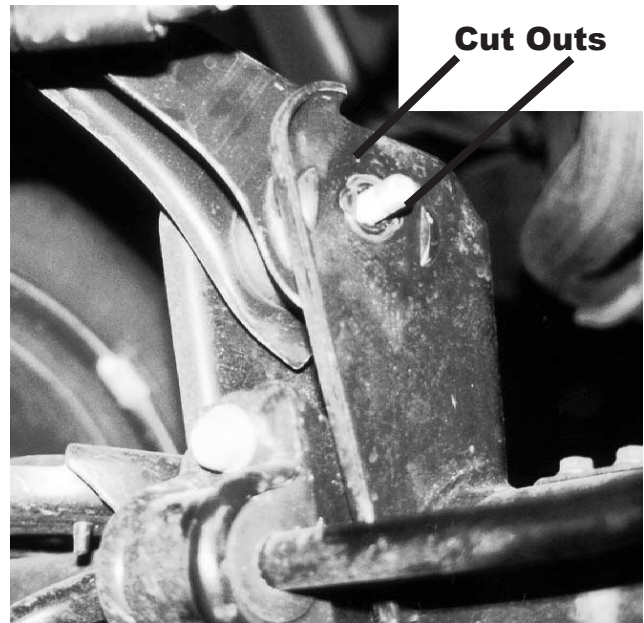
Acceleration vibration - The vibration is caused by the pinion angle being too high in relation to the transfer case output shaft.

The fix - Remove knockouts on the forward side of the rear upper track arm bolt on the rear axle bracket.

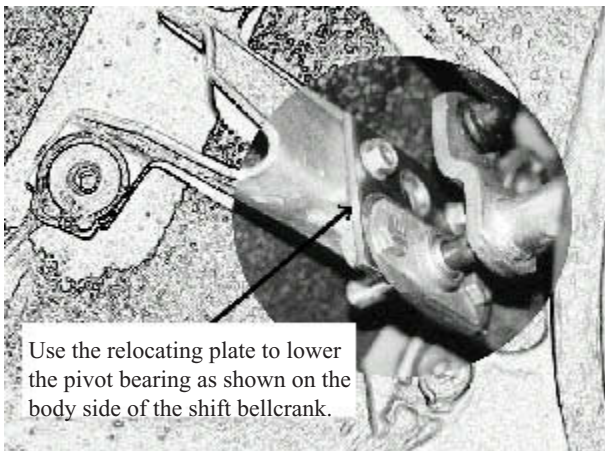
Deceleration vibration - This vibration is caused by the pinion angle being too low in relation to the transfer case output shaft.

The fix - Remove knockouts on the rear side of the rear upper track arm bolt on the rear axle bracket. You may also decrease the spacers between the frame and the transfer box skid plate. *Note: there may not be knockouts on 2000 and newer models.*

If you have constant vibration when accelerating or decelerating, see which of these actions causes the vibration to decrease in severity. If you accelerate and the vibration diminishes you need to bring the yoke up.



Because the axle is mounted in rubber, the axle will rotate in the rubber under torque. TeraFlex has lower and upper control arms available which are adjustable. With the FlexArms from TeraFlex, you can adjust your pinion angles beyond the limits of the knock outs



Relocator Plate

Note: 99 percent of the lifts don't require the relocating plate. You don't need to install this plate

1. If you are not using the transfer case lowering kit.

2. If your transfer case shifts fine into 4 Low.

The relocating plate is no longer included in the kit. Please call us if you are having problems shifting into 4 Low.

If you have any questions or problems with this suspension kit, contact your local dealer or contact

System Components Installation

TeraFlex FlexArms

All Control Arms have been set to factory length before leaving TeraFlex.

These FlexArms will give you years of trouble free service when properly maintained. Proper maintenance includes greasing the arm a minimum of every oil change and any other time you have your grease gun handy. Failure to grease FlexArms will void any applicable warranty.

The one grease zerk provides grease to the entire arm including bushings and forces out all contaminants such as dirt and water.

Install the arm with the zerk end to the frame with the zerk facing up.

Grease before use!

Re-torque mount bolts to 130 - 145 ft. lbs. for lower control arms and 37 - 47 ft. lbs. for upper control arms.

Remember grease, grease more, and grease again.

All upper front FlexArms - 15 1/8 in.

All upper rear FlexArms - 13 1/4 in.

All lower TJ and front lower ZJ - 15 3/4 in.

Lower front XJ - 16 in.

Lower rear ZJ -16 11/16 in.

Steering Box Skid Plate

To install the front steering box skid plate:

1. Remove the driver side lower bumper bolt.
2. Hold skid plate in place, placing the largest of three holes in the skid plate over the hole from the bumper bolt.
3. With the skid plate in place, replace the bumper bolt.
4. Use flat washers to correct the spacing of skid plate when using stock bumper.
5. Use the existing hole in the frame to line up the rear skid plate bolt. Put the nut inside the frame.
6. Put the spacer in place and install bolt.
7. With the skid plate in place, locate the one remaining hole in the rear of the skid plate, using the hole as a guide use a center punch to mark the location you will be drilling.
8. Use a 5/16 drill bit to drill the frame at the location you just marked.
9. Screw the self-tapping bolt into the hole you just made and tighten.

For your information

Missing Bolt and Clamp

If your Jeep TJ is missing the bolt and spring clamp on one of the front springs as many TJs are, here are the Chrysler part numbers if you choose to order them from a dealer. Tera Manufacturing also keeps a few on hand.

Bolt # 6502468

Clamp #52005917

Bad Vibrations

We have seen a few (very few) cases of rear drive shaft vibrations that are difficult to eliminate 100 percent. If you have used the trouble shooting information included in the Installation Guide and you still get hard acceleration vibration in first gear, you may want to consider a short shaft kit (part number 231SS). Check with your TeraFlex dealer for price and availability of shaft kits.

35 mph and up vibrations

If you have changed your output shaft to a "short shaft kit" we have found the drive shaft can be the problem. Don't assume that because it's new it cannot be the problem. Have it checked.

Optional Accessories

Rear Lower Shock Mounts

The rear lower shock mounts for TJ (part# RST) installs into the factory shock mounting locations to help restore proper shock positioning. The kit includes two shock mount relocators and mounting hardware. It reduces damage to shock canisters by adjusting the shock's mount away from spring pads and by allowing for axle rotation on lifted TJs.

Alignment notes

We recommend a complete alignment made after the installation of any suspension kit and the maintenance of factory specifications on all angles. During the installation, all bolts should be tightened to the factory specifications.

We have noticed that several TJs that we have installed suspension kits on have not had the springs retainer on at least one of the front springs as delivered from the dealer. We have installed these parts, part numbers 52005917 bracket and 06502468 screw, on the TJs that we have done and have minimized complaints of the shimmy phenomenon.

The factory alignment specifications:

ADJUSTMENT	PREFERRED	RANGE
Caster	7	=/- 1.0
Camber (fixed angle)	-2.5	=/- 0.63
Wheel Toe-In	.15	=/- 0.15
Thrust Angle	0	=/- 0.15

After installation of the TeraFlex suspension kit, it is imperative that the front end alignment angles be checked. It is recommended that your TJ be taken to a reputable alignment shop that understands 4WD vehicles and has experience with their alignment parameters. If there is a change made on the alignment, we strongly suggest that, when possible, an adjustment be made equal on both wheels.

There are three basic alignment angles: camber, castor, and toe-in. Camber is pre-set by the manufacturer and cannot be adjusted. If the camber angle is off, this could indicate that something is bent.

Caster might be changed with the installation of our suspension kit. It is recommended that the factory specifications be maintained. If this cannot be obtained with the caster adjustment eccentrics found on the lower control arms, you may have to opt for our FlexArms (flexible lower control arms) which allow for additional adjustment.

Toe-in is also important for tire wear. Toe-in may be affected on a three-inch kit, and will be affected on a four-inch kit. It has been recommended that the toe-in be set to minimum factory specifications if you go to the larger tire and wheel set up.

Please contact your local Tera distributor or Tera Manufacturing if you have any further questions or if you have encountered any other problems, fixes, or cures.