



INSTALLATION GUIDE

Installation Guide for the Grand Cherokee three-inch lift kit (3Z)

Think safety first when installing your new suspension system.

Use these instructions to install the TeraFlex 3Z. Information regarding the installation of the TeraFlex "System" Components are including after the lift installation instructions. The TeraFlex System Suspension you are about to install was designed specifically for the Jeep ZJ Grand Cherokee.

Read the instructions first!

Before starting installation, please verify that all parts have arrived, and are suitable for your use.

3-inch Grand Cherokee Lift Kit (ZJ)



Some tools you may need:

- Torx bits T55
- Electric Hand drill
- Drill bits, 5/16" and 13/32"
- Jack stands and jack
- Other standard hand tools

Each 3-inch Grand Cherokee lift (3Z) contains the following items:

- 2 rear springs
- 2 front springs (longer)

One installation kit including:

- 2 Rear sway bar links
- 2 Washers (flat 5/16 SAE)
- 8 Rubber bushings
- 2 Spacers, 3"Lx1.25"Wx1.5"H (rear)
- 4 Bolts, 8mmx60mm
- 4 Washers, flat 5/16
- 4 Nuts, nyloc 5/15 NF
- 2 Spacers, aluminum 3"ODx1.4" tall
- 2 Bolts, self tapping, 2"x3/8"
- 1 Bolt, 10mmx75mm
- 1 Nut, 10mm 1.5p hex

One rear trackbar bracket kit including:

- 1 Nut 1/2" nc
- 1 Washer, flat 1/2"
- 1 Washer, lock 1/2"
- 1 Bolt, 3"x1/2"nc
- 2 Bolts, 1"x5/16" nf grd
- 2 Nuts, 5/16" nf
- 2 Washers, lock 5/16"
- 2 Washers, flat 5/16" SAE
- 1 Spacer, 1.62"x1"ODx.5"ID

The System Kit (optional) includes the items in the 3Z plus:

- 2 FlexArms, rear lower
- 2 FlexArms, front lower
- 1 Pair New Generation Quick Disconnects

Tera Manufacturing, Inc.
5251 South Commerce Dr.
Murray, Utah 84107
Phone/801.288.2585
Fax/801.713.2313
www.teraflex.biz

Rear Installation (first)

1. Jack up the rear of the ZJ by the frame and secure with jack stands.
 2. Remove the rear tires and rear shocks.
 3. Remove the rear sway bar links.
 4. Remove rear springs.
 5. Remove the rear rubber bump stops by grasping the bump stop and pulling down with a side-to-side motion.
 6. Remove the bolts inside both bump stop cups.
 7. Using the two new bolts (60mm x 8mm 1.5 pitch) replace the bump stop cup replacing the rectangular aluminum spacer (3"Lx1.25"Wx1.5" tall) between the bump stop cup and the frame.
 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 Torx headed bolt (size T55) and set it aside. (Note: It is easy to remove and replace the front and rear track bars with the ZJ 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. Using one of the bolts (3" x .5"nc) and the spacer (1.62" 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 1" x 5/16" bolts and nuts and washers. 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. The boot goes up unless the shock's instruction specify differently.
 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.
- If you have TeraFlex FlexArms, select the rear FlexArms. (Please look at the lower (smaller) end of TeraFlex FlexArms to identify the front and lower control. The front FlexArms are welded with the lower end offset and the rear FlexArms are NOT offset.)
17. Remove the control arm. Begin with the rear, lower control arm.
 18. Adjust the FlexArm's length (center to center) by rotating it so that it matches the control arm removed in Step 17. Start with the FlexArms at factory length and adjust them later if necessary. Factory length should be your reference point.
 19. Install the FlexArm with the large side at the frame. Tighten the bolts to 160 foot pounds. Any looser and the arms will

make noise.

20. Repeat steps 17, 18, and 19 for the right rear control arm.
21. If you are not replacing the control arms, we recommend you loosen the control arm bolts and retighten them with the jeep on the ground. This allows the bushings to align with the new height.

Rear Installation Complete.

Front Installation (second)

1. Jack up the front of the ZJ by the frame and set stands in place.
 2. Scratch or paint a line over the front lower control arm mount bolt. Repeat steps 17 through 19 for the front control arms placing the offset end of the FlexArm forward in the axle brackets. Locate the front lower mounting bolts in the same position you marked and tighten. Remove the front shocks. Remember to save those lower bolts.
- Note:** Make sure the FlexArms are the same length as the old arms to make sure your alignment is properly maintained.
3. Remove the front tires and front shocks. Save those lower bolts.
 4. Remove the spring clamp and bolt and set aside.
 5. Disconnect the lower end of the front sway bar link to allow the front axle to drop.
 6. Remove the front springs; passenger side first.
 7. 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.
 8. Using the aluminum spacer as a guide, screw one of the self-tapping bolts (2" x 3/8") into each hole to cut the threads. Remove the bolt and set aside.
 9. Set the aluminum spacer (3"ODx1.5" tall) inside the spring before placing it into position. Install the front TeraFlex springs; right side first. 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.
 10. Replace the spring clamp and bolt taken out in Step 4.
 11. 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 8.
 13. Replace the upper bump stop cup, bolt and cushion removed in Step 7.
 14. Install the front shocks.
 15. Full-suspension system owners should install the quick disconnects now.
 16. Put the tires and wheels back on and lower the vehicle to the ground.
 17. Recheck all bolts to make sure everything has been properly tightened.

Straightening the steering wheel

The easiest way to correct front axle location is to use the adjustable front track bar (part # TBAF). This procedure will also do the job without the need for additional parts.

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.

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 suspension and steering should be in a neutral position.

Without moving any other components raise the lower end of the track bar up into its mounting 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 at the edges go ahead and drill the hole out (typically 9/16"). 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 70 mm bolt. Torque the bolt to 40 foot pounds. You should now connect the drag link to the drop pitman arm.

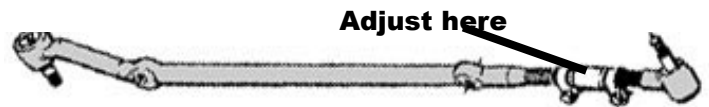


Note: If you can't get enough area clear of the old hole to drill a clean hole, go ahead and reconnect the track bar. Drive the Jeep. If it feels fine, then leave it. By not changing the track arm lower mounting location you may sacrifice some ride quality. Mechani-

cally, your vehicle is still safe to drive.

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 vehicle until your steering wheel is centered to your satisfaction and tighten the



adjuster sleeve clamps.

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. Bounce the vehicle 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.

After the front is finished, loosen the rear track bar bolts. Bounce the rear of the vehicle. 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 bounce the vehicle again and note what change is needed to get the hole alignment needed. Modify the hole slightly if needed.

Driveline vibration

Acceleration vibration

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

Deceleration vibration

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

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 down.

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

Front Wheel Shimmy

First, inspect steering components for worn tie rods and/or steering box.

Second, move pinion up by rotating the axle. Use lower control arms mounting bolts to adjust castor or shorten lower front FlexArms if you have them.

Alignment notes

The factory alignment specifications:

ADJUSTMENT	PREFERRED	RANGE
Caster	7.5	+/- 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 vehicle 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 choose to use our FlexArms (flexible lower control arms) which allow for additional adjustment. Drive shaft angle has priority over caster.

Toe-in is also important for tire wear and might be changed by the lift. 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.

Installation Guide for the 3Z System Components (SZ)

Quick Disconnects (QDFXZ)



The new generation TeraFlex Sway Bar Quick Disconnects for XJs and ZJs include the components picture to the right. DO NOT use these quick disconnects with only one side connected. Doing so will void any warranty claims.

Grand Cherokee Owners: Please note that these instructions were photographed during an installation on a Cherokee. Although the function will be the same, the installation will vary slightly on the Grand Cherokee. Please use the instructions as guidance, but realize that actual drilling locations may appear different. When drilling, be sure to check clearance to avoid drilling into anything you shouldn't.

Part One

Prior to starting the installation, please remove stock sway bar links.

Step 1

After removing the sway bar links, identify the left and right quick disconnect. One way to tell is that the bolt head will point away from the vehicle in its final position.

Place the round spacer ring on the threaded bracket bolt.

Once the assembly has been inserted into place, make sure that the grease zerk points downward away from the vehicle. Add the flat washer and nut and secure.



Step 2

Attach the sway bar connecting stud to the lower mount bracket by inserting the stainless steel stud in the hole vacated by the sway bar arm and securing with lock washer and nut. Be sure that the threaded portion of the stud points away from the vehicle.



Step 3

Use the pin for leverage when tightening the nut with a 3/4" wrench.



Step 4

Attach the sway bar arm by sliding the polyurethane bushing onto the lower stainless steel stud. The use of lubricant such as WD-40 will make this much easier.



Step 5

Secure the quick disconnect by placing the washer on the side opposite the bolt and insert pin into the stud.

Note: *This photo illustrates how the front axle will shift to the driver's side when the suspension is fully extended by a hoist. You may wish to connect the components with the vehicle on the ground.*

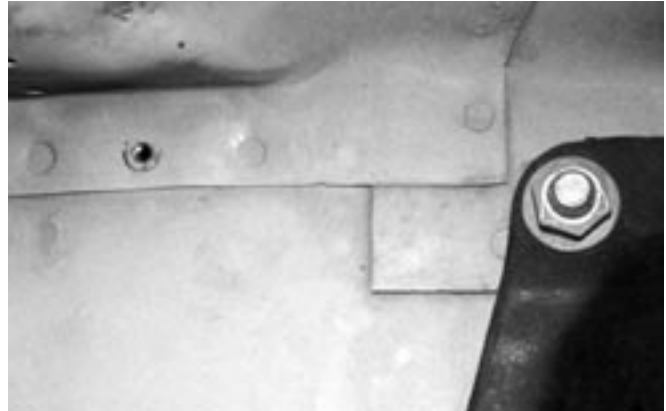


Part Two

Step 1

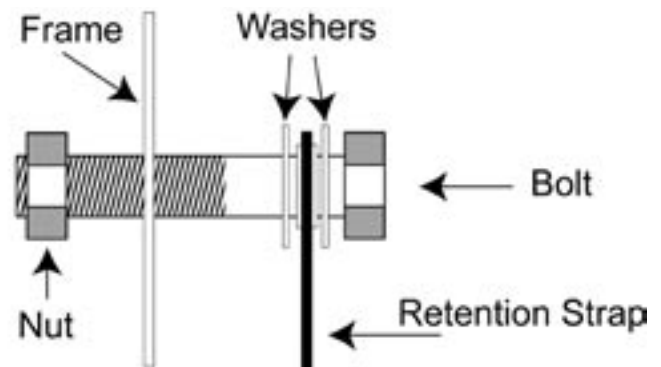
The next step involves installation of the retention strap used to secure the sway bar when disconnected.

Drill the hole where the retention strap will be attached. The photograph shows one possible location.



Step 2

Place one washer on each side of the grommet located on the upper end of the retention strap and insert the bolt. Please refer to the diagram.



Step 3

Tighten the bolt to secure the retention strap.



Step 4

Now, locate and mark the proper position for the retention strap hook. Be sure to allow enough freedom in the strap to remove the strap from the hook.



Step 5

Drill the hole marked in Step 4.



Step 6

Attach the retention strap hook to the vehicle using the included metal screws.



Notes on securing your disconnected sway bars

There are two methods of securing the disconnected sway bars. One method should be stronger but the other is quicker.

Stronger method



Quicker method



Instructions for Brake Line Relocators

1. Remove Torx bolt holding the brake line to frame.
2. Line up bracket with holes in frame so the bracket extends down.
3. With the bracket in place, use the Torx bolt to secure the bracket to frame.
4. Pull brake line assembly down until it lines up with lower holes in the new bracket.
5. Using the 1.4" bolt and nut supplied, secure the brake line to the bracket.

Note:

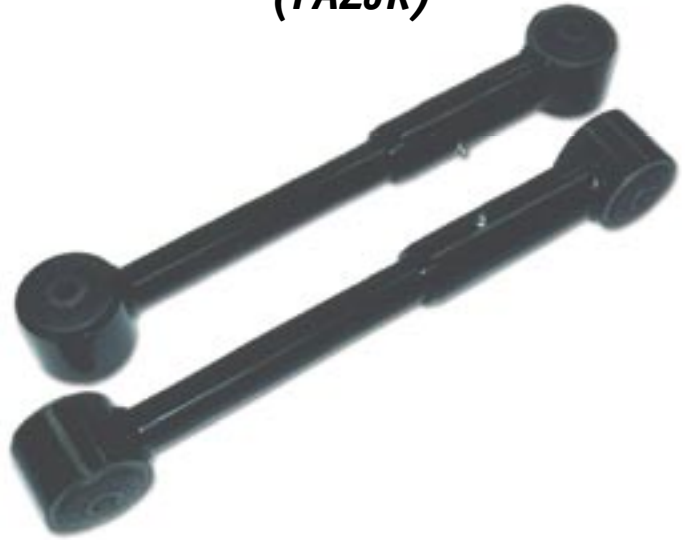
We recommend greasing your quick disconnects at least every 3,000 miles. It is also a good idea to grease after going through water and when the quick disconnects become difficult to move. Lubricants like WD-40 on the stainless studs will make moving the quick disconnect arms much easier.

TeraFlex Flex Arms

(FAXZJF)



(FAZJR)



All control arms have been set to stock length before leaving the factory. Flex Arms will give years of trouble free service, when properly maintained.

Proper maintenance includes greasing the arm a minimum of every month and, if used heavily off-road, greased before and after every trip. The grease zerk in the arm provides grease to the entire arm including bushings and forces out all contaminants such as dirt and water. Grease is very important especially if the arms are submerged under water at any time. Failure to grease these Flex Arms will void any applicable warranty.

Install the Flex Arm with the zerk end of the arm towards the frame, with the zerk facing up, out of harms way. Grease before use!

Retorque lower control arm bolts to 130-145 ft. lbs., and 37-47 ft. lbs. for upper arms.

Remember grease, grease, and more grease.

Adjustments can be made to the front arms to adjust the caster, and to the rear to adjust the pinion angle. Flex Arms may be lengthened or shortened if necessary. Adjusting the arms in or out more than 3/4" from factory settings will void any warranty.

factory control arm lengths

- all front upper control arms- 15 1/8"
- all rear upper control arms- 13 1/4"
- all TJ lower and ZJ front lower arms- 15 3/4"
- XJ front lower control arms- 16 1/4"
- ZJ rear lower control arms- 16 11/16"
- WJ front lower control arms- 16"
- WJ rear lower control arms- 19"

Optional front and rear upper control arms are available. For ZJ front upper order FAFU. For ZJ rear upper order FARUZ.