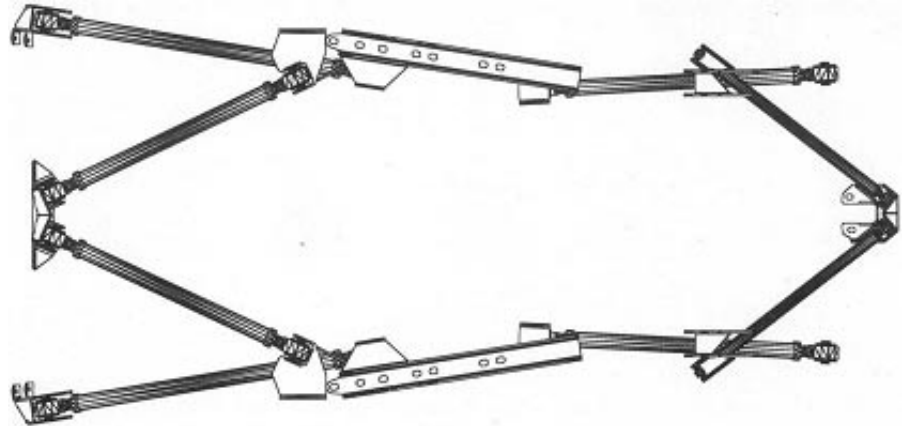


Revision 3



Installation Guide for the TJ LCG Suspension System (Low Center of Gravity)



Take every precaution to make this installation a safe procedure. Make safety the number one priority with any suspension or lift installation.

Please make sure your kit includes the following items before starting installation:

- Front Dana 30 bracket kit
- Rear Dana 44 bracket kit
- Shock absorber set
- Coil spring and bump stop kit box
- Control arm set
- Bracket set

This kit is designed for the Jeep® TJ Wrangler. It replaces the standard length control arms with new, longer lower control arms and 4-link upper control arms. Front and rear track bars are eliminated.

A trained and experienced suspension mechanic must install this kit. Modifications to the vehicle frame include removing factory brackets and welding on new mounting brackets. Also the muffler must be replaced with a smaller diameter muffler, and the tailpipe will have to be re-routed to clear the rear upper control arms. Safe operation of the vehicle requires that the installation be done correctly with careful attention to detail. Once the kit is installed, you will enjoy the comfort and flexibility that TeraFlex is known for. The kit will allow you to run much larger tires than stock while maintaining a low center of gravity.

Tera Manufacturing, Inc.
5251 South Commerce Dr.
Murray, Utah 84107
Phone/801.288.2585
Fax/801.288.2571
www.teraflex.biz

NOTE: A one-inch body lift is recommended and must be installed prior to or as part of the LCG suspension system. If a body lift is not used call TeraFlex for instructions on modifying bracket #978-8Left and Right

Preparation

1. Support the vehicle under the frame with the vehicle high enough that the axles can be fully drooped for removal of factory coil springs and installation of the new TeraFlex coil springs, and remove the tires.
2. Remove shocks, sway bar links, coil springs and upper & lower control arms.
3. Support the transmission and remove the transfer case skid plate
4. Remove the exhaust header pipe at the exhaust manifold, along with the catalytic converter, muffler and tailpipe. This will make it easier to grind the mounts off the inside of the frame. The header pipe and converter will be reinstalled later. A new muffler and tailpipe must be installed to clear the rear axle upper control arms.
5. Carefully remove the front upper & lower and rear lower control arm mounts from the frame with a cutoff tool or torch. Be careful not to cut into the frame.
6. Remove the factory lower control arm mounts and shock mounts from the rear axle housing. Be careful not to cut into the axle tubes.



Installation

Installation

7. A new one-piece bracket that includes mounting points for both front and rear lower control arms is used on the LCG Revision 3. The bracket slides up over the frame from the bottom and is located on the main frame rails by the factory skid plate mounting bolts. Once the brackets are installed, the skid plate mounting bolts (6 bolts) can be installed to hold the bracket for the remainder of the kit installation, although the skid plate itself will not be installed until later.



8. The above photograph shows the main bracket installed with the arms and a modified skid plate. Once the bracket is installed and the skid plate bolts are tightened, tack weld the bracket to the frame in 4 places laying about 1 inch of weld bead to secure the bracket to the frame. After welding, paint the weld area to prevent rust. This tack welding ensures the bracket will not move or work loose and allows removal of the skid plate for service without having to disassemble the suspension.

NOTE: Modifications to the factory skid plate will be required, or installation of a TeraFlex Belly-Up skid plate for rear control arm clearance.

-Rear Installation-

9. Remove all the bolts for the rear axle differential cover. If you have not changed the oil in the rear differential for a long time, now is a good time to remove the cover and change the gear oil. It is not necessary to remove the cover for installation of the LCG system. Now is a good time however to consider future modifications to the vehicle. If you have or plan to install a locker with a cover actuating linkage, the bracket should be located behind the cover to maintain the proper spacing between the cover and

the actuating mechanism inside the housing. If you are running a standard cover, it may be advisable to locate the bracket between the housing and the cover for ease of service in the future. Once the kit is installed, never remove the cover bolts and nuts without first supporting the axle and the vehicle at the frame. Insert the provided studs in the top 5 holes (see photo below). Install the rear D44 axle bracket over the differential cover and install the 5 longer lower bolts provided in the kit. Install nuts on the studs and tighten to factory specifications. Check to be sure that the bracket doesn't interfere with air lines and fittings for air actuated lockers.



10. Using an electric hand drill and a 5/16" drill bit,

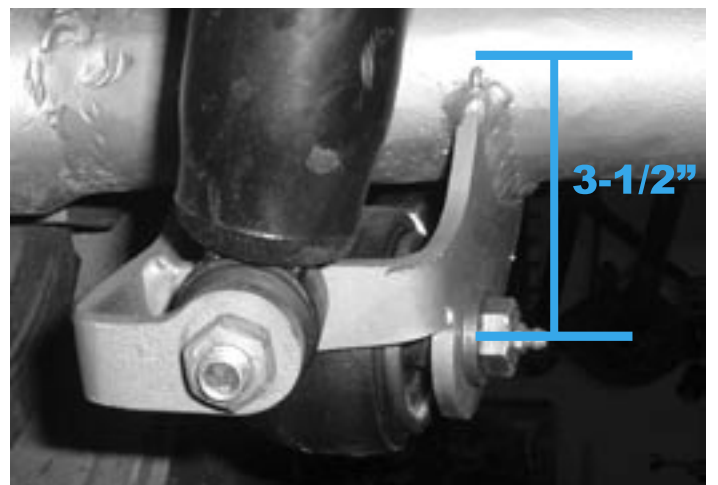


mount combination bracket so that the control arm through bolt is 3-1/2 inches below the center line of the axle tube as shown in the photo below. Tack weld in place.

NOTE: Do not final weld until later after installing the



locate the center of the lower spring pad. The divot in the center works well as a guide. Drill a hole through the guide in the pad.



shock absorbers and confirming alignment of the shock mount in step 17.

11. 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.
12. Install the rear upper control arm frame brackets near the rear body mount (see photo below). Slide the bracket back against the body mount before welding and painting.
13. Install the new rear lower control arm and shock

14. Install the rear upper and lower control arms. Final length adjustment must be done with the vehicle on the ground. This will be done at a later point.
15. Install the rear TeraFlex LCG springs. Set the aluminum bump stop spacer inside the TeraFlex spring as you put it up into place.
16. Once the spring is in place, install the bump stops

using the supplied 3/8" x 2" self-tap bolts to secure the bump stop to the spring pad.

17. Install the rear shocks and after confirming alignment of the shock mount, final weld the rear control arm and shock mount combination bracket to the axle tube. Repaint the weld area to prevent corrosion.
18. Install the extended brake line hose and the extended sway bar links. Rear installation is complete.
19. Re-install the exhaust header pipe and the catalytic converter, then re-install the skid plate. Be very careful to avoid damage to the oxygen sensors and wiring as these are needed for proper operation of the fuel injection system.

-Front Installation-

20. Install the front upper frame brackets, use the existing hole through the frame to locate these brackets and use the long bolts provided to secure the brackets to the frame prior to welding. The locating hole through the frame is much larger than the bolt supplied. Tighten the bolts finger tight, then slide the bracket as far back as possible moving the bolt to the back of the frame hole, then tighten the bolts and final weld the bracket as shown in the photo. After welding the brackets, paint the weld area and leave the bolts in place for added support. (see photo below)
21. Locate the front four-link axle bracket; use the included u-bolts to locate the bracket.



NOTE: the vertical face of the bracket should be at the



same angle as the differential cover surface prior to welding. Fully weld the axle bracket to the axle tubes both front and back, and then leave the u-bolts as added support (see photo below).

- NOTE: The larger diameter u-bolt goes over the edge of the axle housing, the smaller u-bolt goes around the axle tube. Note: Rubicon front D44 uses only 1 u-bolt.
22. Using an electric hand drill and a 5/16" drill bit, locate the center of the front, lower spring pad. The divot in the center works well as a guide. Drill a hole through the guide in the pad.

NOTE: Some 2003 models have a plate welded on the center of the front axle spring pad. This metal plate must be removed to facilitate drilling for installation of the bump stop. (see photo below)

23. 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.

24. Install the front upper and lower control arms as shown in the next two photos. Final length adjustments must be made with the vehicle on the ground.
25. Install the front TeraFlex LCG springs. Set the aluminum bump stop spacer inside the TeraFlex spring





as you put it up into place.

26. Once the spring is in place, install the front bump stops use the supplied 3/8" x 2" self-tap bolts to secure the bump stop to the spring pad.
27. Install the front shocks and the extended brake line hoses and extended sway bar links if needed.
28. Bleed the brake system. Bleed the brakes starting with the passenger rear, driver rear, passenger front and finally driver front.
29. In order to maintain proper steering geometry, a high steer knuckle, with appropriate tie rod/drag link must be installed. This kit is available separately from TeraFlex. The HS-KT is shown below for reference.
30. Install the tires and lower the vehicle to the ground. It is recommended that an aftermarket wheel with a



maximum backspacing of 4" (on a 15" rim) be used to space the tire out away from the knuckle.

- NOTE: Factory wheels will not work with the TeraFlex high steer knuckle without the use of wheel spacers.
31. A temporary adjustment of the control arms can be made to locate the axles, then a four wheel alignment should be performed by a shop familiar with alignment procedures on lifted Jeep® vehicles.
 32. The procedure for locating the axles is as follows:

- a. Center the axles under the vehicle by adjusting the length of the upper triangulated control arms
 - b. Then make sure the axles are at right angles to the frame by adjusting one or the other lower control arm.
 - c. Finally set rear pinion angle and front caster angle by adjusting both lower arms an equal amount in or out as needed.
 - d. Measure the wheelbase and be sure it is 94 inches before driving the vehicle to avoid bottoming out of the front or rear drive shaft. Slight wheelbase adjustment is possible by adjusting all 4 front or rear arms. Then repeating steps a – c.
33. After final alignment, tighten all the jam nuts on all the control arms to ensure that arm lengths do not change.
 34. Grease all control arms and other greasable components prior to operating the vehicle. Proper maintenance is essential to keep the joints free from dirt, water and other contaminants that will shorten the life and durability of the kit.
 35. Have a competent exhaust shop install a suitable muffler and tailpipe that will clear the upper control arms through their full range of movement.

After the first 100 miles of driving, re-torque lug nuts, recheck all LCG system fasteners, welds and jam nuts to make sure they are all still tight and secure.