

# TERAFLEX

## PRODUCT INSTALLATION GUIDE

**TeraFlex, Inc.**  
5241 South Commerce Dr.  
Murray, Utah 84107  
Phone/801.288.2585  
Fax/801.713.2313  
www.teraflex.biz

## JK KNUCKLE GUSSETS

Part # 4990800



**Important Notes: TeraFlex is not responsible for damages that occur during faulty installation!**

### **WELDING IS REQUIRED FOR THIS INSTALLATION:**

*Prior to beginning this or any installation read these instructions to familiarize yourself with the required steps and evaluate if you are experienced and capable to personally perform these modifications.*

*Refer to the parts list to ensure that all necessary components and hardware has been included. If any parts are missing please contact your local retailer for assistance.*

#### Required Tools:

- Ball Joint remover/ Installer
- 3/8", 1/2" drive ratchets
- 13mm 12point, 18mm,19mm,21mm sockets and wrenches
- 7/8", 1 1/8" sockets or wrenches
- 5mm allen
- Welder
- Grinder
- Wire wheel
- Grease
- Bungee cord
- Diagonal cutting pliers
- Safety glasses
- Marker
- Pry bar
- Cotter pins (4)

# KNUCKLE GUSSETS

1. Remove front track bar bolt at the axle using a 21mm socket. (Photo #1)



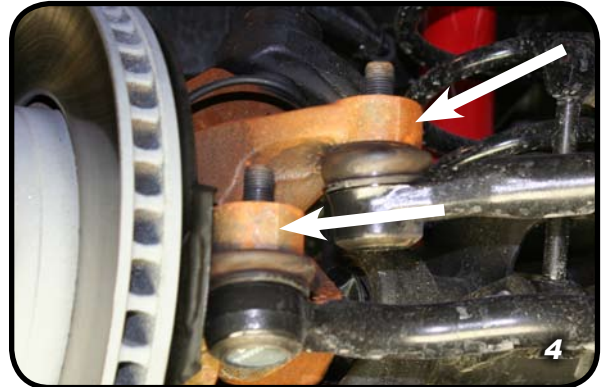
2. Raise vehicle and support frame with jack stands. Make sure that the axle will drop far enough to remove the coil springs.
3. Remove wheels using a 19mm socket.
4. Remove the wheel speed sensor wire from its retainer at the knuckle.
5. Place jack under axle and lift slightly to aid in the removal of the lower shock and sway bar link bolts, remove lower shock and sway bar bolts using an 18mm socket. (Photo #2)



6. Remove the coil springs.
7. Remove the steering stabilizer at the tie rod using an 18mm socket. (Photo #3)



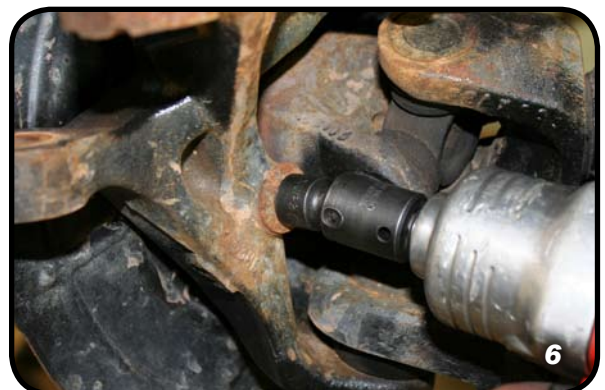
8. Loosen the tie rod ends and drag link end at the knuckle and hit the face of the knuckle to loosen the taper and remove the tie rod and drag link ends. (Photo #4)



9. Remove the caliper bolts using a 21mm socket. Remove the calipers and make sure to hang them from the frame (use a bungee cord) so they do not hang from the brake line. This can damage the brake line. (Photo #5)



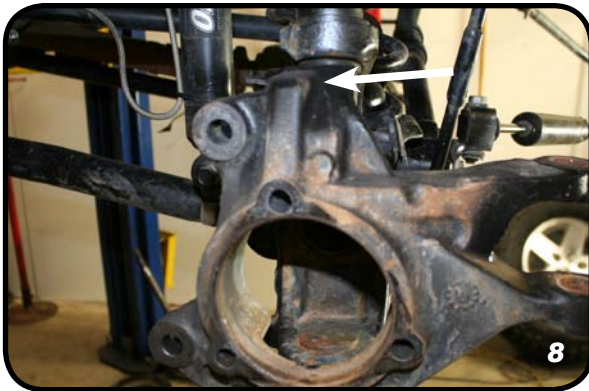
10. Remove the rotors.
11. Remove the three bolts from the back of the knuckle that hold the unit-bearing and axle shaft in place, using a 13mm 12 point socket. (Photo #6)



12. Remove the wheel speed sensors using a 5mm allen wrench. (Photo #7)



13. Remove the axle shafts from the housing. (You may need to pry on the U-joint ear to release it.)
14. Once the axle shafts are removed from the axle housing, cut the cotter-pins on the ball joint castle nuts. (You will need to get new cotter-pins to replace the old ones.)
15. Loosen the castle nuts using a 7/8" wrench for the top and a 1 1/8" for the bottom. Make sure that you leave at least one nut on a few threads for safe removal of the knuckle.
16. Hit the top flat part of the knuckle with a ball peen hammer. This should loosen the ball joint taper so you can remove the knuckle.



- (Photo #8)
17. After the knuckle has been removed, use a ball joint removal tool to remove the upper ball joint. This will ensure that you do not damage the ball joint during the welding process of the knuckle gusset. (Photo #9)



18. Prep the knuckle where the gusset will be welded by placing the gusset on the knuckle and marking around it. Clean off all powder coat and paint using a wire wheel or grinder. (Photo #10)



19. Tack the gusset on in a few places on either side so it does not move when you start your welding process.
20. Weld on gussets. Make sure to do about two inches passes and switching from knuckle to knuckle to make sure you do not over heat the knuckle. (Photo #11)



21. Once the welded area has cooled paint all raw areas to prevent rust from forming.
22. Using your ball joint install tool, press in the upper ball joint. (This is a good time to replace the ball joint if it is bad)
23. Reinstall the outer knuckle using the castle nuts. Use a 1 1/8" wrench for the lower and a 7/8" wrench for the upper. Torque the bottom nut first to 80 Ft-lbs, then torque the upper to 60 Ft-lbs, then re-torque the bottom to 125 Ft-lbs, finally torque the upper to 106 Ft-lbs. Make sure to use new cotter pins, if the hole does not line up with the castle nut loosen it until you can fit the cotter pin.
24. Reinstall the axle shafts. Use grease on the splines and the seal surface to insure that you do not damage the seal. Use a 13mm 12 point socket and torque the three unit-bearings to 75 Ft-lbs.
25. Reinstall the wheel speed sensor using a 5mm allen and torque to 3 Ft-lbs.
26. Reinstall the coil springs.
27. Jack up the front axle and bolt on the lower shock to the axle with an 18mm socket. Torque to 56 Ft-lbs
28. Reinstall the sway bar links to the axle using an 18mm socket and torque to 75 Ft-lbs.
29. Remove the jack from the axle.
30. Reinstall the drag link to the knuckle using a 21mm socket. Torque to 63 Ft-lbs.
31. Reinstall the tie rod to the knuckle using a 21mm socket. Torque to 63 Ft-lbs.
32. Reinstall the steering stabilizer to the drag link using an 18mm socket and torque to 50 Ft-lbs.
33. Reinstall the rotor.
34. Reinstall the brake caliper using a 21mm socket. Torque to 120 Ft-lbs.
35. Reinstall wheels. Torque to 85-125 Ft-lbs.
36. Lower vehicle from jack stands.
37. With vehicle on the ground have a helper turn the steering wheel to reinstall the track bar at the axle. This will help align the track bar and make it extremely easy to install the bolt through the bracket. Torque to 125 Ft-lbs.



# PRODUCT INFORMATION

## **MAINTENANCE INFORMATION:**

It is the buyer's responsibility to have all suspension, drivetrain, steering, and other components checked for proper tightness and torque after the first 100 miles and every 3000 miles after that.

## **NOTICE TO INSTALLER:**

The enclosed "Warning to Driver" sticker must be installed in the vehicle in driver's view. This sticker is to act as a constant safety reminder when operating the vehicle. It is your responsibility as the equipment installer to install the provided sticker and to forward the product instructions to the vehicle's owner for review. If a "Warning to Driver" sticker or product installation guide were not included in the kit, FREE replacement stickers and instructions are available by request. It is the installer's duty to ensure a safe and controllable vehicle after the modifications have been performed.

## **WARNING:**

Neither the seller nor the manufacturer will be liable for any loss, damage, or injury directly or indirectly arising from the use of or inability to determine the use of these products. Before using, the user shall determine the suitability of the products for its intended use, and the user shall assume all responsibility and risk in connection therewith.

## **WARNING TO DRIVER:**

This vehicle has been modified to enhance off road performance and has unique handling characteristics. Use in harsh environments can cause extreme stress on the components. Vehicle should be inspected after being off road to make sure that all the components are in working order and safe to travel on the highway. All fasteners should be checked so that they are at the correct torque specifications as the vibration and stresses from off roading may cause critical fasteners to work loose. Extra care should be taken to inspect the critical components, steering, and brake systems. During each oil change components such as arms, tie rod ends, etc should be greased and checked for excessive wear. Any worn components should be replaced. When returning to the pavement always set or restore tire air pressure to the factory recommendation and connect or engage any disabled sway bar mechanisms. Because of the higher center of gravity and larger tires, this vehicle handles and reacts differently than many passenger cars, both on and off road. You must drive it safely! Extreme care should be taken to prevent vehicle rollover or loss of control, which can result in serious injury or death. Avoid sudden sharp turns or abrupt maneuvers. Generally, braking performance and capabilities are decreased when significantly larger/heavier tires are used, especially when used in combination with transfer case low-range reduction kits. Take this into consideration while driving. Do not add, alter or fabricate any factory or aftermarket parts to increase vehicle height over the intended height of the TeraFlex product purchased. Mixing component brand is not recommended. TeraFlex Inc. will not be responsible for any altered product or any improper installation or use of our products. We will be happy to answer any questions concerning the design, function, and correct use of our products. It is ultimately the buyer's responsibility to have all bolts/nuts checked for tightness after the first 100 miles and then every 3000 miles. Wheel alignment, steering system, suspension and drive line systems must be inspected by a qualified professional mechanic at least every 3000 miles.

## **TERAFLEX PRODUCT WARRANTY:**

Tera Manufacturing warrants TeraFlex Suspension products to the original retail purchaser to be free of defects in material and workmanship for as long as the original purchaser owns the vehicle on which products were originally installed.

Failure to complete regular maintenance (grease every 3000 miles) on TeraFlex FlexArms will void this warranty. All other conditions of the standard TeraFlex product warranty apply.

All TeraLow products are covered by TeraFlex's two (2) year warranty to be free of defects in material and workmanship for two years from date purchased.

Tera axles are covered by a 12-month warranty to be free of defects in materials and workmanship.

This warranty does not cover or include product finish, improperly installed or applied products, improperly maintained products, products or components used for racing or competition or damage due to abuse or neglect, products that fail due to the use of larger tire and wheel combinations.

All returns must be accompanied by an original invoice. It is the customer's responsibility to remove the product from the vehicle. Shipping charges are the responsibility of the customer. Tera Manufacturing will pay the return freight if the product meets the terms of warranty.

This warranty is for the replacement or repair of defective TeraFlex products only and does not include freight charges, labor charges for removal of or installation of TeraFlex or related products or components, costs incurred due to down time of the vehicle, or lost profits due to vehicle down time.

A returned goods authorization number (RGA#) must accompany any returned products. For more information please contact a TeraFlex customer service representative.

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