



ICON VEHICLE DYNAMICS

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Instruction Sheet:

Part No. 3-9500
Cross-Over Steering Kit
Late 1999-2004 Ford Super Duty
F250/F350 4WD
Late 1999-2005 Ford Excursion 4WD

Enclosed Parts List:

(1) Knuckle Casting	(1) Tie Rod End
(1) Pitman Arm	(1) Jam Nut, RH
(1) Tie Rod	(1) Jam Nut, LH
	(3) 1/8" Cotter Pins

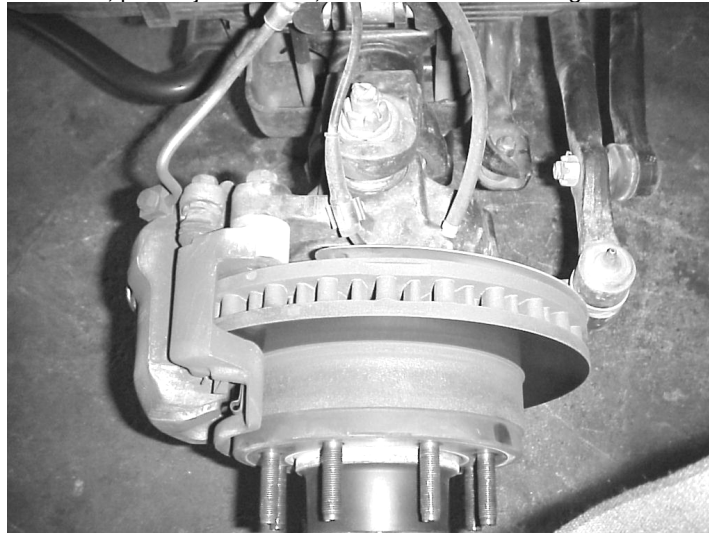
****READ ALL INSTRUCTIONS THOROUGHLY FROM START TO FINISH BEFORE BEGINNING INSTALLATION! IF THESE INSTRUCTIONS ARE NOT PROPERLY FOLLOWED SEVERE FRAME, SUSPENSION AND TIRE DAMAGE MAY RESULT TO THE VEHICLE!**

!! This kit is designed to work with box kit # 3-1030 for proper steering geometry !!

IT IS HIGHLY RECOMMENDED TO USE RED LOC TITE 271 ON ALL FACTORY FORD BOLTS WHEN RE-INSTALLING THE BOLTS! USE INCLUDED LOC TITE 620 ON LOWER BALL JOINT!

INSTRUCTIONS:

1. **ENSURE TRUCK IS IN GEAR OR IN PARK, SET PARKING BRAKE, TURN OFF ENGINE AND CHOCK TIRES!**
2. Jack up the front end, put on jack stands, and remove the front right tire.



3. Remove stock draglink assembly and pitman arm. Make sure that the stock tie rod end at the pitman arm is in good condition as this will be reused. If it is not in good condition you may replace it with moog stock replacement part# ES3427T
4. Remove the passenger's side end of the tie rod. Remove the nut securing it and use a large hammer strike the side of the casting to dislodge the taper. Do not hit the end of the threaded stud as this will damage the threads.
5. Remove the brake caliper and secure out of the way. It is not necessary to disconnect the brake line.
6. Remove the brake rotor, antilock sensor and vacuum line.
7. Remove the 4 nuts on the backside of the knuckle that retain the bearing and hub assembly. Remove the hub, outer and inner axle assembly as a unit. The back of the bearing is protected by a seal and sheet metal disk that is a very close fit to the knuckle bore and requires a little wiggling to remove, be sure not to damage the seal.
8. Remove the upper ball joint nut and loosen the lower ball joint nut leaving a couple of threads engaged to prevent the heavy knuckle from falling when the tapers are dislodged. Dislodge the upper and lower tapers using a large hammer and striking the side of the casting or a ball joint separator.

9. Remove the stock knuckle from the vehicle.
10. Check the ball joints for wear! If worn replace with new parts and skip step 11. If in good condition we will reuse these parts
11. Remove the snap ring that retains the lower ball joint. Press the lower ball joint and then the upper ball joint from the stock knuckle. You will need various press plates and support rings to press the ball joints in and out. Always use caution when using a hydraulic press.
12. Press the ball joints in to the new knuckle. Press the lower ball joint first, use Loctite 620 retaining compound on lower ball joint bore. Press the upper ball joint in. Replace the snap ring on the lower ball joint.
13. Install the knuckle. Using red Loctite, partially tighten the lower ball joint first to 40 ft-lb. Tighten the upper ball joint to 93 ft-lb and install new cotter pin. Retighten the lower ball joint to its final torque of 150ft-lb
14. Reinstall the axle and hub assembly and tighten the 4 nuts on the back side of the knuckle to 133 ft-lb
15. Reinstall the antilock sensor to, brake rotor and brake caliper. Reinstall the vacuum line to the brass fitting on the top of the knuckle.
16. Reinstall the tie rod to the lower arm on the new knuckle and torque to 67ft-lb install new cotter pin
17. Install new pitman arm on to the sector shaft of the steering box and torque to 225 ft-lb.
18. Install the right hand jam nut onto the stock upper tie rod end that was removed from the drag link in step 3.
19. Thread the tie rod ends into the new tie rod. The end with 2 grooves in it denotes left hand thread and receives the new tie rod end supplied in the kit and the other end receives the stock tie rod end with the supplied jam nut. Leave the jam nut loose as this will be adjusted later.
20. Install the tie rod. Torque the stock tie rod end to the new pitman arm to 67ft-lb, install new cotter pin. Torque the new tie rod end to the upper knuckle arm to 90ft-lb, install new cotter pin.
21. Re check all the hardware, reinstall the tire and lower to the ground.
22. Realign the front suspension. Castor and camber should be effected very little but should be checked, toe in and steering wheel center will need to be adjusted
23. Toe in is adjusted with the original tie rod turn buckle by the original procedure.
24. The steering wheel center is adjusted with the new tie rod. With the jam nuts loose you can center the steering wheel by rotating the new drag link and then tighten the jam nuts to 100ft-lb.

RETORQUE ALL NUTS, BOLTS AND LUGS AFTER 100 MILES AND PERIODICALLY THEREAFTER.

For technical assistance or suggestions on how to make our product better call (951) 689-ICON Monday-Friday between the hours of 8am-12pm and 1pm-5pm Pacific-standard time, certain holidays excluded.

***Icon Vehicle Dynamics* LIMITED LIFETIME WARRANTY**

Icon Vehicle Dynamics warrants to the original retail purchaser who owns the vehicle on which the product was originally installed. *Icon Vehicle Dynamics* does not warrant the product for finish, alterations, modifications and/or installation contrary to *Icon Vehicle Dynamics* instructions. *Icon Vehicle Dynamics* products are not designed, nor are they intended to be installed on vehicles used in race applications, for racing purposes or for similar activities. (A "race" is defined as any contest between two or more vehicles, or a contest of one or more vehicles against the clock, whether or not such contest is for a prize). This warranty does not include coverage for police or taxi vehicles, race vehicles, or vehicles used for government or commercial purposes. Also excluded from this warranty are sales outside of the United States of America and Canada.

Icon Vehicle Dynamics obligation under this warranty is limited to the repair or replacement, at *Icon Vehicle Dynamics'* discretion, of the defective product. Any and all costs of removal, installation or re-installation, freight charges and incidental or consequential damages are expressly excluded from this warranty.

Items that are subject to wear are not considered defective when worn and are not covered.

Coil over take-apart shocks are considered a serviceable shock with a one year warranty on leakage only. Service seal kits are available separately for future maintenance. We do not warranty any other product not directly manufactured by *Icon Vehicle Dynamics*.

Icon Vehicle Dynamics components must be installed as a complete kit as shown in our current application guide. Any substitutions or exemptions of required components will immediately void the warranty.

Some finish damage may happen to parts during shipping and is not covered under warranty.

This warranty is expressly in lieu of all other warranties expressed or implied. This warranty shall not apply to any product that has been improperly installed, modified or customized subject to accident, negligence, abuse or misuse