Revisions			
Rev.	Description	Date	Approved
-	Initial release per ECO 22-039	5/13/22	M.B.
A	Updated PN from 8651 to 8650 per ECO 22-045	6/2/22	M.B.
B	Added 05 plus per ECO 22-049	7/18/22	M.B.

FORD SUPER DUTY 05+ 2.5" LEVELING KIT

Installation Instructions

Applications:
2005+ Ford F-250/F-350 4X4

TITLE:		
FORD SUPER DUTY 05+ 2.5" LEVELING KIT INSTALL INSTRUCTIONS		
SIZE	DWG NO:	REV
A	**8650-12-INST**	**B**

Thank you for purchasing the best aftermarket products available for your vehicle. We strongly feel that the parts you are about to install should meet or exceed your expectations for performance. Proper assembly is critical to the performance of these components and the vehicle as a whole. Please take the time to carefully read these instructions and familiarize yourself with the installation procedure before working on your vehicle. If you have any questions PLEASE contact Synergy Manufacturing BEFORE beginning installation. Thanks again for supporting Synergy – enjoy the performance benefits of the best aftermarket products available for your vehicle!

Synergy Manufacturing
Phone: (805) 242-0397
Email: support@synergymfg.com

Modifying or otherwise altering vehicle components may cause the vehicle to handle differently than originally designed. It is the driver's responsibility to familiarize themselves with the performance and handling characteristics of the modified vehicle. Vehicles with larger diameter than stock tires must be driven carefully and cannot be expected to perform as stock or meet OEM performance with regard to handling, braking, or crash performance. Ensure all replacement components are compatible with vehicle capacities so as not to overload components, especially tires. It is up to the individual to ensure that the vehicle and all components are compatible with the intended vehicle use, including load ratings, road conditions, and driver abilities. Thorough and frequent vehicle inspections are recommended to ensure a safe and reliable state of readiness, especially after off-highway use.

Parts List – FORD SUPER DUTY 05+ 2.5" LEVELING KIT

8650-12 FORD SUPER DUTY 05+ DIESEL 2.5" LEVELING KIT		
QTY	**Part Number**	**Description**
1	8663-25	SUPER DUTY 05+ FRONT 2.5" LEVELING SPRINGS, DIESEL
2	FOX-985-24-155	FOX 2.0 PERFORMANCE SERIES IFP SMOOTH BODY SHOCK FOR FORD SD 17+, FRONT 2.0"-3.5" LIFT
2	FOX-985-24-151	FOX 2.0 PERFORMANCE SERIES IFP SMOOTH BODY SHOCK FOR FORD SD 17+, REAR
1	8682-01	FORD SD, 05+, FRONT BRAKE LINE RELOCATION BRACKET, PAIR
1	8612-24	SUPER DUTY BALL JOINT DANA 60 CASTER SLEEVE, KIT
1	8657-01	SUPER DUTY 05+ 1" FRONT BUMP STOP SPACER KIT
1	8673-01	FORD SD 11+ SWAY BAR END LINK SPACER KIT
1	8650-01	FORD SUPER DUTY 05-16 REAR SHOCK BUSHING KIT

8650-22 FORD SUPER DUTY 05+ GAS 2.5" LEVELING KIT		
QTY	**Part Number**	**Description**
1	8664-25	SUPER DUTY 05+ FRONT 2.5" LEVELING SPRINGS, GAS
2	FOX-985-24-155	FOX 2.0 PERFORMANCE SERIES IFP SMOOTH BODY SHOCK FOR FORD SD 17+, FRONT 2.0"-3.5" LIFT
2	FOX-985-24-151	FOX 2.0 PERFORMANCE SERIES IFP SMOOTH BODY SHOCK FOR FORD SD 17+, REAR
1	8682-01	FORD SD, 05+, FRONT BRAKE LINE RELOCATION BRACKET, PAIR
1	8612-24	SUPER DUTY BALL JOINT DANA 60 CASTER SLEEVE, KIT
1	8657-01	SUPER DUTY 05+ 1" FRONT BUMP STOP SPACER KIT
1	8673-01	FORD SD 11+ SWAY BAR END LINK SPACER KIT
1	8650-01	FORD SUPER DUTY 05-16 REAR SHOCK BUSHING KIT

General Notes

- These instructions are also available on our website; www.synergymfg.com. Check the website before you begin for any updated instructions and additional photos for your reference.
- These instructions are intended as a supplement to the instructions included with each of the components in this kit. These instructions describe the best way to install all of these components together. For specific instructions, reference the instructions included with each product.

2005-2016 F-250 and F-350

- For customers with 05-16 trucks, we have included the rear lower shock eyelet sleeve. Appendix A details the replacement of the eyelet sleeve.

Tools Needed

- Sockets & Ratchet: 8mm, 10mm, 11mm, 13mm, 18mm, 21mm, 1-1/8”
- Wrenches:13mm, 18mm
- Torque wrench 10-170ft.-lbs.
- Flat Head Screw Driver, Pliers, Hammer, Chisel, 3/16 Hex Key

Estimated Installation Time:

~3 HOURS

Installation

Tear Down

1. Raise and support the vehicle by the frame.

2. Remove the front tires.

3. Support the front axle enough to take pressure off the shocks.

4. Use an 18mm socket to remove the lower shock eyelet bolt and nut tab from the axle. Use a 20mm wrench to hold the upper shock stud and remove the 21mm nut securing the upper shock stud. Remove the factory shock. **See Figure 1.**

Figure 1. Lower Shock Eyelet

5. Remove the brake line support brackets from the axle by removing the 10mm head bolt, **see Figure 2.**

Figure 2. Brake Line Bracket Removal

6. Remove both lower sway bar end link nuts using an 8mm socket and 18mm wrench, **See Figure 3.** Push the sway bar up to clear the end link from the axle bracket. **NOTE:** 05-10 Trucks have a bushing style sway bar link and will look different.

Figure 3. Removing the Lower Sway Bar End Link Nut

7. If the truck is equipped with automatic locking front hubs, disconnect the vacuum line on the driver's side radius arm. **See Figure 4.**

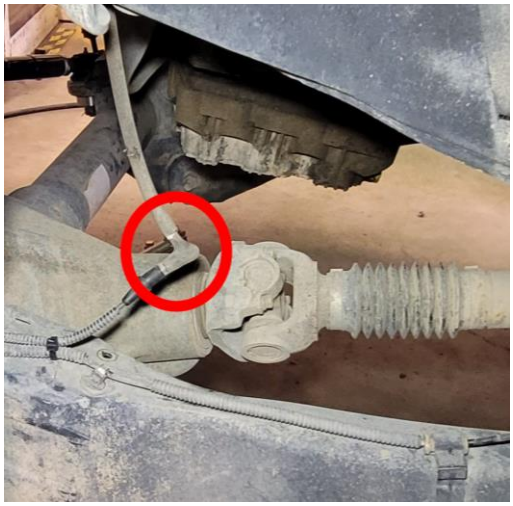

Figure 4. Automatic Hub Vacuum Line

8. Lower the axle until the spring is free enough to be removed. Be careful to not over extend the radius arms more than what is necessary to remove the spring. **See Figure 5.**

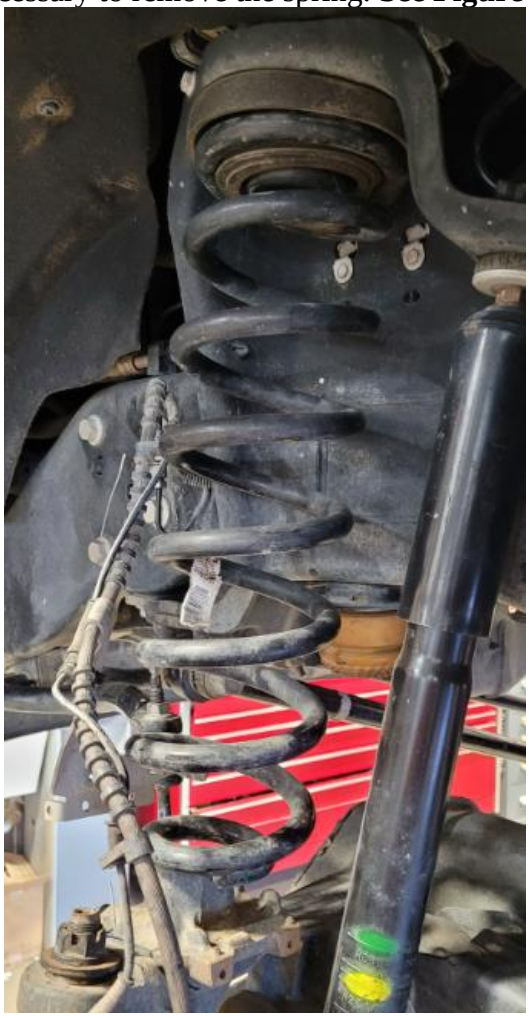

Figure 5. Spring Ready for Removal

9. Remove the springs and rubber isolator pad. Save the rubber isolator pad for use with the new springs.

INSTALLING 8663-25 OR 8664-25 2.5" FRONT LEVELING SPRINGS

10. Install the isolator pad on the Synergy Leveling springs, ensure the pad is clocked with the end of the spring wire in the recess in the pad, **see Figure 6.**

Figure 6. Isolator Pad Correctly Positioned on the Top of the Spring

11. Install the Synergy Leveling Springs in the truck. Clock the bottom of the spring so the end of the spring wire is butted up against the axle bracket as seen in **Figure 7 and Figure 8.**

Figure 7. Drivers Side Lower Spring Orientation

Figure 8. Passengers Side Lower Spring Orientation

12. Lift the axle until the springs are seated top and bottom and verify the bottom is still correctly clocked.

INSTALLING FOX-985-24-155 2.0 PERFORMANCE SERIES IFP FRONT SHOCKS

13. Install the top post of the new Fox shocks, torque to the nut to 50ft.-lbs.

14. Lift the axle until the lower shock eyelet can be installed and install the lower shock eyelet and bolt. If performing this operation on a hoist, use a pole jack in the rear of the truck to ensure the truck cannot rotate backwards off the lift. Torque the bolt to 111 ft.-lbs.

INSTALLING 8673-01 FRONT SWAY BAR END LINK SPACERS
NOTE: 05-10 TRUCKS DO NOT REQUIRE THESE SPACERS. DO NOT INSTALL THEM.

15. Remove the sway bar end links by removing the upper nuts. Push the Sway bar up and out of the way.

16. Install the larger lower spacer on both sides between the axle bracket and sway bar end link and hand tighten the nut.

17. Install the smaller upper spacer on both sides between the sway bar end link and the sway bar and hand tighten nut.

18. Torque both top and bottom nuts on both links to 52 ft-lbs

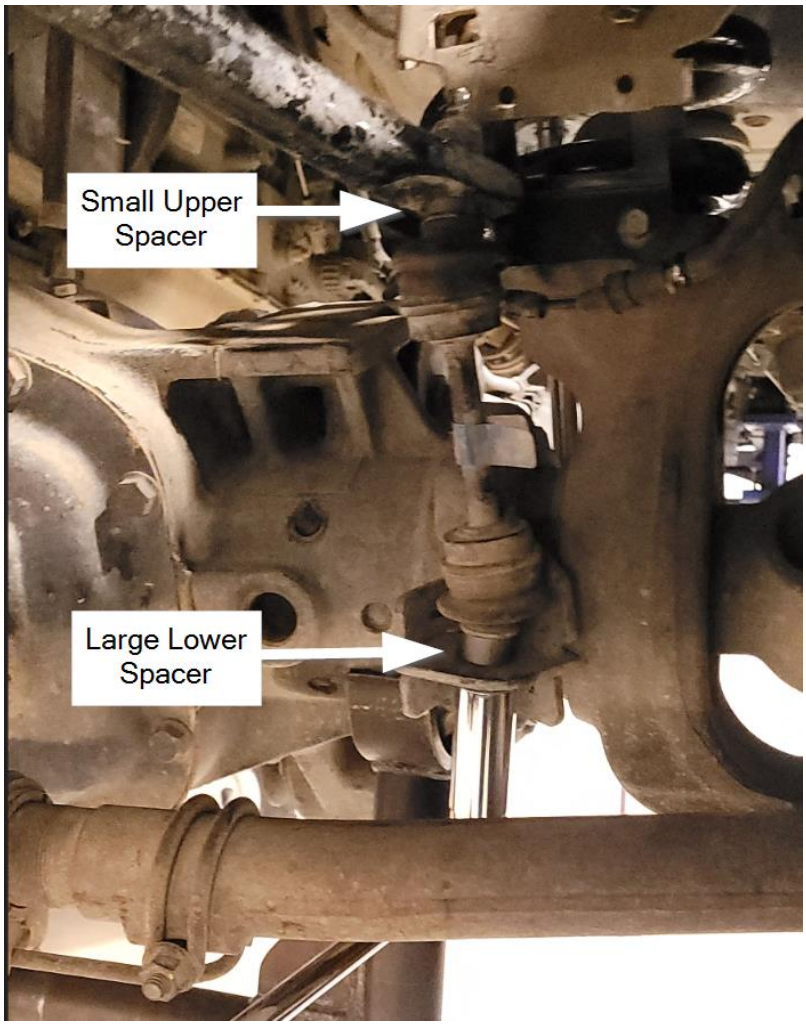

Figure 9. Final Torque of End Link Nuts

INSTALLING 8682-01 FRONT BRAKE LINE RELOCATION BRACKETS

19. If your truck is equipped with auto locking front hubs, disconnect the vacuum hose on the bottom of the brake line brackets by grasping the hose on either side of the bracket and pulling the two hoses apart. **See Figure 10.**

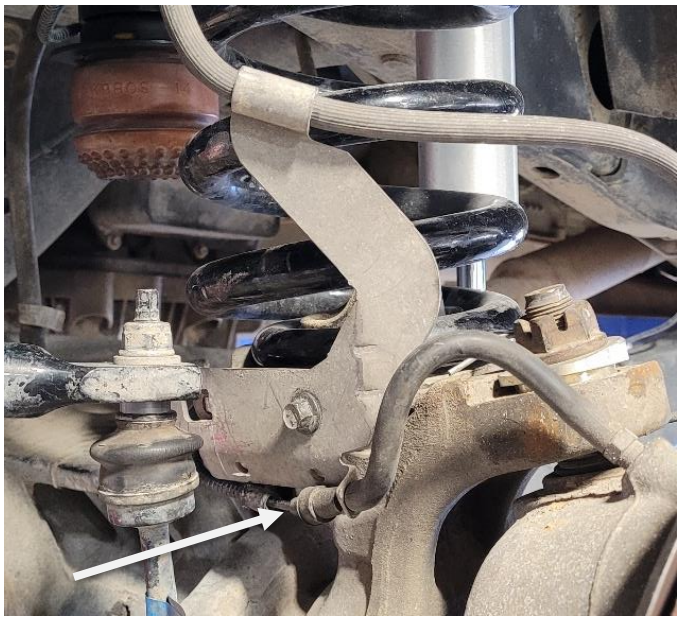

Figure 10. Disconnect the Vacuum Line

20. Clean out the inner hole on the lower spring perch of any foreign material. If using compressed air, be sure to wear safety glasses. The threads may need to be chased with a M8X1.25 tap or cleanup tool if there is heavy buildup. **See Figure 11.**

Figure 11. Cleaning the Inner Hole

21. Install the Synergy front brake relocation brackets using the supplied M8 bolts and lock washers and the factory M8 bolts. Torque to 13 ft.-lbs. The slot should face inward and the bend should be forward sloping as seen in **Figure 12**. Attach the factory bracket to the Synergy bracket with the supplied 5/16" bolt and nut. Torque to 13 ft.-lbs.

Figure 12. Correct Orientation of Driver Side Bracket

22. Pull around 1/2” to 3/4” of brake hose through the factory brake line bracket towards the caliper, as shown in **Figure 13**.

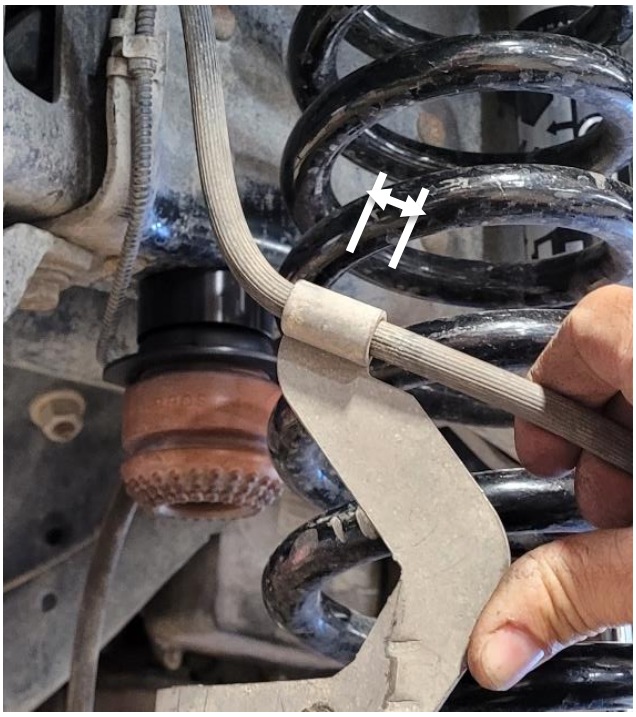

Figure 13. Brake Hose Pulled

23. Verify the knuckle turns lock to lock without the brake hose becoming overly tight. Adjust the brake hose in the bracket to ensure both ends are not being pulled tight. If the brake hose cannot be satisfactorily adjusted through all ranges in travel, a longer brake hose must be installed.

INSTALLING 8657-01 FRONT 1” BUMP STOP SPACER

24. Remove both of the factory bump stops by twisting and pulling down at a slight angle. Be careful not to hit your hand on any of the other components. **See Figure 14.**

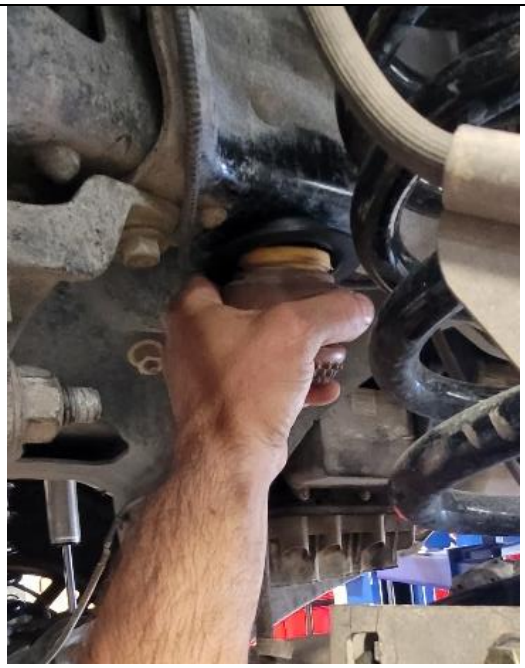

Figure 14. Removing the Factory Bump Stop

25. Remove the factory cups by unscrewing the 10mm head bolt holding them in. **See Figure 15.**

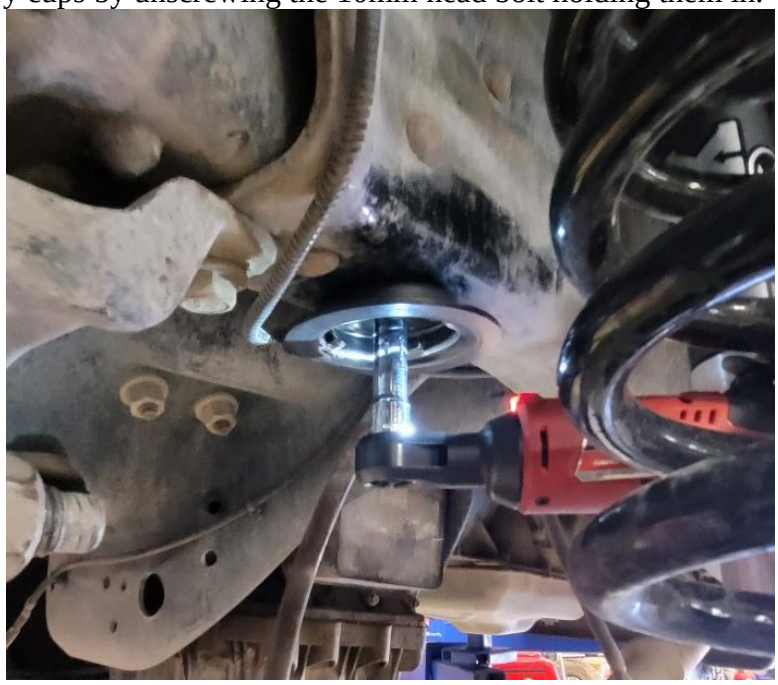

Figure 15. Removing the Factory Cup

26. Assemble the bump stop spacers by installing the 1/4-20 x .500 socket head cap screws into the threaded hole with the head inside the recess. Torque to 6 ft. lbs. **See Figure 16.**

Figure 16. Installing the Socket Head Cap Screw

27. Place bump stop spacer on the factory bump stop cup with the M8 bolt in through the center hole. Align the bent tab on the cup with the offset hole on the Spacer, as shown in **Figure 17**.

Figure 17. Spacer and Cup Aligned for Installation

28. Install the bump stop cup and spacer in the factory location using the protruding 1/4-20 screw to key into the frame. Torque the M8 bolt to 18 ft-lbs and reinstall the factory bump stop **See Figure 18**.

Figure 18. Installing the Spacer and Cup

29. Reconnect the automatic locking hub vacuum line on the driver's side radius arm if equipped.

INSTALLING 8612-24 CASTER SLEEVE

30. Remove the cotter pin and 1-1/8” nut on the upper ball joint. **See Figure 19.**

Figure 19. Drivers Side Nut and Cotter Pin Removed from Upper Ball Joint

31. Depending on the condition of the knuckle, you may need to hit the front and back of the C with a large hammer to dislodge the factory caster sleeve. **See Figure 20.**

Figure 20. Dislodging the Factory Caster Sleeve

32. Use a hammer and chisel to drive the factory caster sleeve out of the knuckle. **See Figure 21.**

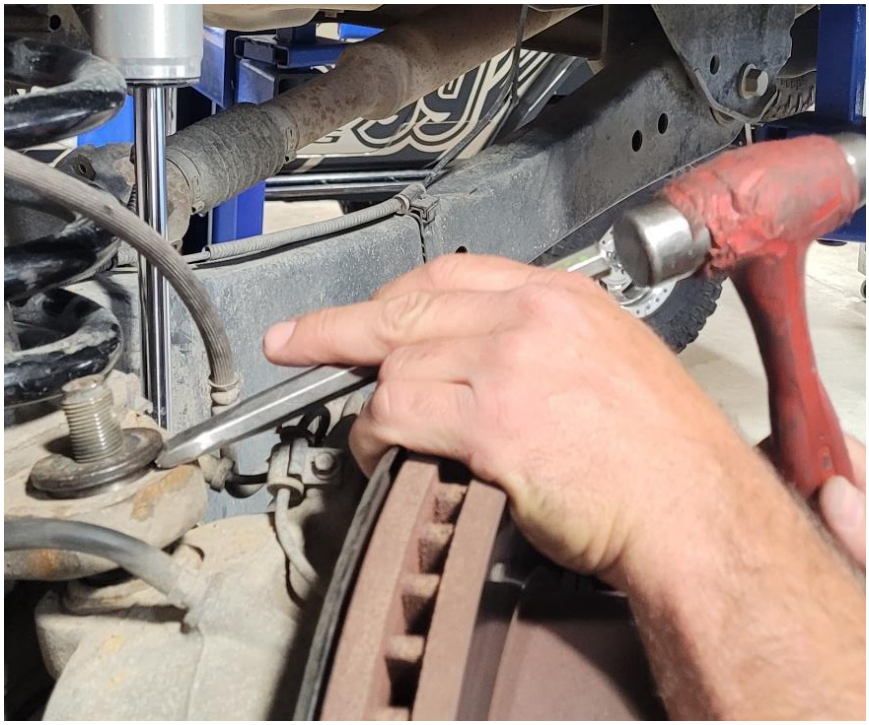

Figure 21. Removing the Factory Sleeve

33. Install the Synergy Caster Sleeve on the ball joint stud with the arrow pointing toward the front of the vehicle. **See Figure 22**. Lift the hub and move it around while pushing down on the caster sleeve to get it started.

Figure 22. Start the Sleeve With the Arrow Pointing Toward the Front of the Vehicle

34. Using the 1-1/8” socket, **lightly** tap the caster sleeve into place, **See Figure 23**.

Figure 23. Tapping the Sleeve Into Position

35. Due to the caster sleeve geometry and manufacturing tolerances, the caster sleeve can be rotated a few degrees. This rotation will affect the camber of the truck, turning the front of the sleeve in will yield positive camber; turning the front of the sleeve out will yield negative camber. Set the camber as close to 0 as possible by rotating the sleeve with a screwdriver as shown in **Figure 24.**

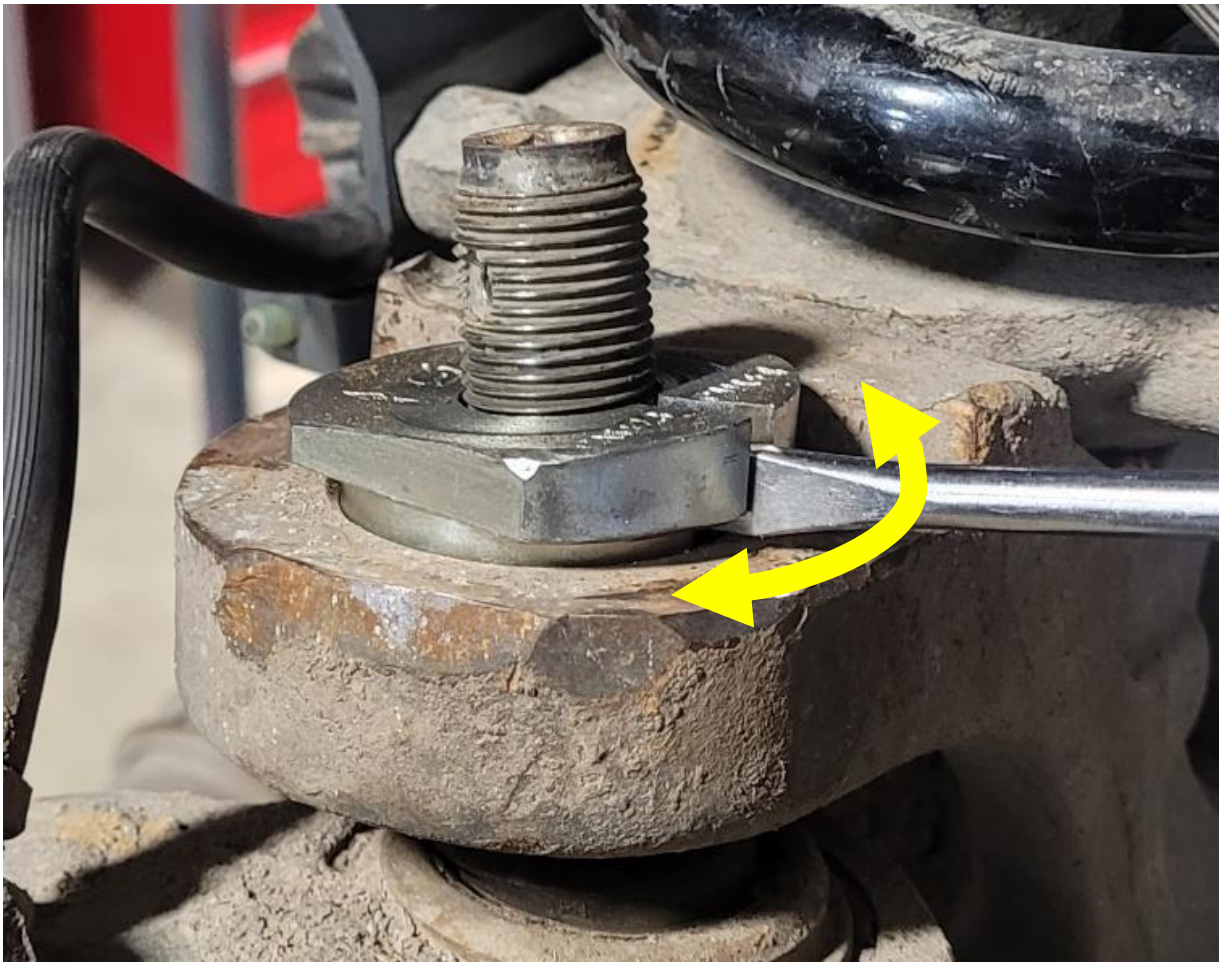

Figure 24. Rotating the Sleeve with a Screw Driver to Fine Tune Camber

36. Torque the Caster Sleeve nut to 69 ft.-lbs. and install the supplied cotter pin. If the hole in the stud does not line up with the slits in the castle nut, tighten the nut to the next available slot, do not loosen the nut.

INSTALLING FOX-985-24-151 2.0 PERFORMANCE SERIES IFP REAR SHOCKS

*** * For 05-16 trucks, replace the lower shock eyelet bushing as shown in Appendix A**

37. Support the rear axle and remove the pressure off the rear shocks.
38. Remove the lower shock bolt and nut, and remove the lower shock eyelet.
39. Remove the upper nut and pull the upper eyelet off, removing the shock.
40. Install the new Fox Shock on the upper eyelet and install the upper nut. Torque to 52 ft-lbs.
41. Install the lower eyelet with the bolt and nut and torque to 111 ft lbs.
42. Reinstall the tires and lug nuts.
43. Lower the vehicle.
44. Torque the lug nuts to 165 ft. lbs.
45. It is highly recommended to get the truck aligned at an alignment shop to fine tune the alignment.

Installation is complete!

Appendix A: Eyelet Sleeve Install for 05-16 F-250/F-350

Additional Tools Needed

- Bench Vice or Suitable Clamp

INSTALLING 8650-01 REAR SHOCK EYELET SLEEVE INTO FOX-985-24-151
Note: The new 8650-01 eyelet sleeve will be used as a punch and a 21mm socket will be used as a die to remove the old eyelet sleeve and simultaneously installing the new eyelet sleeve.

1. Align the new eyelet sleeve with the old eyelet sleeve and place the socket on the opposite side of the eyelet. Open the vice wide enough to accommodate this stack up. It helps to hold the shock body with your legs, your left hand holds the socket and eyelet while pushing the eyelet sleeve into the right jaw. This leaves your right hand free to operate the vice. See **Figure 25**

Figure 25. Shock Eyelet Setup in the Vice

2. Press the new eyelet sleeve in about 3/4 of the way by tightening the vice. It helps if you wiggle the shock body while tightening to keep the polyurethane from getting stuck and tearing.

3. Remove the old eyelet sleeve by wiggling it out. See **Figure 26.**

Figure 26: Wiggling Out the Old Eyelet Sleeve

4. Put the shock back in the vice without the socket and finish pressing the new eyelet sleeve in while wiggling the shock body to keep the eyelet sleeve from being torn. See Figure 27.

Figure 27: Finishing New Bushing Installation

5. Perform the same operations on the other rear shock.

Installation is complete!