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Revisions

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Ford Super Duty HD Drag Link Installation Instructions

Applications:

2005+ F250 4WD

2005+ F350 4WD



TITLE:

**FORD SUPER DUTY HD DRAG LINK
INSTALLATION INSTRUCTIONS**

SIZE

DWG NO:

REV

A

8600-01-INST

-

SCALE: N/A

PAGE 1 OF 7



FORD SUPER DUTY HD DRAG LINK INSTALLATION INSTRUCTIONS

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

8600-01 FORD SUPER DUTY HD DRAG LINK		
QTY	Part Number	Description
1	860001-W01	FORD SUPER DUTY HD DRAG LINK
1	4152-L	FORD SUPER DUTY PITMAN ARM TIE ROD END
1	4153-L	FORD SUPER DUTY DRAG LINK TIE ROD END, SINGLE PLANE
1	3622-10-14-PL	ROD END ADJUSTER SLEEVE 1 ID X 14 TPI ZINC PLATED
2	N/A	½-20X1.75 HEX HEAD BOLT, GR8
4	NAS1149-F0863P	FLAT WASHER, 1/2" ID, 7/8" OD, MIL-SPEC
2	N/A	½-20 TOP LOCK NUT

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.
- When greasing tie rod ends, typically only one pump of grease is required. DO NOT fill dust boots with grease.

TOOLS REQUIRED

- Basic Hand Tools: 19mm or 3/4" wrench or socket, 21mm wrench or socket, 22mm or 7/8" wrench or socket
- Tape Measure
- Hammer
- Tie Rod Separator tool (optional)

ESTIMATED INSTALLATION TIME

.5 Hour

INSTALLATION

1. Raise and securely support the front of the vehicle.
2. Remove the front passenger side tire.
3. Remove factory cotter pins and loosen nuts from the drag link tie rod ends at the steering knuckle and the pitman arm with a 21mm wrench or socket. Leave the nut threaded on one or two turns on the knuckle side.
4. Remove the nut holding the factory steering stabilizer to the drag link using a 21mm wrench or socket.
5. Separate the tie rod end from the pitman arm by using a tie rod separator tool or by striking the pitman arm near the taper with a large hammer. Completely remove the factory drag link from the vehicle
6. Separate the Steering stabilizer stud from the factory drag link by using a tie rod separator tool or by striking the drag link near the taper with a large hammer.
7. Separate the tie rod end from the steering knuckle by using a tie rod separator tool or by striking the knuckle near the taper with a large hammer. CAUTION, this will potentially remove the passengers side tie rod. If this occurs, securely support the tie rod out of the way.
8. Make sure the zerk fittings are installed in the tie rod ends.
9. Install the new Synergy drag link in the truck. The bend should be facing forward. The double adjuster side of the drag link (the side with the silver threaded nut assembly) attaches to the knuckle side. The non-double adjuster end of the drag link attaches to pitman arm. Adjust the non adjustable side out to about 2". Install the nuts but leave them loose at this time. See **Figures 2 and 3**.

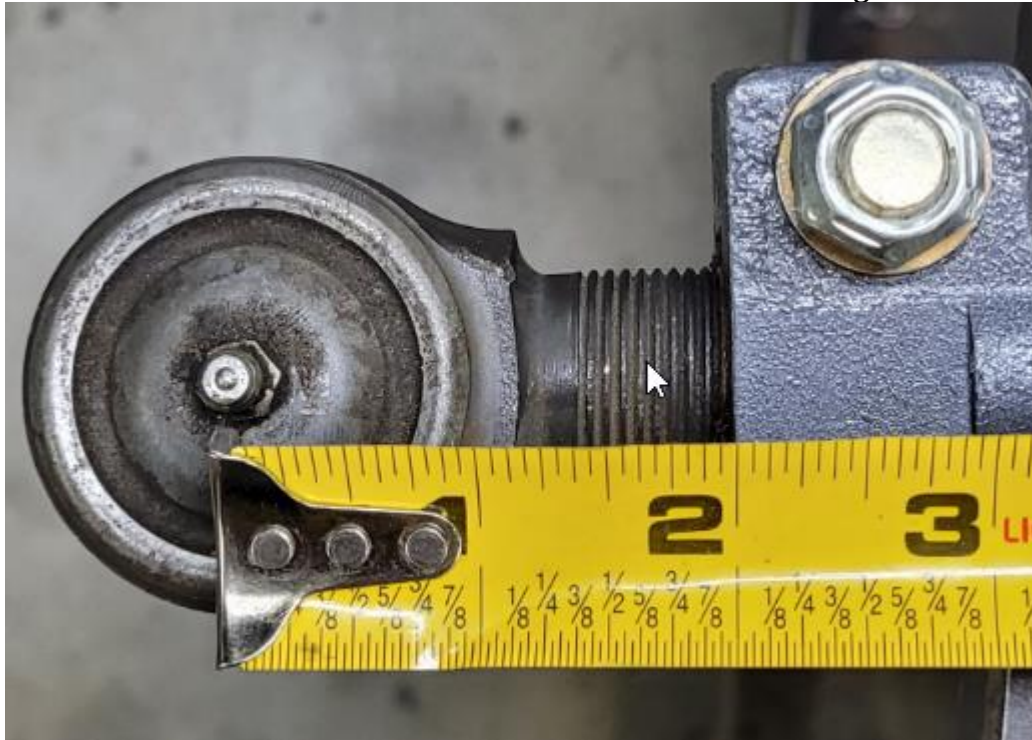


Figure 2. Non-Double Adjuster End of Drag Link at Steering Knuckle



Figure 3. The Synergy Drag Link Installed in the Truck

10. Measure the factory drag link center to center. Adjust the double adjuster side of the Synergy drag link so that the Synergy drag link is the same length as the factory drag link. The double adjuster is turned clockwise to make it shorter, counterclockwise to make it longer. **The maximum the double adjuster should be extended is 3-1/8"** from the pinch bolt surface to the zerk fitting, see **Figure 4**. If the drag link must be adjusted longer, remove the tie rod end from the pitman arm and thread out the tie rod end from the drag link. The maximum the non-double adjuster tie rod end should be extended is 3-3/8" from the pinch bolt surface to the zerk fitting, see **Figure 5**. If the bar needs to be longer than this for the steering wheel to be straight then the truck should be equipped with a dropped pitman arm. We recommend lining up a slot in the double adjuster sleeve with the slot in the pinch bolt forging if possible.



Figure 4. Double Adjuster Tie Rod End Adjusted to MAX 3-1/8\"



Figure 5. Non-Double Adjuster Tie Rod End Adjusted to MAX 3-3/8\"



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11. Once the bar has been adjusted to the correct length, install and torque tie rod end castle nuts to 70 lb-ft and then further tighten to align the cotter pin hole. Never loosen castle nuts in order to align cotter pin holes. Install cotter pins.
12. Orient the bar so the bend near the steering knuckle points forward, with the pinch bolt on the steering knuckle side oriented vertically. **Figure 3** show the bar oriented correctly. With the bar correctly oriented, tighten both the pinch bolts to 60 lb-ft. This should lock the alignment and double adjuster in place. Tighten further if needed. Do not exceed 90 lb-ft.
13. Torque the steering stabilizer nut to 67 lb-ft.
14. Install wheels and snug lug nuts.
15. Set the truck on the ground and torque the lug nuts to the factory spec of 165 lb-ft or if the wheels are aftermarket, to the aftermarket specification.
16. Take the truck on a test drive. If the wheel is not straight, loosen the pinch bolt at the knuckle and use the double adjuster to correct. If the steering wheel needs to turn to the right, turn the double adjuster to the right, or clockwise. If it needs to go left, then turn the adjuster left, or counter clockwise. Ensure the bar is oriented correctly before re-tightening the pinch bolt.
17. The tie rod ends come pre-greased. They are a metal on metal design and require a high-pressure lithium grease. When the joints are re-greased they will only require one or two pumps of grease. Over-greasing the joints can cause the boots to balloon and fail.
18. Re-check all hardware after approximately 100 miles of driving. Re-check again after every 10,000 road miles or after each off-road trip.

Installation is Complete

Table 1. Ford Super Duty Drag Link Bolt Torques

Bolted Joint Location	Wrench Size	Torque
Passenger Side Tie Rod End	22mm	70lb-ft.
Pitman Arm Side Tie Rod End	24mm	70lb-ft.
Steering Stabilizer nut	21mm	67lb-ft.
Adjuster Pinch Bolt	3/4"	60 to 90 lb-ft