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Revisions			
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Jeep Wrangler Heavy Duty Tie Rod Installation Instructions

Applications:
2007-2018 Jeep Wrangler (JK)



TITLE:
**JEEP JK HEAVY DUTY TIE ROD
INSTALLATION INSTRUCTIONS**

SIZE	DWG NO:	REV
A	8002-INST	A
	SCALE: N/A	PAGE 1 OF 6



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

Now for the lawyer part:

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

8002 JEEP JK TIE ROD		
QTY	Part Number	Description
1	4139-L	Single Plane Heavy Duty TRE (with castle nut, cotter pin, dust boot and zerk)
1	4131-L	Heavy Duty TRE (with castle nut, cotter pin, dust boot and zerk)
1	800201-PC	Jeep JK Tie Rod Tube, Powdercoated
1	3622-07-18-PL	Synergy Double Adjuster Sleeve
1	-	7/8-18 LH Jam Nut
1	-	1/2-20 UNF 1.75" long Grade 8 Bolt and 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 or videos for your reference.
- Replacement tie rod ends and boots are available from Synergy MFG, see parts listing above for appropriate part numbers.
- The Synergy MFG Tie Rod replaces the factory tie rod in the factory location. Due to the HD tie rod ends used, 16" diameter or larger wheels must be used and effective wheel backspacing must be 4.75" or less. This can be achieved through aftermarket wheels or higher back spaced wheels when used with wheel spacers. Synergy MFG wheel spacers are available.
- The Synergy MFG Tie Rod is the same 1-3/8" outer diameter as the stock tie rod. The stock steering stabilizer clamp can be reused on most models, although a Synergy MFG replacement steering stabilizer clamp is recommended. When high mounting the steering stabilizer above the tie rod, the stock steering stabilizer clamp cannot be reused/relocated on 2011+ models and a Synergy MFG replacement steering stabilizer clamp will be required.
- Synergy MFG 8007-03 High Mount Stabilizer Relocation Kit recommended.

Tools Needed

- Wrenches/Sockets/Pliers (Basic Hand Tools)
- Hammer/Pickle Fork/TRE remover
- Tape Measure
- Torque Wrench

Estimated Installation Time

.5-1.0 Hour

Installation

1. Start with the vehicle on flat, level ground. Set the parking brake and make sure the vehicle is in gear or park. Raise the front axle and support with jack stands. Remove the front wheels and tires.
2. Disconnect the steering stabilizer from the tie rod and loosen the tie rod end nuts but do not completely remove yet.
3. Separate the tie rod end tapers from the knuckle by using a tie rod end separator tool or by sharply striking the end of the steering arm (Not the tie rod end) with a large hammer and remove the tie rod. Note that a tie rod end separator tool can damage the tie rod ends, so we only recommend using if you will not be saving the tie rod.
4. If reusing the stock steering stabilizer bracket, remove it from the stock tie rod and reinstall on the Synergy MFG Tie Rod. If you have a 2007-2011 model and will be relocating the steering stabilizer above the tie rod, make sure the clamp is flipped before reinstalling. If you will be using an aftermarket steering stabilizer clamp, it can be installed later.
5. Install the included dust boots on the Synergy MFG Tie Rod. Make sure the dust boot clips are installed and have secured the dust boots to the tie rod end housings.
6. The Synergy MFG Tie Rod is assembled fully collapsed. The jam nut side of the tie rod (opposite from the pinch bolt side) should be installed with 1/4" of thread showing past the jam nut. The pinch bolt side can be installed fully collapsed and adjusted on the vehicle.
7. Mount the tie rod with the pinch bolt end on the driver side and the jam nut end on the passenger side of the vehicle. The bends in the bar should be flat and facing forward to provide clearance for the axle components. Thread the tie rod end castle nuts on and leave hand tight. See **Figure 1**.



Figure 1. Tie Rod Installed with Bends Flat and Forward

8. Install wheels and tires. Check the toe by making a mark on the tread of each front tire. Rotate the tires so that the marks are pointing forward and measure the distance between the marks. Rotate the tires so that the marks are pointing towards the rear of the vehicle, just under the control arms. Measure the distance between the marks. This is the toe measurement. The goal is to have the tires slightly closer together in the front than the rear, approximately 1/16" to 1/8". This is toe in, or positive toe. Adjust the double adjuster sleeve and re-measure the distance between the marks until the toe is correct. We recommend rotating the sleeve until one of the slots in the sleeve lines up with the slot in the bar. **DO NOT THREAD THE DOUBLE ADJUSTER TIE ROD END OUT FARTHER THAN THE 3.25" SHOWN IN FIGURE 2.** If the adjuster is all the way out and the toe is still too far in, remove the passenger side tie rod end from the knuckle and thread it out of the bar farther until the toe is correct. See **Figure 2**.



Figure 2. Maximum Length on Double Adjuster (Passenger) Side

9. With the bar adjusted to the correct length, torque both castle nuts to 55 lb-ft and install cotter pins. If cotter pin hole does not align with castle nut, **TIGHTEN** the castle nut slightly until it does. Never loosen castle nuts to align cotter pin holes.
10. Align the tie rod so that the bend is flat and pointing forward. It should not be pointing up or down, but forward. Tighten the pinch bolt on the driver side and torque to 90 lb-ft. Let the tie rod go, the tie rod should be held in position with the bend as oriented when the pinch bolt is tight. See **Figure 3**.



Figure 3. Tie Rod Correctly Installed

11. Tighten the passenger side jam nut at the knuckle as tight as possible. The use of two LARGE crescent wrenches is recommend.
12. Re-check the toe.
13. Put the vehicle back on the ground. Torque lug nuts.
14. Double check all bolts / torques before driving and recheck bolt torques after 100 mi of driving or after off road use. Grease joints at regular intervals with one pump of grease. **DO NOT** over grease! Joints come pre-greased and do not need grease on install. Over greasing the joints will cause damage to the dust boots.

Installation is Complete