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Revisions			
Rev.	Description	Date	Approved
A	Initial Release Per ECO 18-046	5/29/18	A.S.



RAM HD Drag Link

Installation Instructions

Applications:

- 2014+ Ram 2500 4WD
- 2013+ Ram 3500 4WD



TITLE:
RAM HD DRAG LINK INSTALLATION INSTRUCTIONS

SIZE	DWG NO:	REV
A	8701-01-INST	A
SCALE: N/A		PAGE 1 OF XX



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!

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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

8701-01 RAM HD DRAG LINK		
QTY	Part Number	Description
1	8701-01	RAM TIE ROD
1	4160-L	RAM SINGLE PLANE TIE ROD END
1	4134-L	RAM TIE ROD END
1	N/A	9/16 ASTM F436 HARD WASHER, EXTRA THICK
2	N/A	½-20X1.75 HEX HEAD BOLT, GR8
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.
- Replacement tie rod ends and boots are available from Synergy MFG.
- 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 ¾” 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. Installation can be done on the ground or on a lift. If installation is done on the ground, make sure the vehicle is on a flat level surface and is in park or in gear with the parking brake set and wheels chocked.
2. Remove factory nylock 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. See **Figure 1**.



Figure 1. Nylock Nut Loosely Threaded on Factory Drag Link Tie Rod End

3. 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.
4. 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. It may be necessary to turn the steering wheel to the passenger side of the vehicle to allow the tie rod end to come all the way out of the pitman arm. The engine crossmember will be in the way if the vehicle is turned too far to the driver's side.
5. Ensure dust boots are installed and the retaining circlips are seated correctly on the Synergy drag link. Make sure the zerk fittings are installed in the tie rod ends. Make sure the non-double adjuster side of the drag link has the tie rod end fully threaded in until it stops (this is left hand thread).
6. The double adjuster side of the drag link (the side with the silver threaded nut assembly) attaches to the pitman arm. The non-double adjuster end of the drag link attaches to the underside of the passenger side steering knuckle. Install the castle 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. Double Adjuster End of Drag Link at Pitman Arm

7. 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 approximately 3.5" from the pinch bolt surface to the zerk fitting. **Figure 4** shows the tie rod end adjusted out 3.25", 1/4" from maximum. If the drag link must be adjusted longer, remove the tie rod end from the knuckle and thread out the tie rod end from the drag link. The maximum overall length of the Synergy drag link is 41.5 inches. 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. Tie Rod End Adjusted 3.25" Out, 1/4" From Maximum

8. 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 in order to align the cotter pin hole. Never loosen castle nuts in order to align cotter pin holes. Install cotter pins. On the pitman arm side, the included washer may be necessary under the castle nut in order for the cotter pin to engage the castle nut. This is due to variances in thickness of the pitman arms for the various model year trucks. See **Figures 5 and 6**.



Figure 5 And 6. Washer Used Under Castle Nut in Order for Cotter Pin to Engage Castle Nut

9. Orient the bar so the bend near the steering knuckle points forward, with the pinch bolt on the steering knuckle side oriented vertically. The pinch bolt on the pitman arm side should be on top of the bar, with the pinch bolt oriented front to back. **Figures 2 and 3** show the bar oriented correctly. With the bar correctly oriented, tighten both the pinch bolts to 90 lb-ft.
10. Take the truck on a test drive. If the wheel is not straight, loosen the pinch bolt at the pitman arm 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 to 90 lb-ft.
11. 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.
12. 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.