

059310-002



# H<sup>®</sup> ASSEMBLY INSTRUCTIONS

## ULTRA ROD<sup>®</sup> Two-piece Torque Rods

**SUBJECT:** Welding Instructions and Selection Guide

**LIT NO:** 59310-002

**DATE:** June 2020

**REVISION:** E

### INTRODUCTION

Hendrickson ULTRA ROD<sup>®</sup> two-piece torque rods have a forged rod body with an integrated forged end hub which utilizes Hendrickson's proprietary rubber bushing compound and bonded technology. Two-piece torque rods with empty hubs or equipped with bushings provide the option to make a torque rod in a wide range of lengths and a variety of bushing configurations.

Two-piece torque rods are an excellent replacement option for one-piece torque rods for both on-highway and vocational applications. They are designed for up to 27 inch centers for most applications and 35 inches for widespread tandem suspensions.

### TWO-PIECE TORQUE RODS | How to Measure

For proper measurement for torque rod replacement with a two-piece ULTRA ROD, refer to the following. If the torque rod to be replaced:

- **Is an ULTRA ROD**, measure the centers of torque rod end hubs of the original torque rod, and create the new torque rod the same length.
- **It is not an ULTRA ROD**, then it is **IMPORTANT** to verify how the torque rod is mounted and the measurement to ensure the proper length is achieved, see shown in Figures 1 through 3.

#### OUTSIDE MOUNT

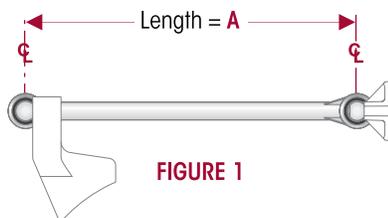


FIGURE 1

- Measure center to center of old torque rod.
- Make the new torque rod the same length

#### TAPER PIN TO STRADDLE PIN MOUNT

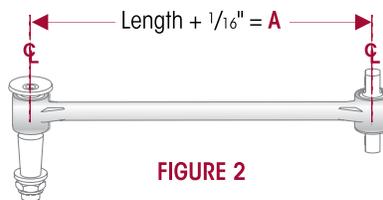


FIGURE 2

- Measure center to center of old torque rod
- Add 1/16" to make new torque rod.

#### INSIDE TO INSIDE MOUNT

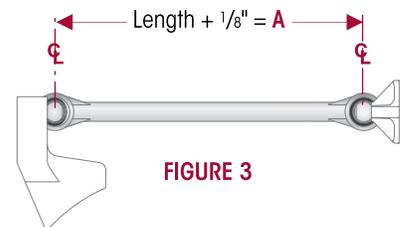


FIGURE 3

- Measure from the center of old torque rod
- Add 1/8" to make new torque rod.

### CAUTION

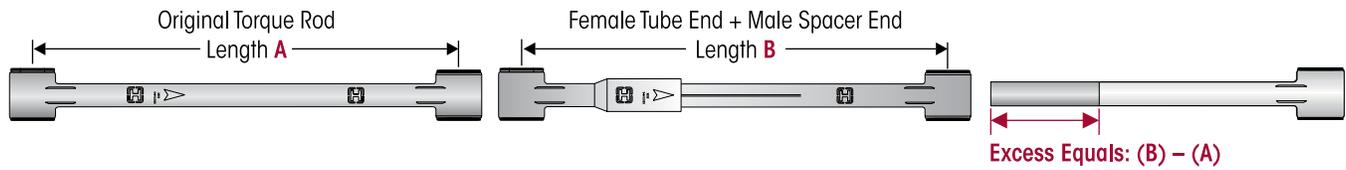
A TECHNICIAN USING A SERVICE PROCEDURE OR TOOL WHICH HAS NOT BEEN RECOMMENDED BY HENDRICKSON MUST FIRST SATISFY HIMSELF THAT NEITHER HIS SAFETY NOR THE VEHICLE'S SAFETY WILL BE JEOPARDIZED BY THE METHOD OR TOOL SELECTED. INDIVIDUALS DEVIATING IN ANY MANNER FROM THE INSTRUCTIONS PROVIDED ASSUME ALL RISKS OF POTENTIAL PERSONAL INJURY OR DAMAGE TO EQUIPMENT INVOLVED.

### PRE-ASSEMBLY | Metal Preparation

1. Select the appropriate end type for the cross-member end, frame rail and axle end of the existing torque rod.
2. Assemble the male spacer end into the base of the female tube end until it bottoms out in the female tube end. Measure for excess, see Figure 4.



FIGURE 4



**CAUTION**

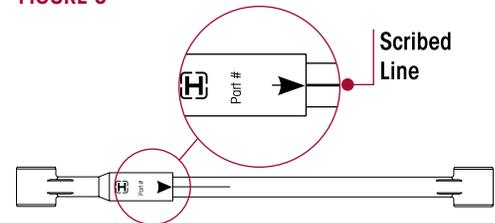
BE SURE TO WEAR PROPER EYE, AND HEARING PROTECTION AND USE PROPER PERSONAL CLOTHING PROTECTION WHEN PERFORMING STEPS 3 AND 4.

3. Remove the excess male spacer end using abrasive cutting or sawing methods. End face of the male spacer end should be cut square. **DO NOT** use flame or arc cut methods.
4. Remove all grease, oil, rust or oxides from the metal surfaces to be welded by grinding, filing or power brushing.

**WELDING ASSEMBLY | Prior to Bushing Installation**

FIGURE 5

1. Assemble male spacer end into the base of the female tube end. Check for correct length, see Figures 1 through 3.
2. Rotate male spacer end until scribed line is positioned with arrow on sleeve end, see Figure 5. Hold in position for fillet weld.
3. Complete assembly by welding a minimum ¼" convex fillet weld. This weld must obtain full root penetration with equal legs sufficient to provide metallurgical fusion between weld and base metal. **DO NOT** undercut or overlap.



- For maximum security, welded assembly should be NDT inspected with dye penetrant, fluorescent penetrant or magnetic particle techniques. Any 1/16" or larger weld defect must be repaired and reinspected.

**WELDING PROCESS | Prior to Bushing Installation**

**WARNING**

THE WELDING PROCEDURE DESCRIBED MUST BE PERFORMED BY AN ASME OR AWS QUALIFIED WELDING OPERATOR. AN EFFECTIVE WELD BETWEEN SPACER BAR AND TUBULAR END IS CRITICAL TO SAFE OPERATION OF THESE PARTS. HENDRICKSON TRUCK COMMERCIAL VEHICLE SYSTEMS SHALL NOT BE RESPONSIBLE FOR WELDING AND FABRICATION PERFORMED BY THE PURCHASER OR USER OF THIS PRODUCT.

**TYPE: Preferred:** GMAW (Gas Metal Arc Welding), commonly referred to as MIG welding.

**Alternate:** SMAW (Shielded Metal Arc Welding), commonly referred to as stick, arc or coated electrode.

**CURRENT:** DC reverse polarity.

**SHIELDING GAS:** (GMAW process only) 100% CO2 or 75% Argon - 25% CO2 (C25) at 30 CFH flow.

**FILLER METAL:** GMAW - AWS #ER70S-6, SMAW - (Coated electrode), AWS #E6010 or E7018.

**NOTE**

Preheating and post-heating of metal is required. Prior to welding, spacer end torque rods should be preheated within the range of 200°–400° Fahrenheit. Post heating should be within the range of 1100°–1200° Fahrenheit. Also, SMAW (coated electrodes) should be stored in a warming oven to minimize moisture absorption.

**COMPONENT POSITION:** All components are to be positioned so welding can be performed in the #1F (Flat Roller Fillet) position only.

**BASE METAL: Male Spacer Bar and Female Sleeve:** SAE 1030



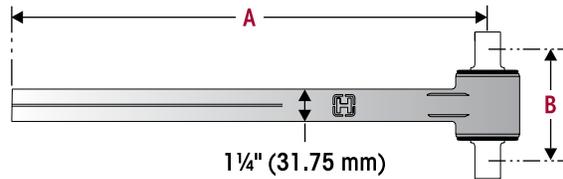
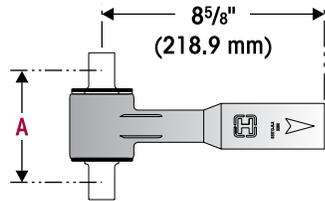
**ULTRA ROD | Bushing Installation**

Hendrickson ULTRA ROD torque rod bushing installation is easier with the use of a funnel tool. To order funnel tool Part No. 66086-000L, contact your local truck dealer or authorized Hendrickson distributor. It helps prevent damage to the torque rod bushing during installation.

**ULTRA ROD | Two-piece Torque Rod Selection Guide**

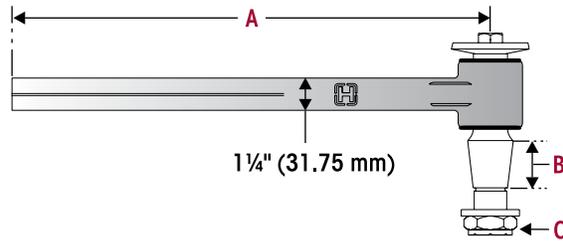
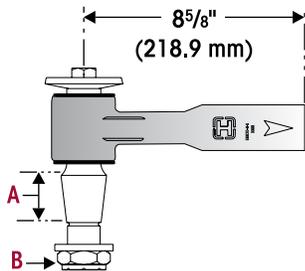
ULTRA ROD two-piece kits containing male spacer and female tube ends pre-assembled with bushings are available in one convenient box, refer to Hendrickson Literature no. 45745-148 for more information.

**TUBE END** **SPACER END**



| Torque Rod<br>Tube End<br>Part No. | Replacement Bushing |                         |                  |      |
|------------------------------------|---------------------|-------------------------|------------------|------|
|                                    | Part No.            | A<br>Mounting<br>Center | Hole<br>Diameter |      |
|                                    |                     |                         | mm               | inch |
| 66610-000H                         | 47691-000L          | 4 3/8"<br>(111.13 mm)   | 16.6             | 5/8  |
| 66767-000H                         | 69210-000L          |                         | 19.8             | 3/4  |
| 66766-000H                         | 67746-000L          |                         | 23               | 7/8  |

| Torque Rod<br>Spacer End<br>Part No. | A<br>Length |         | B<br>Mounting<br>Center | Replacement Bushing |                  |      |
|--------------------------------------|-------------|---------|-------------------------|---------------------|------------------|------|
|                                      | mm          | inch    |                         | Part No.            | Hole<br>Diameter |      |
|                                      |             |         |                         |                     | mm               | inch |
| 66661-000H                           | 570.5       | 22 7/16 | 4 3/8"<br>(111.13 mm)   | 47691-000L          | 16.6             | 5/8  |
| 67047-000H                           |             |         |                         | 69210-000L          | 19.8             | 3/4  |
| 67048-000H                           |             |         |                         | 67746-000L          | 23               | 7/8  |
| 66660-000H                           | 770.5       | 30 5/16 | 4 3/8"<br>(111.13 mm)   | 47691-000L          | 16.6             | 5/8  |
| 67046-000H                           |             |         |                         | 69210-000L          | 19.8             | 3/4  |
| 66768-000H                           | 570.5       | 22 7/16 | 5 11/16"<br>(144 mm)    | 66734-000L          | 19.8             | 3/4  |



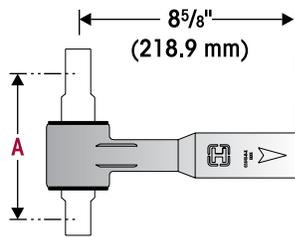
| Torque Rod<br>Tube End<br>Part No. | Replacement Bushing |                |       |             |
|------------------------------------|---------------------|----------------|-------|-------------|
|                                    | Part No.            | A<br>Taper Pin |       | B<br>Thread |
|                                    |                     | mm             | inch  | inch        |
| 66769-000H                         | 66735-000L          | 48             | 1 7/8 | 1 1/4       |
| 66620-000H                         | 64809-000L          | 51             | 2     | 1 1/8       |
| 66630-000H                         | 64697-000L          | 76             | 3     | 1 1/4       |

| Torque Rod<br>Spacer End<br>Part No. | A<br>Length |         | Part No.   | Replacement Bushing |       |             |
|--------------------------------------|-------------|---------|------------|---------------------|-------|-------------|
|                                      | mm          | inch    |            | B<br>Taper Pin      |       | C<br>Thread |
|                                      |             |         |            | mm                  | inch  | inch        |
| 66691-000H                           | 570.5       | 22 7/16 | 66735-000L | 48                  | 1 7/8 | 1 1/4       |
| 66690-000H                           |             |         |            |                     |       |             |
| 66671-000H                           | 570.5       | 22 7/16 | 64809-000L | 51                  | 2     | 1 1/8       |
| 66670-000H                           |             |         |            |                     |       |             |
| 66681-000H                           | 570.5       | 22 7/16 | 64697-000L | 76                  | 3     | 1 1/4       |
| 66680-000H                           |             |         |            |                     |       |             |

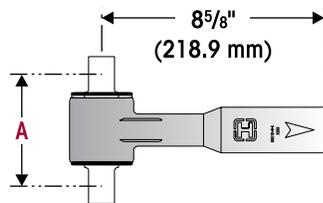


## TUBE END

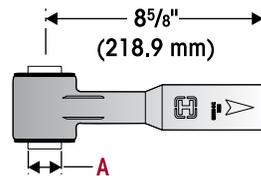
## SPACER END



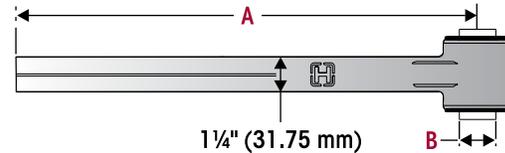
| Torque Rod        | Replacement Bushing |                   |               |      |
|-------------------|---------------------|-------------------|---------------|------|
| Tube End Part No. | Part No.            | A Mounting Center | Hole Diameter |      |
|                   |                     |                   | mm            | inch |
| 66640-000H        | 66734-000L          | 5 1/16" (144 mm)  | 19.8          | 3/4  |



| Torque Rod        | Replacement Bushing |                    |               |      |
|-------------------|---------------------|--------------------|---------------|------|
| Tube End Part No. | Part No.            | A Mounting Center  | Hole Diameter |      |
|                   |                     |                    | mm            | inch |
| 66610-000H        | 47691-000L          | 4 3/8" (111.13 mm) | 16.6          | 5/8  |



| Torque Rod        | Replacement Bushing |                   |
|-------------------|---------------------|-------------------|
| Tube End Part No. | Part No.            | A Mounting Center |
| 66650-000H        | 65477-000L          | 1 5/16" (33.3 mm) |



| Torque Rod          | Replacement Bushing |         |                                 |
|---------------------|---------------------|---------|---------------------------------|
| Spacer End Part No. | A Length            |         | B Mounting Center               |
|                     | mm                  | inch    |                                 |
| 66701-000H          | 570.5               | 22 7/16 | 65477-000L<br>1 5/16" (33.3 mm) |
| 66700-000H          | 770.5               | 30 5/16 |                                 |

Refer any questions on this publication, contact Hendrickson Tech Services:



Toll-free U.S. and Canada  
1.866.755.5968  
Outside U.S. and Canada  
1.630.910.2800



Parts Identification  
truckparts@hendrickson-intl.com  
Technical Support  
techservices@hendrickson-intl.com

Call Hendrickson at **1.866.755.5968** (toll-free) or **1.630.910.2800** for additional information.



www.hendrickson-intl.com

**TRUCK COMMERCIAL VEHICLE SYSTEMS**  
800 South Frontage Road  
Woodridge, IL 60517-4904 USA  
1.866.755.5968 (Toll-free U.S. and Canada)  
1.630.910.2800 (Outside U.S. and Canada)  
Fax 1.630.910.2899

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