

# Hendrickson HaulMaax Rear Suspension Transverse Torque Rod Tower Bracket Replacement

# 32-018

Constellation  
Heritage  
> 4700 Models  
4800 Models

4900 Models  
5700 Models  
5900 Models  
6900 Models

Western Star  
Service Bulletin

## General Information

Some vocational vehicles built with a Hendrickson HaulMaax 46,000 lb (20,865 kg) rear suspension and a 40,000 lb (18,143 kg) rear axle combination may have an incorrect transverse torque rod tower bracket installed on the rear drive axles at the factory. This can result in cracking at the transverse rod tower where it is welded to the axle housing, premature wearing of the transverse torque rod tapered pin and bushings, and damage to the transverse torque rod frame bracket.

Inspect the transverse torque rod and components. If damage is noted, follow the instructions in this bulletin to replace the components.

## Parts

| Parts         | Description                                            | Qty |
|---------------|--------------------------------------------------------|-----|
| HDR62350 635  | CTRL ROD-TRNSV,635MM,TAPER PIN<br>(See Fig.1, Item 4 ) | 2   |
| 16-12324-000  | BRKT,TORQUE ROD SUSP (See Fig.1, Item 5)               | 2   |
| TDA 3150P1628 | BRKT-TRACK ROD TOWER (See Fig.1, Item 3)               | 2   |
| 23-09444-500  | SCREW-CAP,HEX5/8-11X5.00 GR (See Fig.1, Item 7)        | 8   |
| 23-09114-000  | WASHER-HRDN,0.69X1.31X.177 (See Fig.1, Item 8)         | 16  |
| 23-13179-110  | NUT-HEX,PT,5/8-11,C,ZC,.559 (See Fig.1, Item 9)        | 8   |

Table 1, Parts Required

## Transverse Torque Rod and Tower Bracket Replacement

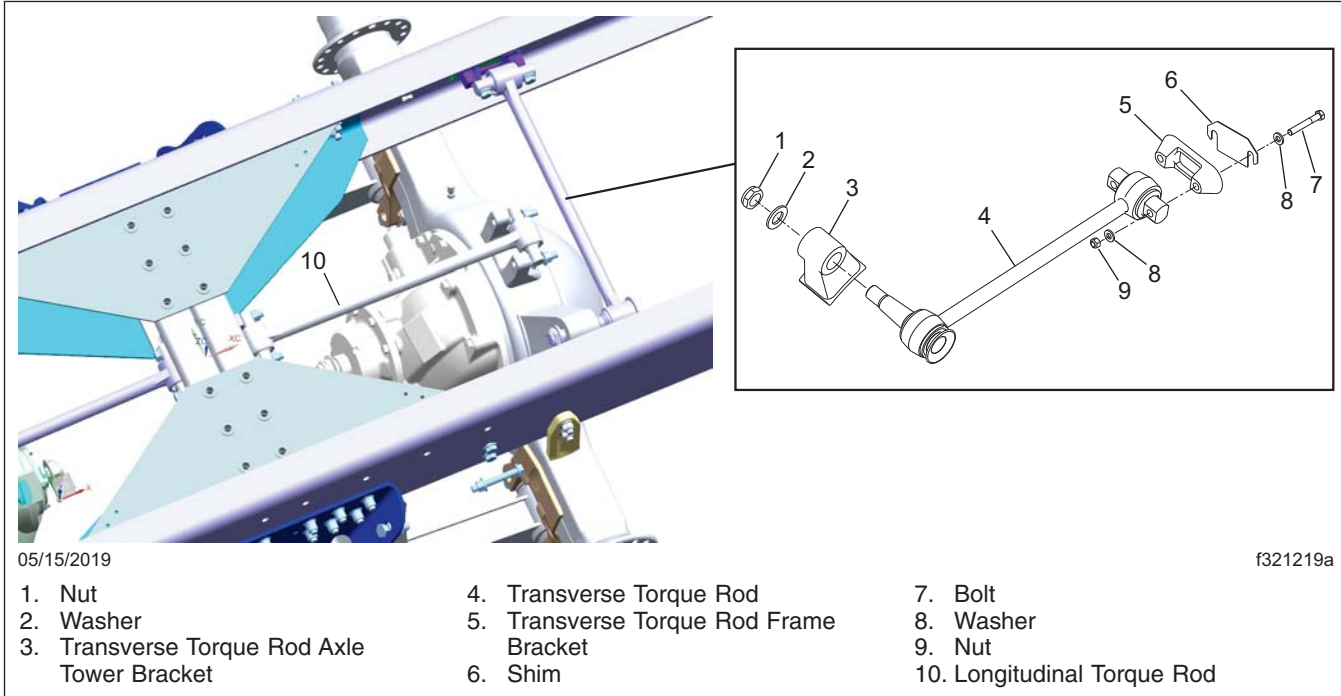


**When working on the vehicle, shut down the engine, set the parking brake, and chock the tires. Before working under the vehicle, always place jack stands under the frame rails to ensure the vehicle cannot drop. Failure to follow these steps could result in serious personal injury or death.**

1. Disconnect the batteries.
2. Cut the zip ties on the rearmost axle transverse torque rod, noting the location of the zip ties, lines, and wires. Tie the wires and lines out of the way.

**IMPORTANT:** When removing fasteners, spacers, and shims, make sure to mark the location so that the shims are installed in the same location.

3. Remove the three mounting fasteners from the transverse torque rod and discard the rod and fasteners. Save the shims. See Fig. 1.



**Fig. 1, Rearmost Axle Assembly**

**IMPORTANT:** Use grinding cloths to cover up items that need to be protected from sparks. This includes air bags, electrical connections, hoses, and air lines.

4. Raise the rear of the truck to provide more clearance when accessing the transverse torque rod tower bracket.

**IMPORTANT:** Remove the welds with minimal grinding on the axle housing.

5. Use a disc grinder to grind out the weld and remove the tower bracket. Discard the tower bracket.
6. Remove any weld residue, ridges, or ripples from the surface of the housing. All areas must be flat with the housing wall and bracket. Do not gouge or leave sharp edges on any surface.
7. Remove the paint in a 3-inch (7.5-cm) radius from the area to be welded.
8. Clean the area using a wire brush and a cleaning solvent that will remove dirt and grease.

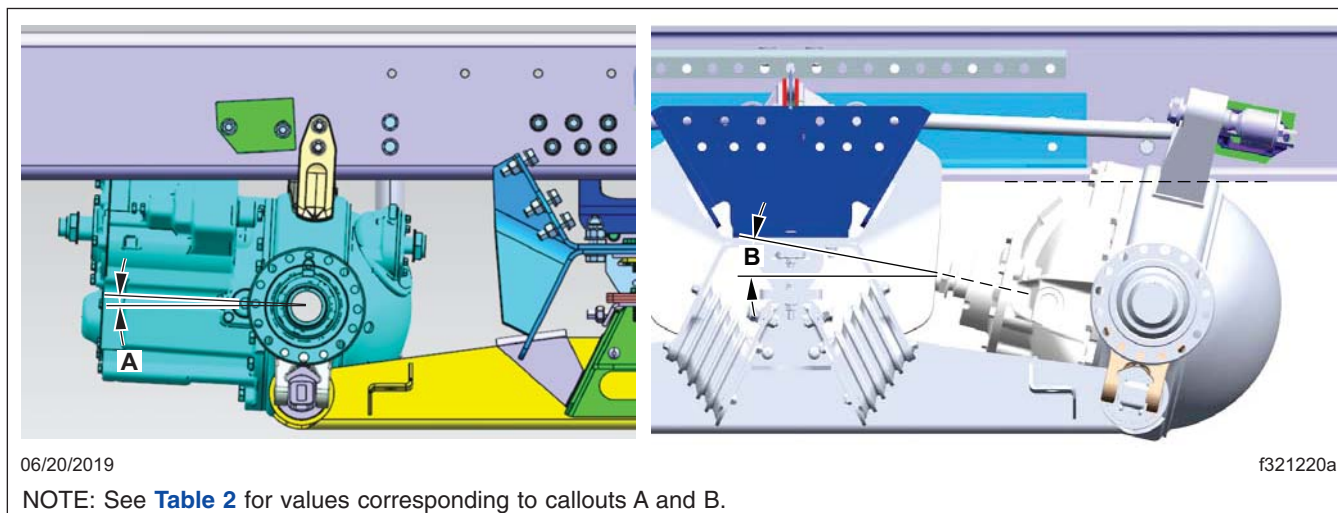
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**Fig. 2, Measuring Pinion Angles**

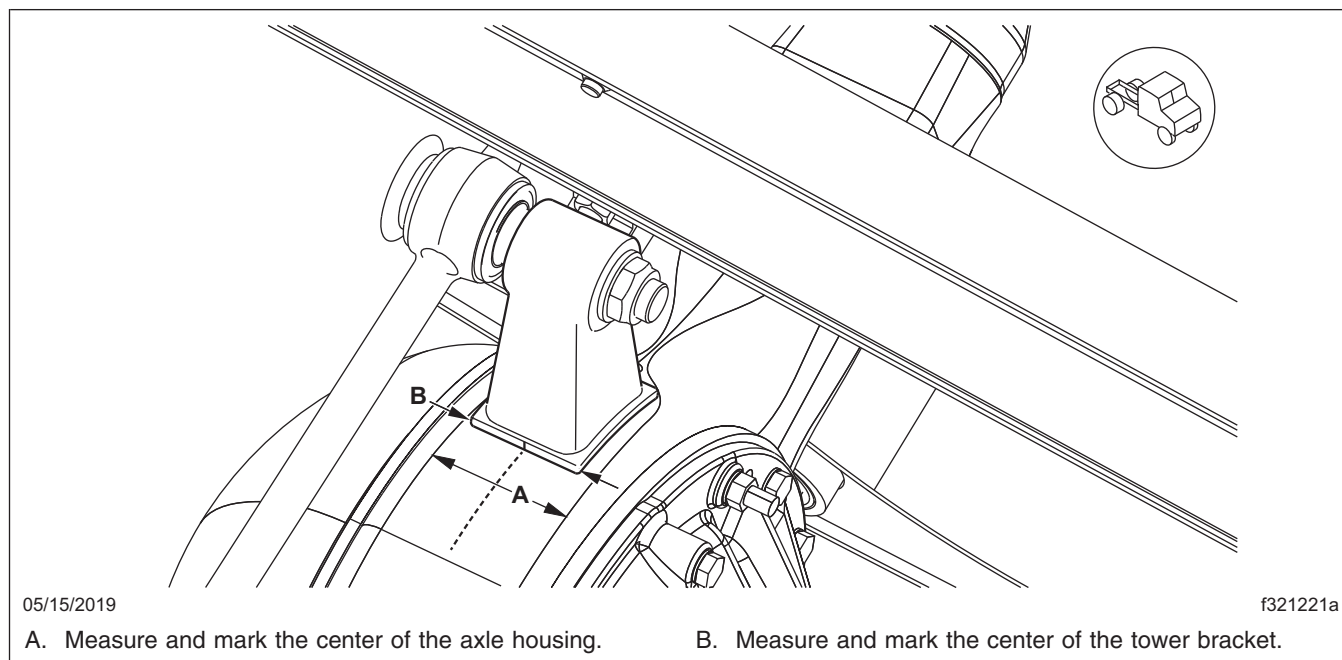
9. Measure the pinion angle of both the forward and rear drive axles. The forward drive axle pinion angle "A" should be 3 degrees measured relative to the frame rail. The rear drive axle pinion angle "B" measured relative to the frame rail varies depending on the axle model and beam spacing. See [Table 2](#). If the pinion angles are not correct, adjust the angles by adding or subtracting shims at the longitudinal torque rods.

| Rear Axle Pinion Angles |              |                |       |
|-------------------------|--------------|----------------|-------|
| Rear Axle               | Beam Spacing | Planing Angles |       |
|                         |              | A              | B     |
| MT-40/44-14X/XP         | 52"          | 3.0°           | 11.7° |
|                         | 54"          | 3.0°           | 11.2° |
| RT-34/40/44-145         | 60"          | 3.0°           | 9.9°  |
|                         | 52"          | 3.0°           | 11.4° |
| RT-40/46/50-160/164     | 54"          | 3.0°           | 10.9° |
|                         | 60"          | 3.0°           | 9.7°  |
| ETN D404/405            | 52"          | 3.0°           | 10.2° |
|                         | 54"          | 3.0°           | 9.8°  |
| ETN D463/DDS40          | 60"          | 3.0°           | 8.7°  |
|                         | 52"          | 3.0°           | 10.8° |
|                         | 54"          | 3.0°           | 10.3° |
|                         | 60"          | 3.0°           | 9.2°  |

**Table 2, Rear Axle Pinion Angles**

10. Grind off the outer coating on the surfaces of the new tower that will be welded.
11. Install the new transverse torque rod and frame bracket using the original shims. Tighten only enough to remove play. Do not apply the final torque.
12. Attach the new tower to the torque rod. Tighten only enough to remove play. Do not apply the final torque.

13. Mark the center of the axle and the center of the tower bracket for ease of alignment when tack welding the bracket to the housing. See [Fig. 3](#).



**Fig. 3, Aligning the Tower Bracket and Axle Housing**

14. Use the bracket attached to the new rod to establish the new position of the tower bracket. Using the lateral center line marks, make sure the transverse torque rod is as perpendicular to the frame rail as possible.

### **⚠ WARNING**

**The axle housing must be 70°F (21°C) or warmer before you weld onto the axle. Do not weld onto a cold axle or cold part. Cracks in the weld area, damage to components, and serious personal injury can result.**

15. Ensure that the axle housing temperature measures 70°F (21°C) or warmer. If the axle housing temperature measures less than 70°F (21°C), store the axle in a heated room until the housing reaches the correct temperature.

**IMPORTANT:** Any welding must be done by a certified welder.

16. Preheat the joint to approximately 300°F (149°C) before welding.
17. Select suitable weld wire electrodes for the weld. Suitable weld wire electrodes include either BS EN 499 - E 42 2 B 32 H5 or BS EN 440 - G 42 2 M GSi (American Welding Society equivalents E7018 and ER70S3, respectively).
18. Attach the ground cable as near as possible to the weld area and only to components welded on the axle, such as a housing spring pad. Do not attach the ground cable at a suspension spring, U-bolt, or at a point that places a wheel bearing between the ground connection and the weld area.

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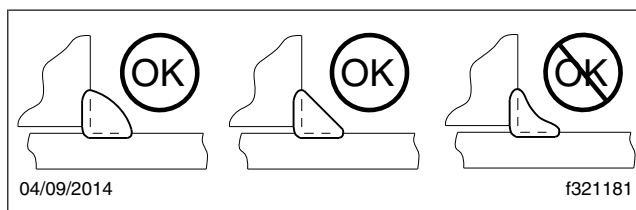
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19. Press the bracket tight against the axle housing to reduce gaps, then tack weld the tower bracket into place.
20. Remove the new torque rod in preparation for final welding of the tower bracket.
21. Preheat the joint to approximately 300°F (149°C) before welding.
22. Weld the tower bracket onto the axle housing on the three accessible sides. Lay a full fillet in a single pass on each side. The fillet should be 0.315 to 0.50 in (8 to 12.7 mm). Unless otherwise specified, the depth of fusion on the bracket is 0.063 in (1.5 mm), +0.05/-0.0 in (+1.27/-0.0 mm). The tolerance applies to weld size and depth of fusion.
23. Back fill the ends of the weld 0.315 to 0.512 in (8 to 13 mm) to eliminate craters.
24. Weld the remaining side of the tower bracket, back filling to create a continuous weld.
25. Verify that the weld has a flat or slightly convex contour with a sufficient depth of fusion on both side walls. A concave contour is not allowed because it reduces the throat dimension of the weld. See **Fig. 4**.



**Fig. 4, Acceptable Weld Contours**

26. Clean up all the metal shavings and dust on the chassis that resulted from grinding and welding.
27. Once the weld is cool, clean the surrounding area and apply primer and paint to all the exposed metal.
28. Lower the axles to ride height.
29. Install the torque rod and hand-tighten the fasteners.
30. Tighten the torque rod fasteners on the frame side 128 lbf·ft (173 N·m), and the torque rod pin side 375 to 425 lbf·ft (508 to 576 N·m).
31. Remove the jacks.
32. Tie the cables to the torque rod with zip ties.
33. Connect the batteries. Tighten the connectors 10 to 15 lbf·ft (14 to 20 N·m).