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MERITOR®

Technical Bulletin

Unitized Wheel-End Hub Replacement

Meritor Front Non-Drive Steer Axles with Unitized Wheel-End Hubs

How to Obtain Additional Maintenance and Service Information

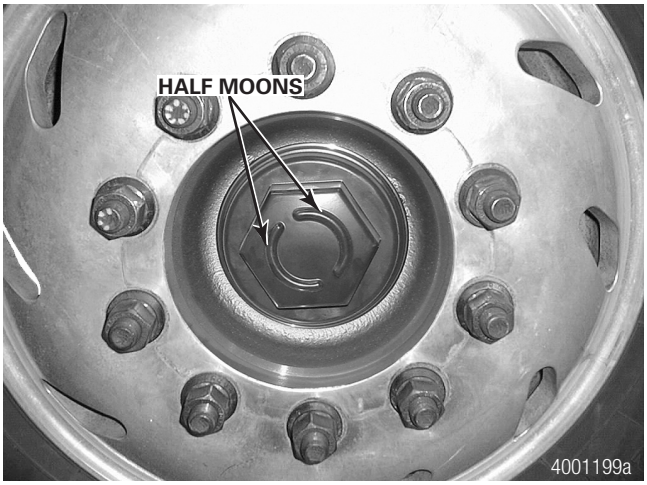
Refer to Maintenance Manual 2, Front Non-Drive Steer Axles. To obtain this publication, call ArvinMeritor's Customer Service Center at 800-535-5560 or visit the Tech Library on our website at arvinmeritor.com.

Identification

Determine if the Vehicle's Front Non-Drive Steer Axle is Equipped with Unitized Wheel Ends

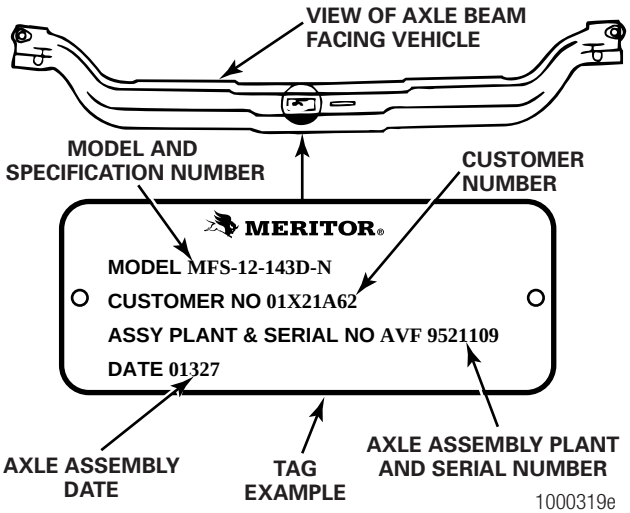
A unitized wheel end has "half moons" embossed on the center of the hubcap. **Figure 1**.

Figure 1



If the hubcaps are missing, you can use the axle model number to determine if the axle is equipped with unitized wheel ends. To identify the model number, refer to the axle identification plate on the front of the beam. **Figure 2**.

Figure 2



Meritor Axle Models Equipped with Unitized Wheel Ends

MFS-10-143D-N	FF-981
MFS-10-144D-N	FF-982
MFS-12-122D-N	FF-983
MFS-12-143D-N	FF-984
MFS-12-144D-N	FF-986
MFS-13-144D-N	FF-987
MFS-13-153D-N	

A unitized wheel end also has been referred to as a truck hub unit, Easy Steer Plus™, and a unitized hub.

Hub Removal

Unitized Wheel Ends

WARNING

You must follow the unitized wheel-end hub removal and installation procedures provided in this bulletin to prevent serious personal injury and damage to components.

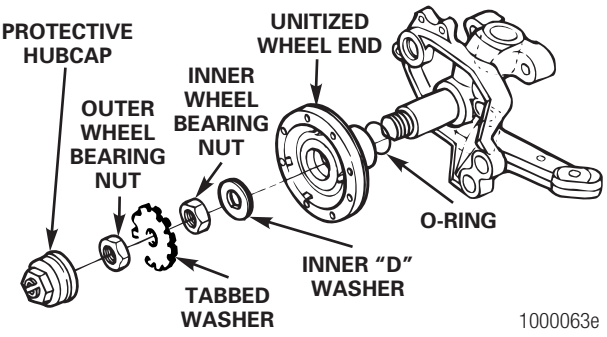
- **Unitized wheel ends are not adjustable.**
- **Do not attempt to set or adjust end play.**

To prevent serious eye injury, always wear safe eye protection when you perform vehicle maintenance or service.

Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving. Support the vehicle with safety stands. Do not work under a vehicle supported only by jacks. Jacks can slip and fall over. Serious personal injury and damage to components can result.

1. Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving. Set the parking brake.
2. Use the correct size socket to remove the threaded protective hubcap from the hub by turning the hubcap COUNTERCLOCKWISE. **Figure 3**.

Figure 3



3. Use a jack to raise the vehicle so that the front tires are off the ground. Support the front axle with safety stands.
4. Remove the tire and wheel assembly.
5. Bend back and flatten the washer tab folded against the flat edge of the outer wheel bearing nut.
6. Remove the outer wheel bearing nut and the tabbed washer from the spindle.
7. Remove the inner wheel bearing nut and the inner washer from the spindle.

CAUTION

Align the unitized wheel end STRAIGHT onto the spindle. Do not allow the assembly to misalign and contact the spindle threads. Bearing damage can occur that requires replacement of the entire unitized wheel end.

Hub bearings are not serviceable. Do not remove bearings from the unitized wheel end. Damage to components can result.

8. Remove the unitized wheel end STRAIGHT from the spindle. **Figure 3**.

NOTE: The spindle O-ring enables you to remove the unitized wheel-end hub from the spindle more easily, because it helps to prevent contaminants from entering the assembly. When you remove the unitized wheel-end hub, install a new O-ring.

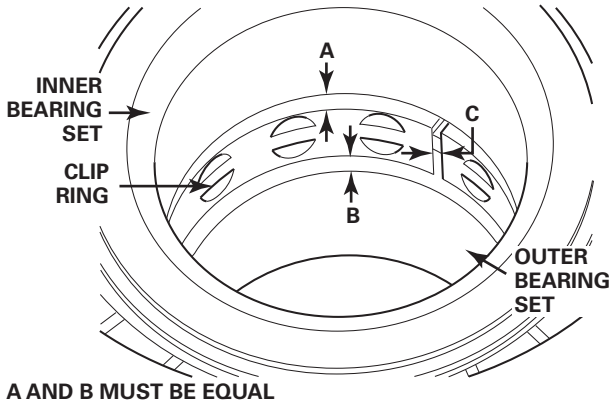
9. Remove and discard the spindle O-ring. Replace it during assembly.

Inspection

Replacement Hub

1. Remove the replacement hub from the box and place it on a clean surface.
2. Examine the interior of the hub to verify the following.
   A. The inner clip ring has not become dislodged in shipment and is in correct alignment with the inner and outer bearings. The gap between the inner and outer bearing sets and the clip ring must be equal. **Figure 4**.
   B. The gap between the ends of the clip ring must be equal and not exceed 0.25-inch (6 mm). If necessary, adjust by hand. **Figure 4**.
   C. The bearing face must be clean with no seal coating, dirt or dust.

Figure 4



3. Examine the exterior of the hub to verify the following.

   A. There is no visible damage to the inboard or outboard seals and the bearings have not become unseated. **Figure 5** and **Figure 6**.

   B. The tone ring teeth are not damaged and there are no broken or missing teeth on the tone ring. **Figure 6**.

Figure 5

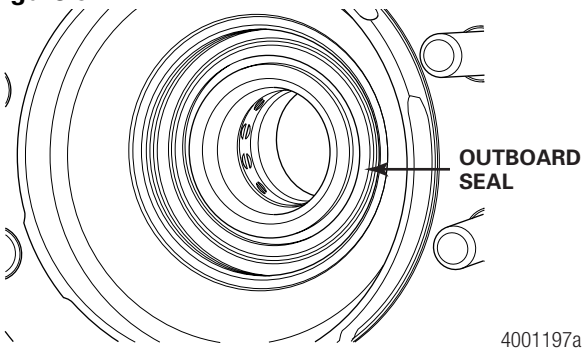
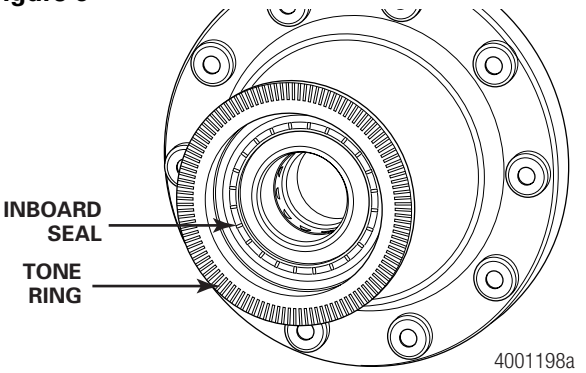


Figure 6



Installation

Unitized Wheel End

1. Clean the spindle with a clean, dry rag. Do not apply solvent. Check the spindle for any nicks or burrs.

NOTE: The spindle O-ring, Meritor part number 5X-1301 contained in Kit 1433, makes it easier for you to remove the unitized wheel-end hub from the spindle because it helps to prevent contaminants from entering the assembly. When you remove the unitized wheel-end hub, install a new O-ring.

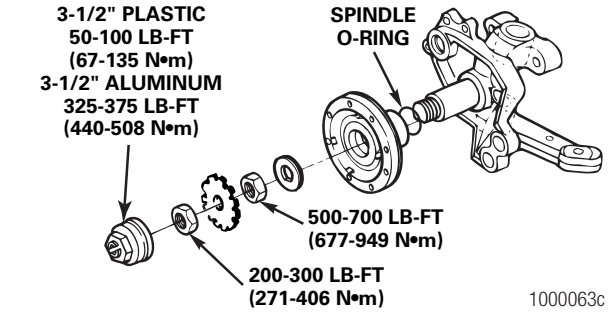
2. Coat the new O-ring with a thin coat of Meritor part number 2297-C-8297 or Dow Corning Molykote D to assist in installing the O-ring.

⚠ WARNING

Do not apply anti-seize or anti-fretting compound to spindle threads. These compounds decrease a fastener assembly's capability to maintain clamp load, which can cause wheels to loosen and separate from the vehicle. Serious personal injury and damage to components can result.

3. Coat the inside of the unitized wheel end with anti-seize compound. Make certain to cover the inner and outer bearing races. Do not apply anti-seize or anti-fretting compound onto the spindle or threads. Wipe away any anti-seize or anti-fretting compound that may have dripped onto the spindle threads.
4. Slide a new O-ring, Meritor part number 5X-1301, onto the spindle. The O-ring must be positioned against the knuckle journal. **Figure 7**.

Figure 7



⚠ CAUTION

Align the unitized wheel end STRAIGHT onto the spindle. Do not allow the assembly to misalign and contact the spindle threads. Bearing damage can occur that requires replacement of the entire unitized wheel end.

5. Carefully align the unitized wheel-end bore with the spindle and slide the unitized wheel end STRAIGHT onto the spindle.
   - **If the unitized wheel end does not slide on easily:** Do not force it onto the spindle. The unitized wheel end can become jammed on the spindle if it is not aligned correctly with the spindle.
   - **If the unitized wheel end becomes jammed on the spindle:** Carefully remove the unitized wheel end from the spindle so that the inner bearings do not disassemble or loosen from the unitized wheel end.

6. Install the inner “D” washer and inner wheel bearing nut onto the spindle stud. Tighten the inner wheel bearing nut to 500-700 lb-ft (678-949 N•m) while rotating the unitized wheel end a minimum of five rotations. **Figure 7**.
7. Install the tabbed washer and outer wheel bearing nut onto the spindle. Tighten the outer wheel bearing nut to 200-300 lb-ft (271-406 N•m).

NOTE: The inner wheel bearing nut and the outer wheel bearing nut are identical, but the torque values are different.

8. Bend the parts of the tabbed washer that protrude over the flats of the outer wheel bearing nut and the inner wheel bearing nut. Bend the washer a minimum of one flat edge to each nut.

Metal (Aluminum) Hubcaps

1. Turn the hubcap by hand, until it’s seated.
2. Use a torque wrench with the correct size socket to tighten the hubcap to 325-375 lb-ft (440-508 N•m).

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