MERITOR®

Technical Bulletin

Inspection Procedures for Wheel Ends on RMTI4613MTIS and RMTI4613ABSMTIS Axles

Hazard Alert Messages

Read and observe all Warning and Caution hazard alert messages in this publication. They provide information that can help prevent serious personal injury, damage to components, or both.

⚠ WARNING

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.

How to Obtain Additional Maintenance, Service and Product Information

Refer to Maintenance Manual 14, Trailer Axles; Maintenance Manual 33, Easy-Stop™ Trailer ABS; Maintenance Manual MM-0180, Enhanced Easy-Stop™ Trailer ABS with PLC; Maintenance Manual 14P, Meritor Tire Inflation Systems (MTIS) by P.S.I.™; technical publication TP-0173, Easy-Stop™ and Enhanced Easy-Stop™ with PLC Trailer ABS Blink Code Diagnostics Guide; and technical publication TP-89159, Axle Wheel Bearing Installation Specifications. To obtain these publications, visit Literature on Demand at meritor.com.

Inspecting Non-ABS and ABS Wheel Ends

This technical bulletin provides procedures for inspecting the wheel ends on RMTI4613MTIS and RMTI4613ABSMTIS axles. Each trailer has one ABS axle and one non-ABS axle. Follow the appropriate procedure (ABS or non-ABS) for the type of axle you are inspecting.

Meritor Tire Inflation System (MTIS) Component Removal and Installation

⚠ WARNING

The tire inflation system uses compressed air. Turn the system OFF and drain the system at the petcock before maintenance or service to avoid serious personal injury and damage to components.

Before you perform service on an MTIS-equipped wheel end, turn the system OFF and drain the system at the petcock. Refer to Maintenance Manual 14P for instructions.

Record the results of the inspections on the sheet at the end of this bulletin. Once the inspections are complete, report your findings and send invoices to Liam Codd via email at Liam.Codd@meritor.com or phone at (317)-839-9525, Ext. 132.

Non-ABS Wheel End Inspection (Rear Axle)

1. Wear safe eye protection. Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving.
2. Remove the hub cap.
3. Verify the hole in the lock washer is aligned with the adjusting nut pin. Figure 1.

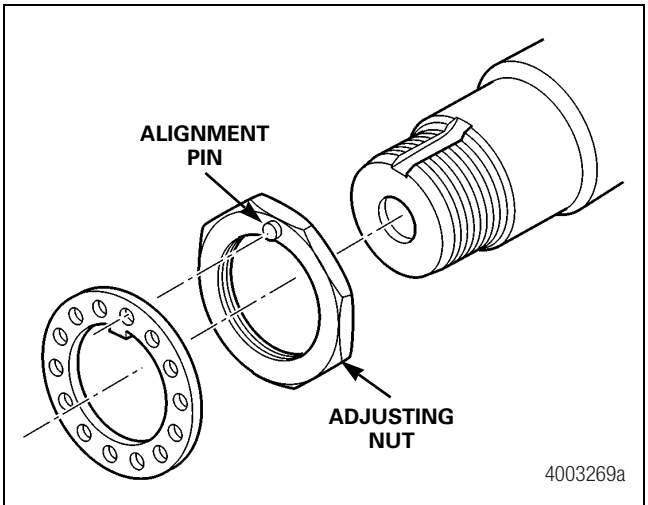

Figure 1

4. Check the outer jam nut torque according to the information in technical publication TP-89159. The recommended torque is 300-400 lb-ft (408-544 N•m) with a target torque of 325 lb-ft (440 N•m).

   - **If the outer jam nut torque is below specification:** Tighten the nut to 325 lb-ft (440 N•m).
   - **If the outer jam nut torque is above specification:** Call the Meritor OnTrac™ Customer Call Center at 866-668-7221 for further instructions.

5. Check the end play according to the instructions in Maintenance Manual 14. Correct end play must measure 0.001-0.005-inch (0.025-0.127 mm).

   - **If the end play is not within specifications:** Adjust as necessary according to the instructions in Maintenance Manual 14 to obtain the correct end play. If the correct end play cannot be obtained, call the Meritor OnTrac™ Customer Call Center at 866-668-7221 for further instructions.

6. Ensure all inspection and repair information is recorded on the sheet at the end of this bulletin. Continue on to the ABS Wheel End Inspection. Once all inspections are complete, you must contact Liam Codd via email at Liam.Codd@meritor.com or phone at (317)-839-9525, Ext. 132.

ABS Wheel-End Inspection (Front Axle)

1. Perform the ABS system diagnostic test according to the instructions in Maintenance Manual MM-0180.

   - **If no sensor faults are found:** Continue to Step 2.
   - **If sensor faults are found:** Proceed to the ABS Sensor Fault Repair Procedure.

2. Verify the hole in the lock washer is aligned with the adjusting nut pin. Figure 1.

3. Check the outer jam nut torque according to the information in technical publication TP-89159. The recommended torque is 300-400 lb-ft (408-544 N•m) with a target torque of 325 lb-ft (440 N•m).

   - **If the outer jam nut torque is below specification:** Tighten the nut to 325 lb-ft (440 N•m).
   - **If the outer jam nut torque is above specification:** Call the Meritor OnTrac™ Customer Call Center at 866-668-7221 for further instructions.

4. Check the end play according to the instructions in Maintenance Manual 14. Correct end play must measure 0.001-0.005-inch (0.025-0.127 mm).

   - **If the end play is not within specifications:** Adjust as necessary to obtain the correct end play. If the correct end play cannot be obtained, call the Meritor OnTrac™ Customer Call Center at 866-668-7221 for further instructions.

5. Ensure all inspection and repair information is recorded on the sheet at the end of this bulletin. Once all inspections are complete, call the Meritor OnTrac™ Customer Call Center at 866-668-7221 to report your findings.

ABS Sensor Fault Repair Procedure

1. Use the following steps if the diagnostics history showed ABS faults that require repairs.

   A. Back off the slack adjuster and remove the wheel, tire and drum according the instructions in Maintenance Manual 14.

   B. Hold the sensor, not the cable, and use a twisting motion to pull the sensor out of its mounting block.

   C. Remove the spring clip from the mounting block.

   D. Using the supplied bracket location fixture, confirm the mounting block location is correct. Figure 2.

      - **If the bracket location is correct:** Perform the following.

        A. Apply a mineral oil-based grease that contains molydisulfide to the sensor spring clip and to the body of the sensor. The grease must be anti-corrosive and contain adhesive properties that will continuously endure temperatures from –40° to 300°F (–40° to 150°C).

        B. Push the spring clip into the sensor holder from the inboard side, until the spring clip tabs are against the sensor holder. Push the sensor into the spring clip as far as possible.

      - **If the bracket location is not correct:** Repair the bracket using the ABS Bracket Repair Procedure in this bulletin.

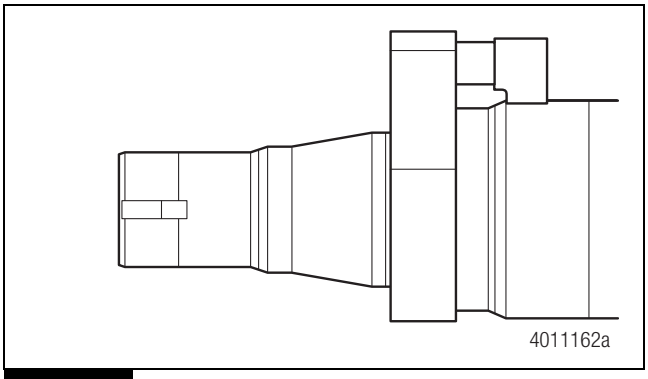

Figure 2

2. Discard the current wheel and install a new wheel hub according the instructions in Maintenance Manual 14 and technical publication TP-89159. Carefully install the new wheel so that the tooth wheel pushes against the sensor as you adjust the wheel bearings. After installation, there should be no gap between the sensor and the tooth wheel. During normal operation, a gap of 0.04-inch (10.16 mm) is allowable.
3. Perform the sensor output voltage test as follows. Use a volt/ohm meter to check the AC output of the sensor while rotating the wheel at approximately one-half revolution per second. Minimum output must be greater than 0.2 volts AC.
    - **If the voltage is within specification:** Return to Step 2 of the ABS Wheel End Inspection.
    - **If minimum output is less than 0.2 volts AC:** Push the sensor toward the tooth wheel. Recheck sensor output.
    - **If the voltage is still out of specification:** Call the Meritor OnTrac™ Customer Call Center at 866-668-7221 for further instructions.

ABS Bracket Repair Procedure

Follow this procedure if the inspection reveals a damaged ABS bracket.

Tools Required

- Oxygen acetylene torch set with a No. 2 tip and gauges set, or a plasma torch of at least 40 amps
- 4-inch or 5-inch grinder
- Die grinder

Methods and Requirements

- You can use four methods to weld hardware to trailer axles. Refer to the following table for the American Welding Society (AWS) methods, classifications and specifications.
- If you use the Shielded Metal Arc method, electrodes must be clean, dry and come from stock that has been stored according to AWS specifications.
- The AWS requires that weld tensile strength must be 70,000 psi (4826.33 bar). Weld tensile strengths that are either higher or lower than this rating are not acceptable.
- The best fusion and strength will be obtained using the voltage, current and shielding medium recommended by the electrode manufacturer.

Table A: AWS Classifications and Specifications

Method for Welding Carbon and Low Alloy Steels	AWS Electrode Classification	AWS Specification
Shielded Metal Arc	E70XX	A5.1 A5.5
Gas Metal Arc	ER70S-X	A5.18
Gas Tungsten Arc	ER70S-X	A5.18
Flux Cored Arc	E70T-X	A5.20

⚠ WARNING

Wear safe clothing and eye protection when you use welding equipment. Welding equipment can burn you and cause serious personal injury. Follow the operating instructions and safety procedures recommended by the welding equipment manufacturers.

Axle weld locations and welding procedures must adhere to Meritor standards. Welding at locations other than those authorized by Meritor will void the warranty and can reduce axle beam fatigue life. Serious personal injury and damage to components can result.

The high temperature caused by the open flame from the cutting torch can ignite the oil in the axle housing and can cause serious personal injury.

Prepare the Axle for Welding

1. Ensure that the axle tube and brackets are 70°F (21°C) or warmer before you weld onto the axle. Do not weld onto a cold axle, which can adversely affect the weld material and the axle during operation. If the temperature is below this specification, store components in a heated room, until they reach a temperature of 70°F (21°C) or more.
2. Verify that the area to be welded is free of paint, grease, dirt, rust, slag and other contaminants that can affect weld quality.

⚠ CAUTION

When you ground welding equipment to an axle, only locate the cable connection at components welded to the axle. Do not locate a cable connection at a suspension spring, U-bolt or hub. These locations will place the wheel bearing between the ground cable connection and weld area, and can cause electric arcing that will damage the wheel bearing.

3. Ground welding equipment to the axle through a clean, tight cable connection. Locate the connection at components that are welded to the axle, such as the camshaft bracket, air chamber bracket or brake spider. Do not locate a cable connection at a suspension spring, U-bolt or hub. Damage to the wheel bearing can occur from electric arcing. Figure 3.

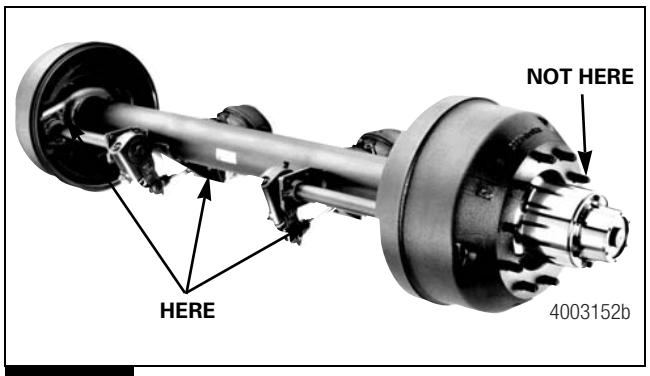

Figure 3

4. Axles are more likely to crack at the end of the bracket attachment welds. Avoid welding conditions such as craters, undercuts and poor fusion at these locations by following these guidelines.
   A. Use correct welding parameters.
   B. Start and stop the arc a short distance away from the ends of the weld pass.
   C. Maintain correct arc position and length.

Remove ABS Sensor Bracket

1. Apply an anti-splatter compound on the axle. If you do not have an anti-splatter compound, cover the axle with nonflammable cloth.
2. Use a plasma arc or cutting wheel to separate the bracket from the axle. Do not cut or grind into the trailer axle.
3. Remove the remaining sensor bracket weld material with arc gouging or rough grinding.
4. Use a disc grinder to lightly grind the weld areas flat to the axle and remove weld residue, ridges and ripples from the axle surface. Do not gouge the trailer axle or leave sharp edges on the axle surface.

Weld ABS Sensor Bracket

1. Use the bracket location fixture to position the new sensor bracket. Locate the fixture sensor bracket in the nine o'clock position. Refer to Maintenance Manual 14 for additional location information. Figure 4.

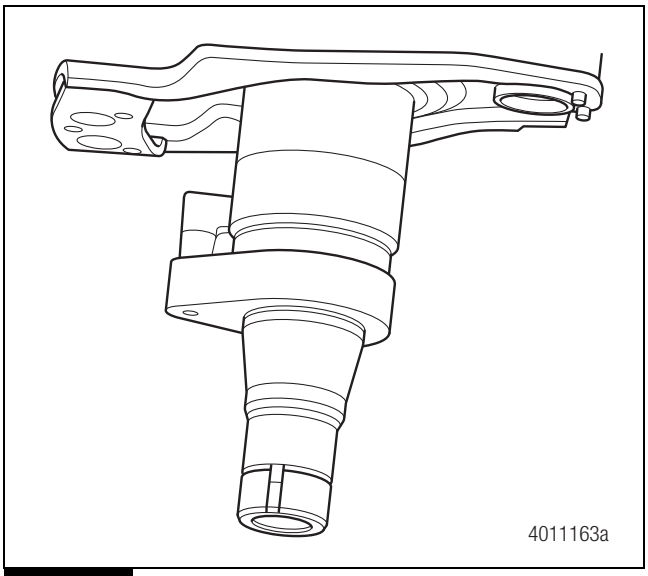

Figure 4

2. Disconnect the power connector from the ECU before welding according to the instructions in Maintenance Manual MM-0180. Reconnect the power connector once welding is complete.
3. Fully weld the sensor bracket to the axle. Refer to the specifications shown in Figure 5.

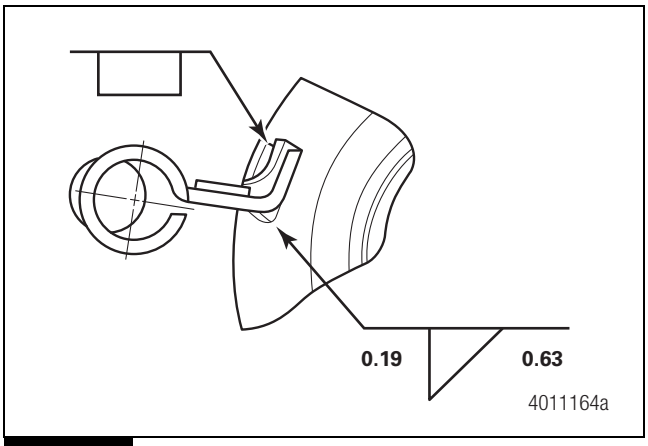

Figure 5

4. Inspect and remove all slag from the completed weld.
5. Paint the repair area appropriately.
6. Once all repairs are complete, return to Step 2 of the ABS Sensor Fault Repair Procedure.

INSPECTION SHEET

Trailer Information

Trac's Titian Chassis Number:

_____

Vehicle Identification Number:

_____

Repair Information

Wheel Location: _____

Lock Washer Condition (OK / NOT OK): _____

End Play Reading: _____

Outer Jam Nut Torque: _____

Wheel Location:_____

Lock Washer Condition (OK / NOT OK): _____

End Play Reading: _____

Outer Jam Nut Torque: _____

Wheel Location:_____

Lock Washer Condition (OK / NOT OK): _____

End Play Reading: _____

Outer Jam Nut Torque: _____

Wheel Location:_____

Lock Washer Condition (OK / NOT OK): _____

End Play Reading: _____

Outer Jam Nut Torque: _____

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MERITOR

Meritor Heavy Vehicle Systems, LLC
2135 West Maple Road
Troy, MI 48084 USA
866-OnTrac1 (668-7221)
meritor.com

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