Service Bulletin No. 358

MODEL	TYPE	SECTION/GROUP	DATE
J4500 Series Coaches	Field Change Program	15–Wheel	April 13, 2011

SUBJECT **ARVINMERITOR TAG AXLE TORQUE PLATE TO SPINDLE FLANGE FASTENERS**

CONDITIONS

Ref. ARVINMERITOR NHTSA Recall No.: 11E–007

Ref. MCI NHTSA Recall No.: 11V–190

Customer Complaint:

ArvinMeritor has reported to Motor Coach Industries (MCI) that one of ArvinMeritor's suppliers, General Fastener, has advised that a defect which relates to motor vehicle safety exists in the torque plate to spindle flange bolts used on certain tag axles. The suspect bolts may not have been properly heat treated, resulting in potentially compromised hardness and strength that, in turn, could lead to reduced joint integrity and fatigue failure. The potential may exist in which the reduced joint integrity and/or fatigue failure could result in a tag axle wheel off condition.

Cause:

The suspect bolts may not have not been properly heat treated, resulting in potentially compromised hardness and strength.

Corrective Action:

MCI and ArvinMeritor recommend that the tag axle torque plate to spindle flange bolts on affected coaches be replaced as soon as feasible in order to eliminate any unexpected tag axle wheel conditions.

Additional details and replacement procedure steps are described in this bulletin and in the attached ArvinMeritor Technical Bulletin TP–1156 (Issued 04–11).

As a result, MCI advises that owners of J4500 model coaches with unit numbers listed in the table below implement the steps in this procedure as soon as possible.

65744 to 65764	65767 to 65773	65775 to 65779	65783	65786 to 65799
65807	65813	65815		

Accordingly, MCI is instituting a field change program to replace the ArvinMeritor tag axle torque plate to spindle flange bolts in all of the coaches listed above. This bulletin describes the procedure to replace the ArvinMeritor tag axle torque plate to spindle flange bolts in the affected J4500 series coaches.

Parts

Qty.	New P/N	Description
1	26-15-0002	Kit, Torque Plate to Spindle, Tag Axle
		Kit Contents Are:
18	02-07-1083	Bolt
2	15-02-1062	Keeper, Pro–Torq Nut
a/r	15G-1-43	Torque Seal
a/r		Loctite, Red, 518, Tube
a/r		Never–Seez, Tube
a/r		Grease, White, Packet

Service Procedure:

⚠ WARNING

Read this entire procedure before beginning work.

Use Safe Shop Practices At All Times.

1. Open the engine door. Position the ENGINE RUN and ENGINE START switches on the engine compartment remote control box to the OFF position. Chock both sides of the tires.

NOTICE

If coach is not equipped with hub covers (refer to Figure 1 or 2), proceed to Step 4.

If coach is equipped with hub covers, proceed to Step 2. or Step 3. , as applicable to coach configuration.

Failure to follow the hub cover removal procedure in Step 2. may result in damage to the hub cover.

2. Locate the one piece hub cover on the front axle wheel end. Visually locate the notch on the side of the hub cover. Insert the hub cover removal tool, reference p/n 15-01-1216, into the notch on the side of the hub cover (refer to Figure 1). Using the removal tool, in a rotating action carefully separate the hub cover away from the wheel face. Place aside to be re–installed at a later step in this procedure.

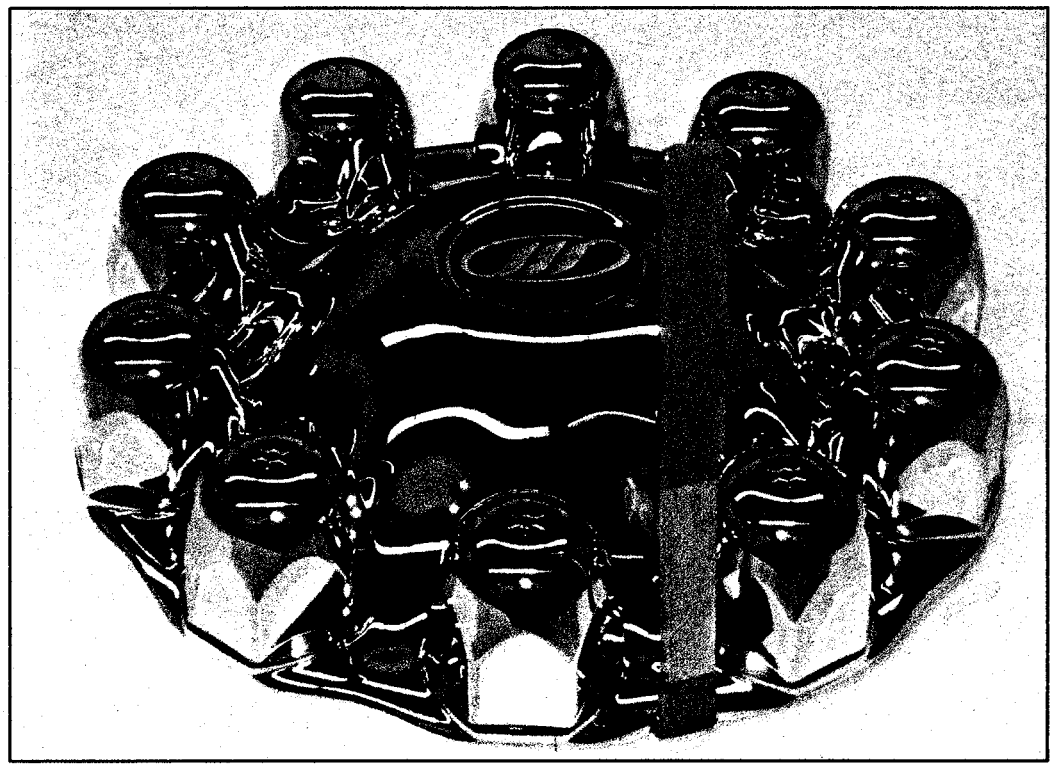

Figure 1. Front / tag axle one–piece hub cover with removal tool.

NOTICE

If coach is not equipped with hub covers (refer to Figure 1 or 2), proceed to Step 4.

Failure to follow the hub cover removal procedure in Step 3. may result in damage to the hub cover.

3. Locate the 11–piece hub cover on the front axle wheel end. Insert the removal tool on a lug nut cover (refer to Figure 2). Using the removal tool, in a back and forth action carefully separate the lug nut cover from the lug nut. Repeat to remaining nine (9) lug nut covers until the center hub cover is released. Place aside to be re–installed at a later step in this procedure.

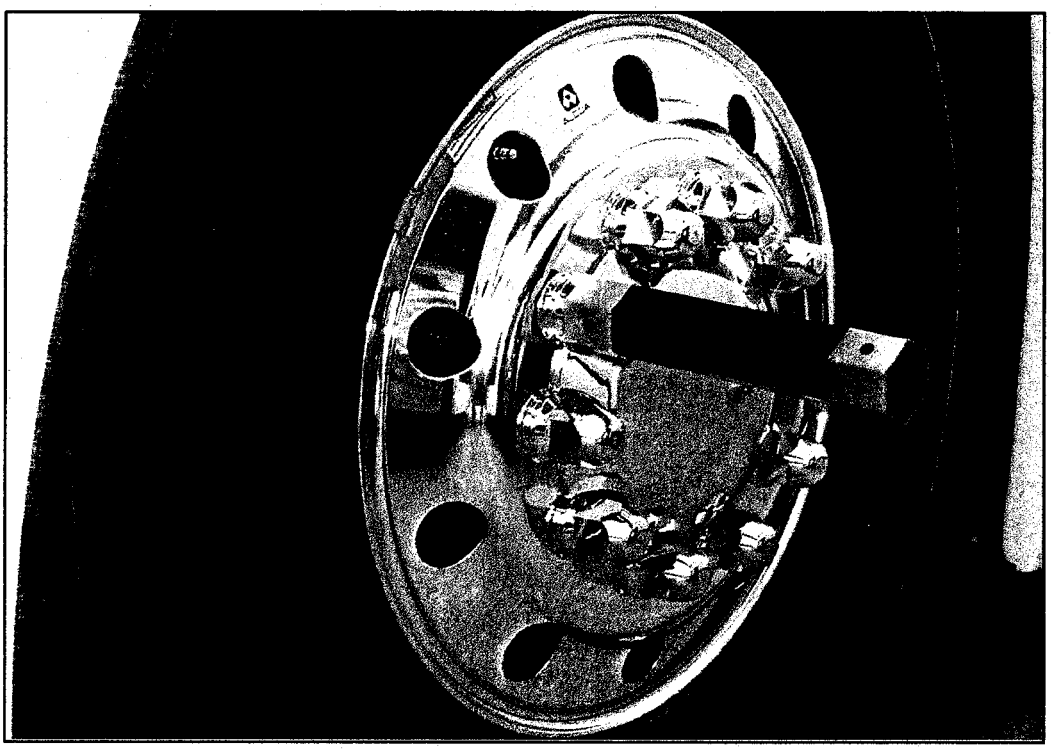

Figure 2. Front / tag axle 11–piece hub cover with removal tool.

⚠ WARNING

Tire and wheel assemblies weigh more than 200 lbs.

To prevent personal injury, use caution when loosening the wheel nuts, and when lifting the wheel off the hub.

4. Prior to the tire being lifted completely off the ground, loosen the wheel nuts.

NOTICE

Refer to Section 3E / Lifting, in the MCI Maintenance Manual, in conjunction with this procedure.

Refer to Section 15A / Wheels, in the MCI Maintenance Manual, in conjunction with this procedure for the proper wheel nut torque sequence and torque value of 450–500 ft-lbs.

5. Proceed with Step 1 of the attached ArvinMeritor Technical Bulletin TP–1156, following all warnings and cautions therein.

NOTICE

Ensure to retain the existing eighteen (18) torque plate to spindle flange bolts to receive the labor allowance credited to your MCI Fleet Support Parts Account.

6. Upon completion of the attached ArvinMeritor Technical Bulletin TP–1156, if the coach is so equipped, use a short handle rubber mallet and controlled force on the lug nut feature in a counter–clockwise pattern to re-install the hub covers. When hub cover is fully installed, there is no gap between the hub cover and the wheel face.
7. Position the ENGINE RUN and ENGINE START switches on the engine compartment remote control box to the ON position. Close the engine door.

Procedure complete.

Mail or fax the completed limited warranty claim form to MCI's warranty department, or photo copy and mail to:

MCI Fleet Support
Attn: Warranty Department
7001 Universal Coach Drive
Louisville, KY 40258
Fax Number 1-800–360–8886

to receive credit for the hours used to complete this task. Contact the MCI Fleet Support Technical Center at 1-800-241-2947 for any further information.

Field Change Program Conditions:

The parts required for this change will be supplied without charge.

A labor allowance of 8.0 hours will be granted, for the procedure of replacing the existing eighteen (18) torque plate to spindle flange bolts on J4500 series coaches. **NO PAYMENT WILL BE ISSUED BY MOTOR COACH INDUSTRIES UNTIL BOTH THE COMPLETED LIMITED WARRANTY CLAIM FORM AND THE EXISTING BOLTS HAVE BEEN RECEIVED BY MCI.**

This labor allowance will be credited to your MCI Fleet Support Parts Account on receipt of the existing eighteen (18) torque plate to spindle flange bolts and a "Warranty Claim Form" as detailed in your Owner Warranty manual to MCI's Warranty department.

Motor Coach apologizes for any inconvenience resulting from this campaign, but urges you to have your affected coaches inspected and repaired as necessary as soon as possible.

Sincerely,

Motor Coach Industries
U.S. and Canadian Service Departments.

MOTOR COACH INDUSTRIES

MCI FIELD CHANGE PROGRAM (FCP) VERIFICATION

CONTACT INFORMATION	
CUSTOMER NAME: _____ (PLEASE PRINT	
FCP INFORMATION – ONE FORM PER UNIT	
FCP#: _____ **Coach Model** _____ **Model Year** _____	
COACH SERIAL #: (At least the last 5 digits)	**DATE COMPLETED** __ / __ /__
MILEAGE:	

IMPORTANT: TO RECEIVE CREDIT FOR ANY ALLOWABLE LABOR CHARGES, THIS VERIFICATION FORM MUST BE RETURNED TO MCI UPON COMPLETION OF THE FCP.

SUBMITTED BY: (Please Print)

_____ **DATE** __ / __ /__

TITLE: (Please Print) _____

SIGNATURE:

_____

COMMENTS:

FAX TO: 1-502-318-8183

MAILING ADDRESS:

MOTOR COACH INDUSTRIES
ATTN: WARRANTY DEPT.
7001 UNIVERSAL COACH DRIVE
LOUISVILLE, KY 40258

MCI PART #03-15-7738

TP-1156
Revised 04-11

MERITOR

Technical Bulletin

Replacing the Torque Plate-to-Spindle Flange Fasteners on Meritor MC16 Series Tag Axles on Certain Motor Coach Industries (MCI®) J-Coach Units

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 only supported by jacks. Jacks can slip or fall over. Serious personal injury and damage to components can result.

You must follow the unitized wheel-end maintenance and inspection procedures provided in this bulletin to prevent serious personal injury and damage to components. The unitized wheel end is sealed and greased for life and does not require lubrication. If you disassemble, or attempt to repair or lubricate a unitized wheel-end assembly, you will void the Meritor warranty.

⚠ ASBESTOS AND NON-ASBESTOS FIBERS WARNING

Some brake linings contain asbestos fibers, a cancer and lung disease hazard. Some brake linings contain non-asbestos fibers, whose long-term effects to health are unknown. You must use caution when you handle both asbestos and non-asbestos materials.

How to Obtain Additional Maintenance and Service Information

Refer to Maintenance Manual MM-0409, Wheel-End Components, Meritor Conventional and Unitized Wheel Ends; and Maintenance Manual MM-0467, DiscPlus™ EX225 Air Disc Brake. To obtain these publications, visit Literature on Demand at meritor.com.

Replacing the Torque Plate-to-Spindle Flange Fasteners

This technical bulletin provides procedures for removing the wheel end hardware and replacing the torque plate-to-spindle flange fasteners on certain Motor Coach Industries (MCI®) J-Coach units equipped with MC16 Series tag axles. Support of 8 hours (SRT) will be given for this repair.

Parts Required

The required replacement fasteners, sealants and lubricants will be sent to your repair facility through the OEM. The following parts are required for this fastener replacement program.

Table A: Parts for Fastener Replacement

Description	Part Number	Quantity
Fasteners	15X1854	18
Red Loctite® 518, 50 ml Tube	2297S6467	2
Never-Seez Anti-seize Compound, 1 oz. Tube	A1199X2988	1
White Grease, 3 g Packet	2297P8414	2
Keeper, PRO-TORQ™	1227P1706	2

Contact the OEM For Claim Reimbursement

Please provide the following information to the OEM when submitting claims for payment.

- Customer Claim #
- VIN
- In-service Date
- Repair Date
- Odometer Reading
- Axle Serial #
- Work Detail
- Tracking Number for Returned Fasteners
- Labor Rate

Disassembly Procedures

Refer to Figure 1 for an illustration of the MC16 Series tag axle wheel end.

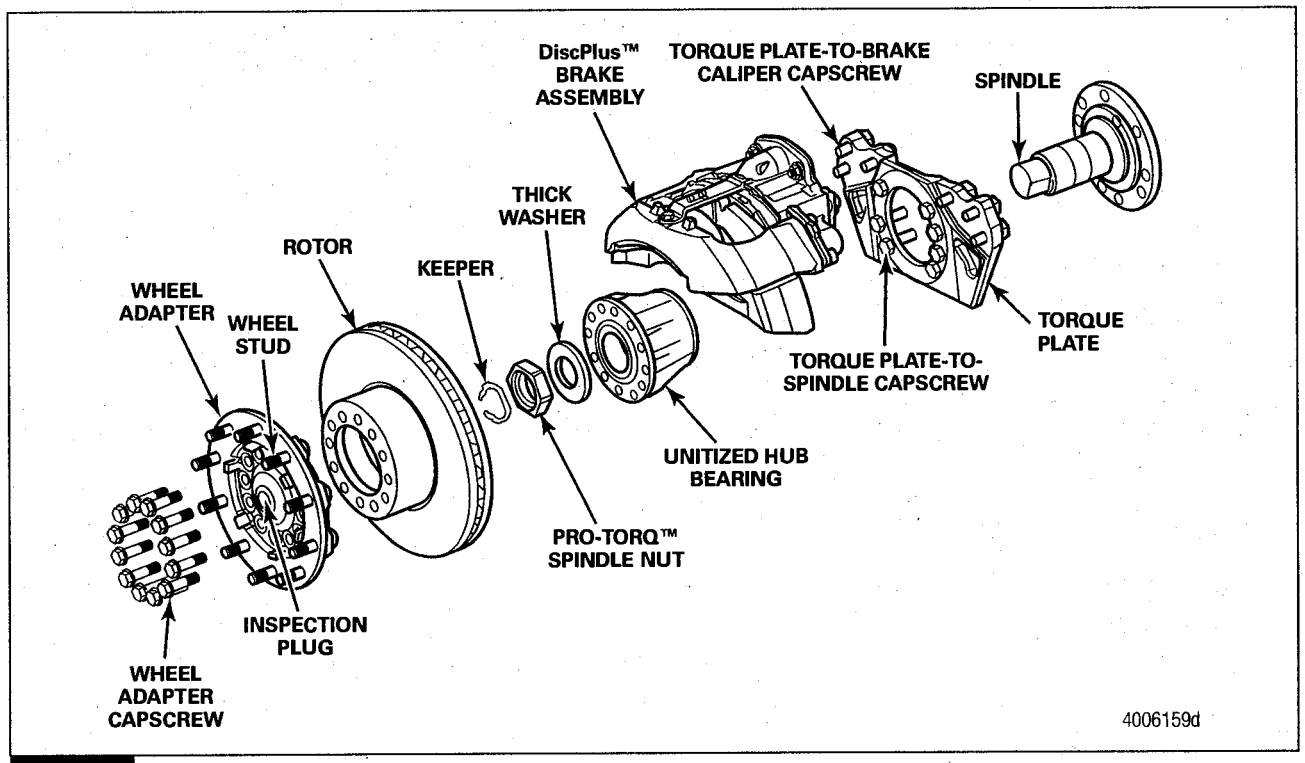

Figure 1

Step 1 Tire and Wheel Assembly Removal

1. Wear safe eye protection. Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving. Set the parking brake.
2. Raise the tag axle until both the wheel ends are off the ground. Support the vehicle with safety stands.
3. Remove the tire and wheel assembly. Refer to the OEM instructions for correct procedures.

Step 2 Caliper Assembly Removal

1. Remove the brake pads as follows.

   A. Use a 17 mm wrench to remove the pad retainer bolt. Remove the pad retainer. Figure 2.

   B. Visually inspect the pad retainer.

   - **If the pad retainer is bent or damaged:** Replace the pad retainer.

   C. Remove the pad springs.

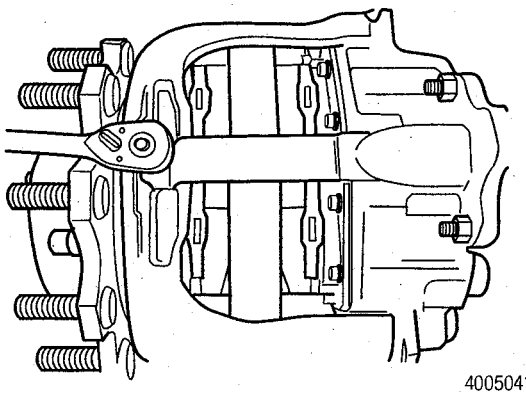

Figure 2

   D. Remove the outboard brake pad from the caliper assembly and mark the brake pad "outboard". Figure 3.

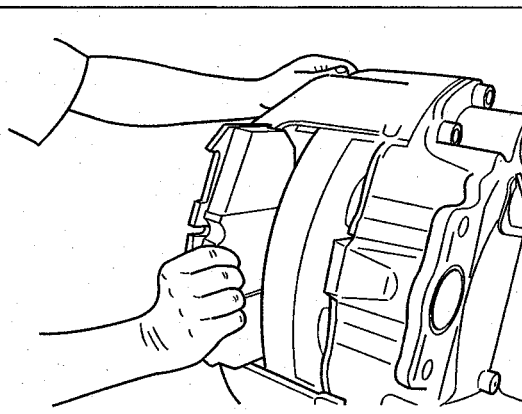

Figure 3

   E. Remove the inboard brake pad from the caliper assembly and mark the brake pad "inboard".

2. Use a 30 mm socket wrench or extension adapter (Meritor tool number MST2255001) to remove the six carrier bolts and washers. Carefully remove the caliper assembly from the axle. Figure 4.

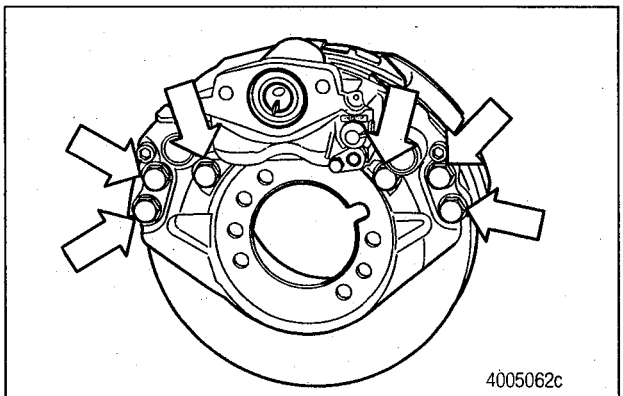

Figure 4

Step 3 Wheel Adapter Removal

1. Remove the 10 wheel adapter bolts. Figure 1.
2. Remove the wheel adapter.

Step 4 Unitized Hub Bearing and Rotor Assembly Removal

NOTE: The rotor and unitized hub can be removed together as an assembled unit.

1. Use the following procedure to remove the PRO-TORQ™ nut.

   A. Remove the keeper from the PRO-TORQ™ nut. Use a screwdriver to pry out the keeper arm from the groove on each side of the nut until the keeper is released. Discard the PRO-TORQ™ keeper. Do not reuse.

   B. Use a 3.5" socket wrench to remove the PRO-TORQ™ nut. Figure 5.

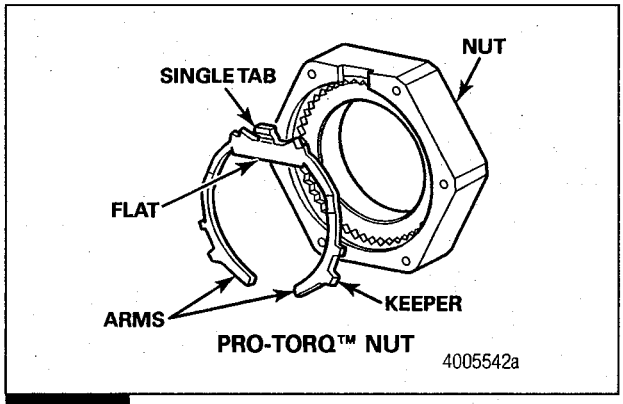

Figure 5

2. Remove the thick washer from the spindle. Remove the unitized hub bearing and rotor assembly.

3. Inspect the rotor for cracks and signs of wear. Replace the rotor, if necessary. Refer to Maintenance Manual MM-0409 for correct rotor removal procedures.

Step 5 Torque Plate-to-Spindle Flange Fastener Removal

1. Remove the torque plate-to-spindle flange fasteners. Figure 1.
2. Set the fasteners aside to return to the OEM once the repair is complete.

Assembly Procedures

Step 1 New Torque Plate-to-Spindle Flange Fasteners Installation

1. Using the new fasteners provided in the kit supplied by the OEM, assemble the torque plate to the spindle flange.
2. Tighten the new fasteners to 326-420 lb-ft (440-570 N•m). ❶
3. Inspect the spindle for corrosion. Clean the spindle with an emery cloth.

Step 2 Unitized Hub Bearing and Rotor Assembly Installation

1. Inspect the unitized hub bearing and verify the following. Replace items as necessary.
   A. All bearing seals and the O-ring seal are clean and show no signs of damage.
   B. The O-ring is correctly installed into the groove at the inner bearing shoulder prior to installation onto the spindle.
   C. The bearing mounting face and bore are clean with no dirt or dust.
   D. Ensure that the ABS tooth wheel is not damaged or bent.
2. Apply a light coat of anti-seize lubricant such as Molykote-D paste to the bearing bore and to the O-ring before installing the hub onto the spindle. Do not apply any lubricant to the spindle or on the bearing end face. The spindle should be clean and free of any contamination. Figure 6.

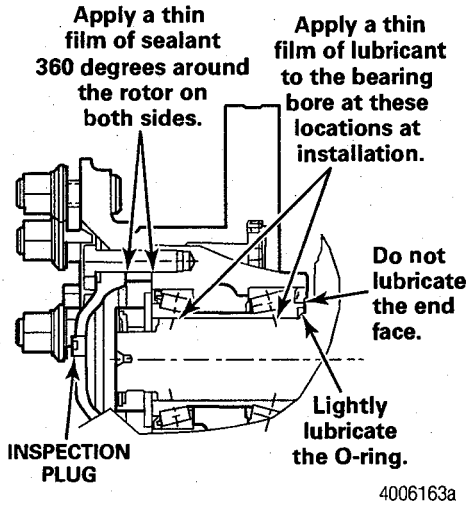

Figure 6

3. Verify the O-ring is correctly seated before installing the bearing onto the spindle.
4. Install the hub and rotor assembly onto the knuckle spindle. Use care to avoid damaging the O-ring on the spindle threads. Figure 1.

⚠ CAUTION

Remove the keeper from the PRO-TORQ™ nut before you attach the nut to the axle spindle or tighten and loosen the nut to prevent damage to the nut and axle spindle.

5. Remove the keeper from the PRO-TORQ™ nut before you attach the nut to the axle spindle. Install the thick washer and the PRO-TORQ™ nut onto the spindle. Figure 7.

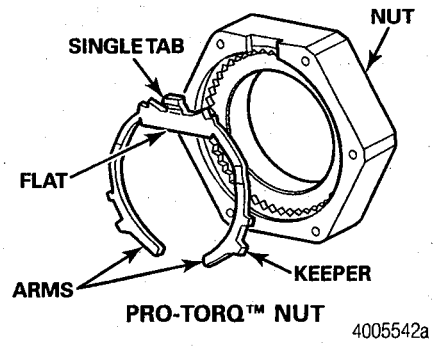

Figure 7

6. Rotate the bearing while tightening the PRO-TORQ™ nut to 600 ± 75 lb-ft (813 ± 101 N•m). ❶

⚠ WARNING

Use a new keeper when you install the PRO-TORQ™ nut. Discard the original keeper. Do not reuse it. A used keeper can loosen during operation and cause the wheel to separate. Serious personal injury and damage to components can result.

7. Install a new keeper against the nut with the orange side facing OUT. Do not reuse the original keeper. Replace the original with the new keeper supplied in the field service kit. Align the flat of the keeper with the flat on the spindle. Insert the single keeper tab into the undercut groove on the nut. Engage the mating teeth. Figure 7.

⚠ WARNING

Do not bend or manipulate the keyway tang in any way to force the keeper onto the spindle and into the PRO-TORQ™ nut. Rotate the nut to obtain correct alignment. Do not modify the keeper arms in any way when you install the keeper onto the PRO-TORQ™ nut. A bent keyway tang or modified keeper arms can cause the wheel to separate from the vehicle during operation. Serious personal injury and damge to components can result.

8. Use a screwdriver to compress and insert the keeper arms one at a time into the undercut groove on the nut. Ensure that the keeper tab and arms are fully seated into the undercut groove. Figure 7.

Step 3 Wheel Adapter Installation

⚠ WARNING

Take care when you use Loctite® adhesive to avoid serious personal injury. Read the manufacturer's instructions before using this product. Follow the instructions carefully to prevent irritation to the eyes and skin. If Loctite® adhesive material gets into your eyes, follow the manufacturer's emergency procedures. Have your eyes checked by a physician as soon as possible.

Carefully follow the manufacturer's application and curing (drying) instructions when you apply an anaerobic sealant. Incorrectly applied sealant or an insufficient cure time can cause fasteners and mating surfaces to loosen during vehicle operation. Serious personal injury and damage to components can result.

1. Apply a bead of anaerobic sealant such as Loctite® 518 Gasket Eliminator 360 degrees around the outboard facing rotor flange on the inside of the bolt circle. Figure 8.
   - **If hub is separated from the rotor:** Apply sealant on both rotor flange face surfaces and on the inside of the bolt circle.

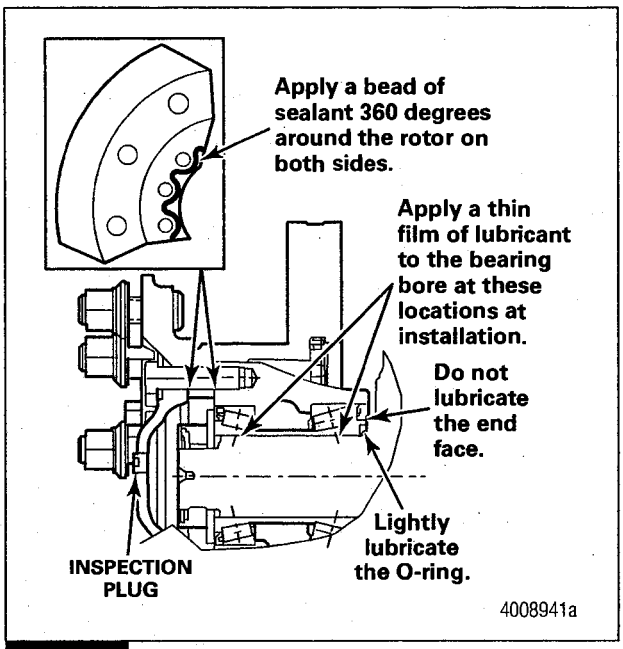

Figure 8

2. Apply the sealant before you assemble the wheel adapter to prevent moisture from entering into the bearing. Do not use any type of gasket sealant other than anaerobic sealant.
3. Align the holes and install the wheel adapter and fasteners. Slightly tighten the fasteners in a star pattern to seat the rotor and wheel adapter correctly. Tighten the fasteners in a star pattern to 275 ± 25 lb-ft (373 ± 34 N•m). ❶
4. Using a dial indicator, verify the end play of the new bearing. The end play must be 0-0.002-inch (0-0.0508 mm).
5. Install the wheel and check if the anti-lock brake system is operating correctly.
   - **If the warning lamp remains illuminated or comes on during vehicle operation:** Check for possible tooth wheel damage or a sensor gap out of specification. Refer to your vehicle ABS version and the appropriate maintenance manual.

Step 4 Caliper Assembly Installation

1. Place the caliper assembly over the rotor.
2. Align the caliper carrier bolt holes. Assemble the caliper to the torque plate using the carrier bolts and washers. Using a 30 mm socket wrench or extension adapter (Meritor tool number MST2255001) tighten the six carrier bolts to 350-450 lb-ft (474-610 N•m). Refer to the torque table at the end of this bulletin for the correct torque wrench setting when using the extension adapter. Figure 9. ❶

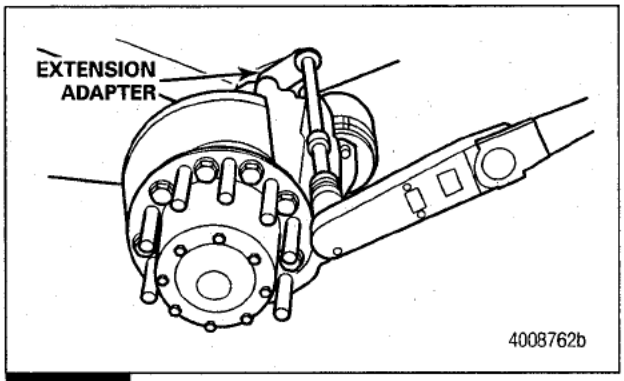

Figure 9

3. Check the caliper assembly to verify that it slides by hand.
4. Install the brake pads and set the initial brake pad-to-rotor clearance. Refer to Maintenance Manual MM-0467 for correct adjustment procedure.

Step 5 Wheel and Tire Assembly Installation

1. Mount the wheel and tire assembly onto the hub assembly.
2. Install the lug nuts and tighten to OEM specification.
3. Lower the unit and perform a road test to verify the repair.
4. Recheck the torque on the wheel lug nuts after the road test and adjust if necessary.

Return the Removed Fasteners

Mail the completed limited warranty claim form and the existing (replaced) torque plate-to-spindle flange capscrews to Motor Coach Industries' (MCI®) warranty department at the following address to receive credit for the hours used to complete this task.

Motor Coach Industries (MCI®) Fleet Support

Attn: Warranty Department

7001 Universal Coach Drive

Louisville, KY 40258

Fax Number 800-360-8886

Contact the Motor Coach Industries (MCI®) Fleet Support Technical Center at 800-241-2947 for any further information.

Torque Wrench Setting Using Extension Adapter MST2255001

Extension adapter MST2255001 is a service tool designed to provide easier access to the axial type air disc brake (ADB) carrier-to-torque plate bolts. Refer to Figure 10 for an illustration of this tool. When using this extension adapter, the torque wrench setting must be altered to obtain accurate tightening of the carrier-to-torque plate bolts.

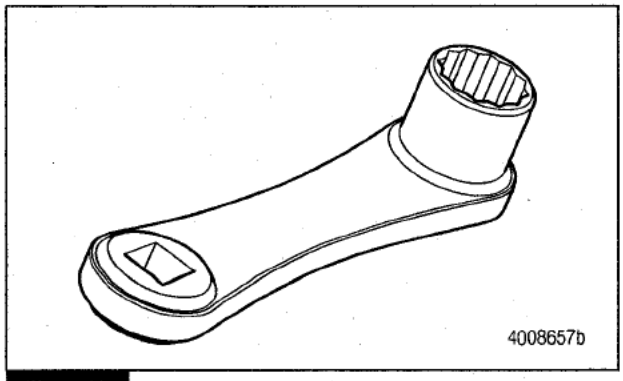

Figure 10

Table B: Torque Setting when Extension Adapter is Used

Description	lb-ft	N•m
Carrier Bolt Standard Torque Wrench Setting	450	610
2-Foot Torque Wrench Setting with 7-inch Extension Adapter	348	472
3-Foot Torque Wrench Setting with 7-inch Extension Adapter	377	511
4-Foot Torque Wrench Setting with 7-inch Extension Adapter	392	531
5-Foot Torque Wrench Setting with 7-inch Extension Adapter	402	545

MERITOR

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