TP-1338
Issued 02-13

MERITOR®

Technical Bulletin

MGM Brake Chamber Inspection and Replacement

Vehicles Equipped with MGM Type 24 J-Series Piston Parking Brake Actuators, and Meritor DiscPlus™ EX225 Air Disc Brakes or Q Plus™ Cam Brakes/Rear Axles Only

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.

Before you service a spring chamber, carefully follow the manufacturer's instructions to compress and lock the spring to completely release the brake. Verify that no air pressure remains in the service chamber before you proceed. Sudden release of compressed air can cause serious personal injury and damage to components.

Remove dry brake dust with a vacuum brush or wipe the areas with a damp cloth. Never use an air line to blow dust from the brake and rotor area. Never try to accelerate drying time by using an air line. Serious personal injury and damage to components can result.

⚠ 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, Service and Product Information

Refer to Maintenance Manual MM-0467, DiscPlus™ EX225 Air Disc Brake; and Maintenance Manual 4, Cam Brakes and Automatic Slack Adjusters. To obtain these publications, visit Literature on Demand at meritor.com.

Contact the OnTrac Customer Service Center at 866-668-7221 (United States and Canada); 001-800-889-1834 (Mexico); or email OnTrac@meritor.com.

How to Obtain Additional Parts

Contact Meritor's Commercial Vehicle Aftermarket at 888-725-9355.

MGM Brake Chamber Inspection and Replacement

This technical bulletin provides procedures for inspecting and replacing MGM Type 24 J-Series parking brake chambers that have date codes between November 23, 2010, and March 31, 2012.

Call the OnTrac Customer Service Center Before Starting the Inspection Procedures

Contact the OnTrac Customer Service Center for authorization to proceed with the inspection and chamber replacement. If you cannot locate a qualified repair station, OnTrac will work with you and the local Meritor district manager to find a repair facility for you. In some circumstances, Meritor may authorize an end user or other repair facility to conduct the inspection and chamber replacement.

Call the OnTrac Customer Service Center at 866-668-7221 (US and Canada) between 8:00 AM and 8:00 PM ET Monday through Friday, and between 9:00 AM and 6:00 PM ET on Saturday. After selecting "preferred language," select option 1 for axles and braking systems and refer to Program number C13AA.

The OnTrac Customer Service Center requires the following information to assign the repair facility or end user a case number and permission to proceed with the work.

- Reference to Meritor's Program number C13AA
- Complete 17-digit vehicle identification number (VIN)
- Vehicle owner's name, address and telephone number
- Axle model and serial number. Figure 1.
- Vehicle in-service date
- Repair facility's name, address and telephone number
- Repair facility's hourly rate

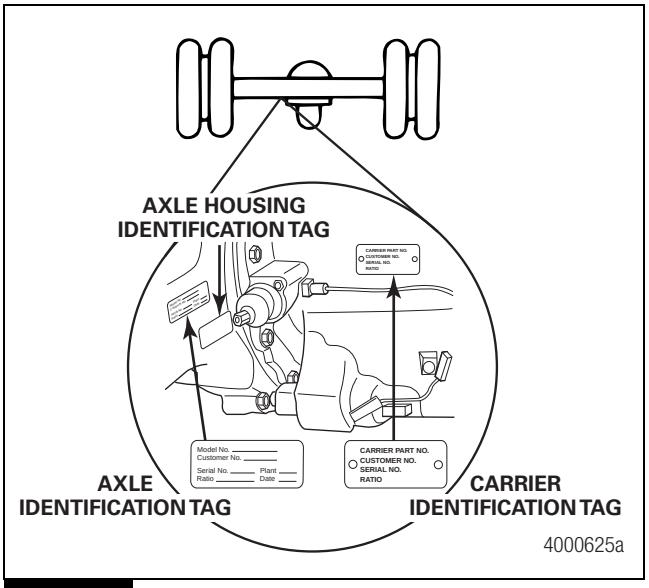


Figure 1

Labor Time Allowances

Table A: Labor Time Allowances

Description	SRT
Inspection time	0.6 hour per axle wheel end
Repair time if required	1.75 hours per axle wheel end

Replacement Parts

Table B: Replacement Parts

Part Number	Description	Quantity per Axle
E2 3276X24	Disc Brake Chamber	As Required
E3 3276X24	Disc Brake Chamber	As Required
E4 3276X24	Disc Brake Chamber	As Required
E5 3276X24	Disc Brake Chamber	As Required
E7 3276X24	Disc Brake Chamber	As Required
E8 3276X24	Disc Brake Chamber	As Required
A71-3276P16	Drum Brake Chamber	As Required
A72-3276P16	Drum Brake Chamber	As Required
A73-3276P16	Drum Brake Chamber	As Required
B98-3276D30	Drum Brake Chamber	As Required

Replacement parts can be ordered from your local parts supplier.

OnTrac will require a tracking number for any chamber(s) removed before the warranty claim is approved.

OnTrac will schedule a UPS pickup of the chamber(s) after the part is removed. Parts will be returned to Meritor Return Center, Florence, KY.

Write the OnTrac case number on the box and include a copy of the OnTrac case notes in the box with the parts.

Required Tools

- Appropriate Capacity Safety Stands
- Appropriate Capacity Jack
- Appropriate Caliper Lifting Device
- Air Tools
- Hand Tools
- 1-1/2-inch Lug Nut Socket
- Torque Wrench up to 150 lb-ft (200 N•m)
- Torque Wrench up to 450 lb-ft (600 N•m)

Identify the Brake Chambers for Replacement

Use the following procedure to check the date code on the brake chamber identification tag to determine if the brake chamber requires replacement. Brake chambers which have date codes falling on or between November 23, 2010 and March 31, 2012 must be replaced. If the date code found on the chamber identification tag is outside that date range, the inspection is complete.

If you are inspecting a brake chamber that is not mounted to a vehicle, follow the procedure to identify the brake chamber and only replace stock if the date code on the chamber being inspected falls within the suspect range.

1. Wear safe eye protection. Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving.
2. Locate the identification tag on the brake chamber. Figure 2.

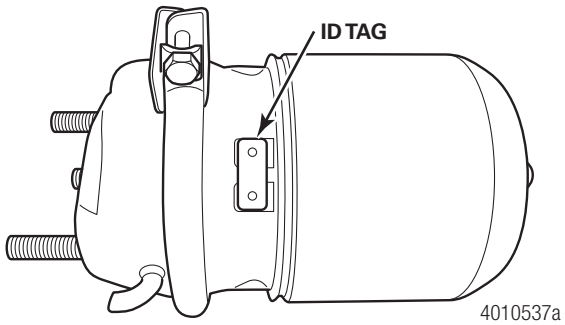


Figure 2

3. Check the identification tag for a date code falling on or between the date range of November 23, 2010 and March 31, 2012. As an example, the date code shown in Figure 3 (C051911 centered in ID tag) means "built on May 19, 2011". In this example, the chamber requires replacement. Figure 3.
   - **If the date code on the brake chamber identification tag is on or between the date range of November 23, 2010 and March 31, 2012:** Replace the brake chamber using the disc or drum brake procedures in this technical bulletin.
   - **If the date code on the brake chamber identification tag is not within the date range:** The chamber does not require replacement. Continue checking the rest of the brake chamber identification tags on the vehicle.

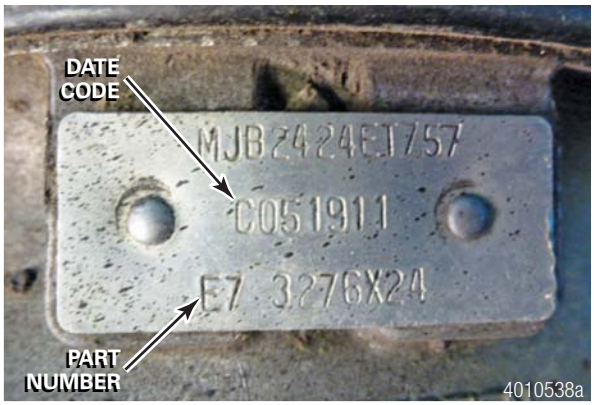


Figure 3

Disc Brake Chamber Replacement and Inspection Procedures

Remove the Brake Chamber from the Caliper Assembly

1. Raise the axle of the wheel end you are servicing. Support it with safety stands.
2. Remove the tire and wheel assembly according to the manufacturer's instructions.
3. Follow the brake chamber manufacturer's instructions to completely release the brake. This may require manually caging the park brake spring assembly using the manual caging screw.
4. In order to prevent debris from entering the caliper assembly, use a vacuum brush or damp cloth to remove any dirt from the brake assembly.
5. Disconnect the air lines connected to the brake chamber ports according to the vehicle manufacturer's instructions.
6. Use the correct wrench to remove the air chamber nuts and washers. Figure 4.

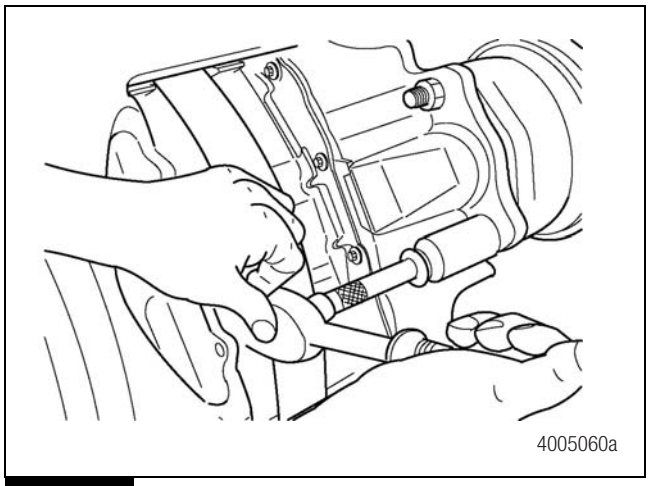


Figure 4

7. Remove the air chamber assembly from the brake caliper.

Inspect the Brake Assembly

Perform the following inspections during the brake chamber replacement process.

1. Inspect the brake assembly for signs of overheating according to the instructions in Maintenance Manual MM-0467 and described in the following steps.
   - **If any issues are found during the inspection:** Contact the OnTrac Customer Service Center using the instructions at the beginning of this bulletin before the removal and replacement of any brake component.
2. Use a vacuum brush or damp cloth to remove any dirt from the brake assembly.
3. Inspect the brake assembly for the following signs of overheating. This may require component replacement. Contact the OnTrac Customer Service Center before you replace any parts.

Items that may require replacement

- Burnt or melted caliper piston boots. Figure 5.
- Cracks in the rotor that extend 25% into the thickness of the outer edge of the rotor. Figure 6.
- Heavy Heat Checking — Heavy heat checking is surface cracks that have width and depth. Replace the rotor if the heat checks have a width greater than 0.02-inch (0.5 mm), depth greater than 0.04-inch (1 mm) and extend across the surface more than 75% in the radial direction. Figure 7.
- Brake pads deteriorated from a severe overheating condition. Figure 8 and Figure 9.
- **If you find heavy heat checking on the rotor, cracks in the rotor, deteriorated brake pads, or burnt or melted caliper piston boots:** Component replacement may be required. Contact the OnTrac Customer Service Center using the instructions at the beginning of this bulletin before the removal and replacement of any suspect overheated brake component. OnTrac will advise you as to additional functional checks and parts replacement that may be required.

Items that do not require replacement

Blue Marks or Bands — Blue marks or bands indicate that the rotor was very hot. This does not require rotor replacement. If blue marks or bands are consistently found during scheduled maintenance inspections, it is recommended the brake system be inspected for correct operation and balance. Figure 12.

- **If the brake rotor shows light heat checking or blue marks or bands:** The brake rotor will not require replacement.
- Light Heat Checking — Cracks on the surface of the rotor that result from light heat checking are small and fine and do not require rotor replacement. Figure 10 and Figure 11.

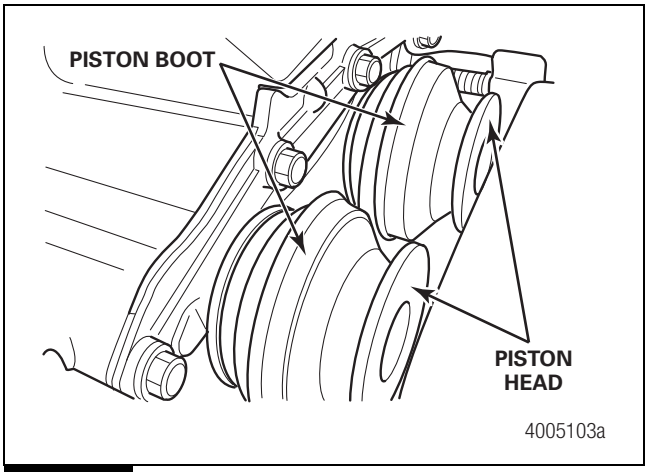
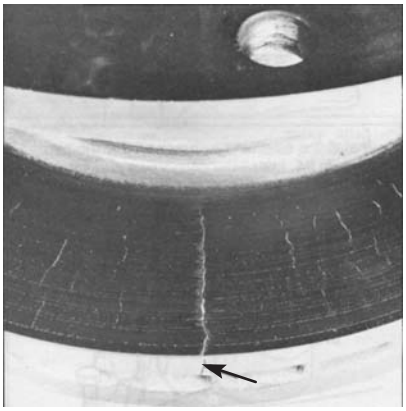


Figure 5



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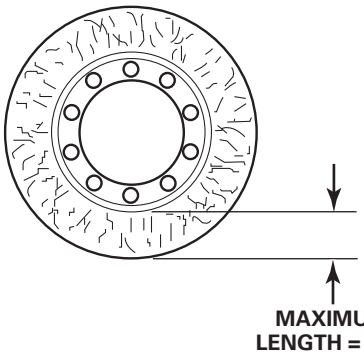
CRACK

Figure 6



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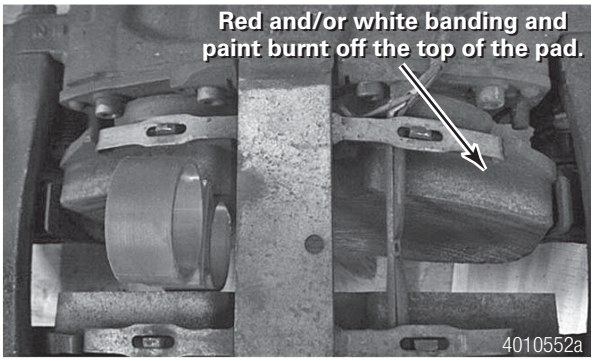
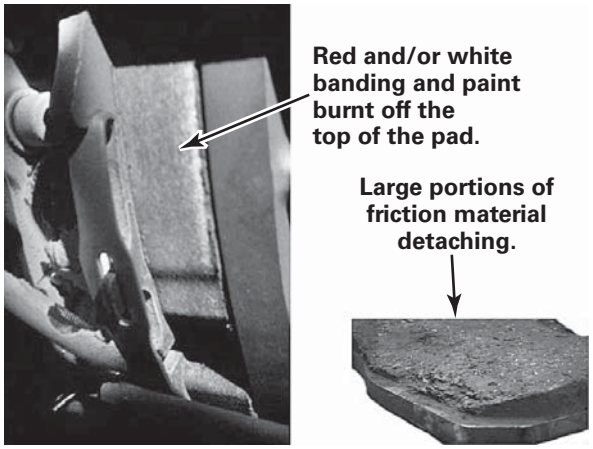
HEAVY HEAT CHECKING

Figure 7



EFFECT OF OVERHEATING ON PADS

Figure 8



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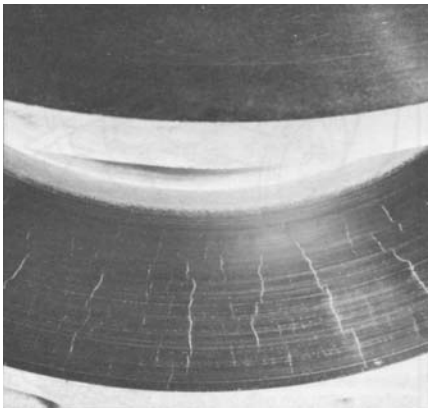
EFFECT OF OVERHEATING ON PADS

Figure 9



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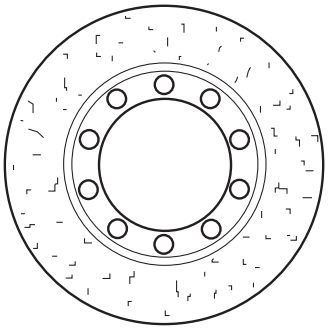
HEAT CHECKING

Figure 10



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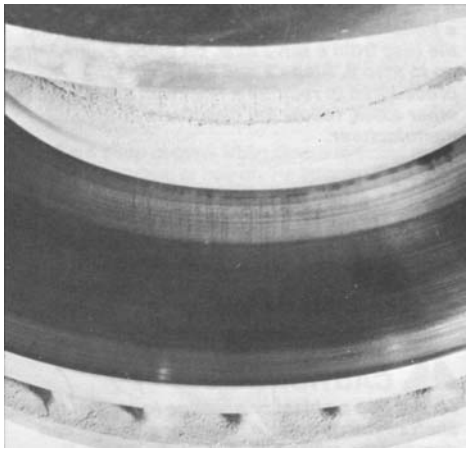
LIGHT HEAT CHECKING

Figure 11



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BLUE MARKS AND BANDS

Figure 12

Install the New Brake Chamber onto the Caliper Assembly

1. Check the date code on the replacement chamber identification tag as previously described in this technical bulletin. Verify the replacement chamber does not have a date code that falls within the suspect range before installing.

   NOTE: Typically, new brake chambers are shipped caged.

2. If the replacement brake chamber is not caged, carefully cage and lock the chamber spring. Always work from the side or front of a spring brake. Do not work from behind the brake. Follow the brake chamber manufacturer's instructions to release the brake.

3. Verify the brake chamber seal is seated correctly, is free of debris, and is not damaged. Verify the brake caliper seal surface and the mounting surface are free of oil, grease and debris, and are not damaged.

   - **If you find debris on the brake chamber or caliper seal:** Use a vacuum brush or damp cloth to remove any dirt from the brake assembly.

4. Position the brake chamber onto the caliper. Determine which of the two possible brake chamber orientations places the air ports in the original location.

   For brake chambers equipped with elbows, the brake chamber must be oriented in such a way that any two elbows will easily allow water and contaminants to drain from the brake chamber. Figure 13.

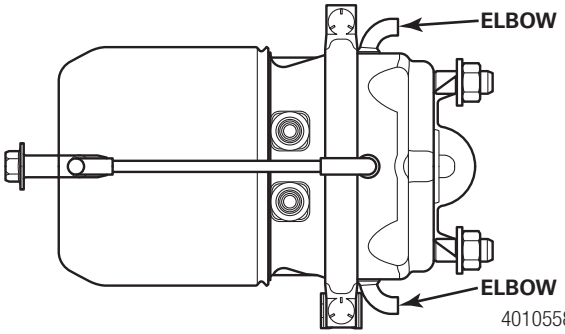

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Figure 13

5. As you position the brake chamber onto the caliper, visually check to ensure the chamber push rod is nesting in the pocket of the operating shaft.

6. Firmly hold the brake chamber onto the brake caliper by hand. Place the two washers and nuts onto the mounting studs. Be sure to work from the side or front of the caliper, not in back of it.

7. Use a 24 mm wrench to tighten the nuts in an alternating sequence.

   A. Tighten the nuts until the mating surfaces of the brake chamber and brake caliper meet. Use minimal torque on the two nuts to seat the mating surfaces.

   B. Use a torque wrench to tighten each nut, first to 59-75 lb-ft (80-100 N•m) and then finally to 133-155 lb-ft (180-210 N•m).

⚠ WARNING

If the brake chamber is supplied with removable breather plugs and the bottom-most breather plugs are not removed, the caliper may become contaminated which can cause damage to the internal parts of the caliper. The brakes can seize resulting in serious personal injury and damage to components.

8. If removable breather plugs are supplied with the brake chamber, locate the bottom-most breather plug and remove it from the chamber. Figure 14.

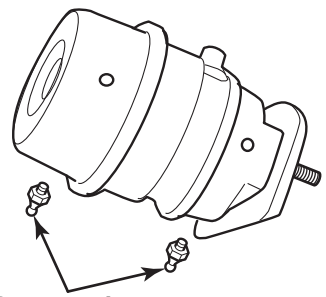

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Figure 14

9. Install the air hoses to the brake chamber ports. Refer to the manufacturer's instructions.
10. Set the initial brake pad-to-rotor running clearance using the following procedure.

⚠ CAUTION

Always set the initial brake pad-to-rotor running clearance with the air chamber installed. Damage to components can result.

A. Remove the adjuster cover. Figure 15.

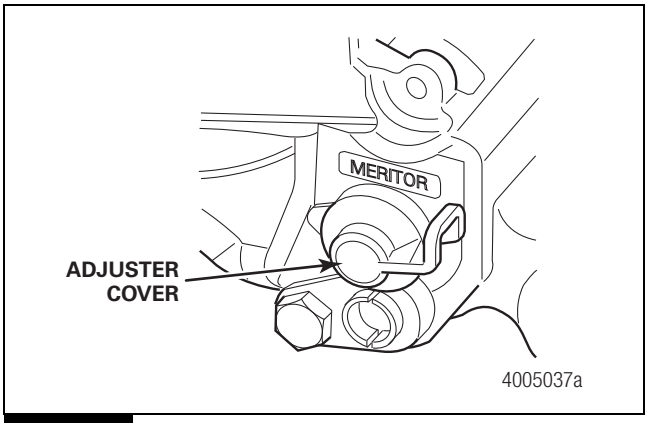

Figure 15

B. Use a 10 mm wrench to rotate the manual adjuster stem CLOCKWISE so that the brake pad-to-rotor clearance is ZERO. Figure 16.

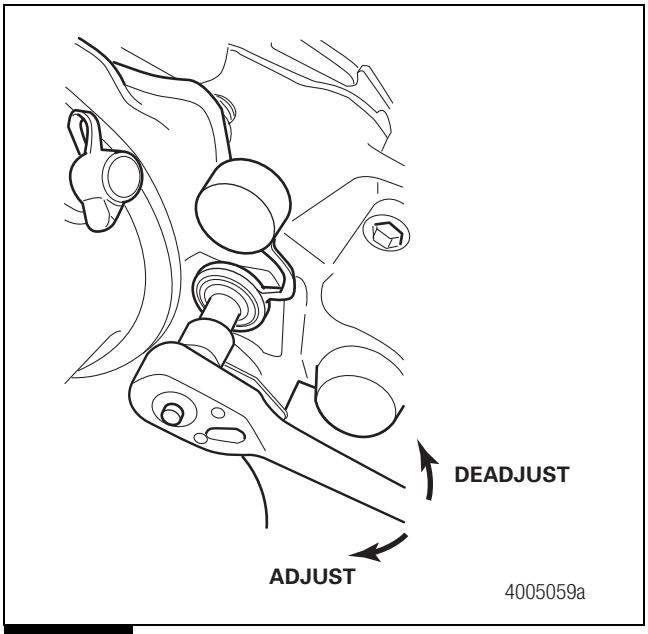

Figure 16

C. Deadjust the manual adjuster stem one half turn COUNTERCLOCKWISE to set the initial running clearance. Reinstall the adjuster cover. Figure 16.

11. Carefully uncage and unlock the spring. Follow the brake chamber manufacturer's instructions.
12. Install the tire and wheel assembly according to the manufacturer's instructions.
13. Remove the safety stands and lower the vehicle.
14. Remove the blocks from the wheels.
15. Perform a post-service brake function test and inspection according to the fleet maintenance guidelines.
16. Contact the OnTrac Customer Service Center as described at the end of this technical bulletin.
17. Return the vehicle to service.

Drum Brake Chamber Replacement and Inspection Procedures

Remove the Brake Chamber from the Drum Brake Assembly

1. Raise the axle of the wheel end you are servicing. Support it with safety stands.
2. Remove the tire and wheel assembly following the manufacturer's instructions.
3. Follow the brake chamber manufacturer's instructions to completely release the brake. This may require manually caging the park brake spring assembly using the manual caging screw.
4. Disconnect the air lines that are connected to the brake chamber according to manufacturer's instructions.
5. Remove the clevis pin(s) from the clevis on the automatic slack adjuster and rotate the slack adjuster away from the clevis. Figure 17.

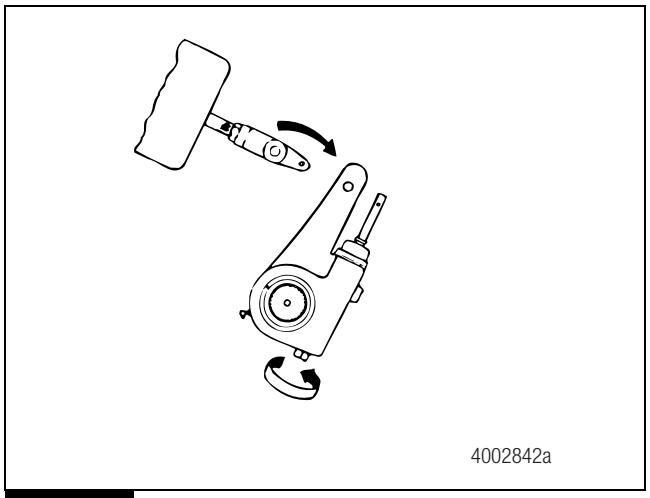

Figure 17

6. Use the correct wrench to remove the air chamber nuts and washers. Figure 18.

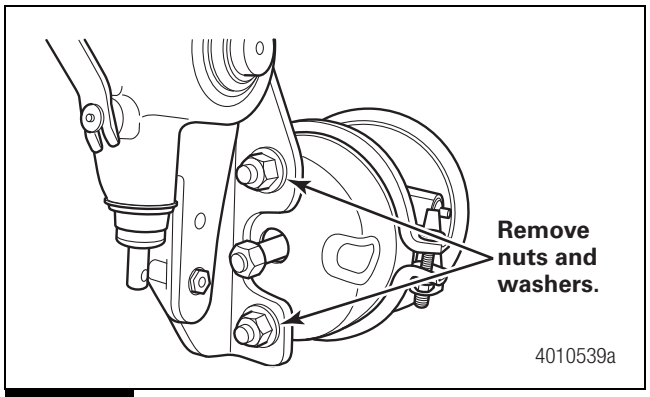

Figure 18

7. Remove the air chamber assembly from the brake chamber bracket assembly.

Inspect the Brake Assembly

Refer to Maintenance Manual 4 for complete inspection, replacement and adjustment of components.

1. Inspect the brake according to the instructions in Maintenance Manual 4.
2. Inspect the brake assembly for the following conditions.
   - Cracks in the brake drum. Figure 19.
   - Heavy heat crazing that covers over 75% of the brake shoe width. Figure 20.
   - Brake linings deteriorated from a severe overheating condition.
   - **If the brake assembly shows any signs of overheating as described above:** Contact the OnTrac Customer Service Center following the instructions in the beginning of this bulletin before the removal and replacement of any suspect overheated brake component.

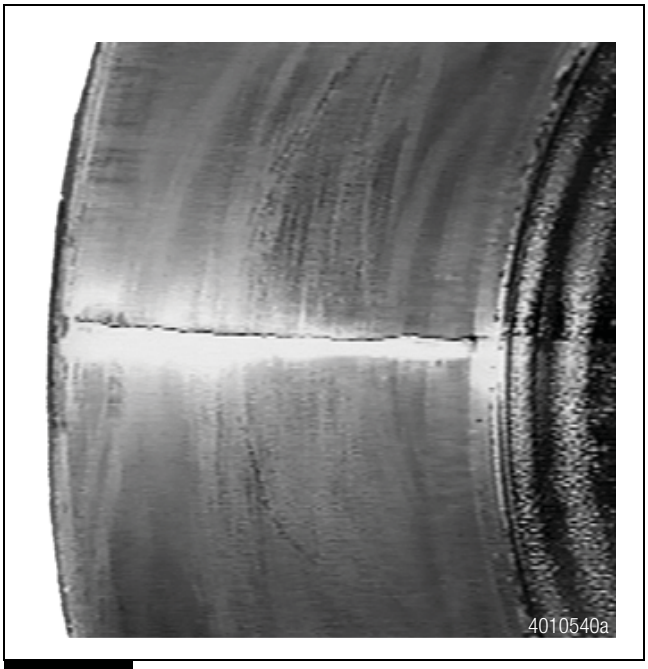

Figure 19

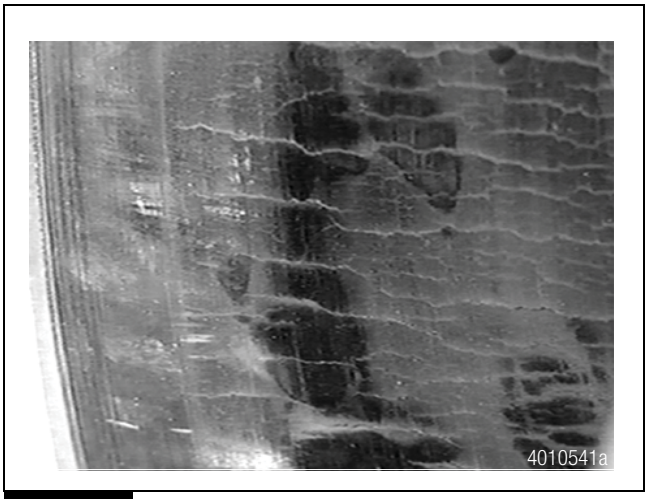

Figure 20

Install the New Brake Chamber onto the Chamber Bracket Assembly

1. Check the date code on the replacement chamber identification tag as previously described in this technical bulletin. Verify the replacement chamber does not have a date code that falls within the suspect range before installing.

2. If the replacement brake chamber is not caged, carefully cage and lock the spring of the chamber. Follow the brake chamber manufacturer's instructions completely to release the brake. Typically, new brake chambers are shipped caged.
3. Verify that the brake chamber bracket assembly mounting surface is free of oil, grease and debris, and is not damaged.
4. Follow the instructions in Maintenance Manual 4 for the correct set-up and adjustment of the brake chamber push rod.
5. Attach the slack adjuster clevis to the brake chamber push rod according to instructions in Maintenance Manual 4 when using a Meritor slack adjuster.
   - **If a Meritor slack adjuster is not used:** Refer to the vehicle manufacturer's instructions for correct set-up procedures.
6. Position the brake chamber onto the chamber bracket assembly. Determine which of the two possible brake chamber orientations places the ports in the most accessible position.
7. Hold the brake chamber onto the brake chamber bracket assembly by hand. Place the two washers and nuts onto the mounting studs. Be sure to work from the side or front of the brake chamber, not behind it.
8. Use an appropriate wrench to tighten the nuts in an alternating sequence as follows.
   A. Tighten the nuts until the mating surfaces of the brake chamber and brake chamber bracket meet. Use minimal torque on the two nuts to seat the mating surfaces.
   B. Use a torque wrench to tighten each nut to the correct torque value. Refer to Table C for the correct torque value.
9. When using a Meritor slack adjuster, follow the instructions in Maintenance Manual 4 for the correct set-up and adjustment of the Meritor automatic slack adjuster.
   - **If a Meritor slack adjuster is not used:** Refer to the OEM for set-up and adjustment instructions.
10. Install the air hoses to the brake chamber ports. Refer to the manufacturer's instructions.
11. Uncage and unlock the parking brake spring. Follow the brake chamber manufacturer's instructions.
12. Install the tire and wheel assembly according to the manufacturer's instructions.
13. Remove the safety stands and lower the vehicle.
14. Remove the blocks from the wheels.
15. Perform a post-service brake function test and inspection as per fleet maintenance guidelines.
16. Contact the OnTrac Customer Service Center as described at the end of this technical bulletin.
17. Return the vehicle to service.

Table C: Torque Specifications

Bolt Size	Torque, lb-ft (N•m)
7/16″-20	60-75 (81-102)
1/2″-20	85-115 (115-156)
9/16″-18	130-165 (176-224)
5/8″-18	180-230 (244-312)
3/4″-16	350-450 (474-610)
3/4″-10	270-350 (366-474)

Call the OnTrac Customer Service Center After Completing the Inspection and Replacement Procedures

Contact the OnTrac Customer Service Center at 866-668-7221 (US and Canada) between 8:00 AM and 8:00 PM ET Monday through Friday, and between 9:00 AM and 6:00 PM ET on Saturday. After selecting "preferred language," select option 3 for foundation brake products and refer to Program number C13AA.

The repair facility or end user will be paid directly by Meritor. Once the repairs have been completed, call the OnTrac Customer Service Center with the following information to receive payment. You may contact the OnTrac Customer Service Center if you have any questions on the above reimbursements or repair procedures.

- Vehicle repair date
- Vehicle mileage at the time of the repair
- Repair facility work order number
- Total labor hours required to perform the repairs
- Axle serial number
- Returned shipping information (confirmation that the removed brake chambers have been shipped back to Meritor)

MERITOR

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Printed in USA

TP-1338
Issued 02-13
(16579)