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OFFICE OF
DEFECTS INVESTIGATION

Timothy A. Blubaugh
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May 9, 2005

Ron Medford
Sr. Associate Administrator for Vehicle Safety
National Highway Traffic Safety Administration
400 Seventh Street, S.W.
Washington, D.C. 20590

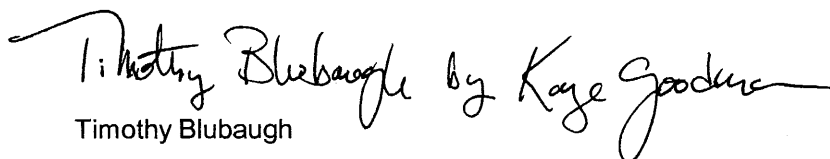
Re: Defect Information Report (FL-442), NHTSA no. 05V-125
Sterling rear axle wheel ends

Mr. Medford:

In accordance with Part 573 of Title 49 of the Code of Federal Regulations, Freightliner LLC herewith submits supplemental defect information and copies of documents distributed to dealers and purchasers.

Please contact me if you have any questions.

Sincerely yours,


Timothy Blubaugh

Cc: Michael Mason, CAL-OSHA
DOSH, Legal Unit
10th Floor
455 Golden Gate Avenue
San Francisco, CA 94102

Enclosure

Certified Mail Article Number:

7003 2260 0001 3402 7003

Section 573.6 Defect Information Report
FL-442, NHTSA no. 05V-125
Supplement No.: 1

May 9, 2005

(c) (1) Manufacturer: FREIGHTLINER LLC
P.O. BOX 3849
Portland, Oregon 97208
(503) 745-5219

(c) (3) Total number of vehicles potentially affected: (Revise to read) 1,564

(c) (9) Communications sent to dealers: posted March 31, 2005
Communications sent to owners: mailed April 7, 2005

Recall Campaign

March 2005
FL442A-D
NHTSA #05V-125

Subject: Sterling Rear Axle Wheel Bearing Inspection and Adjustment

Models Affected: Specific Sterling A/L-Line and Acterra vehicles manufactured during a certain shift between November 26, 2004, and March 9, 2005, at the St. Thomas, Ontario, manufacturing plant.

General Information

Freightliner LLC, on behalf of its wholly owned subsidiary, Sterling Truck Corporation, has decided that a defect which relates to motor vehicle safety exists on the vehicles mentioned above.

There are approximately 1,900 vehicles involved in this campaign.

Certain vehicles may have been manufactured with the rear drive axle wheel bearings excessively tightened. This may cause overheating and premature damage at very low mileage, resulting in a possible vehicle crash or fire without prior warning.

The rear drive axle wheel ends will be inspected for correct endplay. If overtightened, the bearings will be inspected for damage and adjusted or replaced as needed. It is expected that fewer than 10 percent of vehicles will require bearing replacements.

Additional Repairs

Dealers must complete all outstanding recall and field service campaigns prior to the sale or delivery of a vehicle. A Dealer will be liable for any progressive damage that results from its failure to complete campaigns before sale or delivery of a vehicle.

Owners may be liable for any progressive damage that results from its failure to complete campaigns within a reasonable time after receiving notification.

Work Instructions

Please refer to the attached work instructions. Prior to performing the campaign, check the vehicle for a completion sticker (Form WAR260).

Replacement Parts

If our records show your dealership has ordered any vehicles involved in campaign number FL442A-D, a list of the customers and vehicle identification numbers will be available on AccessFreightliner.com. Please refer to this list when ordering parts for this recall.

IMPORTANT: When replacement parts are needed for this recall, you will order individual parts, not pre-packaged kits.

Inspection: There are two inspection procedures, one for vehicles with 1,001 or more miles and one for vehicles with 1,000 or fewer miles. Each vehicle will need a new axle shaft gasket for each wheel end inspected. If the low mileage inspection is done, wheel seals may be needed in addition to the gaskets. Expedited shipping may not be claimed for gaskets or seals.

Bearing Replacement: For any damaged bearings, order the appropriate part number(s) for the specific vehicle. If you do not have the necessary parts in stock, expedited shipping may be claimed.

Removed Parts

Please follow Warranty Failed Parts Tracking shipping instructions for the disposition of all removed parts.

Recall Campaign

March 2005
FL442A-D
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Labor Allowance

Table 1 - Labor Allowance

Enter **ONE SRT** for **EACH** drive axle wheel end.

Campaign Number	Procedure	Time Allowed (hours)	SRT Code	Damage Code
FL442ABCD	Inspect rear hub end play (Vehicles with 1,001 or more miles)	0.5	996-0613A	000-Inspected
FL442ABCD	Inspect rear wheel ends (Vehicles with 1,000 miles or less)	0.8	996-0613B	000-Modifiedx
FL442ABD	Perform inspection and adjust rear wheel bearings	0.8	996-0613B	000-Modifiedx
FL442ABD	Perform inspection and replace rear wheel bearings	1.1	996-0613C	000-Modifiedx
FL442C	Perform inspection and replace rear wheel hub	0.8	996-0613D	000-Modifiedx

Table 1

IMPORTANT: When the recall has been completed, locate the base completion label in the appropriate location on the vehicle, and attach the red completion sticker provided in the recall kit (Form WAR260). If the vehicle does not have a base completion label, clean a spot on the appropriate location of the vehicle and first attach the base completion label (Form WAR259). If a recall kit is not required or there is no completion sticker in the kit, write the recall number on a blank sticker and attach it to the base completion label.

Claims for Credit

You will be reimbursed for your parts, labor, and handling by submitting your claim through the Warranty system within 30 days of completing this campaign. Please reference the following information in QuickClaim®:

- Claim type is **Recall**.
- In the FTL Authorization field, enter the campaign number and appropriate condition code (i.e., **FL442A, FL442B, etc.**). **NOTE:** There is only one vehicle in FL442D. Please contact Warranty Campaigns for instructions before filing a claim for this vehicle, serial number U14722.
- In the Primary Failed Part Number field, enter **25-FL442-000**.
- When replacement parts are needed for this recall, you will order individual parts, not pre-packaged kits. In the Parts field, enter the appropriate part numbers for the vehicle. If you do not have the necessary bearings or hubs in stock, you may include expedited shipping on your claim. Expedited shipping may not be claimed for gaskets or wheel seals. If there is a damaged spindle, contact Warranty Campaigns for instructions.
- In the Labor field, first enter the appropriate SRTs from the Labor Allowance Table. **Enter ONE SRT for EACH drive axle wheel end.** For administrative time, enter SRT 939-0010A 0.3 hours.
- **If any bearings or hubs are replaced**, describe the damage found in the Comments field of your claim.

NOTE: ServicePro®/Service Advisor® must be viewed prior to performing the recall to ensure the vehicle is involved and the campaign has not been previously completed. Also, check for a completion sticker prior to beginning work.

Contact the Warranty Campaigns Department at (800) 547-0712, from 7:00 a.m. to 4:00 p.m. Pacific Time, Monday through Friday, Web inquiry at AccessFreightliner.com / Support / Submit an Inquiry, or the Customer Assistance Center at (800) 385-4357, after normal business hours, if you have any questions or need additional information.

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To return excess kit inventory related to this campaign, U.S. dealers must submit a Parts Authorization Return (PAR) to the Memphis PDC. Canadian dealers must submit a PAR to their facing PDC. All kits must be in resalable condition. PAR requests must include the original purchase invoice number

The letter notifying vehicle owners is included for your reference.

Please note that the National Traffic and Motor Vehicle Safety Act, as amended (49 USC), requires the owner's vehicle(s) be corrected within a reasonable time after parts are available to you. The Act states that failure to repair a vehicle within 60 days after tender for repair shall be prima facie evidence of an unreasonable time. However, circumstances of a particular situation may reduce the 60 day period. Failure to repair a vehicle within a reasonable time can result in either the obligation to (a) replace the vehicle with an identical or reasonably equivalent vehicle, without charge, or (b) refund the purchase price in full, less a reasonable allowance for depreciation. The Act further prohibits dealers from selling a vehicle unless all outstanding recalls are performed. Also, any lessor is required to send a copy of the recall notification to the lessee.

Finally, the Act states that a remedy need not be provided without charge if the vehicle was bought by the first purchaser more than ten (10) calendar years before notice is given.

Recall Campaign



March 2005
FL442A-D
NHTSA #05V-125

Copy of Letter to Owner

Subject: Sterling Rear Axle Wheel Bearing Inspection and Adjustment

This notice is sent to you in accordance with the requirements of the National Traffic and Motor Vehicle Safety Act and the Canadian Motor Vehicles Safety Act.

Freightliner LLC, on behalf its wholly owned subsidiary, Sterling Truck Corporation, has decided that a defect which relates to motor vehicle safety exists on specific Sterling A/L-Line and Acterra vehicles manufactured during a certain shift between November 26, 2004, and March 9, 2005, at the St. Thomas, Ontario, manufacturing plant.

Certain vehicles may have been manufactured with the rear drive axle wheel bearings excessively tightened. This may cause overheating and premature damage at very low mileage, resulting in a possible vehicle crash or fire without prior warning.

The rear drive axle wheel ends will be inspected for correct endplay. If overtightened, the bearings will be inspected for damage and adjusted or replaced as needed. It is expected that fewer than 10 percent of vehicles will require bearing replacements.

Contact your authorized dealer to arrange to have your vehicle modified and to assure that parts are available at the dealership. When you contact your dealer, refer to campaign number **FL442A-D**. The work will take up to two hours per drive axle and will be performed at no charge to you. If you need to locate a dealer, search online at www.Freightliner.com or contact the Warranty Campaigns Department for assistance.

IMPORTANT: When the recall has been completed, please ensure that a label has been affixed to your vehicle referencing **FL442A-D**.

As stated in the terms of your express limited warranty, Freightliner LLC will not pay for any damage caused by failure to properly maintain your vehicle. Freightliner LLC considers the work necessary under this campaign to be proper maintenance and will, therefore, not pay for any damage to your vehicle caused by your failure to have the repairs that are the subject of this campaign performed in a reasonable time.

If you do not own the vehicle that corresponds to the identification number(s) which appears on the Recall Notification, please return the notification to the Warranty Campaigns Department with any information you can furnish that will assist us in locating the present owner. If you have leased this vehicle, please make sure this notification is immediately forwarded to the lessee. If you have paid to have this recall condition corrected prior to this notice, you may be eligible to receive reimbursement. Please see the reverse side of this notice for details.

If you are not able to have the defect remedied without charge and within a reasonable time, which is not longer than 60 days after you tender the vehicle for repair, please contact the Warranty Campaigns Department at (800) 547-0712, 7:00 a.m. to 4:00 p.m. Pacific Time Monday through Friday, e-mail address WarrantyCampaigns@freightliner.com, or the Customer Assistance Center at (800) FTL-HELP or (800) STL-HELP, after normal business hours. You may also wish to submit a complaint to the Administrator, National Highway Traffic Safety Administration, 400 7th Street S.W., Washington, D.C. 20590, or phone (888) 327-4236. If your vehicle is involved in the Canadian portion, you may wish to notify Transport Canada, ASFAD, Place de Ville Tower C, 330 Sparks Street, Ottawa, ON K1A 0N5, or phone (800) 333-0510.

We regret any inconvenience this action may cause but feel certain you understand our interest in motor vehicle safety.

WARRANTY CAMPAIGNS DEPARTMENT

Enclosure

Work Instructions

Subject: Sterling Rear Axle Wheel Bearing Inspection and Adjustment

Models Affected: Specific Sterling A/L-Line and Acterra vehicles manufactured during a certain shift between November 26, 2004, and March 9, 2005, at the St. Thomas, Ontario, manufacturing plant.

IMPORTANT: When replacement parts are needed for this recall, you will order individual parts, not pre-packaged kits.

Inspection: There are two inspection procedures, one for vehicles with 1,001 or more miles and one for vehicles with 1,000 or fewer miles. Each vehicle will need a new axle shaft gasket for each wheel end inspected. If the low mileage inspection is done, wheel seals may be needed in addition to the gaskets. Expedited shipping may not be claimed for gaskets or seals.

Bearing Replacement: If any bearings are replaced, describe the damage found in the Comments field of your claim. For any damaged bearings, order the appropriate part number(s) for the specific vehicle. If you do not have the necessary parts in stock, expedited shipping may be claimed.

NOTE: There is only one vehicle in FL442D. Please contact Warranty Campaigns for instructions before filing a claim for this vehicle, serial number U14722.

General Procedure (all vehicles)

1. Park the vehicle on a level surface. Shut down the engine, and chock the front tires.
2. Check the base label (Form WAR259) for a completion sticker for FL442 indicating this work has been done. The base label is usually located on the passenger-side door about 12 inches (30 cm) below the door latch.

If the completion sticker is present, nothing more needs to be done. Remove the chocks from the tires.

If no sticker is present, go to the next step.
3. Raise the vehicle just enough to take the weight off the rear tires, but with the tires still touching the ground.
4. On both sides of the vehicle, loosen the wheel nuts.

WARNING

Use safety stands to support the vehicle. Never work under a vehicle that is supported only by jacks. Jacks can slip, causing the vehicle to fall, which could result in serious injury or death.

5. Raise the vehicle until the tires clear the ground, then support it with safety stands.
6. Remove the tire and wheel assemblies from the vehicle.
7. Remove the brake drums from the hubs. If necessary, back off the slack adjusters to provide clearance.
8. Put a basin under one of the hubs to catch any oil that will drain.
9. Remove the axle shaft and gasket. Repeat the procedure for the other hubs.
10. Check the hubs for any oil seal leakage. Look for oil on the inboard side of the hub and on or around the brake shoes.

If any leakage is detected, replace the oil seal. Go to "Inspecting the Wheel Bearings and Hubs."

If no leakage is detected, go to the next step.

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11. If the vehicle is equipped with ConMet Preset® hubs, go to "Inspecting ConMet Preset Hubs." These hubs can be identified by the presence of an Axilok® bearing-retaining nut. See **Fig. 1**.

On all other vehicles, if the odometer reads 1,000 miles (1609 km) or less, go to the step, "Inspecting the Wheel Bearings and Hubs."

If the odometer reads more than 1,000 miles (1609 km), go to "Checking the Wheel-Bearing End Play."

12. When all the applicable procedures are done, install the axle shafts. Make sure you use new gaskets. See **Fig. 2** for the stud-nut tightening sequence. Use the following torque values:

- 1/2-20: 75 to 115 lbf-ft (102 to 156 N·m)
- 5/8-18: 150 to 170 lbf-ft (203 to 230 N·m)

13. Install the wheel and tire assemblies. For instructions, see **Group 40** in the applicable vehicle workshop manual.

14. Fill the axle housing(s) with approved oil to replace that which drained from the hubs.

15. Lower the vehicle.

16. Clean a spot on the base label (Form WAR259). The base label is usually located on the passenger-side door about 12 inches (30 cm) below the door latch. Attach a completion sticker (Form WAR260) for recall FL442 to the base label.

17. Remove the chocks from the front tires

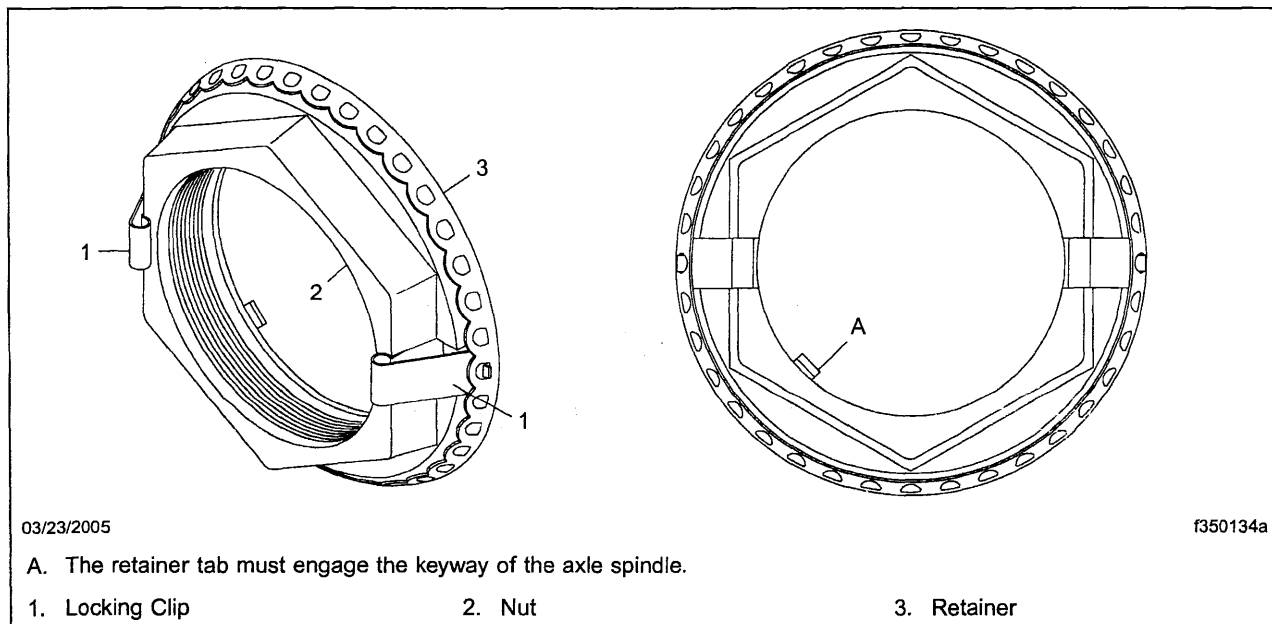


Fig. 1, Rear Axle Axilok Nut

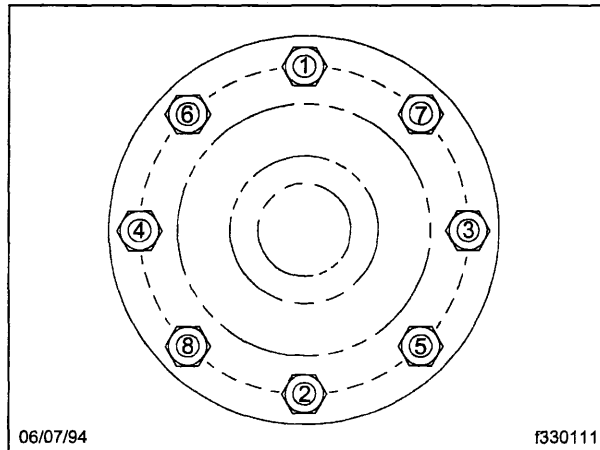


Fig. 2, Axle Stud-Nut Tightening Sequence

Checking the Wheel-Bearing End Play

IMPORTANT: You *must* use a dial indicator to accurately measure the wheel-bearing end play. Using any other method will not give an accurate reading.

1. With the axle shaft removed, place a dial indicator on the hub and spindle end.
2. Grip the sides of the hub at the three o'clock and nine o'clock positions. Push in on the hub to seat the inboard bearing set. Zero the dial indicator.
3. Once again, grip the sides of the hub at the three o'clock and nine o'clock positions. This time, pull out on the hub. Read the dial indicator, and note the end play.
4. Push the hub back in to confirm that the needle of the dial indicator returns to zero. The end play must be between 0.001 and 0.005 inch (0.03 and 0.13 mm).
5. Repeat the procedure for all the rear hubs.

If the end play for all the hubs is correct, and there is no evidence of leaking oil seals, go to step 12 under "General Procedure."

If an end play is between 0.006 and 0.010 inch (0.15 and 0.25 mm) adjust the end play so that it is correct. Go to "Adjusting the Wheel-Bearing End Play." Follow the applicable instructions for the type of wheel bearing retention system.

If there is no end play or the end play is greater than 0.010 inch (0.25 mm), go to "Inspecting the Hub and Wheel Bearings."

Adjusting the Wheel-Bearing End Play

Four-Piece System

1. Remove the outer jam nut, nut-lock, and lockring. Then loosen — but don't remove — the inner (adjusting) nut. See Fig. 3.
2. Tighten the inner (adjusting) nut 100 lbf-ft (136 N·m) while rotating the wheel hub.
3. Back off the adjusting nut completely.
4. Tighten the adjusting nut 20 lbf-ft (27 N·m) while rotating the wheel hub.

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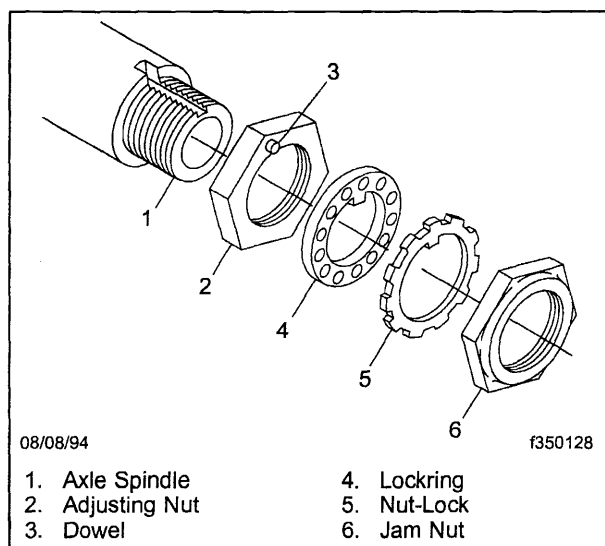


Fig. 3, Four-Piece System

5. Back off the adjusting nut one-third turn.
6. Install the locking device and jam nut.

NOTE: If no hole in the lockring aligns with the dowel on the adjusting nut, remove the lockring, turn it over and install it again. If a hole still doesn't align with the dowel, loosen the adjusting nut, but only enough to align the dowel with a hole in the lockring.

7. Install the jam nut, and tighten it to the applicable torque value in **Table 3**.

Jam Nut Torque Values	
Size	Torque: lbf·ft (N·m)
1-1/8 Inch	150 to 225 (203 to 305)
1-1/2 to 2-1/2 Inches	200 to 300 (271 to 407)
2-5/8 Inches or Larger	250 to 400 (339 to 542)

Table 3, Jam Nut Torque Values

8. Install the locking device.
9. Measure the bearing end play, using a dial indicator. If the end play is not between 0.001 and 0.005 inch (0.03 and 0.13 mm), repeat the above procedure.
10. Once the end play is correct, bend two tabs of the nut-lock over opposing flats on the jam nut.
11. Repeat the procedure as necessary for the other hubs.
12. When the end play for all the hubs is correct, go to step 12 under "General Procedure."

Pro-Torq® System

CAUTION

Do not use pliers or similar devices on the keeper projections to compress the Pro-Torq lockring. This could result in damage to the lockring.

1. Using two screwdrivers, remove the lockring by pressing together the keeper projections at the bottom of the lockring.
2. Loosen the Pro-Torq nut to zero torque, then tighten it to 200 lbf-ft (270 N-m) while spinning the wheel in both directions.
3. Loosen the Pro-Torq nut again to zero torque and spin the wheel a few turns.
4. Tighten the Pro-Torq nut 100 lbf-ft (136 N-m) while spinning the wheel in both directions. Back off the nut one-eighth turn.
5. Hold the lockring with the keeper projections facing outboard. See **Fig. 4**.
6. Insert the keeper tab in the undercut groove of the Pro-Torq nut, while pressing the keyway tab into the keyway of the axle spindle, engaging the mating teeth.
7. Insert a screwdriver, or similar tool, in the undercut groove of the nut, between the keeper arms. Using the screwdriver, press around the edges of the lockring to be sure it is locked in place.
8. Check the end play again, using a dial indicator. If the end play is not 0.001 to 0.005 inch (0.03 and 0.13 mm), repeat the above procedure.
9. Repeat the procedure as necessary for the other hubs.
10. When the end play for all the hubs is correct, go to step 12 under "General Procedure."

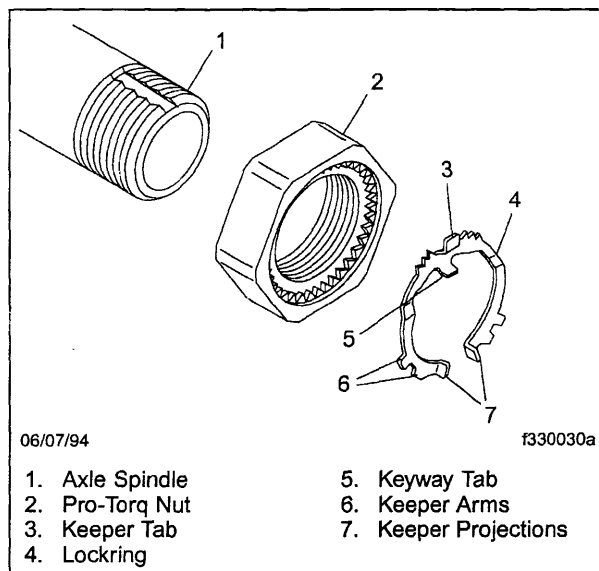


Fig. 4, Pro-Torq Nut System

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Inspecting ConMet Preset Hubs

PreSet Hubs do not have any bearing end play. You need only check the torque of the Axilok nuts and look for oil seal leakage.

Axilok nuts can be damaged if they are not removed or installed correctly. Use the following guidelines:

- Use only the correct size, *6-point* socket to remove or install Axilok spindle nuts. Do not use a worn or loose-fitting socket. *Do not use a 12-point socket.*
- Do not use hammers, chisels, pliers, wrenches, or power tools to remove or install Axilok nuts.
- Do not use an Axilok nut if the locking clips are damaged or missing, or if the retainer cage tab or D-flat is damaged or missing.
- Never try to repair a damaged Axilok nut; always replace it with a new one.
- Always start an Axilok installation by hand. A good-fitting 6-point socket will completely disengage the nut's locking clips, allowing it to spin freely by hand. See **Fig. 5**. Use an accurately calibrated torque wrench to tighten the nut to its final torque value.
- After the nut is installed, always make sure that both locking clips are present and engaged in the retainer cage. See **Fig. 5**. If the locking clips are not engaged, the nut is not locked in position and can rotate freely.

1. Check the torque of the Axilok nut.

If the torque is 300 lbf-ft (407 N·m), nothing more needs to be done. Go to step 12 under "General Procedure."

If the torque is incorrect, go to the next step.

- ### 2. Loosen the Axilok nut to zero torque, then tighten it 300 lbf-ft (407 N·m). Do not back it off.
- ### 3. The nut should lock in place when you remove the wrench. If it does not, advance it until it does. See **Fig. 5**.
- ### 4. Repeat the procedure as necessary for the other hubs.
- ### 5. When all the torques are correct, go to step 12 under "General Procedure."

Inspecting the Wheel Bearings and Hubs

1. Check the hub and axle spindle for damage.

- 1.1 Remove the hub by removing either the four-piece system components, the Pro-Torq retaining nut, or the Axilok retaining nut, as applicable. Remove the outer bearing, then carefully lift the hub off the axle spindle.
- 1.2 Remove all the old oil from the wheel hub cavity. Inspect the inner surface of the hub for cracks, dents, wear, or other damage. Replace the wheel hub if any damage exists. For instructions, see **Group 35** in the applicable vehicle workshop manual.
- 1.3 Remove all the old grease or oil from the surfaces of the wheel bearing cups. Inspect the wheel bearing cups for cracks, wear, spalling, or flaking. See **Fig. 6**. Replace the cups if damaged in any way. For instructions, see **Group 35** in the applicable vehicle workshop manual.

2. Remove the oil seal from the axle spindle or hub, as applicable.

3. Inspect the wheel bearings for damage.

- 3.1 Clean all old oil from the bearings and hub cavity with kerosene or diesel fuel and a stiff brush. Don't use gasoline or heated solvent.

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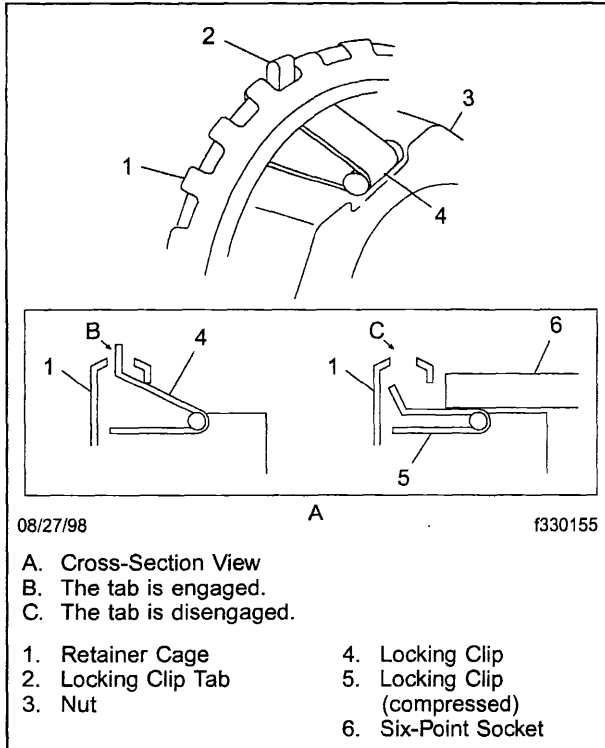


Fig. 5, Axilok Nut, Checking the Position of the Locking Clip

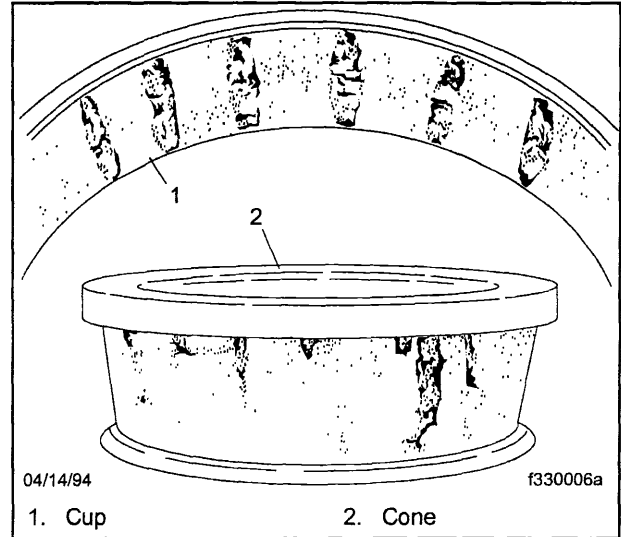


Fig. 6, Spalling (Flaking) of Wheel Bearing Assembly

- 3.2 Allow the cleaned parts to dry, or dry them with a clean absorbent cloth or paper. Clean and dry your hands and all tools used in the maintenance operation. Oil will not stick to a surface which is wet with kerosene or diesel fuel, and the kerosene or diesel fuel may dilute the lubricant.

CAUTION

Do not spin the bearing rollers at any time. Dirt or grit can scratch the roller surface and cause premature wear of the bearing assembly. Treat a used bearing as carefully as a new one.

- 3.3 After the bearings are cleaned, inspect the assemblies, which include the rollers, cones, cups, and cages. If any of the following conditions exist, replace the bearing assemblies:
- Large ends of rollers worn flush to the recess, or radii at the large ends of the rollers worn sharp (see Fig. 7);
 - Visible step wear, particularly at the small end of the roller track. Deep indentations, cracks, or breaks in the cone surfaces (see Fig. 8);
 - Bright rubbing marks on the dark phosphate surfaces of the bearing cage (see Fig. 9);
 - Water etch on any bearing surface. Water etch appears as gray or black stains on the steel surface, and it greatly weakens the affected area. If water etch is present, replace the bearing seals.
 - Etching or pitting on functioning surfaces (see Fig. 10);
 - Spalling (flaking) of the bearing cup, roller, or cone surfaces (see Fig. 6);

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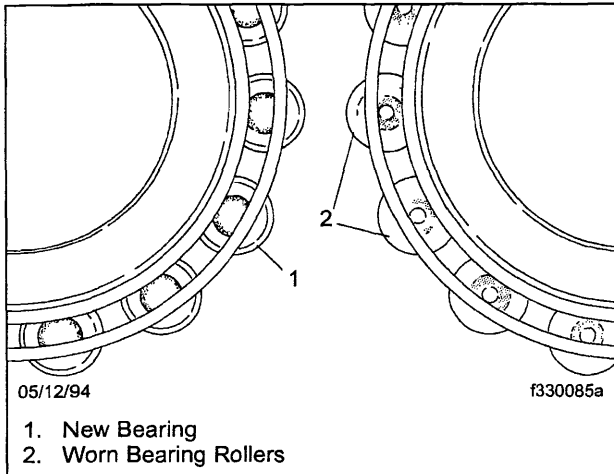


Fig. 7, Wheel Bearing Roller Wear

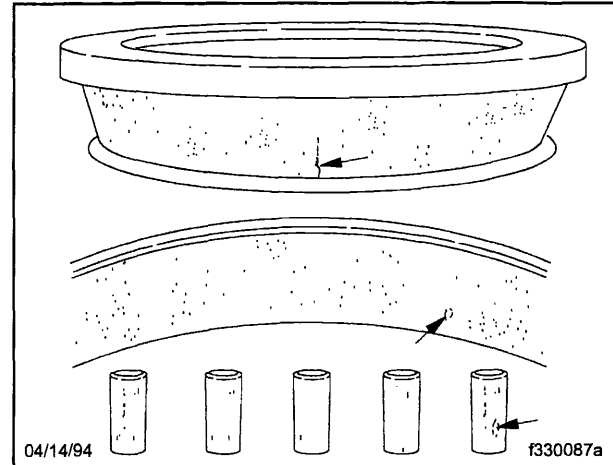


Fig. 8, Indentations, Cracks, or Breaks in Bearing Surfaces

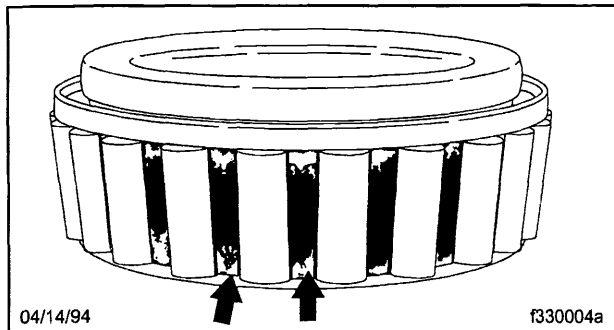


Fig. 9, Rubbing Marks on Bearing Cage

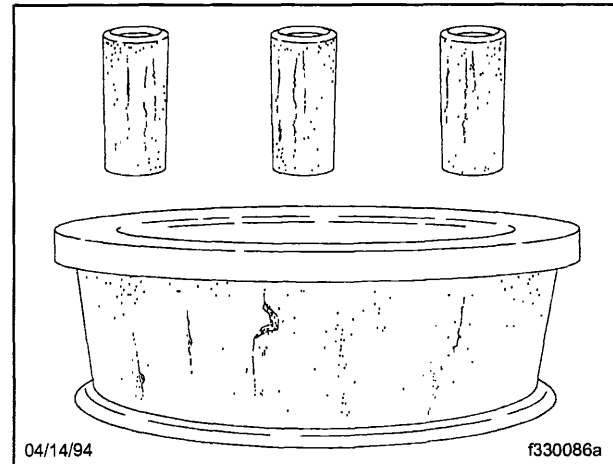


Fig. 10, Etching (Pitting) on Bearing Surfaces

4. If any bearing damage is present, replace the bearings.
5. Check the axle spindle for damage to the threads. If damage is present, contact Warranty Campaigns for further instructions.
6. Install a new oil seal, the hub, and the bearings. For instructions, see **Group 35** in the applicable vehicle workshop manual.
7. Adjust the bearings, following the applicable instructions in these Work Instructions.
8. Go to step 12 under "General Procedure."