

## Subject: Rack and Pinion Steering Inner Tie Rod Ends

**Models Affected:** Specific Freightliner Cascadia, Century Class S/T, Columbia, and Coronado vehicles manufactured November 11, 2004, through July 20, 2009, with rack and pinion steering.

### General Information

Daimler Trucks North America LLC, on behalf of its Freightliner Trucks Division, has decided that a defect that relates to motor vehicle safety exists on the vehicles mentioned above.

There are approximately 8,200 vehicles involved in this campaign.

Under certain conditions, the left hand inner tie rod end may loosen over time. If not corrected, it could separate from the rack, making the vehicle more difficult to control at higher speeds and resulting in a possible vehicle crash.

The left hand inner tie rod will be removed from the steering rack and reinstalled with Loctite®. During the repair, the steering rack will be inspected and any rack with threads damaged due to a loosened inner tie rod will be replaced. The need to replace a rack and pinion gear due to inner tie rod thread damage is expected to be rare and will require pre-authorization.

**IMPORTANT:** If a vehicle is also included in FL513, Rack and Pinion Steering – Steering Stops, FL513 must be completed **before** performing FL557.

**REVISIONS:** The toe-in adjustment section of the Work Instructions has been revised, see step 32. The wholesale prices for Direct Warranty Customers have been updated and alternate part numbers for use in QuickClaim have been added, see **Table 2**.

### 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

Replacement parts are now available and can be obtained by ordering the part number(s) listed below from your facing Parts Distribution Center or local sources.

# Recall Campaign

Daimler Trucks  
North America LLC

June 2010  
FL557AB  
NHTSA #09V-357  
REVISED NOTICE

Please note the following:

- **FL513:** If a vehicle is also included in FL513, Rack and Pinion Steering – Steering Stops, FL513 must be completed **before** performing FL557.
- **Gear Replacement:** The need to replace a rack and pinion gear due to inner tie rod thread damage is expected to be rare and requires pre-authorization to include on FL557 claims. Submit a "CampaignPreApproval" inquiry to Warranty Campaigns describing the thread damage found and attach photos showing the damage. The gear will be requested for inspection.
- **Loctite:** An allowance of up to \$1.00 may be included on the claim for Loctite® 603.
- **Bellows:** If the left hand bellows shows substantial damage, it may be replaced without additional authorization (part number THY 607210A, Service Kit-Bellows). The reason must be included in the claim story.
- **Completion Stickers:** Please use blank completion stickers and write in the recall number, FL557.
- **Fixture:** If your dealership has not received the fixture that holds the rack during the repair and has a vehicle scheduled for FL557, submit a Campaign Issue inquiry to Warranty Campaigns and instructions will be provided.

If our records show your dealership has ordered any vehicles involved in campaign number FL557AB, 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.

**Table 1 - Replacement Parts for FL557AB**

**Needed for Loctite® Repair**

Campaign Number	Kit Number	Part Description	Part Number	Qty. per Vehicle	Suggested Wholesale*
FL557AB	Not Kitted Purchase these parts through a PDC or locally.	Oetiker Bellows Clamp (Large)	OET 16700082	1 ea	N/A
		Loctite® 603 (\$1.00 allowed per vehicle.)	Non-DTNA	1 ea	
		SCREW-HEX FLG,M18X1.5X110,10.9	N910105 018030 (Also MBT N910105018030)	4 ea	
		NUT-HEX,FLANGE,M18X1.5, CL 10	N913023 018002 (Also MBT N913023018002)	4 ea	

\* Please charge all Direct Warranty Customers the above-listed price for the kit, as they are authorized to perform their own Recalls.

**Table 1**

**Table 2 - Replacement Parts for FL557AB**

**Needed When Replacing a Steering Gear Only**

Campaign Number	Part Description	Part Number	Qty. per Vehicle	Suggested Wholesale*
FL557A Medium Wheel Base Vehicles	Gear-Strg, R&P, LZS5, MWB (Install on all vehicles.)	A14-17666-001	1 ea	\$3,1367.60 U.S. \$3,434.95 CAN
	Nut Castle M27 X1.5, Class 4	N000979027000 (Also MBT N000979027000)	2 ea	\$7.50 U.S. \$7.55 CAN
	Bolt-Pinch, Strg U-Joint, M10x1.25	14-15639-000	1 ea	\$3.49 U.S. \$3.56 CAN
	Nut-Hex, Prevailing Torque, M10x1.25	14-15640-000	1 ea	\$.95 U.S. \$.97 CAN
	Cotter Pin, 1-3/4x3/16	23-00800-607 Or Equivalent	2 ea	\$.33 U.S. \$.32 CAN
	Connector-3/4 to M16x1.5	23-13324-108	1 ea	\$19.07 U.S. \$20.98 CAN
	Connector-7/8 to M18x1.5	23-13324-110	1 ea	\$17.03 U.S. \$22.61 CAN
	Screw-Hex Flange, M18x1.5110	N910105018030 (Also MBT N910105018030)	4 ea	\$10.38 U.S. \$10.59 CAN
	Nut-Hex, Flange, M18x1.5, Class 10	N913023018002 (Also MBT N913023018002)	4 ea	\$4.33 U.S. \$4.42 CAN
FL557B Short Wheel Base Vehicles	Gear-Strg, R&P, LZS5, SWB	A14-17666-000	1 ea	\$3,1367.60 U.S. \$3,434.95 CAN
	Nut Castle M27 X1.5, Class 4	N000979027000 (Also MBT N000979027000)	2 ea	\$7.50 U.S. \$7.55 CAN
	Bolt-Pinch, Strg U-Joint, M10x1.25	14-15639-000	2 ea	\$3.49 U.S. \$3.56 CAN
	Nut-Hex, Prevailing Torque, M10x1.25	14-15640-000	1 ea	\$.95 U.S. \$.97 CAN
	Cotter Pin, 1-3/4x3/16	23-00800-607 Or Equivalent	2 ea	\$.33 U.S. \$.32 CAN
	Connector-3/4 to M16x1.5	23-13324-108	1 ea	\$19.07 U.S. \$20.98 CAN
	Connector-7/8 to M18x1.5	23-13324-110	1 ea	\$17.03 U.S. \$22.61 CAN
	Screw-Hex Flange, M18x1.5110	N910105018030 (Also MBT N910105018030)	4 ea	\$8.02 U.S. \$8.02 CAN
	Nut-Hex, Flange, M18x1.5, Class 10	N913023018002 (Also MBT N913023018002)	4 ea	\$4.33 U.S. \$4.42 CAN

\* Please charge all Direct Warranty Customers the above-listed price for the kit, as they are authorized to perform their own Recalls.

**Table 2**

**Removed Parts**

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

# Recall Campaign

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## Labor Allowance

Table 3 - Labor Allowance

Campaign Number	Procedure	Time Allowed (hours)	SRT Code	Damage Code
FL557AB	Inspect rack and pinion gear, no further work needed (green or blue paint mark on gear)	0.2	996-0796B	000-Inspected
	Inspect and apply Loctite® 603 to left inner tie rod end	1.2	996-0796A	000-Modifiedx
	Inspect and apply Loctite® 603 to left inner tie rod end, with adjusting toe-in	1.8	996-0796C	000-Modifiedx
	Inspect and replace rack and pinion gear	3.4	996-0796D	000-Modifiedx

Table 3

**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®:

**IMPORTANT:** If a vehicle is also included in FL513, Rack and Pinion Steering – Steering Stops, FL513 must be completed **before** performing FL557.

- Claim type is **Recall**.
- In the FTL Authorization field, enter the campaign number and appropriate condition code (**FL557A or FL557B**).
- In the Primary Failed Part Number field, enter **25-FL557-000**.
- In the Parts field, enter the appropriate part number(s) as shown in the Replacement Parts Tables.
  - **Gear Replacement:** The need to replace a rack and pinion gear due to inner tie rod thread damage is expected to be rare and requires pre-authorization to include on FL557 claims. Submit a "CampaignPreApproval" inquiry to Warranty Campaigns describing the thread damage found and attach photos showing the damage. The gear will be requested for inspection. Before installing a new rack and pinion gear, the replacement gear must be checked for a green or blue paint mark. If no paint mark is present, the replacement requires the Loctite® 603 repair outlined in the Work Instructions. Submit a "CampaignPreApproval" inquiry to Warranty Campaigns for how to claim.
  - **Loctite:** An allowance of up to \$1.00 may be included on the claim for Loctite® 603.
  - **Bellows:** If the left hand bellows shows substantial damage, it may be replaced without additional authorization (part number THY 607210A, Service Kit-Bellows). The reason must be included in the claim story.
  - **Completion Stickers:** Please use blank completion stickers and write in the recall number, FL557.
  - **Fixture:** If your dealership has not received the fixture that holds the rack during the repair and has a vehicle scheduled for FL557, submit a Campaign Issue inquiry to Warranty Campaigns and instructions will be provided.

- In the Labor field, first enter the appropriate SRT from the Labor Allowance Table. For administrative time, enter SRT 939-0010A for 0.3 hours.
- For OWL, the VMRS Component Code is 015-013-001.
- **Reimbursement for Prior Repairs.** When a customer asks about reimbursement, please do the following.
  - Accept the documentation of the previous repair.
  - Make a brief check of the customer's paperwork to see if the repair may be eligible for reimbursement. (See the "Copy of Owner Letter" section of this bulletin for reimbursement guidelines for this recall.)
  - Contact the Warranty Campaigns Department for a decision and authorization number.
  - Include the approved amount on your claim in sublet/outside purchases.
  - In the claim story, first note the authorization number and that the claim includes a reimbursement request.
  - Retain the documentation and provide it to Warranty Campaigns or Claims Processing if requested.
  - When your claim is paid, reimburse the customer the appropriate amount.

**IMPORTANT:** ServicePro® 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](http://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.

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 (Title 49, United States Code, Chapter 301), 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. Any lessor is required to send a copy of the recall notification to the lessee within 10 days. Any subsequent stage manufacturer is required to forward this notice to its distributors and retail outlets within five working days.

# Recall Campaign

Daimler Trucks  
North America LLC

June 2010  
FL557AB  
NHTSA #09V-357  
REVISED NOTICE

## Copy of Letter to Owner

### Subject: Rack and Pinion Steering Inner Tie Rod Ends

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

Daimler Trucks North America LLC, on behalf of its Freightliner Trucks Division, has decided that a defect which relates to motor vehicle safety exists on specific Freightliner Cascadia, Century Class S/T, Columbia, and Coronado vehicles manufactured November 11, 2004, through July 20, 2009, with rack and pinion steering.

Under certain conditions, the left hand inner tie rod end may loosen over time. If not corrected, it could separate from the rack, making the vehicle more difficult to control at higher speeds and resulting in a possible vehicle crash.

The left hand inner tie rod will be removed from the steering rack and reinstalled with Loctite®. During the repair, the steering rack will be inspected and any rack with threads damaged due to a loosened inner tie rod will be replaced.

Parts are now available for authorized dealers to order. Contact your authorized dealer to arrange to have the recall performed and to ensure that parts are available at the dealership. To locate a dealer, search online at [www.FreightlinerTrucks.com](http://www.FreightlinerTrucks.com) or contact the Warranty Campaigns Department for assistance.

When you contact your dealer, refer to campaign number **FL557AB**. Once parts are received at the dealership, the Recall will take between approximately half an hour and four hours, depending on the work needed, and will be performed at no charge to you. Should the entire rack and pinion gear require replacement, please allow time for the gear to be shipped to the dealership.

**IMPORTANT:** When the Recall has been completed, please ensure that a label has been affixed to your vehicle referencing **FL557AB**.

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, Federal law requires that you forward this notice to the lessee within 10 days. If you are a subsequent stage manufacturer, Federal law requires that you forward this notice to your distributors and retail outlets within five working days. 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 [DTNA.Warranty.Campaigns@Daimler.com](mailto:DTNA.Warranty.Campaigns@Daimler.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, 1200 New Jersey Avenue, SE., Washington, DC 20590; or call the Vehicle Safety Hotline at (888) 327-4236 (TTY: 800-424-9153); or to <http://www.safercar.gov>. 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

## **Reimbursement to Customers for Repairs Performed Prior to Recall**

If you have already **paid** to have this recall condition corrected you may be eligible to receive reimbursement.

Requests for reimbursement may include parts and labor. Reimbursement may be limited to the amount the repair would have cost if completed by an authorized Daimler Trucks North America LLC dealer. The following documentation must be presented to your dealer for consideration for reimbursement.

Please provide original or clear copies of all receipts, invoices, and repair orders that show:

- The name and address of the person who paid for the repair.
- The Vehicle Identification Number (VIN) of the vehicle that was repaired.
- What problem occurred, what repair was done, when the repair was done.
- Who repaired the vehicle.
- The total cost of the repair expense that is being claimed.
- Proof of payment for the repair (such as the front and back of a cancelled check or a credit card receipt).

Reimbursement will be made by check from your Daimler Trucks North America LLC dealer.

Please speak with your Daimler Trucks North America LLC authorized dealer concerning this matter.

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## Work Instructions

### Subject: Rack and Pinion Steering Inner Tie Rod Ends

**Models Affected:** Specific Freightliner Cascadia, Century Class S/T, Columbia, and Coronado vehicles manufactured November 11, 2004, through July 20, 2009, with rack and pinion steering.

**REVISIONS:** The toe-in adjustment section of the Work Instructions has been revised, see step 32. The wholesale prices for Direct Warranty Customers have been updated and alternate part numbers for use in QuickClaim have been added, see **Table 2**.

Please note the following:

- **FL513:** If a vehicle is also included in FL513, Rack and Pinion Steering – Steering Stops, FL513 must be completed **before** performing FL557.
- **Gear Replacement:** The need to replace a rack and pinion gear due to inner tie rod thread damage is expected to be rare and requires pre-authorization to include on FL557 claims. Submit a "CampaignPreApproval" inquiry to Warranty Campaigns describing the thread damage found and attach photos showing the damage. The gear will be requested for inspection.
- **Loctite:** An allowance of up to \$1.00 may be included on the claim for Loctite® 603.
- **Bellows:** If the left hand bellows shows substantial damage, it may be replaced without additional authorization (part number THY 607210A, Service Kit-Bellows). The reason must be included in the claim story.
- **Completion Stickers:** Please use blank completion stickers and write in the recall number, FL557.
- **Fixture:** If your dealership has not received the fixture that holds the rack during the repair and has a vehicle scheduled for FL557, submit a Campaign Issue inquiry to Warranty Campaigns and instructions will be provided.

### Inner Tie Rod Inspection and Loctite® 603 Application

1. Check the base label (Form WAR259) for a completion sticker for campaign FL557 (Form WAR260) 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 a completion sticker is present, no further work is needed. If a completion sticker is not present, proceed to the next step.

2. Place the front tires in the straight-ahead position on a level surface.

**IMPORTANT:** Do not park the vehicle on turnplates. The passenger-side tire must be on firm ground.

3. Turn the steering wheel one full rotation to the left to move the inner tie rod inward and align the gear for the following steps. Ensure the timing pointers on the input shaft seal cover and input shaft housing are aligned. See **Fig. 1**.

4. Apply the parking brakes and shut down the engine.

5. Visually inspect the top of the rack and pinion gear near the input shaft for a green or blue paint mark.

If a green or blue paint mark is present, no further is needed. Clean a spot on the base label (Form WAR259), write the recall number, FL557, on a blank red completion sticker (Form WAR260) and attach it to the base label.

If a green or blue paint mark is not present, proceed to the next step.

**! WARNING**

**Wear safety goggles when using compressed air to clean parts, as permanent harm to eyes could result from flying debris.**

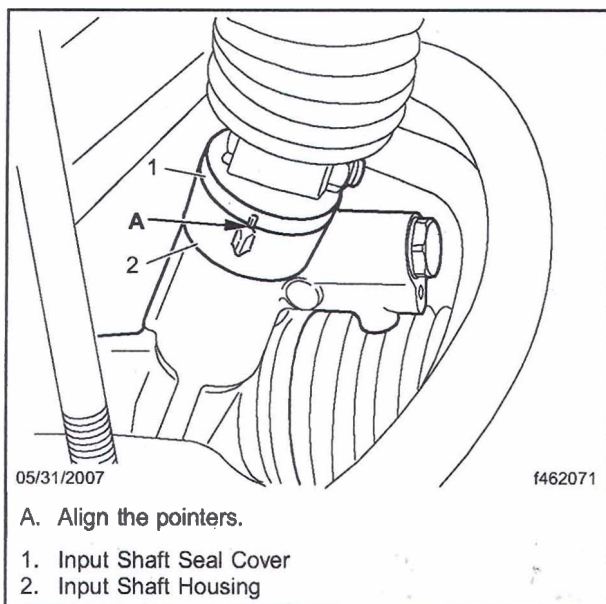
6. Using compressed air, clean the driver-side fittings and bellows on the steering gear until they are free of dirt and debris.
7. Remove the power steering fluid line clamp from the axle-mounted bracket to allow sufficient movement of the gear.
8. Remove the large Oetiker clamp from the driver-side bellows. Discard the clamp.

NOTE: Do not remove the small Oetiker clamp from the bellows.

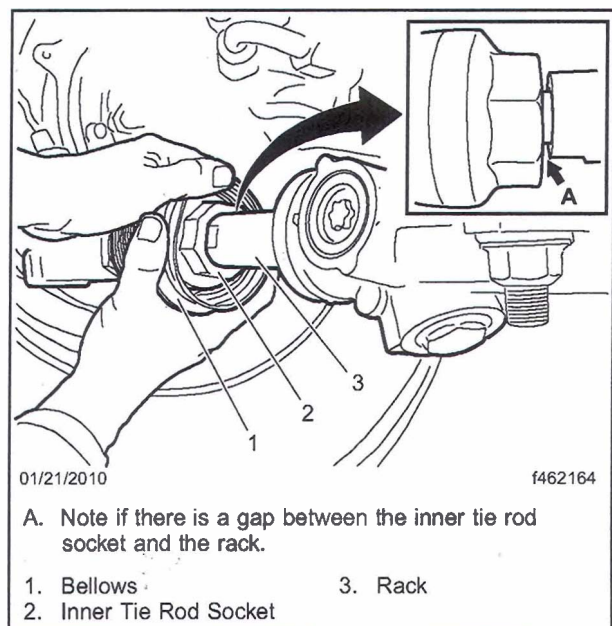
9. Visually inspect the connection between the rack and the inner tie rod. Note if there is a gap present between the inner tie rod socket and the rack ( Fig. 2, Items 2, 3, and A). This information will be used in step 32.
10. Place a jack under the left side of the front axle and jack up the driver-side steer tire, making sure the passenger-side tire remains firmly on the ground. Support the vehicle with a jack stand.
11. Remove the cotter pin and castellated nut and disconnect the driver-side outer tie rod from the tie rod arm.
12. Install the holding fixture as follows.

IMPORTANT: Use a block of wood or a pad on the floor jack to prevent scratching or damage to the gear.

- 12.1 Place a floor jack two inches under the gear to support the rack until the holding fixture is completely installed.
- 12.2 Remove and discard the four steering gear mounting bolts and four nuts that secure the gear to the steering gear brackets on the axle. Lower the gear two inches (51 mm) onto the floor jack.



**Fig. 1, Pointer Alignment**



**Fig. 2, Inner Tie Rod Inspection**

# Recall Campaign

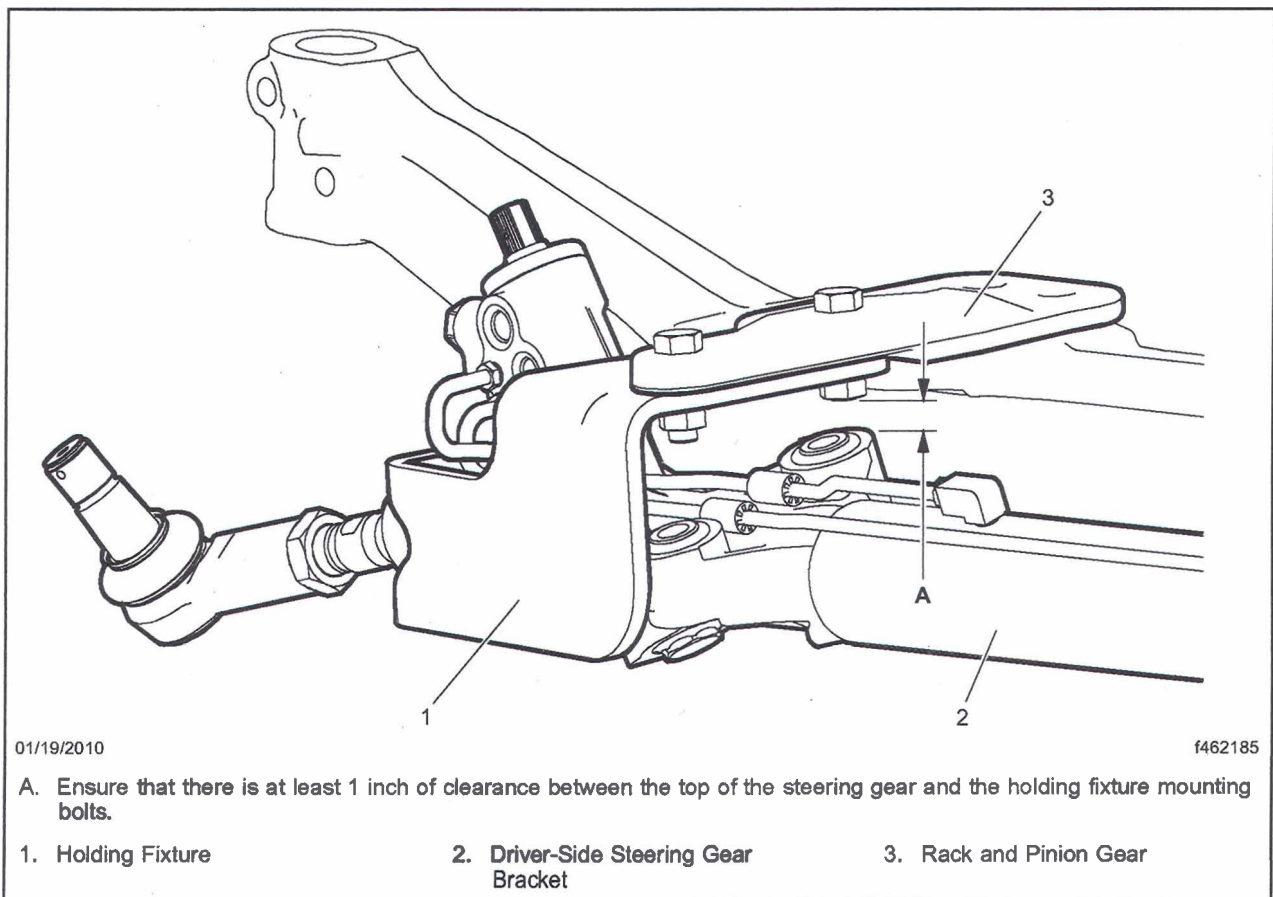
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North America LLC

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REVISED NOTICE

## NOTICE

Do not make contact with the hard power assist lines while installing the holding fixture on the gear. Bolt only the holding fixture only to the steering gear bracket.

- 12.3 Place the holding fixture around the rack flats. Using 5/8–2" bolts and 5/8" nuts, mount the fixture to the driver-side steering gear bracket on the axle. Tighten the nuts 50 lbf-ft (68 N-m).
  - 12.4 Ensure that there is at least 1 inch of clearance between the top of the steering gear and the holding fixture mounting bolts. See Fig. 3.
  - 12.5 Ensure that the floor jack no longer supports the gear. See Fig. 4. The rack should be parallel to the ground, and the rack flats should be fully engaged in the fixture.
13. Unscrew the driver-side inner tie rod and disconnect it from the rack and pinion gear.



**Fig. 3, Rack and Pinion Gear Engaged in Holding Fixture**

14. Visually inspect the threads of the inner tie rod. If the threads have sustained obvious damage, discontinue this procedure and replace the gear. This is expected to be rare and requires pre-approval, see the Claims for Credit section of this bulletin. For replacement instructions, see **Group 46** in the applicable workshop manual.

**IMPORTANT:** Before installing a new rack and pinion gear, check the replacement gear for a green or blue paint mark. If no paint mark is present, the replacement requires the Loctite® 603 repair outlined in these Work Instructions. Submit a "CampaignPreApproval" inquiry to Warranty Campaigns for how to claim.

15. Remove excess oil from the internal threads of the rack and the external threads of the inner tie rod.
16. Remove any dirt or debris present on the rack or bellows seat.
17. Inspect the bellows to ensure that it has not been torn, punctured, or otherwise damaged. If the bellows has been damaged, replace it before proceeding to the next step.
18. Slowly apply 0.05 to 0.06 oz (1.5 to 2 mL) of Loctite 603 Retaining Compound to the internal threads in the rack. See Fig. 5. Wipe off any excess Loctite that drips from the threads.

**IMPORTANT:** Do not operate the vehicle for at least 30 minutes after applying Loctite 603.

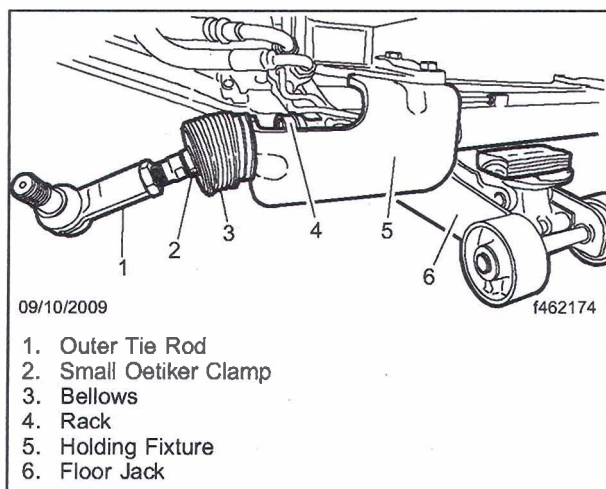
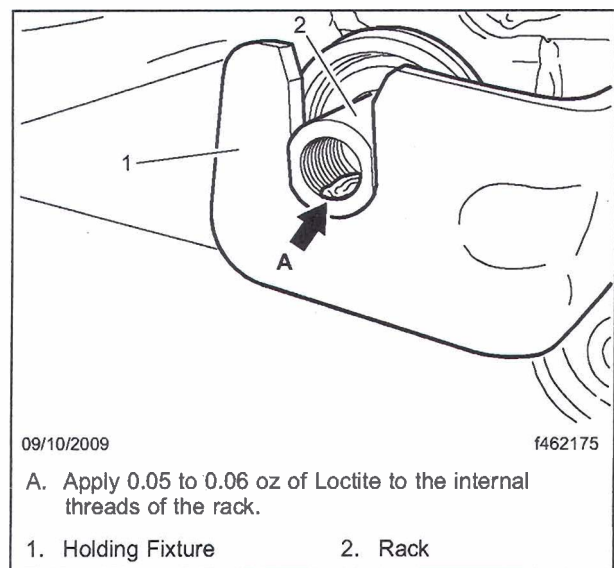


Fig. 4, Holding Fixture Installation



A. Apply 0.05 to 0.06 oz of Loctite to the internal threads of the rack.

1. Holding Fixture
2. Rack

Fig. 5, Loctite Application

## NOTICE

**Fully opening the Oetiker clamp may cause permanent damage and render it ineffective.**

19. Loosely install a new large Oetiker clamp on the bellows.
  20. Lift the inner tie rod by hand and thread it onto the rack until it is hand-tight.
  21. Rotate the ears of the large Oetiker clamp forward on the bellows to avoid pinching the clamp in the next step.
- IMPORTANT:** A 50 mm crow-foot adaptor and a torque wrench must be used in line with each other to achieve the proper torque.
22. Ensure that the rack protrudes slightly beyond the outside edge of the holding fixture when tightening the inner tie rod. Set a 50 mm crow-foot adaptor on a torque wrench to 180 lbf-ft (244 N-m), then tighten the inner tie rod.
  23. Unbolt and remove the holding fixture from the axle.

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24. Using new mounting bolts and nuts ( Fig. 6, Items 6 and 7), install the steering gear on the axle. Tighten the fasteners 229 lbf-ft (311 N-m).
  25. Using a clean rag, wipe the bellows and gear housing mating surfaces. Return the bellows to its normal length and ensure it is seated properly in the gear housing groove.
  26. Ensure the large Oetiker clamp is properly seated in the clamp groove on the bellows. Align the large Oetiker clamp ear with the small clamp ear. Both clamp ears should be aligned with the rack housing casting rib. See Fig. 7.
- IMPORTANT: All three barbs on the clamp must be engaged. If all three barbs are not engaged after crimping, remove and discard the clamp and install a new clamp. Oetiker clamps must be adequately crimped and the boot must be tightly secured to the gear housing to prevent moisture intrusion and corrosion.**
27. Using an Oetiker clamp tool, crimp the large Oetiker bellows clamp ear until the inner ear width is 1/8 to 3/16 inch (3 to 5 mm). See Fig. 8 and Fig. 9.
  28. Install the power steering fluid line clamp on the axle-mounted bracket.

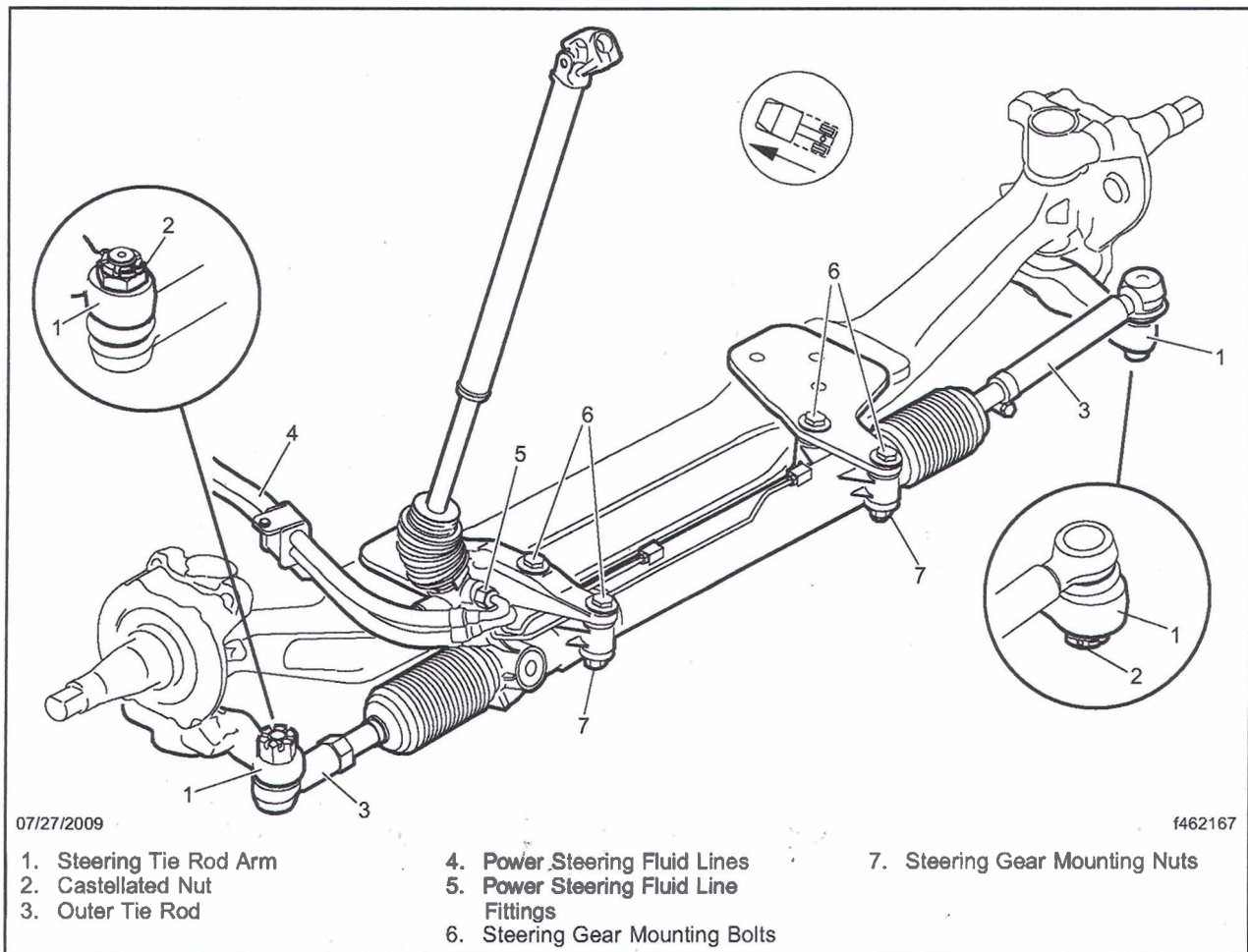


Fig. 6, Rack and Pinion Steering Gear Assembly

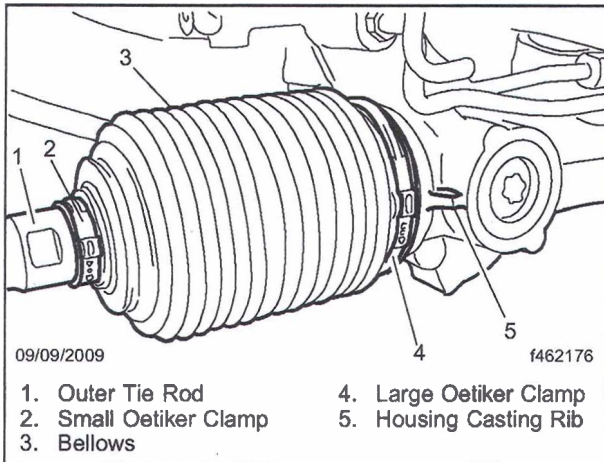


Fig. 7, Oetiker Clamp Alignment

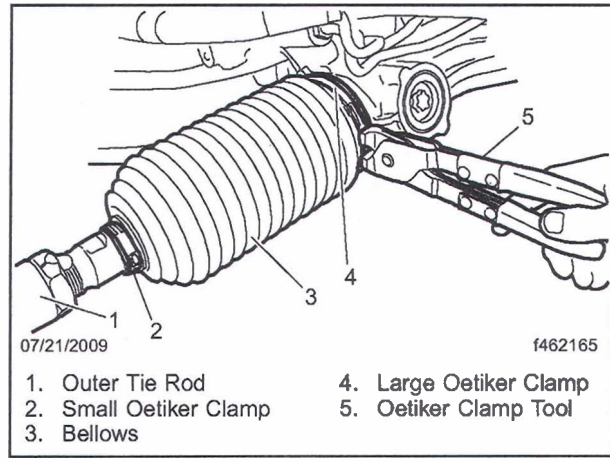


Fig. 8, Oetiker Clamp Installation

29. Attach the driver-side outer tie rod to the tie rod arm. Tighten the castellated nut 240 lbf-ft (325 N-m). Continue to tighten until the next castellated nut slot aligns with the hole in the ball stud and insert the cotter pin.

30. Using *green* paint, mark the top of the rack and pinion gear near the input shaft to indicate that the gear has been repaired. See Fig. 10.

31. Lower the driver-side tire to the ground and start the engine. Turn the steering wheel 1/4 of a turn right and left ten times to accelerate curing of the Loctite by raising the inner tie rod joint temperature.

NOTE: If no gap was found between the inner tie rod socket and the rack in step 9, skip step 32 and go directly to step 33.

32. If a gap was found between the inner tie rod socket and the rack in step 9, adjust each tie rod length to obtain the specified toe-in dimension, as follows. Use a calibrated, computerized, multi-wheel alignment tool, operated by a certified service technician to complete the following steps.

NOTE: If you do not have access to this type of tool, the alignment procedure must be done by a facility that does.

32.1 When the alignment process requires that the steering wheel be pointed straight ahead, align the steering rack on-center pointers instead, see Fig. 1

32.2 Loosen the driver-side tie rod jam nut. If necessary, hold the inner tie rod in place with a backup wrench on the inner tie rod flat ( Fig. 11, Item 3).

32.3 With the gear on-center, place a wrench on the driver-side inner tie rod flat and align the left tire by rotating the inner tie rod.

32.4 Tighten the tie rod jam nut 285 to 305 lbf-ft (386 to 413 N-m).

32.5 Loosen the passenger-side tie rod clamp nut.

32.6 With the gear on-center, place a wrench on the passenger-side inner tie rod flat and align the right tire by rotating the inner tie rod.

32.7 Tighten the tie rod clamp nut 30 to 36 lbf-ft (41 to 48 N-m).

# Recall Campaign

Daimler Trucks  
North America LLC

June 2010  
FL557AB  
NHTSA #09V-357  
REVISED NOTICE

**IMPORTANT:** Total toe-in should be between 0 and 1/8 inch (3.18 mm), and the target is 1/16 inch (1.58 mm).

32.8 Check the clearance of the front wheels. With the tires on turnplates, and the wheels turned all the way to the right and left, there must be at least 1/2-inch (13-mm) clearance between the wheels and stationary components, and at least 3/4-inch (19-mm) clearance between the wheels/tires and moving components. If this is not the case, back out the stop bolts and adjust the jam nuts to limit the turning angles and to prevent possible contact with components.

32.9 Tighten the stop-bolt jam nuts 80 to 120 lbf-ft (108 to 163 N-m).

32.10 Verify that the wheel cut does not exceed 46 degrees. Adjust the wheel cut if needed.

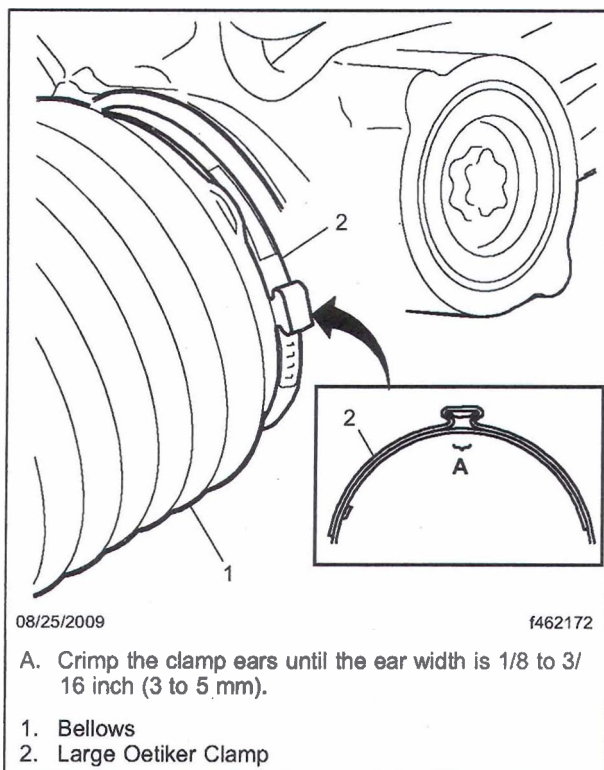


Fig. 9, Oetiker Clamp Ear Width

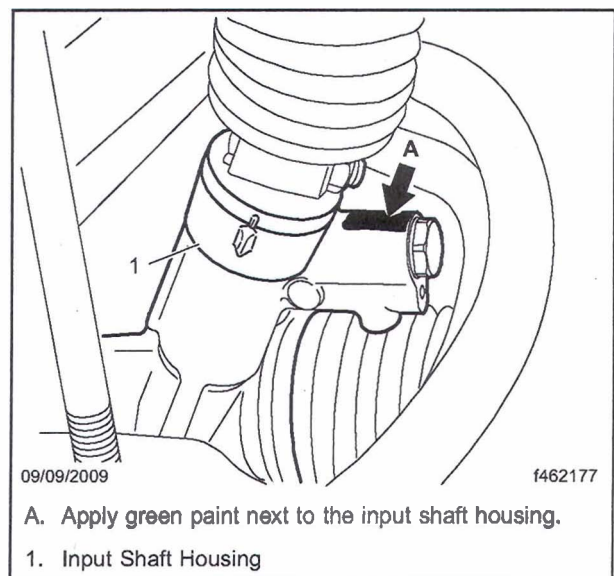


Fig. 10, Paint Mark Location

