

December 2011

FL614

NHTSA #11V-514

Transport Canada #11-367

SECOND REVISED INTERIM RECALL BULLETIN

Subject: Rack and Pinion Steering Pinion Bearings

Models Affected: Specific Freightliner Cascadia, Century Class S/T, Classic XL, Columbia, and Coronado vehicles manufactured November 1, 2004, through June 15, 2010, with a ThyssenKrupp rack and pinion steering system.

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 **Until the final Recall remedy is available, this interim procedure may be performed upon request, a failure is not required.**

The lower pinion bearing of the rack and pinion steering system may corrode and fail, allowing possible axial and radial movement of the pinion valve assembly. This movement may cause an unexpected steering condition, making the vehicle more difficult to control and increasing the risk of a vehicle crash.

Customers have been advised that DTNA recommends that the rack and pinion gear be inspected by a Daimler Trucks-authorized dealer. Those that pass the inspection will have new bellows installed and grease added to the bottom pinion bearing. Those that fail the inspection will be replaced. The final remedy is currently being validated. A second notice will be sent informing customers whether the interim remedy has been validated as the final remedy or that further repair is required.

Important Additional Information:

- If a vehicle is also involved in FL513, FL557 or both, please perform the Recalls in the following order:
 - 1) FL513 – Rack and Pinion Steering - Steering Stops
 - 2) FL557 – Rack and Pinion Steering Inner Tie Rod Ends
 - 3) Interim FL614 – Rack and Pinion Steering Pinion Bearings
- Three long wheel base vehicles are included in this Recall. In OWL, they are listed under INT FL614-03. If one of these vehicles arrives at your dealership for an interim repair, both OWL and Legacy/QuickClaim dealers, submit a WSC Campaign Pre-Approval inquiry for instructions. The three VINs are: 1FUJGLDRX9LAH3986, 1FUJGLDR19LAH3987, and 1FVHGLCK49LAJ6279.
- **REVISION:** The Interim Recall covers replacement of a rack and pinion gear when it fails the inspection addressing corrosion issues outlined in the Work Instructions. If a rack and pinion gear requires replacement for a reason unrelated to corrosion, claim the replacement under warranty. If warranty coverage is not available, contact your District Service Manager for assistance.
- Before completing this procedure for the first time, technicians should watch the informational video titled **FL614 Rack and Pinion Inspection and Replacement Video (interim)**, located at www.DTNAARC.com, see Important Campaign Information Letter IC111-029 for instructions.

Work Instructions

Please refer to the attached work instructions. Before beginning work, confirm whether a vehicle is eligible for an interim Recall repair. Go to Warranty Support Center/Campaigns/Interim Recall Inquiry and enter the vehicle serial number and make or review the OWL Coverage Info screen. **IMPORTANT:** Before completing the interim repair for the first time, watch the informational video, "FL614 Rack and Pinion Inspection and Replacement Video (interim)", posted on the Aftermarket Resource Center (ARC). See Important Campaign Information Letter IC111-029 for instructions to access the video.

Replacement Parts

Obtain parts for this interim Recall repair by ordering from your facing Parts Distribution Center.

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Table 1 - Interim Repair Parts for FL614

Campaign Number	Part Description	Part Number	Qty.
All Medium and Short Wheel Base Vehicles	Bellows Kit	THY 749980	1 kit
	Grease and Cap Kit	THY 750004	1 kit
Medium Wheel Base Vehicles (INT FL614-01)	Medium Wheel Base Rack and Pinion Steering Gear	A14-18907-001	1ea
Short Wheel Base Vehicles (INT FL614-02)	Short Wheel Base Rack and Pinion Steering Gear	A14-18907-000	1ea

Table 1

Removed Parts

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

Labor Allowance

Table 2 - Labor Allowance

Campaign Number	Procedure	Time Allowed (hours)	SRT Code
FL614	Inspect rack and pinion steering gear and perform interim repair	2.6	996-0867A
	Inspect and replace rack and pinion steering gear, including digital photos	3.4	996-0867B

Table 2

Claims for Credit

Until the final Recall remedy is available, this interim procedure may be performed upon request, a failure is not required. You will be reimbursed for your parts, labor, and handling by submitting your claim through the Warranty system within 30 days of completing an interim Recall repair. Please reference the following information in Legacy/QuickClaim or in OWL, as appropriate for your location:

Important Additional Information:

- If a vehicle is also involved in FL513, FL557 or both, please perform the Recalls in the following order:
 - 1) FL513 – Rack and Pinion Steering - Steering Stops
 - 2) FL557 – Rack and Pinion Steering Inner Tie Rod Ends
 - 3) Interim FL614 – Rack and Pinion Steering Pinion Bearings
- Three long wheel base vehicles are included in this Recall. In OWL, they are listed under INT FL614-03. If one of these vehicles arrives at your dealership for an interim repair, both OWL and Legacy/QuickClaim dealers, submit a WSC Campaign Pre-Approval inquiry for instructions. The three VINs are: 1FUJGLDRX9LAH3986, 1FUJGLDR19LAH3987, and 1FVHGLCK49LAJ6279.
- **REVISION:** The Interim Recall covers replacement of a rack and pinion gear when it fails the inspection addressing corrosion issues outlined in the Work Instructions. If a rack and pinion gear requires replacement for a reason unrelated to corrosion, claim the replacement under warranty. If warranty coverage is not available, contact your District Service Manager for assistance.

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Claims in Legacy/QuickClaim

Claim Type	FTL Authorization Field	PFI	Damage Code
Warranty	PAI614	25-FL614-000	536-001A06130

Table 3

- Claim type is **Warranty**.
- In the FTL Authorization field, enter **PAI614**.
- In the Primary Failed Part Number field, enter **25-FL614-000**.
- In the Parts field, enter the appropriate part number(s) as shown in the Replacement Parts Table or as directed in the Work Instructions.
- If a rack and pinion gear was replaced, clear photos showing the corrosion are required. Submit a WSC Claim Documentation inquiry with the photos attached. Note the inquiry number on the claim.
- 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.
- In the Comments field, record the Technician ID number of the individual who performed the recall. If a rack and pinion gear was replaced, record the serial number of the removed gear AND the new gear.
- If additional parts, labor, or other charges beyond what is outlined in this bulletin were needed, stop and submit a WSC Campaign Pre-Approval Inquiry before filing a claim.

Claims in OWL

Claim Type	Request Type	OWL Interim Campaign Number	PFP	VMRS Code
Recall	Payment	INT FL614-01 INT FL614-02 INT FL614-03	25-FL614-000	015-013-001

Table 4

- Claim type is **Recall** and Request type is **Payment**.
- In the Campaign field, enter **INT FL614-01, INT FL614-02, or INT FL614-03**.
- Use the retrieve button to populate the claim. If needed, fill in any items not automatically included.
- If a rack and pinion gear was replaced, clear photos showing the corrosion are required. Attach the photos to the Interim Recall claim.
- In the Comments field, record the Technician ID number of the individual who performed the recall. If a rack and pinion gear was replaced, record the serial number of the removed gear AND the new gear.
- If additional parts, labor, or other charges beyond what is outlined in this bulletin were needed, stop and submit as a Recall Pre-Approval Request.

IMPORTANT: Confirm whether a vehicle is eligible for an interim Recall repair before beginning work. Go to Warranty Support Center/Campaigns/Interim Recall Inquiry and enter the vehicle serial number and make or review the OWL Coverage Information screen.

Contact the Warranty Campaigns Department from 7:00 a.m. to 4:00 p.m. Pacific Time, Monday through Friday, via Web inquiry at [AccessFreightliner.com / Support / My Tickets](http://AccessFreightliner.com/Support/MyTickets) and 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.

The interim letter notifying vehicle owners is included for your reference.

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SECOND REVISED INTERIM RECALL BULLETIN

Copy of Interim Notice to Owners

Subject: Rack and Pinion Steering Pinion Bearings

For the Notice to U.S. Customers: This notice is sent to you in accordance with the requirements of the National Traffic and Motor Vehicle Safety Act.

For the Notice to Canadian Customers: This notice is sent to you in accordance with the Canadian Motor Vehicles Safety Act.

Daimler Trucks North America LLC (DTNA), 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, Classic XL, Columbia, and Coronado vehicles manufactured November 1, 2004, through June 15, 2010, with ThyssenKrupp rack and pinion steering systems.

The lower pinion bearing of the rack and pinion steering system may corrode and fail, allowing possible axial and radial movement of the pinion valve assembly. This movement may cause an unexpected steering condition, making the vehicle more difficult to control and increasing the risk of a vehicle crash.

This is the first of two notices you will receive regarding this subject. This letter is to inform you of the Recall and provide important information regarding an interim remedy. Daimler Trucks is currently validating the final remedy. The second notice will inform you whether the interim remedy has been validated as the final remedy or that further repair is required.

Until the final remedy is validated, DTNA recommends that you have the rack and pinion gear inspected by a Daimler Trucks-authorized dealer. Those that pass the inspection will have new bellows installed and grease added to the bottom pinion bearing. Those that fail the inspection will be replaced.

Parts are currently being shipped for the interim remedy and will be available shortly. Please contact your Daimler Trucks-authorized dealer to arrange an appointment once parts are available.

If you do not own the vehicle that corresponds to the identification number(s), which appears on the Recall Notice, please return the notice in the postage-paid envelope with any information you can furnish that will assist us in locating the present owner.

For the Notice to U.S. Customers: If you have questions about this Recall, 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, or the Customer Assistance Center at (800) 385-4357 after normal business hours. You may 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>.

For the Notice to Canadian Customers: If you have questions about this Recall, 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, or the Customer Assistance Center at (800) 385-4357 after normal business hours.

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: Rack and Pinion Steering Pinion Bearings

Models Affected: Specific Freightliner Cascadia, Century Class S/T, Classic XL, Columbia, and Coronado vehicles manufactured November 1, 2004, through June 15, 2010, with a ThyssenKrupp rack and pinion steering system.

Important Additional Information:

- If a vehicle is also involved in FL513, FL557 or both, please perform the Recalls in the following order:
 - 1) FL513 – Rack and Pinion Steering - Steering Stops
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Inspection Procedure

IMPORTANT: Before completing this procedure for the first time, watch the informational video titled **FL614 Rack and Pinion Inspection and Replacement Video (interim)**, located at www.DTNAARC.com. See Important Campaign Information Letter ICI11-029 for instructions for viewing the video.

1. Inspect the ball bearing access cover for indications that the cover has been staked at three equidistant points, indicating the interim repair has already been completed. If the ball bearing access cover has been staked, no work is needed. If the cover has not been staked, check the part number of the rack and pinion gear. If the part number is either A14-18907-000 or A14-18907-001 the interim repair has already been completed and no work is needed. If the interim repair has not been completed, proceed to the next step.
2. Place the front tires in the straight-ahead position on a level surface indoors.
3. Shut down the engine and set the parking brake. Chock the tires and open the hood.
4. Raise the front wheels off the ground and support the vehicle with jack stands.

IMPORTANT: Complete the following procedures on both sides of the vehicle.

5. Use brake cleaner to remove dirt and debris from the bellows and surrounding areas.
6. Remove the small and large Oetiker clamps from both bellows. Discard the clamps.

IMPORTANT: Corrosion is indicated by reddish-brown pitting on the base material of the gear. Ensure that all areas of inspection are cleaned as described before determining if corrosion is present.

7. On each side of the vehicle, pull the large ends of the bellows outboard as far as possible and inspect the gear housing and inner tie rod components, as follows. If any component in the following substeps has excessive corrosion, secure the bellows on the gear, then replace the rack and pinion gear. See the heading below, **Rack and Pinion Steering Gear Replacement**, for gear replacement instructions.

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- 7.1 Clean the passenger-side rack guide (as shown in **Fig. 1**) with a clean cloth. See **Fig. 2** and **Fig. 3** for examples of acceptable and unacceptable levels of corrosion.
- 7.2 Clean the passenger-side rack shaft between the tube and the shaft diameter change (as shown in **Fig. 4**). See **Fig. 5** for an example of corrosion.
- 7.3 Clean the driver-side stop ring (as shown in **Fig. 6**). See **Fig. 7**, **Fig. 8**, and **Fig. 9** for examples of acceptable and unacceptable levels of corrosion.
- 7.4 Clean an area 0.8 in (2 cm) wide on the aft side of the driver-side rack shaft (opposite the teeth), as shown in **Fig. 10**. See **Fig. 11** and **Fig. 12** for examples of acceptable and unacceptable levels of corrosion.
- 7.5 Clean both of the inner tie rod sockets (see **Fig. 13**). See **Fig. 14** and **Fig. 15** for examples of acceptable and unacceptable levels of corrosion.
- 7.6 If excessive corrosion is not found, go to the next step.

NOTICE

Use brake cleaner only to remove dirt and debris from the ball bearing access cover and surrounding areas. The use of harsh cleansers or chemicals may damage the steering gear. Do not clean the gear with a pressure washer.

8. Use brake cleaner to loosen debris and dirt build-up from the ball bearing access cover and surrounding areas, then wipe the area with a cloth. See **Fig. 16**. For hard to remove dirt, spray brake cleaner on the access cover and allow it to sit for a short time before wiping the dirt away.

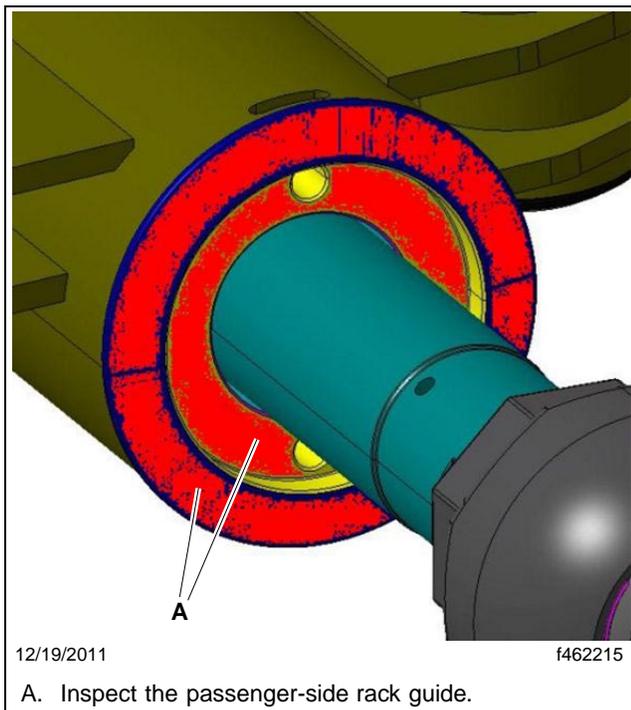


Fig. 1, Passenger-Side Rack Guide



Fig. 2, Acceptable—Passenger-Side Rack Guide

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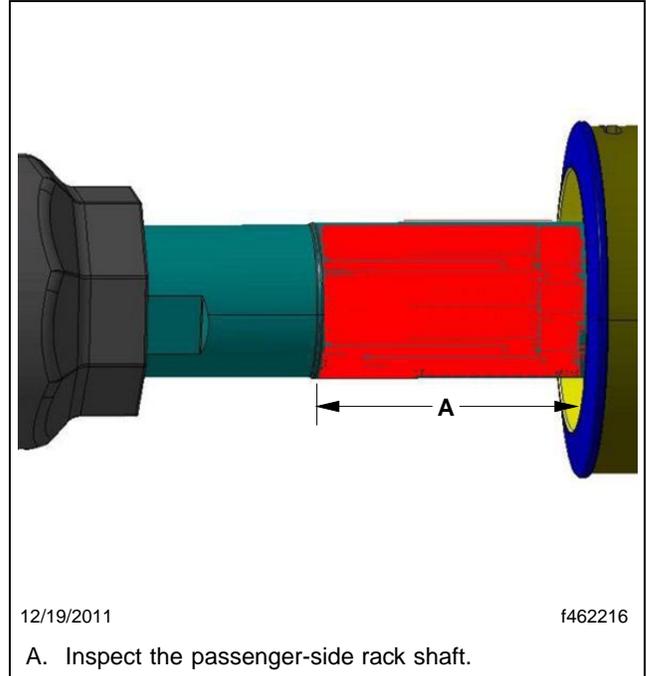
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Fig. 3, Excessive Corrosion—Passenger-Side Rack Guide



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A. Inspect the passenger-side rack shaft.

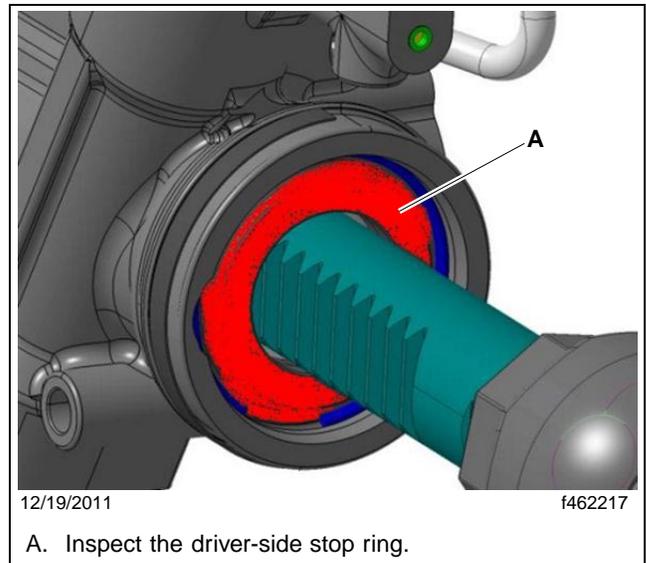
Fig. 4, Passenger-Side Rack Shaft



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Fig. 5, Excessive Corrosion—Passenger-Side Rack Shaft



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A. Inspect the driver-side stop ring.

Fig. 6, Driver-Side Stop Ring

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Fig. 7, Acceptable—Driver-Side Stop Ring



Fig. 8, Excessive Corrosion—Driver-Side Stop Ring



Fig. 9, Excessive Corrosion—Driver-Side Stop Ring

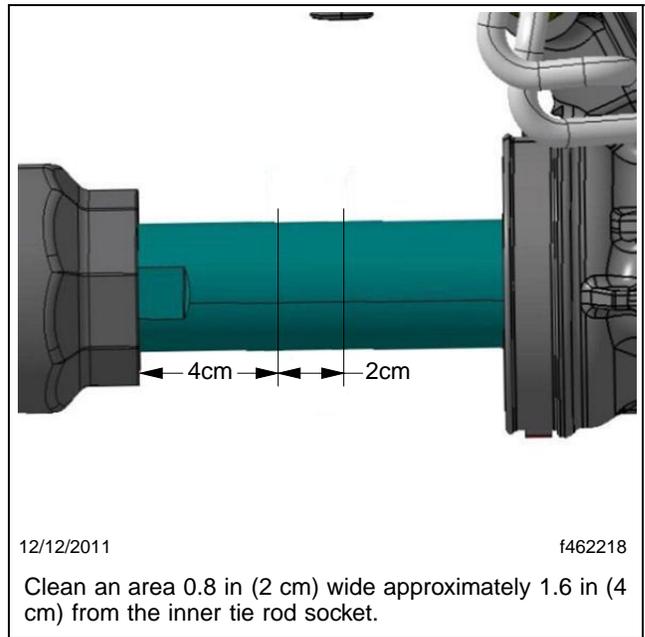


Fig. 10, Driver-Side Rack Shaft, Aft Side
Clean an area 0.8 in (2 cm) wide approximately 1.6 in (4 cm) from the inner tie rod socket.

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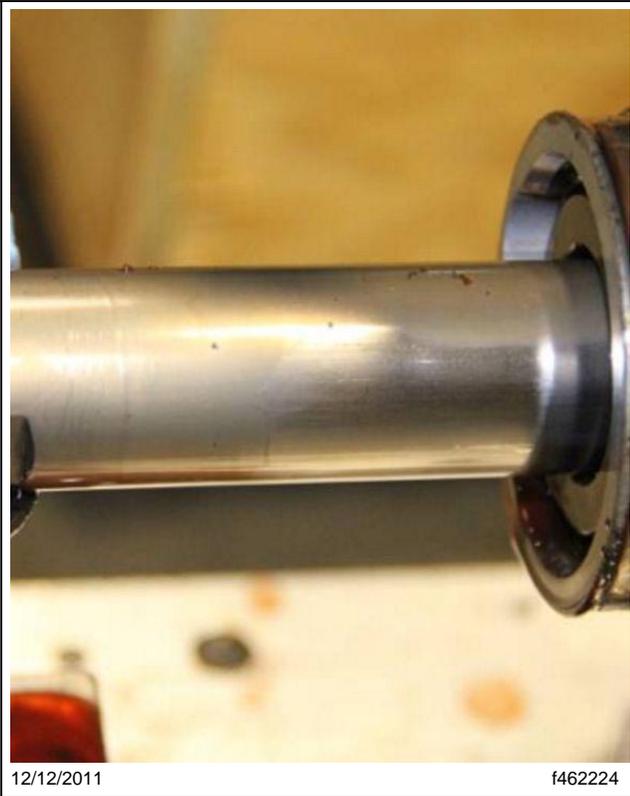


Fig. 11, Acceptable—Driver-Side Rack Shaft



Fig. 12, Excessive Corrosion—Driver-Side Rack Shaft

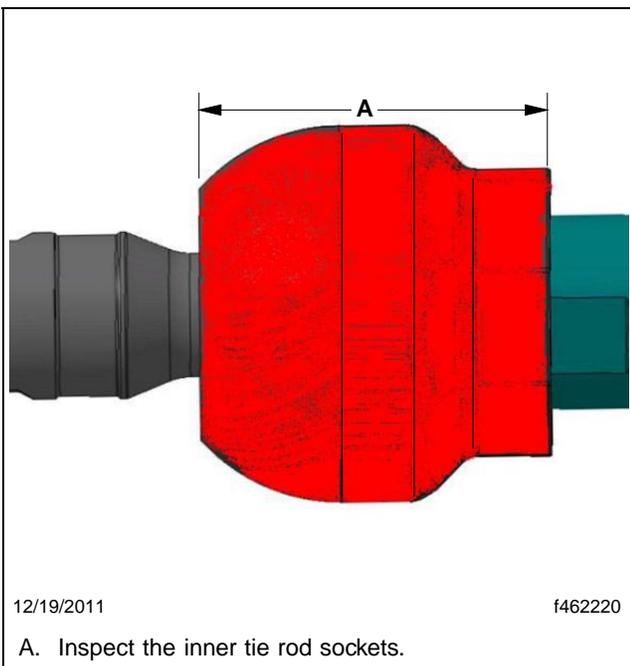


Fig. 13, Inner Tie Rod Socket



Fig. 14, Acceptable—Inner Tie Rod Socket

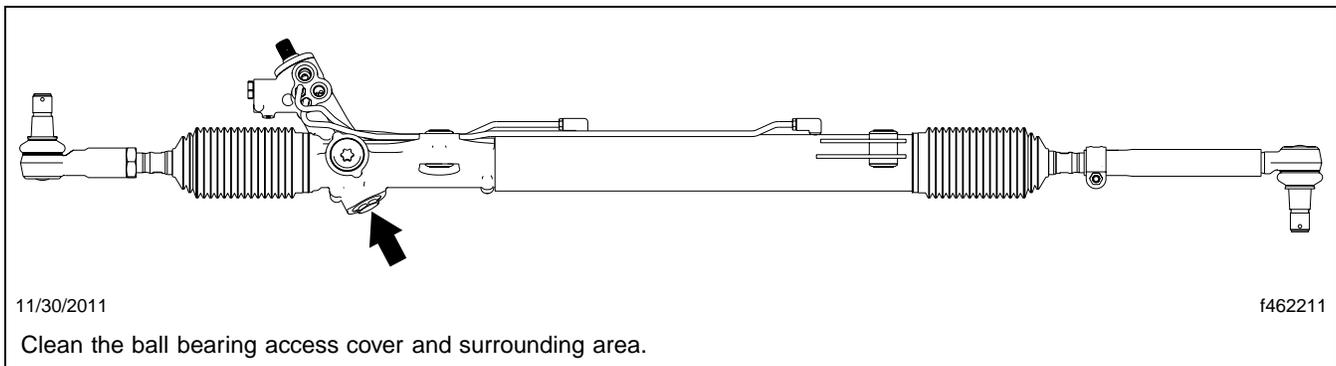
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Fig. 15, Excessive Corrosion—Inner Tie Rod Socket



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Clean the ball bearing access cover and surrounding area.
Fig. 16, Ball Bearing Access Cover Location

NOTICE

Do not allow dirt or debris to enter the ball bearing and hex-nut assembly when the bearing access cover is removed. Contamination from dirt or debris could damage to the gear.

9. Using a 32mm socket wrench, remove the bearing access cover.

IMPORTANT: Use only a clean, lint-free cloth to clean and handle the ball bearing and access cover.

10. Using a clean cloth, remove all liquid and grease from the ball bearing. See **Fig. 17**.

NOTE: Wipe all grease away before inspecting for corrosion. The presence of orange/brown grease is not an indicator of corrosion.

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Fig. 17, Acceptable—Ball Bearing and Hexnut

11. Inspect the bearing access cover and ball bearing for corrosion. If any corrosion is found, install the bearing access cover back on the gear, then replace the rack and pinion gear. See the heading below, **Rack and Pinion Steering Gear Replacement**, for gear replacement instructions.
12. Complete the steps below under the following heading, **Greasing the Ball Bearing**.

Greasing the Ball Bearing

NOTICE

One syringe of Renolit CX-FO 20 grease is included in the Grease and Cap Service Kit. Ensure only grease, which is brown in color, is applied to the ball bearing and cover. Accidental application of Terostat sealant, which is white in color, could damage the gear.

1. Fill the ball bearing and hexnut to slightly above flush with Renolit CX-FO 20 grease. See **Fig. 18**.

NOTICE

When pre-marking the three stake marks on the bearing access cover, lightly tap the cover with the center punch. Heavy punch marks may deform the threads of the cover, which could lead to steering gear damage.

IMPORTANT: Marking the bearing access cover allows for easier installation and staking of the cover later in this procedure.

2. Place the new ball bearing access cover on a bench or table. Using a center punch, lightly tap three small equidistant punch marks on the outside of the cap. See **Fig. 19**. Each mark should be approximately 0.08 in (2 mm) from the outer edge of the cover.
3. Fill the inside of the new bearing access cover to slightly above flush with Renolit CX-FO 20 grease. See **Fig. 20**. Save the remaining grease.

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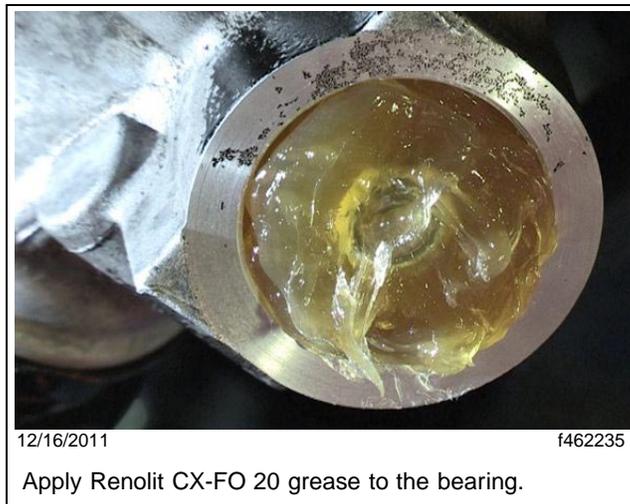


Fig. 18, Greased Bearing

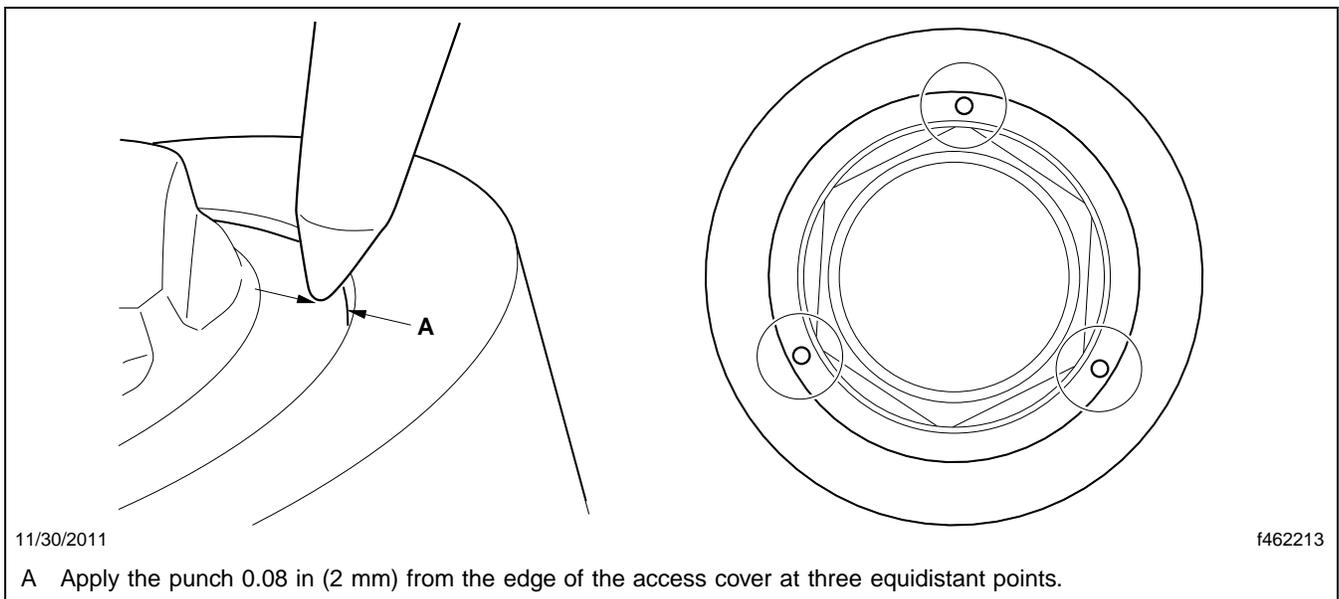


Fig. 19, Center Punch the Bearing Access Cover

NOTICE

Do not cross-thread the bearing access cover. Improper installation of the bearing access cover can damage the gear.

4. Install the bearing access cover on the ball bearing. Tighten the cover 63 to 71 lbf-ft (85 to 95 N·m).
5. Remove and save any excess grease from the exterior of the bearing access cover and the gear housing.

NOTICE

NOTICE: Stake marks should be approximately 0.08 in (2 mm) in diameter. Punching larger marks may damage the bearing access cover.

Use caution when using the center punch near the gear housing, to prevent damage to the gear.

- Using a center punch, stake each punch mark that was made previously.
- Complete the steps below under the following heading, **Replacing the Bellows**.

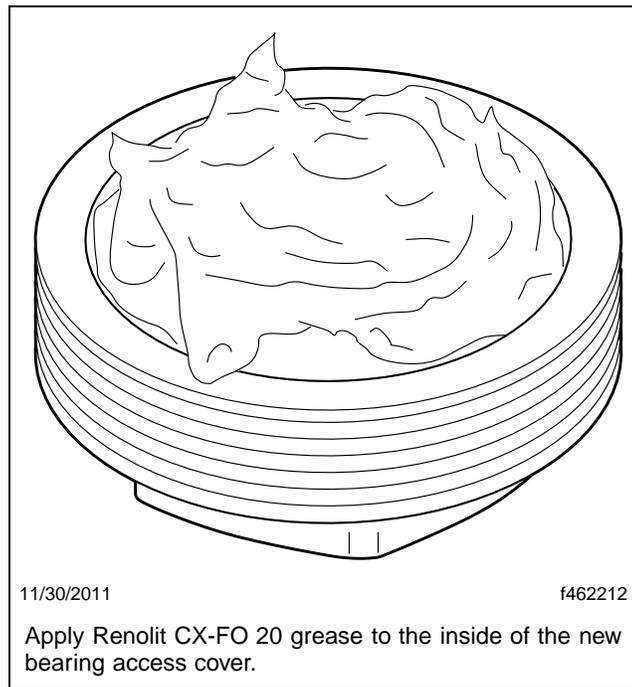


Fig. 20, Greased Bearing Access Cover

Replacing the Bellows

- Disconnect the outer tie rods from the steering arms.
- Disconnect the outer tie rods from the inner tie rods. If necessary, use a backup wrench on the inner tie rod flat (**Fig. 21**, Item 6) to turn the inner tie rod.
- Remove and discard both bellows.
- Clean a dime-size area on both of the inner tie rod ball studs (see **Fig. 22**). See **Fig. 23** and **Fig. 24** for examples of acceptable and unacceptable levels of corrosion.

If excessive corrosion is present, see the heading below, **Rack and Pinion Steering Gear Replacement**, for gear replacement instructions. If excessive corrosion is not present, proceed to the next step.

NOTICE

Use brake cleaner only to remove dirt and debris from the bellows, clamps, housing, and tie rods. The use of harsh cleansers or chemicals may damage the steering gear. Do not clean the gear with a pressure washer.

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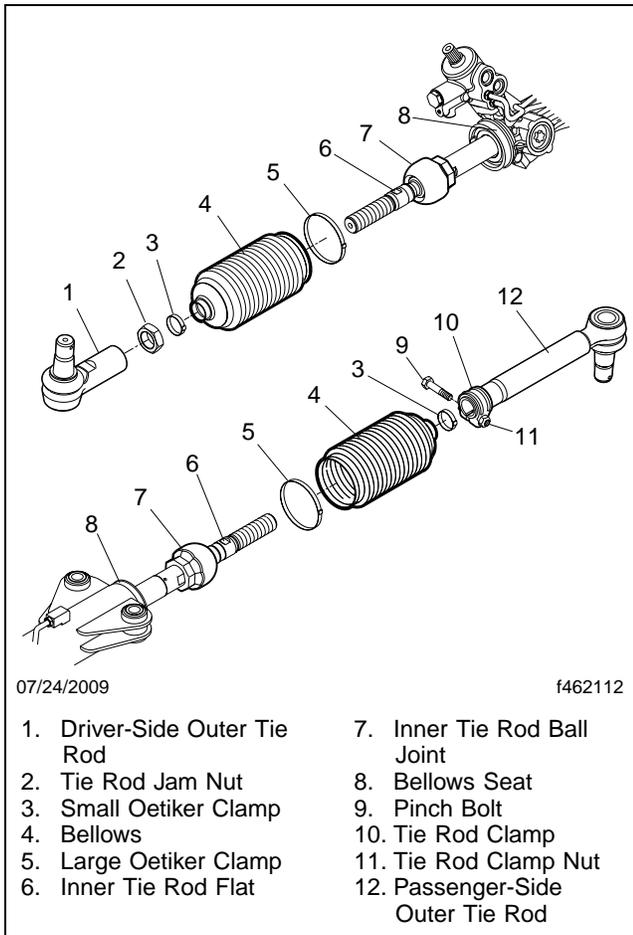


Fig. 21, Tie Rod and Bellows Assembly

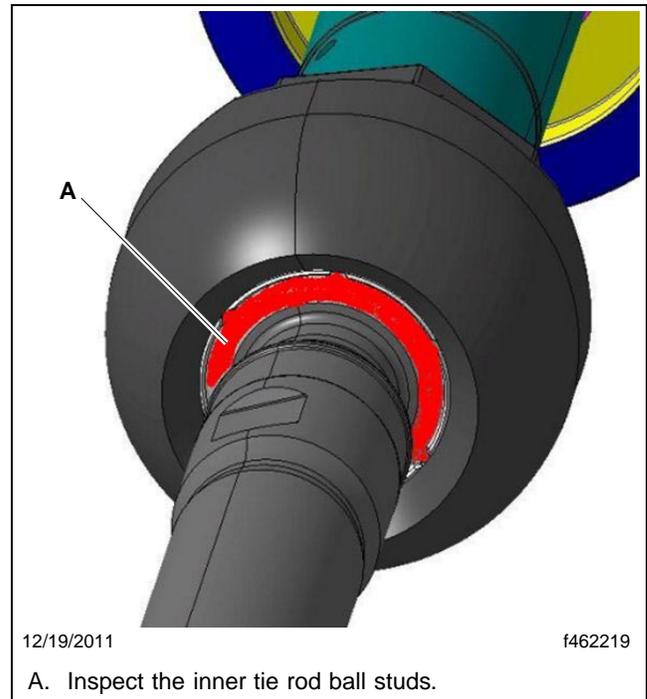


Fig. 22, Inner Tie Rod Ball Stud

IMPORTANT: In the following step, do not remove the existing grease from the inner tie rods.

- Using brake cleaner and a clean, lint-free cloth, remove dirt and debris from the bellows seat areas on the inner tie rods and gear housing.

NOTICE

Two syringes of the Terostat MS 939 are included in the Bellows Service Kit. Ensure only Terostat, which is white in color, is applied to the rack housing. Accidental application of grease, which is brown in color, could damage the gear.

Do not allow Terostat MS 939 sealant to come into contact with the inner tie rods. Mistakenly applying sealant to the inner tie rods may cause damage to the bellows and the gear.

IMPORTANT: Terostat MS 939 sealant must be applied at a temperature between 59 and 77°F (15 and 25°C) to effectively seal steering gear components.

Because Terostat sealant sets within ten minutes of application, the bellows should be installed within ten minutes of sealant application.

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Fig. 23, Acceptable—Inner Tie Rod Ball Stud



Fig. 24, Excessive Corrosion—Inner Tie Rod Ball Stud

6. Evenly apply Terostat MS 939 sealant to the outer diameter of the rack housing where the large ends of the bellows seat on the gear housing. See **Fig. 25**.

IMPORTANT: Only apply grease to the rack shaft on the driver side. Do not apply grease to the teeth of the rack shaft. Do not apply grease to the shaft on the passenger side.

7. Without applying grease to the teeth of the rack shaft, evenly apply a light film of Renolit CX-FO 20 grease to the metal surfaces covered by the driver-side bellows.
8. Evenly apply a light film of Renolit CX-FO 20 grease to the inner tie rods where the small end of the bellows seat. Ensure that grease covers the entire circumference of the inner tie rods in order to prevent corrosion.

NOTICE

Improper installation may cause moisture and contaminants to enter the gear, which may result in severe damage.

9. Install the new bellows on the gear. Ensure the bellows are seated properly on the gear housing and inner tie rods.
10. Rotate the bellows back and forth approximately 15 degrees in order to evenly disperse the sealant between the bellows and the gear housing.
11. Install new Oetiker clamps on each of the bellows as follows.

NOTICE

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

- 11.1 Rotate the ears of the large Oetiker clamp forward on the bellows to avoid pinching the clamp in the next step.

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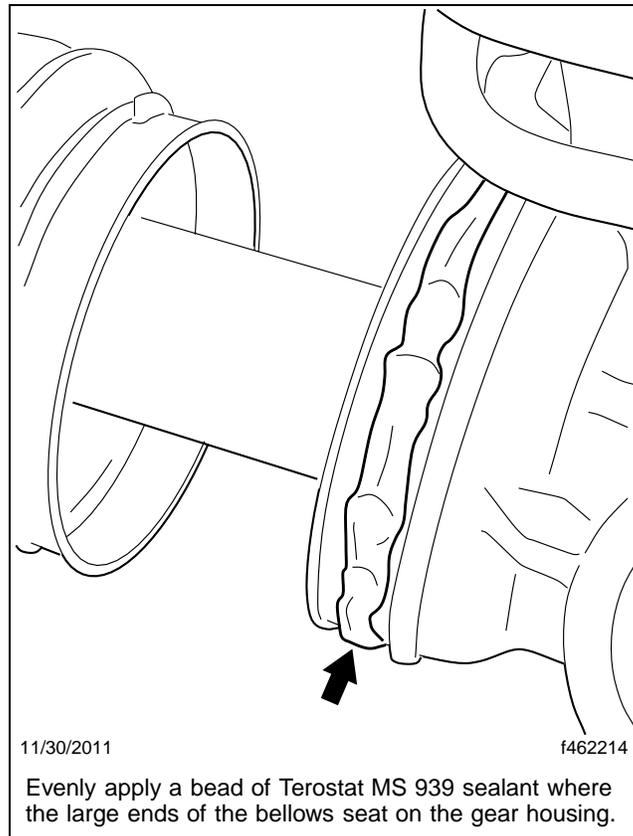


Fig. 25, Terostat MS 939 Sealant Application

- 11.2 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. 26**.

NOTICE

Do not over-tighten the Oetiker clamps. Over-tightening may lead to stretching of the clamp, which could allow moisture intrusion and corrosion. If an Oetiker clamp stretches, remove and discard the clamp and install a new clamp.

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 bellows must be tightly secured to the gear housing to prevent moisture intrusion and corrosion.

- 11.3 Using an Oetiker clamp tool (**Fig. 27**), crimp the small and large Oetiker bellows clamp ears until the ear width is 0.08 to 0.16 in (2 to 4 mm). See **Fig. 28** and **Fig. 29**
12. Remove excess grease from the bellows ends and the gear housing.
13. Install the jam nut on the driver-side inner tie rod, or the tie rod clamp on the passenger-side inner tie rod.
14. Thread the inner tie rods into the outer tie rods.
15. Attach the outer tie rods of the rack and pinion gear to the tie rod steering arms, using new castellated nuts. Tighten the castellated nuts 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 new cotter pin.

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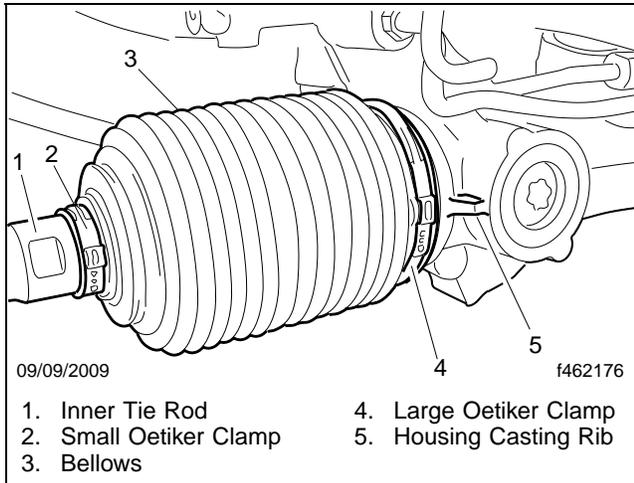


Fig. 26, Oetiker Clamp Alignment

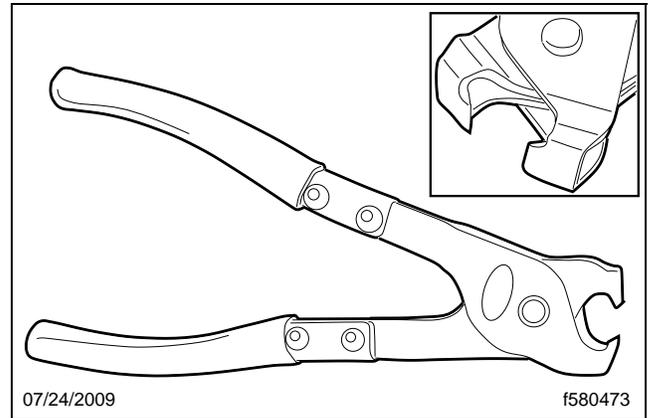


Fig. 27, Oetiker Clamp Tool, P/N 14100037 or 14100082

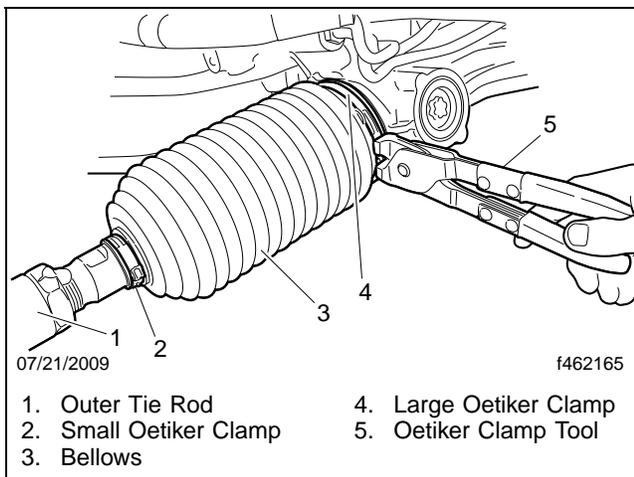


Fig. 28, Oetiker Clamp Installation

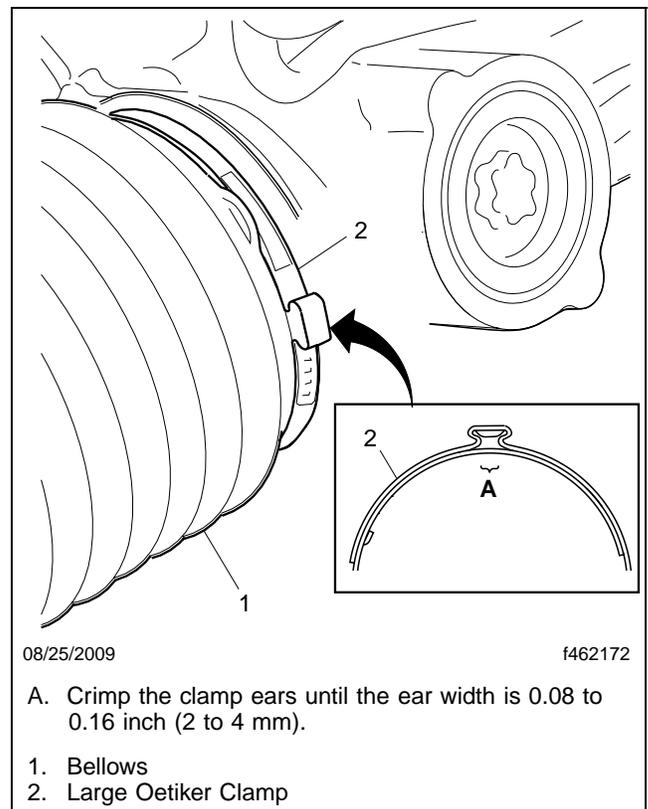


Fig. 29, Oetiker Clamp Ear Width

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16. Tighten the jam nut on the driver side, or the tie rod clamp nut on the passenger side.
17. Align the steering gear.

NOTE: Use a calibrated, computerized, multi-wheel alignment tool, operated by a certified service technician to complete the following steps. If you do not have access to this type of tool, the alignment procedure must be done by a facility that does.

When the alignment process requires that the steering wheel be pointed straight ahead, align the steering rack on-center pointers instead. See **Fig. 30**.

- 17.1 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. 21**, Item 6).
- 17.2 Align the steering rack on-center pointers.
- 17.3 Place a wrench on the driver-side inner tie rod flat and align the left tire by rotating the inner tie rod.
- 17.4 Tighten the tie rod jam nut 285 to 305 lbf-ft (386 to 413 N·m).
- 17.5 Loosen the passenger-side tie rod clamp nut.
- 17.6 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.
- 17.7 Tighten the tie rod clamp nut 30 to 36 lbf-ft (41 to 48 N·m).

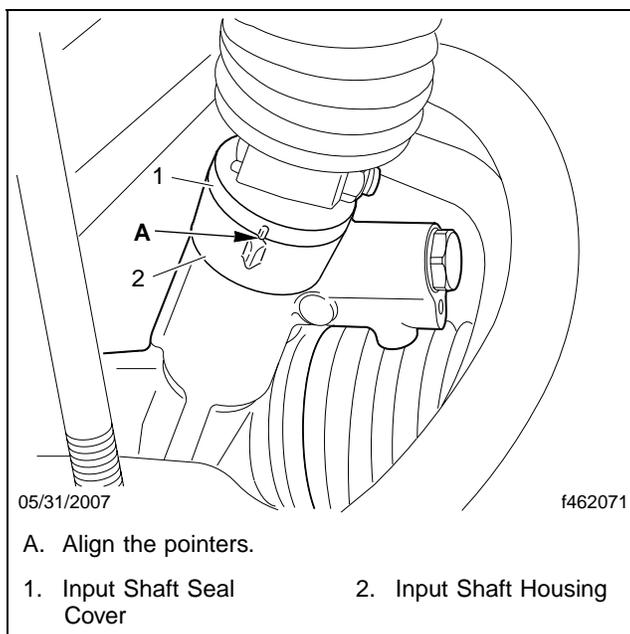


Fig. 30, Rack and Pinion Pointer Alignment

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).

- 17.8 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.

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

NOTICE

Maximum wheel cut is not to exceed 46 degrees. Excessive wheel cut may damage the inner tie rod.

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

18. Remove the jack stands and lower the vehicle.

Rack and Pinion Steering Gear Replacement

IMPORTANT: The gear being removed must be protected from further corrosion or damage during shipping. Ensure that all components are properly installed on the gear being removed. If one or both bellows are removed or damaged to the point that they do not protect internal gear components, wrap the entire gear in plastic or otherwise protect it before shipping.

1. Take clear digital photos documenting corrosion on the steering gear. Photos are required with the claim when a rack and pinion gear is replaced.
2. Record the 15-character serial number of BOTH the rack and pinion gear being removed and the new gear. The serial numbers are required on the claim.
3. Clean all fittings and hose connections on the steering gear until they are free of dirt.
4. While holding the power steering fluid line fittings in place with a backup wrench, disconnect the fluid lines from the steering gear. Plug the lines and the fittings to keep out dirt and prevent fluid leakage.
5. Remove and discard the cotter pins and castellated nuts from the outer tie rods.
6. Disconnect the outer tie rods from the tie rod arms.
7. Disconnect the end yoke of the steering intermediate shaft from the rack and pinion input shaft. Discard the pinch bolt and nut.
8. Remove and discard the steering gear mounting fasteners that connect the rack and pinion to the axle steering gear brackets, then remove the gear.
9. Install the steering gear on the axle steering gear brackets, using new mounting bolts and nuts. Tighten the fasteners 202 to 256 lbf-ft (274 to 347 N·m).
10. Attach the outer tie rods of the rack and pinion gear to the tie rod arms, using new castellated nuts. Tighten the castellated nuts 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 new cotter pin.
11. Center the rack travel and align the timing pointers on the input shaft seal cover and the input shaft housing. See **Fig. 30**.
12. Using a new pinch bolt and nut, attach the steering intermediate shaft to the steering gear input shaft. Tighten the nut 30 to 35 lbf-ft (41 to 47 N·m).
13. Apply torque seal, OGP F900WHITE, to the exposed pinch bolt threads and nut.
14. If needed, install power steering fluid line fittings (**Fig. 31**, Item 5) on the steering gear and tighten 30 to 35 lbf-ft (41 to 47 N·m).

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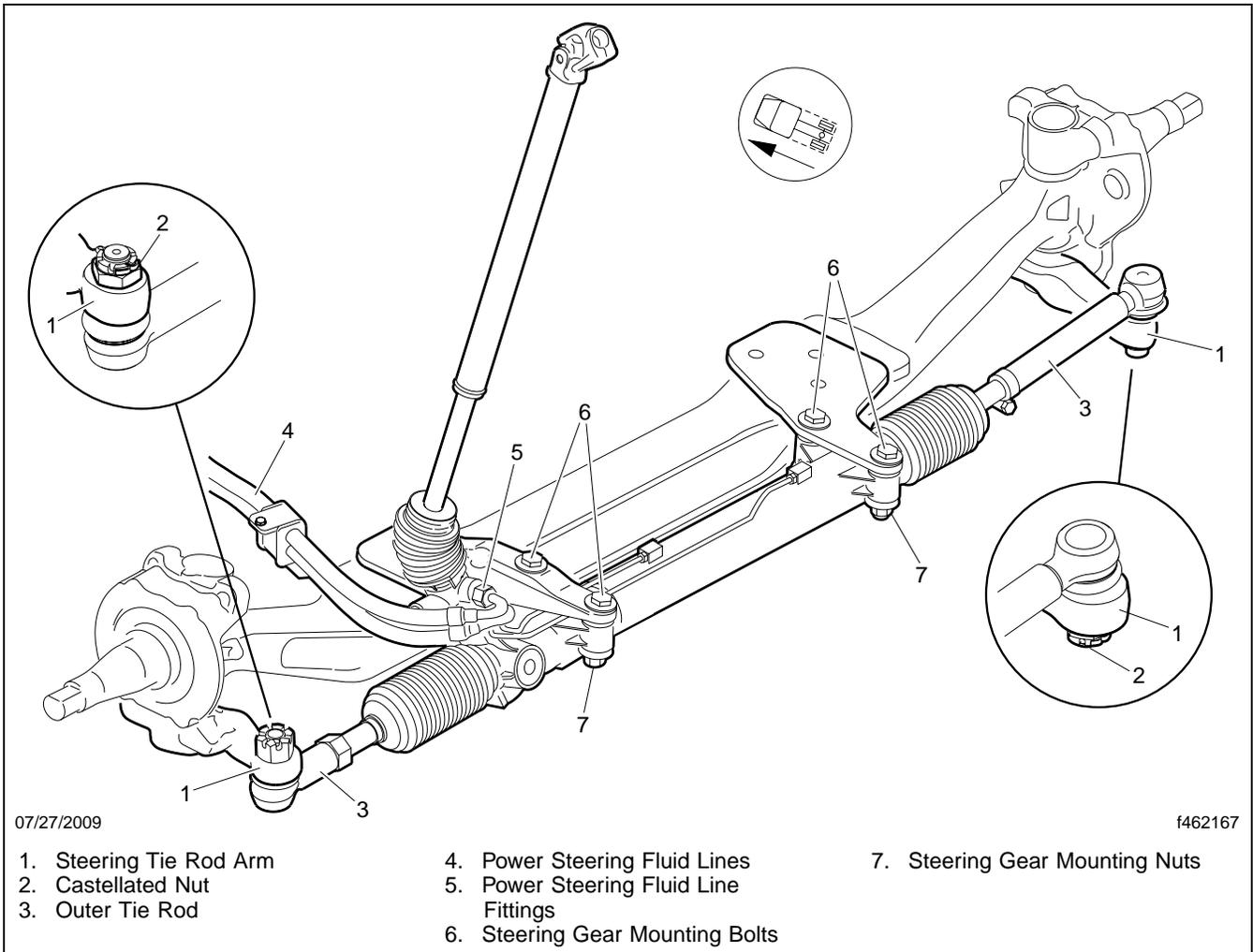


Fig. 31, Rack and Pinion Steering Gear Assembly

15. Connect the power steering fluid lines to the fittings, ensuring that the hoses do not touch the axle or each other. Hold the fittings in place with a backup wrench, and tighten the hoses as follows.
- Pressure hose: 43 to 47 lbf·ft (58 to 64 N·m)
 - Return hose: 55 to 61 lbf·ft (75 to 83 N·m)

NOTICE

Do not loosen or tighten the hard transfer line tube fittings. Tightening the tube fittings can cause the O-ring seal to leak.

16. Fill and bleed the power steering system.
- 16.1 Raise the front wheels off the ground and support the vehicle with jack stands.
 - 16.2 Fill the power steering reservoir with automatic transmission fluid that meets Dexron III or TES-389 specifications.

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- 16.3 With the engine off, turn the wheel fully left and right five times to bleed the air from the rack.
- 16.4 Start the engine and turn the steering wheel fully left and right several times to bleed the remaining air from the system.
- 16.5 If the steering system needs additional bleeding, repeat the previous substep after the fluid in the reservoir has had time to release any air.
- 16.6 Remove the jack stands and lower the vehicle.
17. With the wheels on turnplates, center the rack travel by aligning the timing pointers on the input shaft seal cover and the input shaft housing. See **Fig. 30**.
18. Align the steering gear.

NOTE: Use a calibrated, computerized, multi-wheel alignment tool, operated by a certified service technician to complete the following steps. If you do not have access to this type of tool, the alignment procedure must be done by a facility that does.

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

- 18.1 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. 21**, Item 6).
- 18.2 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.
- 18.3 Tighten the tie rod jam nut 285 to 305 lbf·ft (386 to 413 N·m).
- 18.4 Loosen the passenger-side tie rod clamp nut.
- 18.5 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.
- 18.6 Tighten the tie rod clamp nut 30 to 36 lbf·ft (41 to 48 N·m).

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).

- 18.7 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.
- 18.8 Tighten the stop-bolt jam nuts 80 to 120 lbf·ft (108 to 163 N·m).

NOTICE

Maximum wheel cut is not to exceed 46 degrees. Excessive wheel cut may damage the inner tie rod.

- 18.9 Verify that wheel cut does not exceed 46 degrees. Adjust wheel cut if needed.
19. Turn the wheels as far right and left as possible to check for interference between the wheels/tires and other components. There must be at least 1/2-inch (13 mm) clearance from any fixed object, and 3/4-inch (19 mm) from any moving object.

ATTENTION: Dealer Principal, Warranty Manager, Service Manager, Parts Manager
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Western Star and Sterling Dealers – U.S. and Canada
FCCC Dealers – U.S. and Canada
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Daimler Trucks North America LLC

WARRANTY CAMPAIGNS DEPARTMENT

P.O. Box 4090 800-547-0712
Portland, Oregon 97208-4090 FAX 503-745-9009

If you have questions about this Letter, please submit your inquiry on the Web at:
[AccessFreightliner.com / Support / My Tickets and Submit an Inquiry](http://AccessFreightliner.com/Support/MyTicketsandSubmitanInquiry)

REF #: ICI11-029
Effective: 12/20/11
Release: 12/20/11

SUBJECT: Interim FL614 – Revised Bulletin and Video Available

This letter is to inform you that a revised bulletin has been posted for Interim Recall FL614, Rack and Pinion Steering Pinion Bearings. In addition, an informational video covering important points of the interim repair is available. Please use the revised interim bulletin for all repairs.

REVISIONS: A variety of minor revisions have been made to the Work Instructions to improve the quality of the repair. An informational video is available beginning December 20, 2011, on the Aftermarket Resource Center (ARC). Technicians are advised to view it before performing the Interim FL614 repair for the first time.

Viewing the Video on the Aftermarket Resource Center

1. Go to www.DTNAARC.com (be sure to include "www.")
2. Login

Member Login

User Name:

Password:

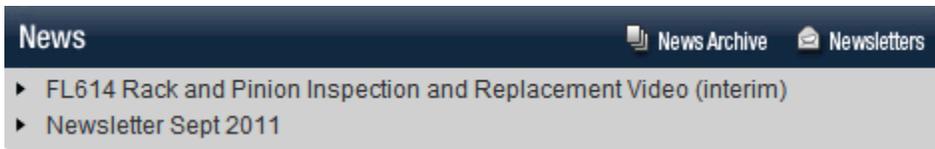
**New to ARC?
Need Help?
FAQs**
Find it all here!

The information contained in this letter supercedes and supplements any related policies and procedures in any previously released bulletins, the Warranty Manual, and/or previously released letters. Failure to read or distribute this letter will not exempt addressees from compliance with the information contained herein.

REF #: ICI10-029
Effective: 12/20/11
Release: 12/20/11

SUBJECT: Interim FL614 – Revised Bulletin and Video Available

3. Once logged in to the ARC, under News, choose "FL614 Rack and Pinion Inspection and Replacement Video (interim)".



Problems Logging In?

For problems logging in, first contact your dealership's Program Administrator or PA for help. If additional help is needed, click on the "New to ARC" link directly below the Member Login. Click the "+" next to "My First Time Here" then click on "Username and Password."



From there, send an email to the Registrar at "DTNA.Registar@Daimler.com" for further assistance.

If you have questions or need further information, contact the Warranty Campaigns Department by submitting an inquiry through www.AccessFreightliner.com / Support / My Tickets and Submit an Inquiry from 7:00 a.m. to 4:00 p.m. Pacific Time, Monday through Friday.

If you have questions about this Letter, please submit your inquiry on the Web at:

AccessFreightliner.com /
[Support / My Tickets and Submit an Inquiry](#)

The information contained in this letter supercedes and supplements any related policies and procedures in any previously released bulletins, the Warranty Manual, and/or previously released letters. Failure to read or distribute this letter will not exempt addressees from compliance with the information contained herein.