DAIMLER

Daimler Trucks North America
Nasser Zamani
Manager
Compliance and Regulatory Affairs

May 28, 2008

Dan Smith
Associate Administrator for Vehicle Safety
National Highway Traffic Safety Administration
1200 New Jersey Avenue S.E.
Washington D.C. 20590

Re: Defect Information Report – Supplemental Report No. 3
07V-400, FL-512, Steering Arm Installation

Mr. Smith

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

(c)(3) **Total number of vehicles potentially affected: 413**

(c) (8)(ii) **Communications sent to dealers:** posted April 29, 2008
Communications sent to owners: mailed May 1, 2008

(c) (10) **Copies of Communications sent to owners and dealers are attached.**

Please contact me if you have any questions.

Sincerely yours,

Nasser Zamani

Nasser Zamani

Cc: Michael Mason, CAL-OSHA
Enclosure
Certified Mail# 7003 2260 0001 3403 6975

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Daimler Trucks
North America LLC

Recall Campaign

April 2008
FL512A-D
NHTSA #07V-400

Subject: Tie-Rod Arm Installation

Models Affected: Specific Freightliner Century Class S/T and Columbia vehicles manufactured between November 12, 2004, and November 23, 2006, with rack-and-pinion steering.

General Information

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 the vehicles mentioned above.

There are approximately 400 vehicles involved in this campaign.

The tie-rod arms may have been installed incorrectly on some vehicles with rack-and-pinion steering. If the right-hand tie-rod arm is installed on the left-hand steering knuckle, excessive tie rod angles may loosen the threaded tie rod socket attachment to the steering gear on the driver's side. The threaded end of the ball socket assembly may fracture and separate, making the vehicle more difficult to control at higher speeds and resulting in a possible vehicle crash.

The tie-rod arms will be inspected and steering stop bolts will be installed. Steering components will be replaced on vehicles with incorrectly installed tie-rod arms. All vehicles require installation of the stop bolt kit; please have this kit on hand before scheduling a vehicle for this Recall. It is expected that 10 percent or fewer vehicles will require further work (replacement of the tie-rod arms and steering components).

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 kits are now available and can be obtained by ordering the kit number(s) listed below from your facing Parts Distribution Center. **All vehicles require installation of the stop bolt kit, 25-FL512-000. It is expected that 10 percent or fewer vehicles will require any further work (replacement of the tie-rod arms and steering components).**

If our records show your dealership has ordered any vehicles involved in campaign number FL512A-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.

NOTE: FL512 **C** and FL512 **D** include very small numbers of vehicles. The vehicle serial numbers and the kits for these groups are listed below:

- FL512C (Vehicle Serials N53321, N53322, U87628, U87631). Kits:
  - Install on all – 25-FL512-000
  - In addition, install only if vehicle fails inspection – 25-FL512-001 and 25-FL512-003
- FL512D (Vehicle Serial N86585). Kits:
  - Install on all – 25-FL512-000
  - In addition, install only if vehicle fails inspection – 25-FL512-002 and 25-FL512-003

Table 1 - Replacement Parts for FL512A-D

Stop Bolt Kit for All Vehicles

Campaign Number	Kit Number	Part Description	Part Number	Qty. per Kit	Suggested Wholesale*
FL512A-D	25-FL512-000 (Install the appropriate bolts from this kit on all vehicles.)	Stop Bolt, Short, Red Color Coding	ABP P6803300077	2 ea	$131.71 U.S. $131.71 CAN
		Stop Bolt, Medium, Yellow Color Coding	ABP P6803300177	2 ea	
		Stop Bolt, Long, Blue Color Coding	ABP P6803300277	2 ea	
		Completion Sticker	WAR260	1 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 FL512A-D

Tie-Rod Arm/Rack-and-Pinion Assembly Kits and Mounting Bracket Kit

Campaign Number	Kit Number	Part Description	Part Number	Qty. per Kit	Suggested Wholesale*
FL512A and C (FL512A has 338 vehicles, FL512C has 4 vehicles)	25-FL512-001 (Install only when a vehicle fails the tie-rod arm inspection.)	Gear-Strg, R&P, LZS5, MWB	14-16442-001	1 ea	$1,472.05 U.S. $1,472.05 CAN
		Nut Castle M27 X1.5, Class 4	MBT N000979027000	2 ea	
		Bolt-Pinch,Strg U-Joint, M10x1.25	14-15639-000	1 ea	
		Nut-Hex,Prevailing Torque, M10x1.25	14-15640-000	1 ea	
		Cotter Pin, 1-3/4x3/16	23-00800-607	2 ea	
		Connector-3/4 to M16x1.5	23-13324-108	1 ea	
		Connector-7/8 to M18x1.5	23-13324-110	1 ea	
		Screw-Hex Flange, M18x1.5110	MBT N910105018030	4 ea	
		Nut-Hex, Flange, M18x1.5, Class 10	MBT N913023018002	4 ea	
		RHS MWB AAC R&P Tie-Rod arm	ABP P6803380506	1 ea	
		LHS MWB AAC R&P Tie-Rod arm	ABP P6803380905	1 ea	
		Flange Head Screw, M20x1.5x90-10.9	ABP P910105020026	4 ea	
		Loctite 277	A6809890271	1 ea	

Table 2, continues on the next page

Campaign Number	Kit Number	Part Description	Part Number	Qty. per Kit	Suggested Wholesale*
FL512B and D (FL512B has 69 vehicles, FL512D has 1 vehicle)	25-FL512-002 (Install only when a vehicle fails the tie-rod arm inspection.)	Gear-Strg, R&P, LZS5, SWB	14-16442-000	1 ea	$1,501.75 U.S $1,501.75 CAN
		Nut Castle M27 X1.5, Class 4	MBT N000979027000	2 ea	
		Bolt-Pinch,Strg U-Joint, M10x1.25	14-15639-000	1 ea	
		Nut-Hex,Prevailing Torque, M10x1.25	14-15640-000	1 ea	
		Cotter Pin, 1-3/4x3/16	23-00800-607	2 ea	
		Connector-3/4 to M16x1.5	23-13324-108	1 ea	
		Connector-7/8 to M18x1.5	23-13324-110	1 ea	
		Screw-Hex Flange, M18x1.5110	MBT N910105018030	4 ea	
		Nut-Hex, Flange, M18x1.5, Class 10	MBT N913023018002	4 ea	
		RHS MWB AAC R&P Tie-Rod arm	ABP P6803380406	1 ea	
		LHS MWB AAC R&P Tie-Rod arm	ABP P6803380805	1 ea	
		Flange Head Screw, M20x1.5x90-10.9	ABP P910105020026	4 ea	
		Loctite 277	A6809890271	1 ea	
FL512C and D (FL512C has 4 vehicles, FL512D has 1 vehicle)	25-FL512-003 (Install only when a vehicle fails the tie-rod arm inspection.)	Brkt-Gear Mounting, R&P, LZS5	14-15815-000	1 ea	$62.46 U.S. $62.46 CAN
		Nut-Hex, High, 3/4-16, C, TX 1.015	23-00461-006	4 ea	
		Washer-Hrdn, 0.81x1.47, 177	23-09114-004	4 ea	
		Screw-Cap, Hex, 1/ 2-13x2	23-09440-200	1 ea	
		Nut-Hex, Flange, 1/2-13	23-11020-508	1 ea	
		U-bolt-Susp, 3/4-16, 122 190	680 322 12 25	2 ea	
		Dowel Pin, 2-1/8	23-09271-212	1 ea	

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

Table 2, continued from the previous page

Removed Parts

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

April 2008
FL512A-D
NHTSA #07V-400

Labor Allowance

Table 3 - Labor Allowance

Campaign Number	Procedure	Time Allowed (hours)	SRT Code	Damage Code
FL512A-D	Inspect tie-rod arms and install steering stop bolts	0.8	996-0740A	000-Modifiedx
FL512A and B	Inspect and replace tie-rod arms/ rack-and-pinion assembly and install steering stop bolts	3.4	996-0740B	000-Modifiedx
FL512C and D	Inspect and replace tie-rod arms/ rack-and-pinion assembly (including mounting bracket) and install steering stop bolts	4.6	996-0740C	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®:

- Claim type is **Recall**.
- In the FTL Authorization field, enter the campaign number and appropriate condition code (e.g. **FL512A, FL512B, etc.**).
- In the Primary Failed Part Number field, enter **25-FL512-000**.
- In the Parts field, enter the appropriate kit number(s) as shown in the Replacement Parts Table. All vehicles require kit 25-FL512-000. Install other kits only if a vehicle fails the inspection (this is expected to be 10 percent or fewer).
- 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.

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 / 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. Also, any lessor is required to send a copy of the recall notification to the lessee within 10 days.

Recall Campaign

Daimler Trucks North America LLC

April 2008
FL512A-D
NHTSA #07V-400

Copy of Letter to Owner

Subject: Tie-Rod Arm Installation

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 Century Class S/T and Columbia vehicles manufactured between November 12, 2004, and November 23, 2006, with rack-and-pinion steering.

The tie-rod arms may have been installed incorrectly on some vehicles with rack-and-pinion steering. If the right-hand tie-rod arm is installed on the left-hand steering knuckle, excessive tie rod angles may loosen the threaded tie rod socket attachment to the steering gear on the driver's side. The threaded end of the ball socket assembly may fracture and separate, making the vehicle more difficult to control at higher speeds and resulting in a possible vehicle crash.

The tie-rod arms will be inspected and steering stop bolts will be installed. Steering components will be replaced on vehicles with incorrectly installed tie-rod arms.

Parts are now available for authorized dealers to order. Contact your authorized dealer to arrange to have your vehicle(s) modified and to assure that parts are available at the dealership. To locate a dealer, search online at www.FreightlinerTrucks.com or contact the Warranty Campaigns Department for assistance.

When you contact your dealer, refer to campaign number **FL512A-D**. Once kit(s) are received at the dealership, the Recall will take between approximately an hour and more than five hours, depending on the vehicle and the work needed. The Recall will be performed at no charge to you.

IMPORTANT: When the Recall has been completed, please ensure that a label has been affixed to your vehicle referencing **FL512A-D**.

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 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,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

Work Instructions

Subject: Tie-Rod Arm Installation

Models Affected: Specific Freightliner Century Class S/T, Classic XL, Columbia, and Coronado vehicles manufactured between November 12, 2004, and November 23, 2006, with rack-and-pinion steering.

NOTE: FL512 **C** and FL512 **D** include very small numbers of vehicles. The vehicle serial numbers and the kits for these groups are listed below:

- FL512C (Vehicle Serials N53321, N53322, U87628, U87631). Kits:
  - Install on all – 25-FL512-000
  - In addition, install only if vehicle fails inspection – 25-FL512-001 and 25-FL512-003
- FL512D (Vehicle Serial N86585). Kits:
  - Install on all – 25-FL512-000
  - In addition, install only if vehicle fails inspection – 25-FL512-002 and 25-FL512-003

Tie-Rod Arm Inspection

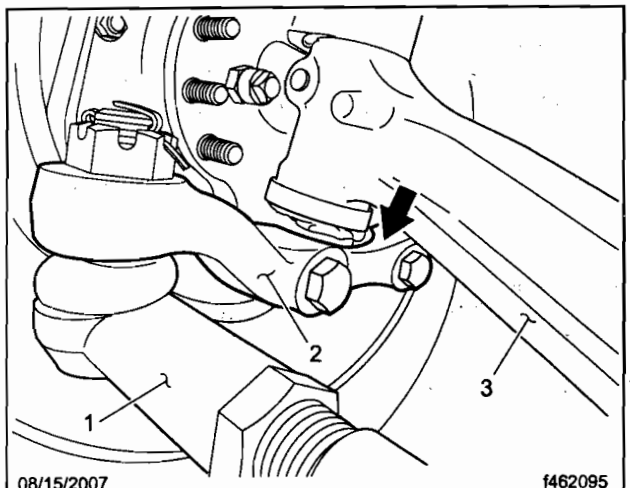
1. Check the base label (Form WAR259) for a completion sticker for FL512 (Form WAR260) indicating this work has been done. The base label is usually located on the passenger-side door about 12 inches (30 cm) below the door latch. If a sticker for FL512 is present, nothing further needs to be done. If no sticker is present, go to the next step.
2. Shut down the engine, set the parking brake, and chock the rear tires.
3. Raise the hood.

⚠ CAUTION

Do not turn the wheels all the way to the right or left. To do so can put undo strain on the tie-rod arms if they are installed incorrectly, or if the axle-stop bolts are too short. This may cause damage to the ball studs.

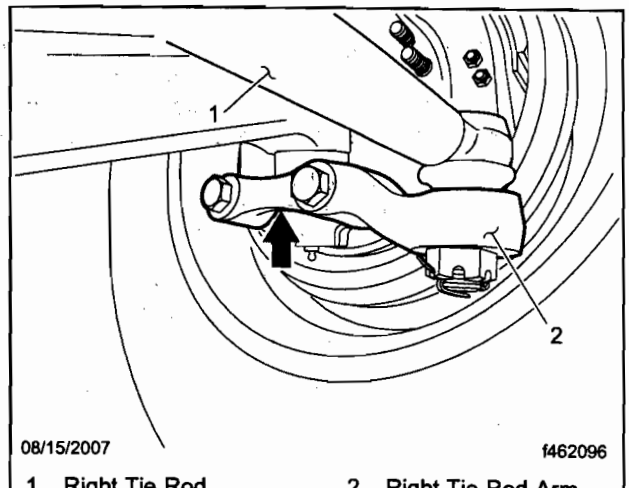
4. Check the part numbers of the tie-rod arms as follows.
   - 4.1 Turn the steering wheel one turn to the right. This will expose the top surface of the left tie-rod arm, where the raised part number is. See **Fig. 1**.
   - 4.2 Looking down from the left side of the vehicle, check and record the raised part number of the left tie-rod arm.
   - 4.3 From underneath the right side of the vehicle, check and record the raised part number on the lower surface (facing the ground) of the right tie-rod arm. See **Fig. 2**.
   - 4.4 If the part number of the left tie-rod arm ends in "L" (e.g., A680xxxxxxxx**L** or AACxxxx**L**), and the part number of the right tie-rod arm ends in "R" (e.g., A680xxxxxxxx**R** or AACxxxx**R**), the tie-rod arms are correctly installed. Go to the next step.

     If the tie-rod arms are not installed correctly, go to "Tie-Rod Arm and Rack-and-Pinion Assembly Replacement" in these Work Instructions.



1. Left Tie Rod
2. Left Tie-Rod Arm
3. Axle Beam

Fig. 1, Part Number Location, Left Tie-Rod Arm

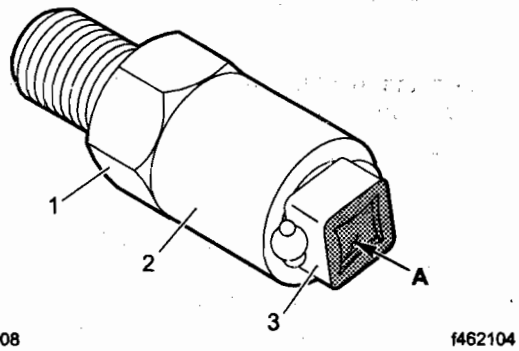


1. Right Tie Rod
2. Right Tie-Rod Arm

Fig. 2, Part Number Location, Right Tie-Rod Arm

5. Straighten the front wheels.
6. Remove the existing axle-stop bolts from the steering knuckles.
7. Take the longest of the new axle-stop bolts from the kit (*red* bolt heads) and, if not already done, hand tighten the jam nut against the welded spacer on each stop bolt (see **Fig. 3**).

   Install the new axle-stop bolts.



NOTE: The bolt heads are color-coded as follows

- red: long
- yellow: medium
- blue: short

A. Color is on this surface.

1. Jam Nut
2. Welded Spacer
3. Stop-Bolt Head (color-coded)

Fig. 3, New Axle-Stop Bolt (short bolt shown)

8. With the tires on turnplates, check the wheel cut. With the wheels turned all the way to the right and left, the wheel cut is to be not less than 44 degrees, and not more than 46 degrees. If the wheel cut is less than 44 degrees, install the next shortest stop bolts (*yellow* bolt heads) from the kit. Bear in mind that every 2 mm (0.79 inch) of stop-bolt length equals 2 degrees of wheel cut.

NOTE: Because the stop-bolt lengths are in 2 mm (0.79 inch) increments, you may ultimately have to use different lengths for the left and right sides to achieve wheel cuts in the acceptable range. The wheel cuts do not have to be exactly the same on both sides of the vehicle; just within the acceptable range.

9. 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/tires 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 to limit the turning angles and to prevent possible contact with components.

   Advance the jam nuts against the spindles.

10. Tighten the jam nuts 80 to 120 lbf·ft (108 to 163 N·m).
11. Return the wheels to the straight-ahead position.
12. If not already done, close the hood.
13. Clean a spot on the base label (Form WAR259) and attach a completion sticker for Recall FL512 (Form WAR260).
14. Remove the chocks.

Tie-Rod Arm and Rack-and-Pinion Assembly Replacement

1. If not already done, open the hood.
2. Using a backup wrench to hold the fittings in place, mark and disconnect the hydraulic lines from the rack-and-pinion assembly. Drain the fluid from the system into a suitable container.

   Plug the lines to keep out dirt.

3. Remove and discard the fasteners that hold the tie-rod arms to the steering knuckles. Leave the tie-rod arms attached to the tie rods. See **Fig. 4** and **Fig. 5**
4. Remove and discard the lower pinch bolt and nut from the steering intermediate shaft. See **Fig. 6**.

⚠ WARNING

On vehicles equipped with an SRS airbag, do not rotate the upper steering column while the intermediate shaft is removed or disconnected. This can cause the clockspring in the steering wheel hub to become off center, which could result in the air bag failing to operate in case of a crash.

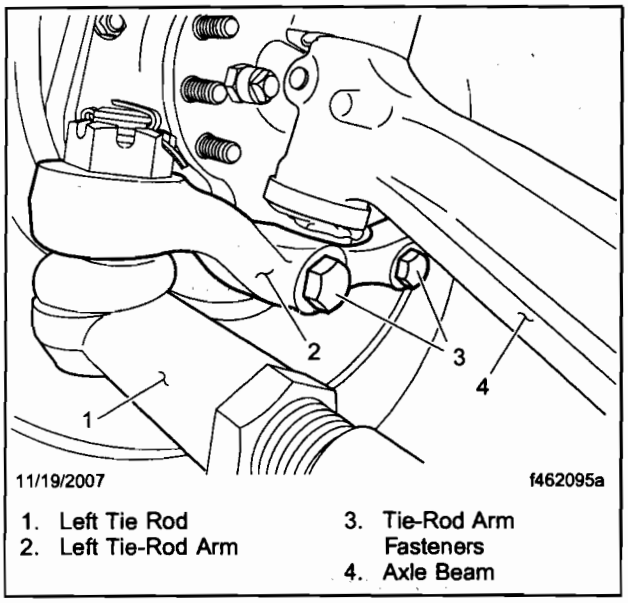
5. Remove and discard the fasteners that hold the rack-and-pinion assembly to the axle-mounted brackets, then remove the assembly (along with the tie-rod arms) from the vehicle.

IMPORTANT: Make sure that the new tie-rod arms are installed correctly. Each side is different; the raised number on each arm will end in an "R" or an "L," which refers to the driver's right or left side of the vehicle.

6. Install the new tie-rod arms as follows.

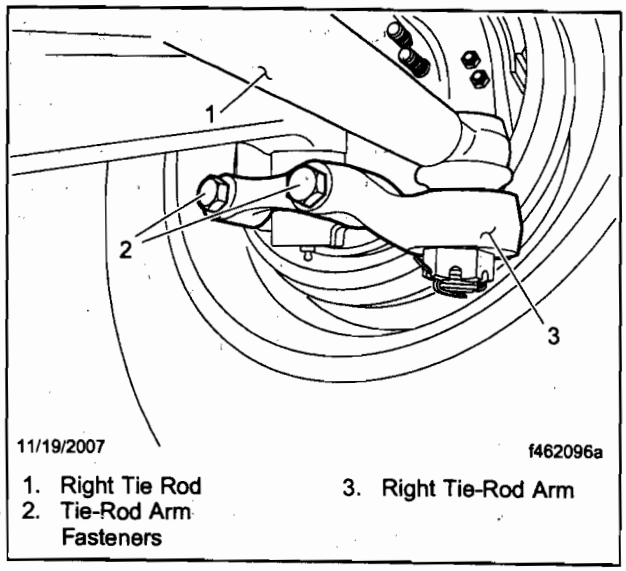
   6.1 Using a solvent, clean the female threads on the steering knuckles, removing all dirt, oil, and other foreign material. Let the solvent dry completely.

   6.2 Apply Loctite 277 to the threads of the new M20 flanged hexbolts and install the tie-rod arms, again making sure they are not reversed. Tighten the flanged hexbolts 424 to 534 lbf·ft (575 to 724 N·m).



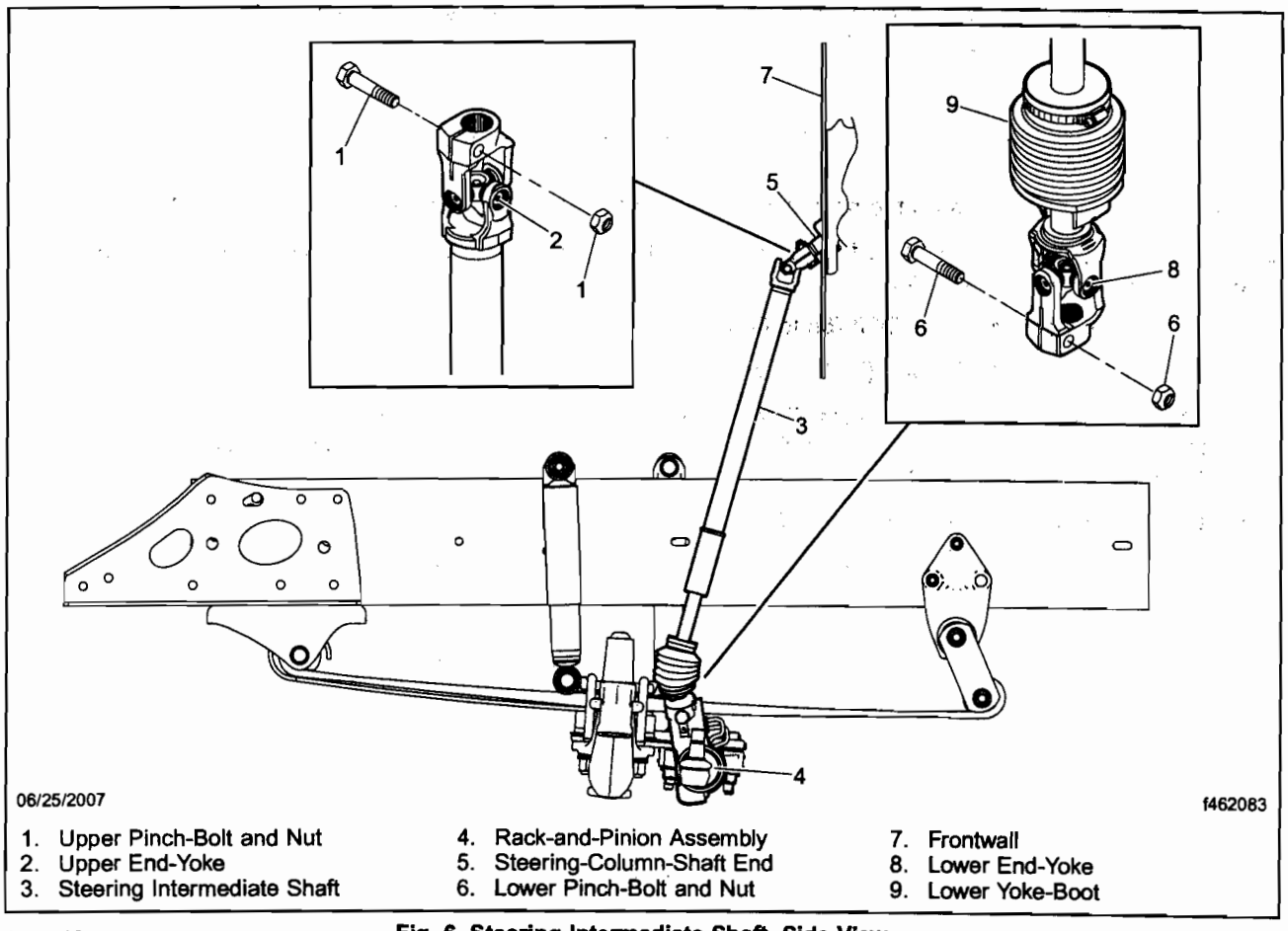
1. Left Tie Rod
2. Left Tie-Rod Arm
3. Tie-Rod Arm Fasteners
4. Axle Beam

Fig. 4, Left Side of Vehicle



1. Right Tie Rod
2. Tie-Rod Arm Fasteners
3. Right Tie-Rod Arm

Fig. 5, Right Side of Vehicle



1. Upper Pinch-Bolt and Nut
2. Upper End-Yoke
3. Steering Intermediate Shaft
4. Rack-and-Pinion Assembly
5. Steering-Column-Shaft End
6. Lower Pinch-Bolt and Nut
7. Frontwall
8. Lower End-Yoke
9. Lower Yoke-Boot

Fig. 6, Steering Intermediate Shaft, Side View

7. If you are using kit *25-FL512-003* (vehicle serials N53321, N53322, U87628, or U87631 only), replace the right-side mounting bracket as follows; otherwise, go to the next step.

   7.1 Raise the front axle and support the frame with safety stands.

   7.2 On the right side of the vehicle, note the configuration of the clamp-group components, then remove the suspension U-bolts, the clamp-group components, and the old mounting bracket for the rack-and-pinion assembly. Discard the old mounting bracket and fasteners, and the U-bolts and nuts.

   7.3 Install the new dowel in the axle flange, then place the new rack-and-pinion mounting bracket over the dowel. Install the new hexbolt that holds the new mounting bracket to the axle flange. It will fit into the hexagon hole in the bracket. Make sure the holes in the new mounting bracket are aligned with the U-bolt holes in the axle flange.

   7.4 Install any previously removed clamp-group components and the new U-bolts.

   7.5 Lubricate the threads of the new U-bolts to prevent galling, then install the new U-bolt nuts and tighten them evenly to 60 lbf·ft (81 N·m) in the sequence shown in **Fig. 7**.

   7.6 Using new fasteners, install the new rack-and-pinion assembly. Tighten the fasteners 202 to 256 lbf·ft (274 to 347 N·m).

   7.7 Install the new flanged hexnut on the recessed hexbolt previously installed in the mounting bracket. Tighten the hexnut 54 to 76 lbf·ft (73 to 103 N·m).

   7.8 Using the previous sequence, continue tightening the U-bolt nuts to 200 lbf·ft (271 N·m), then to a final torque of 270 to 330 lbf·ft (366 to 447 N·m).

   Go step 9.

8. Using the new fasteners, install the new rack-and-pinion assembly. Tighten the fasteners 202 to 256 lbf·ft (274 to 347 N·m).

9. Install the hydraulic fittings on the new rack-and-pinion assembly. Tighten them 30 to 35 lbf·ft (41 to 47 N·m).

10. Using a backup wrench to hold the fittings in place, connect the hydraulic lines to the rack-and-pinion assembly, as previously marked. Tighten them as follows:

    - pressure hose: 43 to 47 lbf·ft (58 to 64 N·m)
    - return hose: 55 to 61 lbf·ft (74 to 83 N·m)

11. Attach the tie rods to the tie-rod arms. Tighten the new castle nuts 240 lbf·ft (325 N·m). If needed, continue tightening each nut until a slot on the nut aligns with the cotter-pin hole in the ball stud. Do not back off the nut to align it with the cotter pin hole.

    Install and lock a new cotter pin in each of the ball studs and nuts.

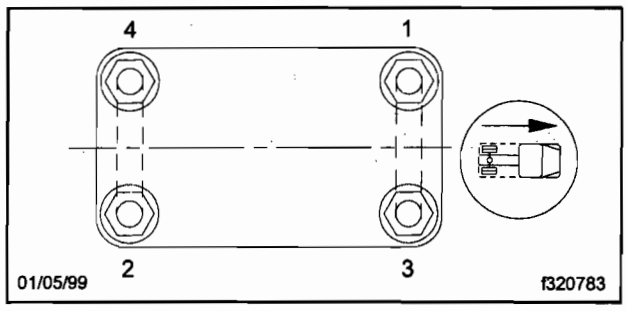


Fig. 7, U-Bolt Nut Tightening Sequence

⚠ WARNING

Install and lock the new cotter pins in the ball studs and castle nuts. Failure to do so could result in disengagement of the components, causing loss of steering control, which could result in personal injury and property damage.

12. Remove the existing axle-stop bolts from the steering knuckles.
13. Take the longest of the new axle-stop bolts from the kit (*red* bolt heads) and, if not already done, hand tighten the jam nut against the welded spacer on each stop bolt (see **Fig. 3**).

    Install the new axle-stop bolts.
14. With the front axle raised, center the travel of the steering rack and align the timing pointers on the plastic cover and the rack housing as follows. See **Fig. 8**.

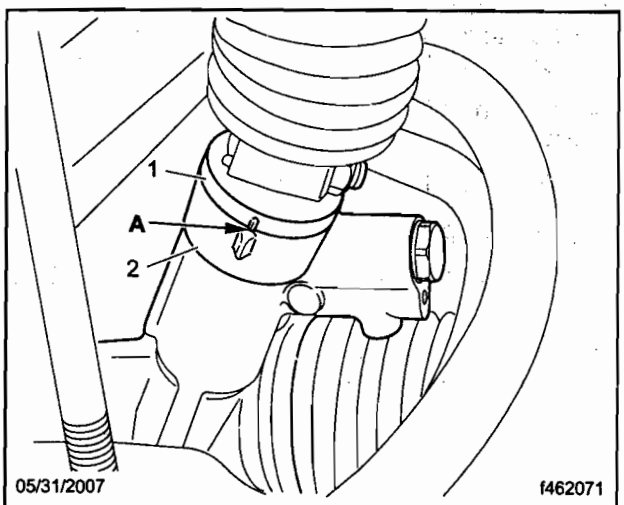
    14.1 Turn the rack to the right until it stops and mark the input shaft housing and input shaft seal cover.

    14.2 Turn the rack to the left, and using the marks, count the input shaft revolutions until it stops.

    14.3 Turn the rack to the right for half the total revolutions, then align the pointers on the input shaft seal cover and the input shaft housing.
15. Install the new lower pinch bolt and nut in the lower U-joint of the steering intermediate shaft. Tighten the nut 30 to 35 lbf·ft (41 to 47 N·m).

    Apply torque seal, OGP F900WHITE, to the exposed pinch-bolt threads and to the nut.
16. Fill the power steering reservoir with Dexron III or Conoco Phillips Super ATF.
17. With the front wheels off the ground, bleed the steering system as follows.

    17.1 With the engine *off*, turn the wheel fully left and right (about five times) to bleed the air from the rack. Top off the fluid level in the reservoir and start the engine.



A. Align the pointers.

1. Input Shaft Seal Cover
2. Input Shaft Housing

Fig. 8, Aligning the Timing Pointers

17.2 With the engine running, turn the steering wheel fully left and right several times, without contacting the steering stops.

17.3 If the steering system needs continued bleeding, repeat the above procedure after the air (foamy bubbles) in the reservoir has had time to settle.

18. Lower the vehicle onto turn plates for adjusting the wheel alignment.

NOTE: The following procedure requires the use of a computerized alignment tool. If you do not have access to this type of tool, transport the vehicle to a facility that does, to complete the alignment procedure.

19. Adjust each of the tie-rod ends to obtain the total specified toe-in dimension as follows.

    IMPORTANT: Whenever the alignment process requires that the steering wheel be pointed straight ahead, align the steering rack on-center pointers instead. Do not center the steering wheel; it must be centered at the end of the procedure.

    19.1 Loosen the jam nut on the left tie-rod end and the U-clamp on the right tie-rod end.

    19.2 Adjust each tie rod to obtain the total specified toe-in dimension. The total toe-in is to be between 0 and 1/8 inch (3.18 mm), and the target is 1/16 inch (1.58 mm).

    Tighten the jam nut 285 to 305 lbf·ft (386 to 413 N·m), and the U-clamp 30 to 36 lbf·ft (41 to 48 N·m) to secure the tie rods.

20. With the longest of the new axle-stop bolts (*red* bolt heads) installed, and the tires on turnplates, check the wheel cut. With the wheels turned all the way to the right and left, the wheel cut is to be not less than 44 degrees, and not more than 46 degrees. If the wheel cut is less than 44 degrees, install the next shortest stop bolts (*yellow* bolt heads) from the kit. Bear in mind that every 2 mm (0.79 inch) of stop-bolt length equals 2 degrees of wheel cut.

NOTE: Because the stop-bolt lengths are in 2 mm (0.79 inch) increments, you may ultimately have to use different lengths for the left and right sides to achieve wheel cuts in the acceptable range. The wheel cuts do not have to be exactly the same on both sides of the vehicle; just within the acceptable range.

21. 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.

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

23. Return the wheels to the straight-ahead position.

24. To complete the alignment, make sure that the steering wheel is within 10 degrees of center as shown in **Fig. 9**. If it is not, remove and center the steering wheel, as follows.

    IMPORTANT: All the spline/pinch-bolt connections between the steering gear and the steering wheel fit in only one position. It is not possible to align (clock) the splined connections instead of centering the steering wheel.

    24.1 If the vehicle has an airbag, deactivate and remove the airbag according to the instructions in the applicable vehicle workshop manual.

    If the vehicle does not have an airbag, remove the horn button by prying it out around the edges.

    IMPORTANT: The steering wheel does not have threaded wheel-puller holes. The tapered fit between the steering wheel and the column is designed to be removed by hand.

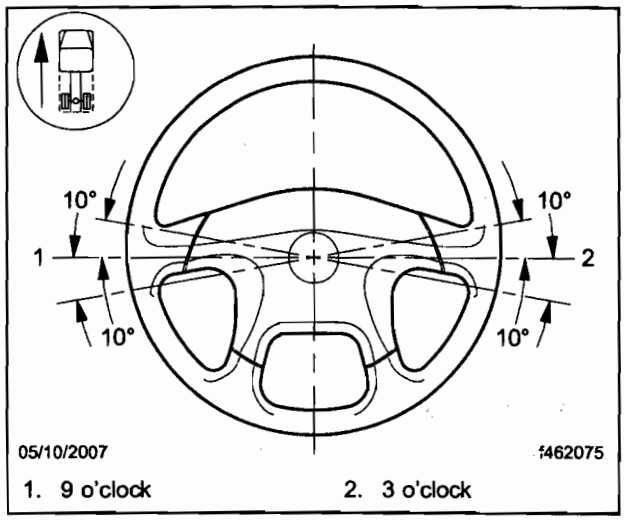


Fig. 9, Steering Wheel Centered

24.2 Loosen the steering wheel nut and back it off, but leave it on the shaft until the wheel has been released from the tapered fit.

24.3 Remove the wheel from the tapered fit by striking it from below, at the rim/spoke intersections, with both hands.

24.4 Center the steering wheel.

24.5 Install and tighten the steering wheel nut 33 to 41 lbf·ft (45 to 55 N·m).

24.6 If the vehicle has an airbag, install and reactivate the airbag according to the instructions in the applicable workshop manual.

If the vehicle does not have an airbag, install the horn button.

25. Raise the vehicle, remove the turn plates and alignment equipment, then lower the vehicle.

26. Clean a spot on the base label (Form WAR259), and attach a completion sticker for Recall FL512 (Form WAR260).

27. Remove the chocks.