

SAFETY RECALL BULLETIN

February 2019
D18R7 (FL802)
NHTSA #18V-913 (Non-School Buses)
#18V-914 (School Buses)
Transport Canada #18-719 (Non-School Buses)
#18-720 (School Buses)

Subject: **Detroit™ Axle Steering Arm / Tie Rod Arm Capscrew Inspection**

Issue Involved

Daimler Trucks North America LLC, on behalf of its wholly owned subsidiary, Detroit Diesel Corporation, has decided that a defect which relates to motor vehicle safety exists on specific Freightliner 108SDM, 114SD, 122SD, 4700, 4900, Business Class M2, and Cascadia model vehicles; Freightliner Custom Chassis, MT45, MT55, S2G, S2RV, XBS, XCL, XCM, XCR, and XCS chassis; and Thomas Built Buses Saf-T-Liner C2, Saf-T-Liner HDX, and Saf-T-Liner EFX model school buses manufactured February 10, 2017, through July 21, 2018, with certain Detroit Axles.

On certain vehicles, the steering and tie rod arm bolts that join the steering and tie rod arm to the knuckle may not have accurate torque specification data. Without verification of torque data on the steering and tie rod arm bolts, it is unclear if the bolts were torqued to specification. Under torqued bolts may lead to a separation of the tie rod and disconnect the front wheels of the vehicle. A disconnect of the front wheels can reduce the ability to steer the vehicle, which could increase the risk of a crash.

Axles will be inspected for correct torque and repaired if necessary.

There are approximately 633 vehicles affected by this Safety Recall.

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Vehicles Involved

A list of vehicles that require this inspection is attached.

The table below gives descriptive information to help identify the affected units:

Front Axle Model Series	Front Axle Model Number	Model Year	Inclusive Front Axle Mfg. Date (From) (To)
Model 2	DA-F-8.0-2	2017-2018	February 1, 2017 to July 17, 2018
Model 3	DA-F-8.0-3		
	DA-F-10.0-3		
	DA-F-10.5-3		
	DA-F-12.0-3		
	DA-F-12.5-3		
	DA-F-13.0-3		
	DA-F-13.3-3		
DA-F-14.7-3			
Model 5	DA-F-16.0-5		
	DA-F-18.0-5		
	DA-F-20.0-5		

Owner Notification

A copy of the owner letter that will be used by Detroit Diesel is enclosed with this Safety Recall Bulletin.

Dealer Campaign Responsibility

Detroit Diesel authorized Detroit™ Axle repair facilities to service all axles subject to this Safety Recall. Safety Recall D18R7 is to be performed at no charge.

Please use the appropriate steps, noted below, for indicating that Safety Recall D18R7 has been completed.

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Daimler Trucks North America Vehicles

- Check the base label (**Form WAR259**) to see if **Safety Recall D18R7** has been completed. The base label is usually located on the passenger-side door about 30 cm (12 inches) below the door latch. If **Safety Recall D18R7** has been completed, no further work is needed. If base label is not located on the passenger-side door, please affix label (**Form WAR259**) 30 cm (12 inches) from the door latch.
- Upon completion of **Safety Recall D18R7**, clean a spot on the base label (**Form WAR259**), write the Safety Recall Number (**D18R7**) on a blank, black completion sticker (**Form WAR261**), and attach it to the base label.

Ordering Information

1. If you do not have the appropriate Form or Labels (DDC_WAR 259, DDC_WAR 260, DDC_WAR 261), they can be ordered from **EPI Printers** by emailing your order to ddc@epiinc.com.
2. You can also fax in your order to **269-698-4240 Attn: Corrina Cotton**.
3. Contact **EPI Printers at 734-464-9000**.

Parts Information

There are no parts required for this Safety Recall unless an under-torque capscrew is discovered. If the inspection results require capscrew replacement, or capscrew, steering arm and steering knuckle replacement, the required parts for this repair are shown below in Table 1. Note that Detroit™ expects a very low percentage of vehicles on the list to require any parts replacement.

Front Axle Model Series	Part Number	Quantity	Description
Model 2 and Model 3	MBA 308676020025	2	Capscrew, Steering Arm - M20 x 1.5 x 80mm, 10.9
	MBA 308676020022	4	Capscrew, Tie Rod Arm - M20 x 1.5 x 90mm, 10.9
Model 5	MBA 308676024003	2 or 4 (Dual Steer)	Capscrew, Steering Arm - M24 x 2.0 x 90mm, 10.9
	MBA 308676024002	4	Capscrew, Tie Rod Arm - M20 x 2.0 x 100mm, 10.9
All Models	Refer to DTNAConnect.com and PartsPro		Steering Knuckle
All Models	Refer to DTNAConnect.com and PartsPro		Steering Arm
All Models	Refer to DTNAConnect.com and PartsPro		Tie Rod Arm
All Models	PEX 27010 or locally available equivalent		Loctite® 277 Red Threadlocker or equivalent

Table 1 – Parts Information

Capscrew Inspection Procedure

Note: Each vehicle and axle configuration may require different extensions to properly get the socket onto the capscrew so that the torque can be checked. In most cases, all of the capscrews are accessible with the steering wheel turned all the way to the left or to the right with the hood open.

1. Park the vehicle on a level surface and turn the steering wheel all the way to the left to expose the steering arm capscrews and the front tie rod arm capscrew on the driver’s side of the vehicle. The rear tie rod arm capscrew on the passenger’s side should also be accessible from behind the tire.

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2. Apply the parking brake, turn off the ignition, chock the rear wheels, and perform any other applicable safety steps.
3. Using a suitable torque wrench, check the torque on the two steering arm capscrews as well as the forward tie rod capscrew on the driver's side and the rear tie rod capscrew on the passenger's side. See Figure 1.
 - a. For Model 2 and Model 3 axles with a M20 capscrew, the torque should be checked at 525 N·m (390 lb·ft).
 - b. For Model 5 axles with a M24 capscrew, the torque should be checked at 850 N·m (630 lb·ft).

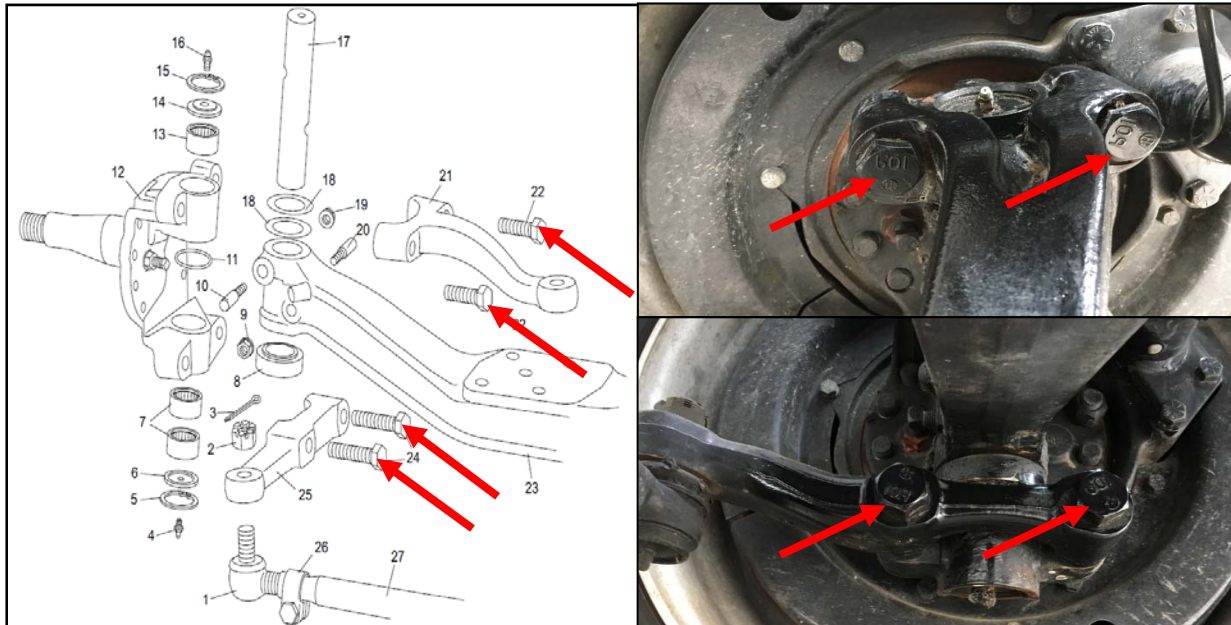





Figure 1 – Steering Arm and Tie Rod Arm Capscrew Location

4. Are the capscrews at the correct torque?
 - a. Yes; proceed to step 5 to check the other capscrews.
 - b. No; mark which capscrews are at low torque before proceeding to step 5 to check the rest of the capscrews. Any capscrews that are below the correct torque will need to be repaired following the instructions starting in step 9.

 WARNING:
PERSONAL INJURY
<p>Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.</p> <ul style="list-style-type: none">• Always start and operate an engine in a well ventilated area.• If operating an engine in an enclosed area, vent the exhaust to the outside.• Do not modify or tamper with the exhaust system or emission control system.

 WARNING:
PERSONAL INJURY
<p>To avoid injury before starting and running the engine, ensure the vehicle is parked on a level surface, parking brake is set, and the wheels are blocked.</p>

 WARNING:
ENGINE EXHAUST
<p>To avoid injury from inhaling engine exhaust, always operate the engine in a well-ventilated area. Engine exhaust is toxic.</p>

5. With the parking brake applied and the rear wheels chocked, start the engine and turn the steering wheel all the way to the right to expose the front tie rod arm capscrew on the passenger's side of the vehicle and the steering arm capscrews on vehicles equipped with dual steering arms. The rear tie rod arm capscrew on the driver's side should also be accessible from behind the tire.
6. Turn off the ignition and perform any other applicable safety steps.
7. Check the torque on the two steering arm capscrews (if vehicle is equipped) as well as the forward tie rod capscrew on the passenger's side and the rear tie rod capscrew on the driver's side using the same tools and specifications as in step 3 above.

8. Are the capscrews at the correct torque?
 - a. Yes; no further work is needed.
 - b. No; mark which capscrews are at low torque and proceed to the repair instructions starting in step 9.

Capscrew Repair Procedure

9. Remove the two capscrews from the steering or tie rod arm where the low torque capscrew(s) was identified, and remove the steering or tie rod arm. **Reference** section “Dissassembly of the Steering Knuckle” in the Front Axles chapter of the *Detroit Axles Manual* (DDC-SVC-MAN-0141).
10. Inspect the joint surface between the steering or tie rod arm and steering knuckle for signs of fretting, dents, or other damage from the loose capscrew(s). See Figure 2 and 3 for examples of damaged parts, and Figure 4 for an example of a new part.



Figure 2 – Fretting Damage That May Look Like Rust from Water Intrusion at Loose Joint

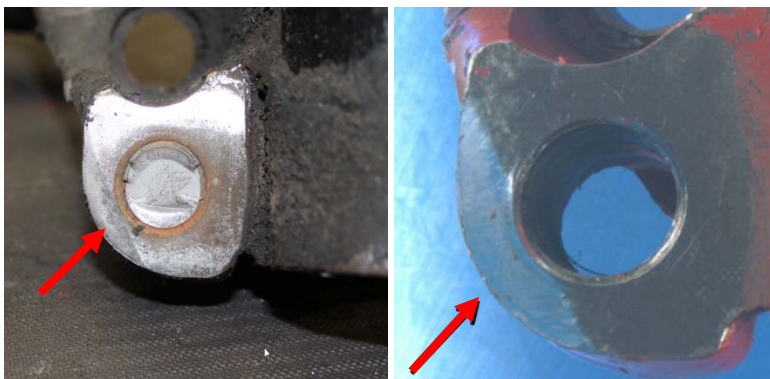


Figure 3 – Dent at the Loose Joint

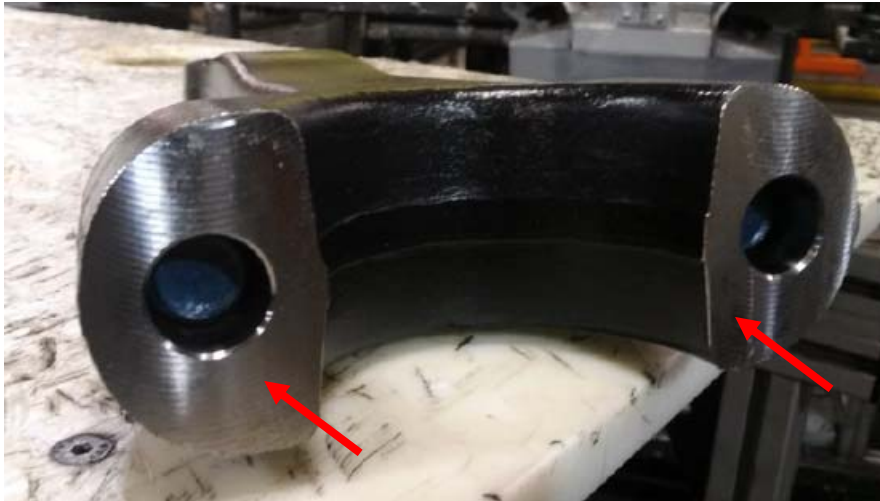


Figure 4 – New (Undamaged) Joint Surface

11. Are the joint surfaces of either the steering or tie rod arm or steering knuckle damaged?
 - a. Yes; proceed to step 12 to replace the knuckle and the arm.
 - b. No; proceed to step 14 to replace the capscrews only.
12. **Remove the steering or tie rod arm and steering knuckle. Reference** section “Dissassembly of the Steering Knuckle” in the Front Axles chapter of the *Detroit Axles Manual* (DDC-SVC-MAN-0141).
13. **Install a new steering or tie rod arm and new steering knuckle. Reference** section “Assembly of the Steering Knuckle” in the Front Axles chapter of the *Detroit Axles Manual* (DDC-SVC-MAN-0141).
14. **Install two new steering or tie rod arm capscrews. Reference** section “Assembly of the Steering Knuckle” in the Front Axles chapter of the *Detroit Axles Manual* (DDC-SVC-MAN-0141).
15. Repairs are complete.

Warranty Information

Notice	
There are nine different labor codes listed below. Use only one of these codes when filing the claim, depending on the repair necessary.	
Claim administration time, <u>SRT 939-6010A</u>, for 0.3 hours will automatically be added.	
Claim Type:	CAMPAIGN
Modification:	D18R7
Cause Code:	A1-CAMPAIGN
Primary Failed Part:	MBA 308676020022
PROCEDURE A	
Use this operation if all capscrews are verified to have proper torque	
Labor Code:	996-R061A
Labor:	0.7 Hours
PROCEDURE B	
Use one of the following labor operations if any of the capscrews are found to have low torque and only the capscrews need to be replaced	
Labor Code:	996-R061B (If one steering/tie rod arm is found with low torque)
Labor:	2.2 Hours
Labor Code:	996-R061C (If two steering/tie rod arms are found with low torque)
Labor:	3.5 Hours
Labor Code:	996-R061D (If three steering/tie rod arms are found with low torque)
Labor:	4.9 Hours
Labor Code:	996-R061E (If four steering/tie rod arms are found with low torque)
Labor:	6.2 Hours
Parts Return:	NONE

PROCEDURE C	
Use one of the following labor operations if any of the capscrews are found to have low torque and there is damage to the steering/tie rod arm and knuckle mating surfaces; This requires replacement of the entire knuckle on one or both sides of the vehicle.	
Labor Code:	996-R061F (If only one knuckle is found to be damaged and the other side passes the torque check)
Labor:	3.2 Hours
Labor Code:	996-R061G (If only one knuckle is found to be damaged and one arm on the other side is found with low torque, but is not damaged)
Labor:	4.5 Hours
Labor Code:	996-R061H (If only one knuckle is found to be damaged and both arms on the other side are found with low torque, but are not damaged)
Labor:	5.9 Hours
Labor Code:	996-R061I (If both knuckles are found to be damaged and must be replaced)
Labor:	5.5 Hours
Parts Return:	REQUIRED

Please contact the Detroit™ Customer Support Center at 855-253-0427 or email csc@daimler.com if you have any questions.

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BULLETIN