

SAFETY RECALL

Volvo Trucks North America
Greensboro, NC USA

VOLVO

This Safety Recall replaces recall, "RVXX1403, Disc Brake Caliper Bolts",
Dated (10.2014).

Date Number Release Page
12.2014 RVXX1403 02 1 (11)

DISC BRAKE CALIPER BOLTS

VAH, VNL, VNM

SAFETY RECALL INFORMATION:

(December 2014)

Volvo has determined that the bolts that hold the disc brake caliper to the backing plate may have not been tightened to specification; therefore, the disc brake caliper may come detached from the spider plate. If this occurs, the brakes at that particular wheel will be affected, which may result in the vehicle "pulling" to the left or right when the brakes are applied. To address this issue, complete the following inspection and repair procedures as required.

VEHICLES AFFECTED:

COUNTRY	MODELS	QTY	MANUFACTURE DATES	MODEL YEARS
USA	VAH, VNL, VNM	3175	March 4, 2013 through April 28, 2014	2014 and 2015
CANADA	VNL, VNM	635	March 4, 2013 through April 28, 2014	2014 and 2015
MEXICO	VAH, VNL, VNM	271	March 4, 2013 through April 28, 2014	2014 and 2015

VEHICLE IDENTIFICATION NUMBERS (VIN):

There are 4081 total (3175 U.S., 635 Canada, and 271 Mexico) vehicles affected by this recall.

REQUIRED PARTS:

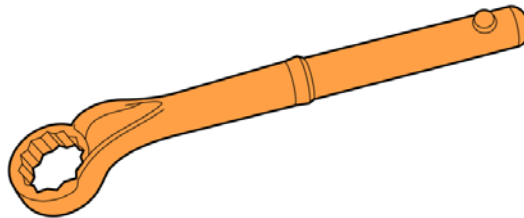
PART NUMBER	QTY	DESCRIPTION
PN 992475	6	Bolts, brake caliper mounting (One wheel-end)
PN 994875	6	Washers, brake caliper mounting (One wheel-end)

SPECIAL TOOLS:

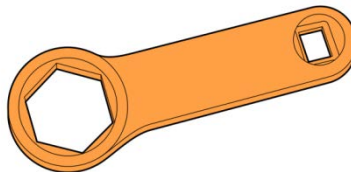
NOTE
The special tools listed below are required for trucks built before 09/30/2013 equipped with Dana front axles.

The front disc brake caliper is normally oriented on the top of the wheel assembly. However, on some applications the caliper is clocked approximately 40 degrees rearward. On these applications, access to the lower mounting bolts may be blocked by the tie rod arm. To access the blocked bolts, use one of the two solutions below:

VOLVO tool number 88800301 is used with a **Snap-On Torque Wrench TQR400E** or equivalent. **Snap-On Torque Wrench TQR400E** is designed with a changeable head. When using this solution, the tool geometry remains the same with no adjustments to the torque specification.



Snap-On 30 mm (1.18 in) drive torque adapter GSRM430 is a 101.6 mm (4.0 in) extension that can be used with any 13 mm (0.5 in) drive torque wrench. Due to the 101.6 mm (4.0 in) extension length, this changes the normal torque wrench geometry and torque wrench setting. When using this extension (or equivalent) be sure to use the alternative torque specification as outlined in the Torque Wrench Extension procedures in this document.

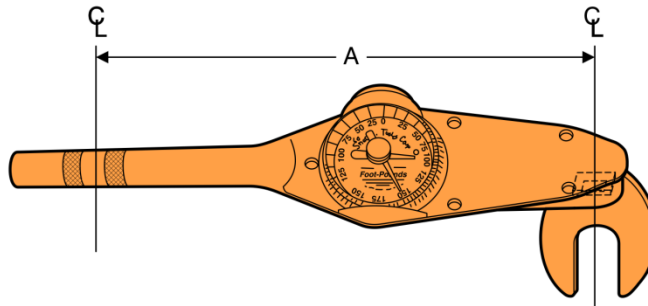


TORQUE WRENCH EXTENSION PROCEDURES:

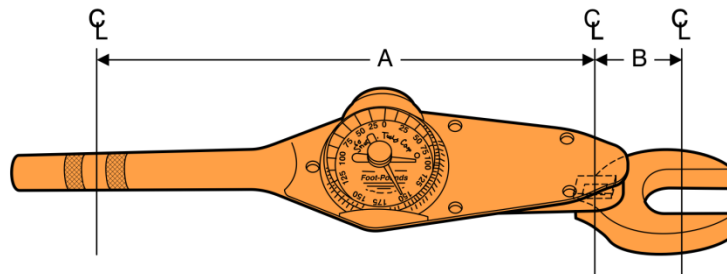
Torque tightening is an important step when performing Service Procedures. The amount of torque applied with a wrench is determined by the distance from the center of the bolt or fitting to the end of the wrench. Placing an extension on the end of a torque wrench can add to the length from the bolt or fitting center to the end of the wrench, which adds to the leverage of the torque wrench and will affect the applied torque. To ensure that the torque indicated on the

torque wrench is the actual applied torque, one of two methods may be used.

The simpler method is to place the open end of the wrench extension at a 90° angle to the torque wrench as shown above. This will not change the distance from the center of the bolt to the end of the wrench handle (A).



Otherwise perform the following to determine the correct torque wrench reading to apply the desired torque using an extension in the manner shown.



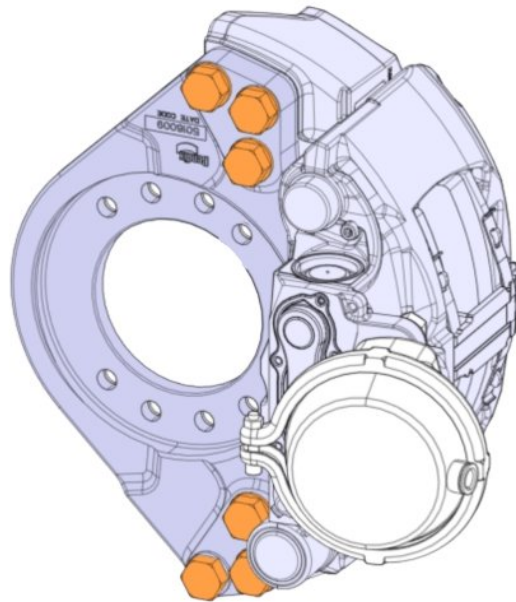
1. Measure the distance from the center of the torque wrench drive to a mark near the end of the wrench handle (A), this is the torque wrench length.
2. Measure the distance from the center of the wrench extension to the center of the torque wrench drive (B), this is the extension length.
3. Multiply the desired torque (T) by the torque wrench length (A). Then divide by the torque wrench length plus the extension length (A + B). $T \times A / (A+B)$ = torque wrench reading (or click setting) to apply the desired torque.

REPAIR PROCEDURE:

INSPECTION (All wheel-ends):

1. Secure the vehicle for service by parking it on a level surface, applying the parking brake, blocking the wheels, and placing the transmission in neutral or park.
2. Disconnect all cables from the negative (ground) battery terminals to prevent personal injury from electrical shock and prevent damage to electrical components.
3. Inspect and check for 339 Nm (250 ft-lbs) torque of all 6 fasteners securing the disc brake caliper to the brake anchorage on all wheel-ends.

NOTE
The front steer axle disc brake caliper is normally oriented on the top of the wheel assembly.
All wheel ends can be inspected without jacking the vehicle.



4. Are the disc brake caliper bolts properly torqued at each wheel-end?

If **yes**, no repair is necessary. Commission the vehicle by connecting all cables to the negative (ground) battery terminals, and remove the wheel chocks.

5. If **no** (any bolts that turn or are loose or are missing), continue to the appropriate **Repair** procedure:
- **Caliper Bolts Replace, Steer Axle, One Wheel-end**
 - **Caliper Bolts Replace, Steer Axle, One Wheel-end, Spider Removed (Dana axle pre W40-2013)**
 - **Caliper Bolts Replace, Rear Axle, One Wheel-end**

Caliper Bolts Replace, Steer Axle, One Wheel-end

1. Lift the disc brake wheel end to repair and support the axle with jack stand(s).
2. Remove tire and wheel assembly.
3. Install the 6 new bolts PN 992475 and 6 new washers PN 994875, one at a time.
4. Torque the new caliper bolts to 508 Nm (375 ft-lb).
5. Install the wheel and tire assembly.
6. Torque the wheel nuts to 610 Nm (450 ft-lb).
7. Lift the axle. Remove the jack stand(s) and lower wheel end.
8. Do more disc brake calipers need repair?

If **yes** continue to the appropriate **Repair** procedure:

- **Caliper Bolts Replace, Steer Axle, One Wheel-end**
- **Caliper Bolts Replace, Steer Axle, One Wheel-end, Spider Removed (Dana axle pre W40-2013)**
- **Caliper Bolts Replace, Rear Axle, One Wheel-end**

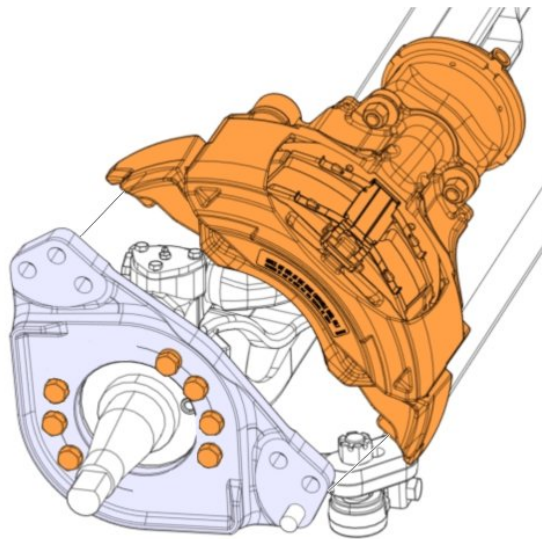
If **no**, commission the vehicle by connecting all cables to the negative (ground) battery terminals, and remove the wheel chocks.

9. Check brake operation after all repairs have been made. Caliper Bolts Replace, Steer Axle, One Wheel-end, Spider Removed

(Brake Caliper Clocked 40 ° rearward) (Dana axle pre W40-2013)

NOTE
If the brake caliper is clocked rearwards by 40 ° and all caliper bolts cannot be removed, then proceed to remove caliper, hub and brake spider.

1. Lift the disc brake wheel end to repair and support the axle with jack stand(s).
2. Remove tire and wheel assembly.
3. Remove the brake hose.
4. Remove the ABS sensor from brake spider.
5. Remove the brake pads.
6. Remove the caliper and brake chamber as an assembly.



 **CAUTION**

Risk of personal injury: The brake caliper is heavy and can cause injury if falls on you.

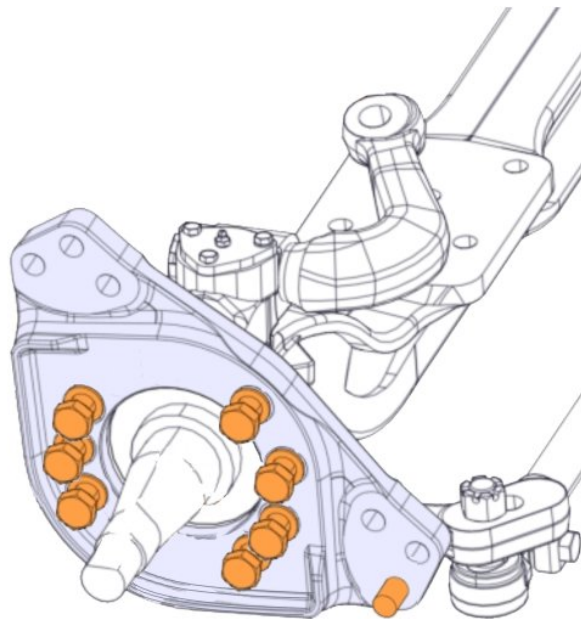
7. Remove the hub cap.

NOTE

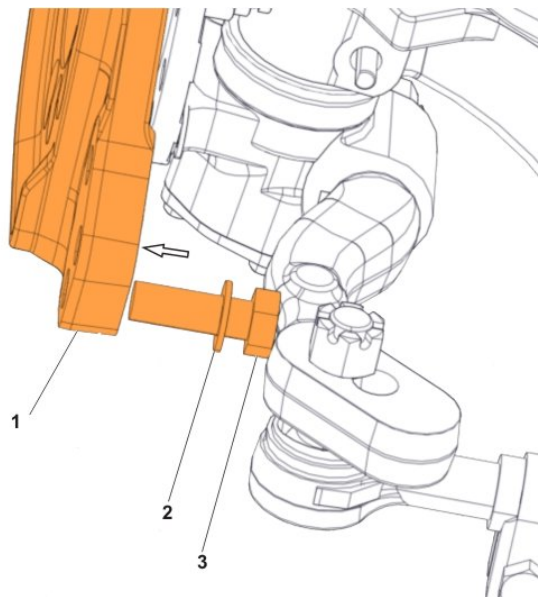
Catch any residual oil into a proper container.

8. Remove the hub nuts and hub.

9. Remove the brake spider bolts.



10. Move the brake spider (1) to replace the caliper bolt PN 992475 (3).



11. Install brake spider using new hardware; bolts PN 21693957, washers PN 3082677 (3), and nuts PN 3969976. Torque bolts to 412 Nm (304 ft-lb).

12. Install a new wheel seal PN 85103823 on the hub.

13. Install the hub on the spindle.

NOTE
Take care to not damage seal during installation.

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14. Assemble the wheel bearings in the hub; install the hub assembly on the axle spindle.

15. Install the nut (1) on the spindle and torque to 406 Nm +/- 8 (300 +/- 6 ft-lb).

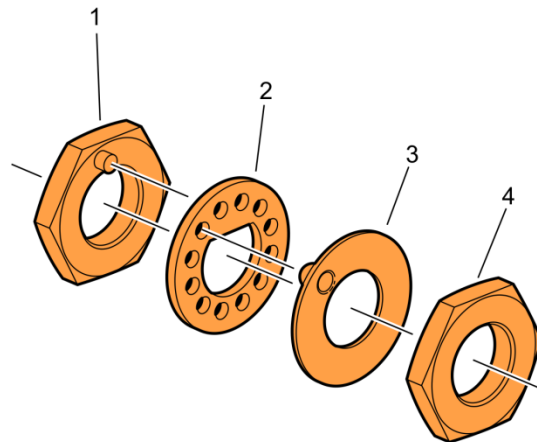
NOTE
If using the double nut design, only install the adjusting (inner) nut at this time. If using the single nut with external tabs (Axi-Lock), install only with correct size 6-point socket. DO NOT BACK-OFF NUT.

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16. Install the lock washer (2) with the 12 (9mm) holes.

NOTE
If the dowel on the nut and the lock washer are not aligned, remove the washer, loosen nut until the dowel pin aligns with the holes in the washer and reinstall.

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17. Install the thin dimpled washer (3) with the dimple toward the lock washer with the 12 (9mm) holes as shown.

18. Torque the outer nut (4) to 271-407 Nm (200 to 300 ft-lb).

19. Check the bearing clearance and adjust as required.
20. Install the hub cap and gasket PN 3197784. Torque to 500 Nm +/- 50 (368 +/- 37 ft-lb).
21. Fill the hub with the proper oil quantity and type as required.
22. Install the caliper and chamber using new bolts PN 992475 and new washers PN 994875, one at a time. Torque bolts to 508 Nm (375 ft-lb).

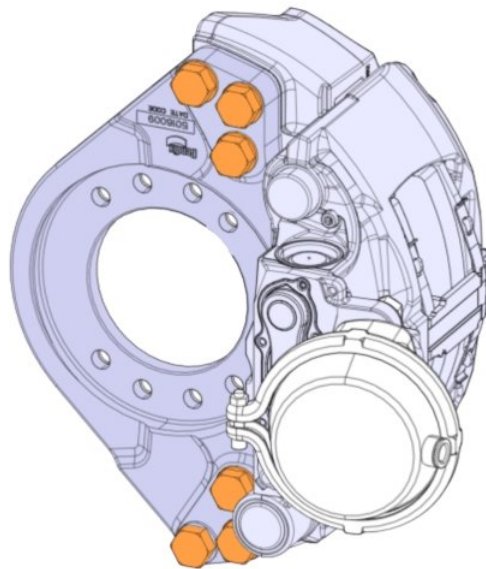
NOTE

Replace all 6 caliper bolts.

⚠ CAUTION

Risk of personal injury: The brake caliper is heavy and can injure the hand or fingers when being tested for proper caliper movement.

Take care not to allow the hand or fingers to be trapped and injured by the moving caliper.



23. Install the brake pads.
24. If required, adjust the brake pad clearance by turning the adjuster screw until the clearance between the tappets and pads is between 0.5 mm (0.020 in.) and 1.0 mm (0.040 in.).

NOTE
The caliper should be pushed inboard on its guide pins during this check and should move freely.

25. Install the brake hose.
26. Install the ABS sensor and push in until it touches the tone ring of the hub.
27. Install the wheel and tire assembly.
28. Torque the wheel nuts to 610 Nm (450 ft-lb).
29. Lift the axle. Remove the jack stand(s) and lower wheel end.
30. Do more disc brake calipers need repair?

If **yes** continue to the appropriate **Repair** procedure:

- **Caliper Bolts Replace, Steer Axle, One Wheel-end**
- **Caliper Bolts Replace, Steer Axle, One Wheel-end, Spider Removed (Dana axle pre W40-2013)**
- **Caliper Bolts Replace, Rear Axle, One Wheel-end**

If **no**, commission the vehicle by connecting all cables to the negative (ground) battery terminals, and remove the wheel chocks.

31. Check brake operation after all repairs have been made.

Caliper Bolts Replace, Rear Axle, One Wheel-end

1. Lift the disc brake wheel end to repair and support the axle with jack stand(s).
2. Remove tire and wheel assembly.
3. Install the 6 new bolts PN 992475 and 6 new washers PN 994875, one at a time.
4. Torque the new caliper bolts to 508 Nm (375 ft-lb).
5. Install the wheel and tire assembly.
6. Torque the wheel nuts to 610 Nm (450 ft-lb).
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- **Caliper Bolts Replace, Rear Axle, One Wheel-end**

If **no**, commission the vehicle by connecting all cables to the negative (ground) battery terminals, and remove the wheel chocks.

9. Check brake operation after all repairs have been made.

REIMBURSEMENT:

This repair is covered by an authorized Safety Recall campaign. Reimbursement is obtained through the normal claim handling process.		
	UCHP Reimbursement	eWarranty Reimbursement
Claim Type (used only when uploading from the Dealer Business System)	R	R
Recall Status		
Vehicle repaired per instructions		1-Modified per instructions
Labor Code		
Primary Labor Code (Inspection of all wheel-ends)	5000-02-09-01 0.6 hrs	51272-0-02 0.6 hrs
Labor Code (Replace caliper bolts, each wheel-end (spider removal not required))	5127-03-09-01 0.7 hrs	51272-0-03 0.7 hrs
Labor Code (Replace caliper bolts, each wheel-end, on steer axle (spider removal required))	5127-03-09-02 1.6 hrs	51272-0-04 1.6 hrs
Time to take charge of vehicle and determine campaign status	1700-16-01-01 0.3 hrs	17003-0-01 0.3 hrs
Causal Part	992475	992475
Authorization Number	C6545	RVXX1403

Take-charge time is not included in the labor code for this operation. Take charge may be eligible, but can only be used once per vehicle repair visit. If the vehicle is having other warranty repairs performed, take-charge should be charged to the warranty repair, otherwise take-charge can be charged to this Safety Recall campaign.