



Rear Axle Nut Washer Installation

Classification	Repair Bulletin - Level II	Section/Group	31 - Suspension	Country/Region	North America
Year	2012	Model	Model S	Version	All

Bulletin Classification: Repair Bulletin – Level II is issued to address a known non-safety related condition and provide recommended technical diagnosis & repair procedures. Apply this procedure to all vehicles in the affected VIN range listed below.

Condition

Over time, repeated heavy acceleration can cause the rear wheel axle nuts to lose proper torque. This might cause improper preload on the rear wheel bearings, possibly leading to premature bearing wear. Symptoms of this issue include a grinding noise audible to the driver and caused by loose rear wheel axle nuts. If not addressed, the noise will get progressively worse, leading to the need for premature bearing replacement.

Correction

Install wedge-lock washers beneath the left and right rear axle nuts. Install new axle nuts. Check the rear wheel bearings for axial play. Replace the rear wheel hub and bearing assemblies, if necessary.

Procedure

1. Close all doors.
2. Touch CONTROLS > DRIVING > JACK on the touchscreen to enable jack mode.
3. Raise and support the vehicle.
4. Shift into Neutral to release the parking brake.
5. Touch CONTROLS > E-BRAKE & POWER OFF > POWER OFF on the touchscreen to prevent the vehicle from shifting into Park when the driver's door is opened.

6. Face one of the rear wheels. Grasp the wheel/tire assembly with both hands, at the left and right edges. Check for free play by trying to rock the wheel from side to side (Figure 1).



Figure 1

7. Grasp the wheel/tire at the top and bottom. Check for free play by trying to rock the wheel up and down (Figure 2).



Figure 2

8. Repeat steps 6 and 7 on the other rear wheel.
9. If no axial play is noted, continue to the Installing Axle Nut Washers section of this document. If axial play is noted, skip to the Replacing Rear Wheel Hub and Bearing Assembly section of this document.

Installing Axle Nut Washers

1. Shift into Park to engage the parking brake.
2. Remove both rear wheels.
3. Remove and discard the left and right rear axle nuts.
4. Install wedge-lock washers (Figure 3) on the left and right axle shaft splines.



Figure 3

5. Install new axle nuts on the left and right rear axle shaft splines. Torque the axle nuts to 245 Nm.
6. Re-install the rear wheels. Torque the lug nuts to 175 Nm.

Replacing Rear Wheel Hub and Bearing Assembly

NOTE: The wheel hub and bearing assemblies only need to be replaced if free play was found using the procedure listed earlier in this document.

1. Shift into Park to engage the parking brake.
2. Remove both rear wheels (Torque 175 Nm).
3. Remove and discard both axle nuts (Torque 245 Nm).
4. Shift into Neutral to release the parking brake.
5. Touch CONTROLS > E-BRAKE & POWER OFF > POWER OFF on the touchscreen to prevent the vehicle from shifting into Park when the driver's door is opened.
6. Remove the rear wheel arch liner on the affected side of the vehicle.
7. Using a suitable tool, ease the brake caliper pistons and pads away from the brake rotor.

⚠ CAUTION: To avoid damage to the brake line, the brake caliper must be supported at all times. Do not let the caliper hang from the brake line.

8. Remove and discard the 2 bolts that hold the brake caliper to the knuckle (Torque 120 Nm) (Figure 4).

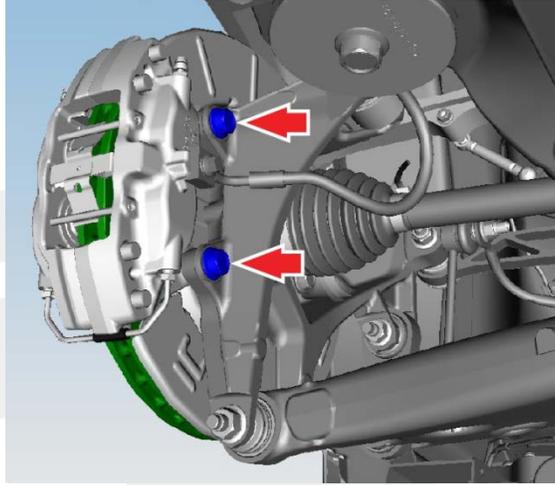


Figure 4

9. Use a stiff wire or a cable tie to support the brake caliper.

10. Remove the screw that holds the wheel speed sensor to the knuckle (Torque 8 Nm), then move the speed sensor and its wiring harness out of the work area.

11. Disconnect the parking brake electrical connector.

12. Remove and discard the 2 bolts that hold the parking brake caliper to the knuckle (Torque 57 Nm), then remove the parking brake caliper (Figure 5).

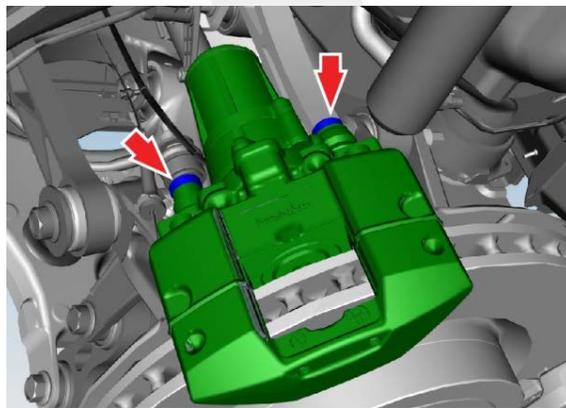


Figure 5

13. Remove the screw that holds the brake rotor to the hub (Torque 17 Nm), then remove the brake rotor.

14. Remove the 4 bolts that hold the hub and bearing assembly to the knuckle (Torque 90 Nm), then remove the hub and bearing assembly (Figure 6).

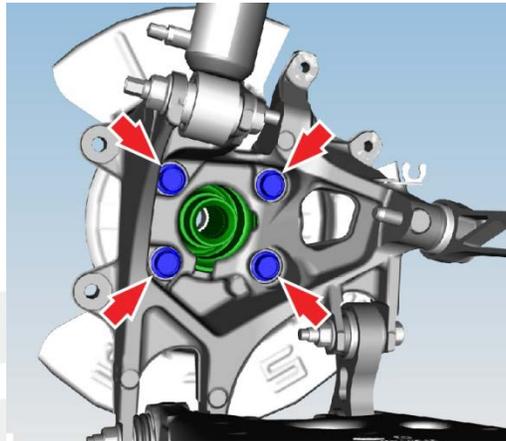


Figure 6

The installation procedure is the reverse of removal, except for the following:

- Clean the mating faces of the hub and the brake rotor.
- Use new bolts when reinstalling the brake caliper and the parking brake caliper. Do not reuse the old bolts.
- Place wedge-lock washers over the left and right axle splines, then install new axle nuts. Do not reuse the old axle nuts. Using a torque wrench, torque the left and right axle nuts to 245 Nm.
- Before driving, lower the vehicle to the floor and chock a wheel, then pump the brake pedal at least 5 times.

⚠ WARNING: Always check that brake pads are seated correctly before driving the vehicle.

Affected Part(s) 1020296-00-A WASHER ASSY LCK M24X39 ZNFL-W (Qty. 2 Required)
1020297-00-A NUT HF M24X1.5 [8.8] ZNFL-W (Qty. 2 required)

If hub and bearing assembly needs to be replaced:

6006796-00-A RR SUSP HUB AND BEARING ASSY
6006796-01-A RR SUSP HUB AND BEARING ASSY PERFORMANCE
2007068 BOLT HF M12X1.75X45 [10.9]-G720 (Qty. 2 required)
1004355-00-B BLT H M10X1.50X86 [8.8] ZNAL-W (Qty. 2 required)

Affected VIN(s) Perform this procedure on all Model S.

Warranty/DMS Coding:

Description	Complaint	Cause	Correction
Vehicle Inspection Only; Rear Axle Nut Washer Installation Not Required	A091	B053	S011231001
Install Rear Axle Nut Washers, LH and RH	A091	B053	S021231001
Replace 1 Rear Wheel Hub/Bearing Assy; Install Rear Axle Nut Washers, LH and RH	A091	B053	S031231001
Replace 2 Rear Wheel Hub/Bearing Assys; Install Rear Axle Nut Washers, LH and RH	A091	B053	S041231001