



Front Lower Control Arm Washer Installation

Classification	Campaign Bulletin	Section/Group	31 - Suspension	Country/Region	North America, Europe
Year	2012-2013	Model	Model S	Version	All

Bulletin Classification: *This campaign bulletin addresses a known non-safety-related condition and provides recommended technical diagnosis and repair procedures. Apply this procedure to all vehicles in the affected VIN range listed. These instructions assume knowledge of motor vehicle and high voltage electrical component repairs, and should only be executed by trained professionals. Tesla Motors assumes no liability for injury or property damage due to a failure to properly follow these instructions or repairs attempted by unqualified individuals.*

This Service Bulletin supersedes SB-13-31-003, dated 10-Dec-13. Each content change is marked by a vertical line in the left margin. Discard the previous version and replace it with this one.

Condition

The front lower control arm ball joints might develop greater free play than is expected. This can result in a clicking or clunking sound from the front suspension when driving over large bumps. If left uncorrected, the ball joints could be subject to accelerated wear. Over time, the clicking or clunking noises will become louder as the ball joint wear increases, leading to required premature replacement of components.

Correction

Install 4 wedge-lock washers on the lower control arm ball joints. Check the front lower control arm ball joints and front knuckles for abnormal wear, and replace if necessary.

Required Part(s):	Part Number	Description	Quantity
	1004358-00-B	NUT HFPT M14x1.50 [10] ZnAl-W	4
	1033093-00-A	WASHER, NORDLOCK, 15.2x30.7x3.4	4
	If necessary:		
	1013184-00-A	FR SUSP KNUCKLE ASSY LH	1
	1013182-00-A	FR SUSP KNUCKLE ASSY RH	1
	6007998-00-B	FR SUSP FORE LINK ASSY LH - S3, S2	1
	6006664-00-B	FR SUSP FORE LINK ASSY RH - S3, S2	1
	6007997-00-B	FR SUSP AFT LINK ASSY	2

These part numbers were current at the time of publication. Use the revisions listed or later, unless otherwise specified in the Parts Manual.

Correction Description	Correction	Time
Vehicle Inspection Only; Front Lower Control Arm Washer Installation Not Required	S011331003	0.2
Inspect Knuckle/Ball Joint Surfaces, Install 4 Front Lower Control Arm Washers	S021331003	0.9
Replace 2 Front Knuckles, Install 4 Front Lower Control Arm Washers	S031331003	2.0
Replace 4 Lower Control Arms, Install 4 Front Lower Control Arm Washers	S041331003	3.4
Replace 2 Front Knuckles and 4 Lower Control Arms, Install 4 Front Lower Control Arm Washers	S051331003	4.9
SB-13-31-003 Not Applicable	S061331003	0.0

Inspection

1. Remove the front wheels (refer to Service Manual procedure 34012401).
2. Check the front fore and aft lower control arms for visible play at the connections to the knuckle (Figure 1).
 - If there is no visible free play, skip directly to the “Wedge-Lock Washer Installation” section of this document.
 - If visible free play is found, continue to the next step in this procedure.

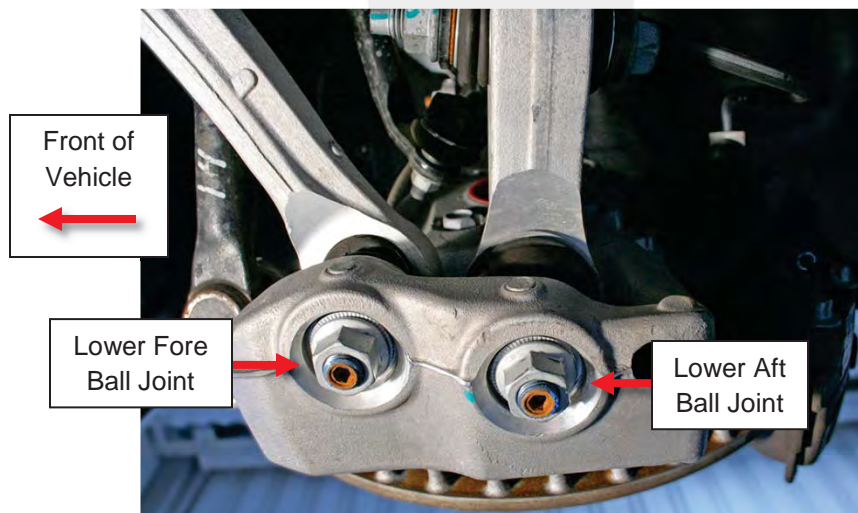


Figure 1 (RH side shown)

3. If the vehicle has air suspension, connect a laptop with Toolbox to the vehicle, and select **Views > Suspension > Air Suspension Fill/Deflate** to deflate both front air springs.

⚠ CAUTION: To prevent ball joint damage, always hold the ball joint pin with a wrench while loosening or tightening the lock nut.

4. Hold the lower fore ball joint with a hex tool. Remove and discard the nut that holds the ball joint to the knuckle (torque 195 Nm).
5. Disconnect the lower fore control arm from the knuckle.

6. Remove the bolt and nut that hold the spring module to the lower aft arm (torque 140 Nm) (Figure 2).



Figure 2

7. Release the spring module from the lower aft arm.

⚠ CAUTION: To prevent ball joint damage, always hold the ball joint pin with a wrench while loosening or tightening the lock nut.

8. Hold the lower aft ball joint with a hex tool. Remove and discard the nut that holds the ball joint to the knuckle (torque 195 Nm).
9. Disconnect the lower aft control arm from the knuckle.
10. Inspect the ball joints and seating surfaces on the knuckles for shiny, oval-shaped wear marks. Examples of damage to the knuckle seating surfaces are shown in Figure 3.

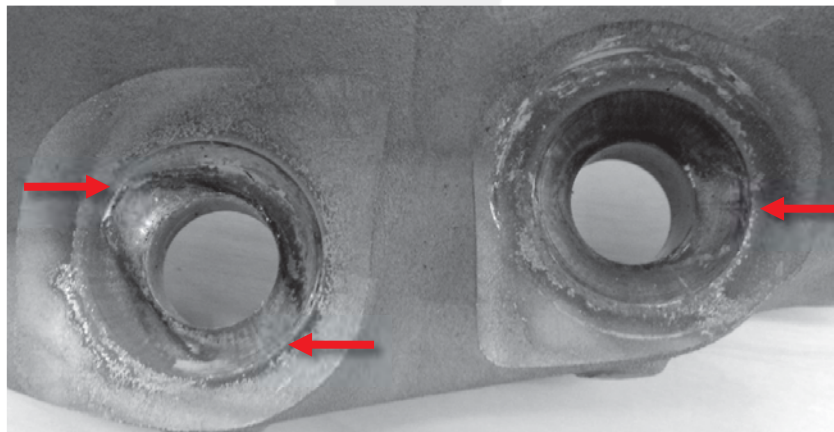


Figure 3

11. Replace the knuckles if they have visible wear marks (refer to Service Manual procedure 31010102).
12. Replace the lower control arms if the ball joints have visible wear marks (refer to Service Manual procedure 31013402 or 31013602).
13. Continue to the “Wedge-Lock Washer Installation” section of this document.

Wedge-Lock Washer Installation

1. Remove and discard the 4 nuts that hold the lower control arm ball joints to the knuckle.
2. Install a wedge-lock washer on each ball joint stud, then loosely install a new nut (Figure 4).



Figure 4 (RH side shown)

⚠ CAUTION: To prevent ball joint damage, always hold the ball joint pin with a wrench while loosening or tightening the lock nut.

3. Hold each lower control arm ball joint with a hex tool while torquing the nut to 195 Nm.
4. Check that there is no visible free play at the lower fore and aft control arms' connections to the knuckle.
5. Reinstall the wheels.
6. If the air springs were deflated, use Toolbox to inflate both front air springs.

Affected VIN(s) Affected Model S vehicles built before approximately November 10, 2013.

NOTE: This is a simplified summary of the affected VIN list. Refer to the VIN/Bulletin Tracker or Customer/Vehicle profile to determine applicability of this bulletin for a particular vehicle.

For feedback on the accuracy of this document, email ServiceBulletinFeedback@teslamotors.com.



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This Service Bulletin supersedes SB-13-31-003 R1, dated 16-Mar-15. Each content change is marked by a vertical line in the left margin. Discard the previous version and replace it with this one.

Condition

The front lower control arm ball joints might develop greater free play than is expected. This can result in a clicking or clunking sound from the front suspension when driving over large bumps. If left uncorrected, the ball joints could be subject to accelerated wear. Over time, the clicking or clunking noises will become louder as the ball joint wear increases, leading to required premature replacement of components.

Correction

Install 4 wedge-lock washers on the lower control arm ball joints. Check the front lower control arm ball joints and front knuckles for abnormal wear, and replace if necessary.

Required Part(s):	Part Number	Description	Quantity
	1004358-00-B	NUT HFPT M14x1.50 [10] ZnAl-W	4
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	6007997-00-B	FR SUSP AFT LINK ASSY	2

These part numbers were current at the time of publication. Use the revisions listed or later, unless otherwise specified in the Parts Manual.

Correction Description	Correction	Time
Vehicle Inspection Only; Front Lower Control Arm Washer Installation Not Required	S011331003	0.20
Inspect Knuckle/Ball Joint Surfaces, Install 4 Front Lower Control Arm Washers	S021331003	0.25
Replace 2 Front Knuckles, Install 4 Front Lower Control Arm Washers	S031331003	2.00
Replace 4 Lower Control Arms, Install 4 Front Lower Control Arm Washers	S041331003	3.40
Replace 2 Front Knuckles and 4 Lower Control Arms, Install 4 Front Lower Control Arm Washers	S051331003	4.90
SB-13-31-003 Not Applicable	S061331003	0.00

Inspection

1. Remove the front wheels (refer to Service Manual procedure 34012401).
2. Check the front fore and aft lower control arms for visible play at the connections to the knuckle (Figure 1).
 - If there is no visible free play, skip directly to the “Wedge-Lock Washer Installation” section of this document.
 - If visible free play is found, continue to the next step in this procedure.

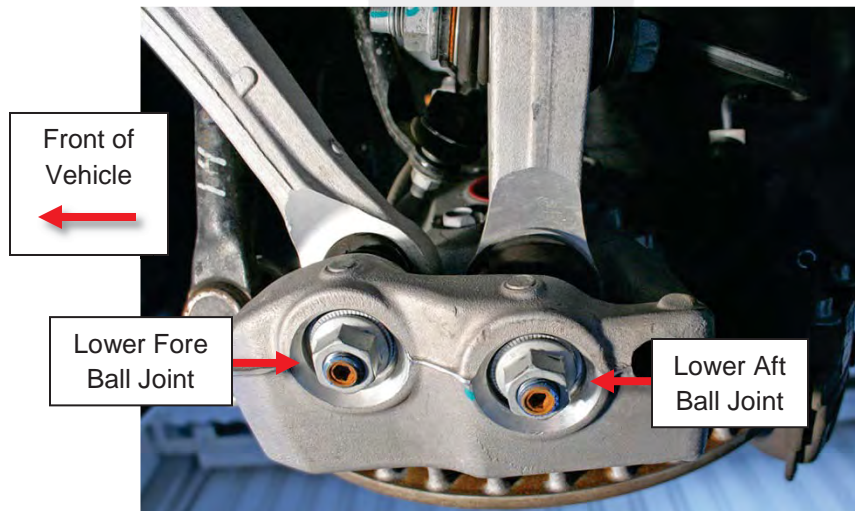


Figure 1 (RH side shown)

3. If the vehicle has air suspension, connect a laptop with Toolbox to the vehicle, and select **Views > Suspension > Air Suspension Fill/Deflate** to deflate both front air springs.

⚠ CAUTION: To prevent ball joint damage, always hold the ball joint pin with a wrench while loosening or tightening the lock nut.

4. Hold the lower fore ball joint with a hex tool. Remove and discard the nut that holds the ball joint to the knuckle (torque 195 Nm).
5. Disconnect the lower fore control arm from the knuckle.

6. Remove the bolt and nut that hold the spring module to the lower aft arm (torque 140 Nm) (Figure 2).

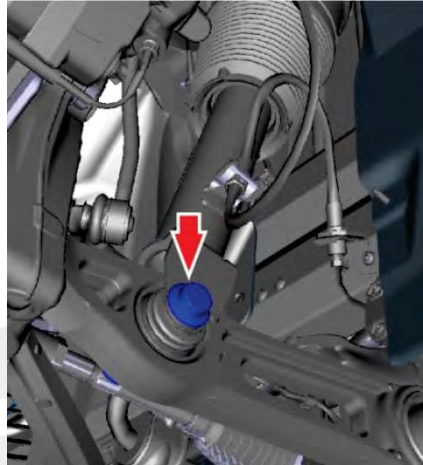


Figure 2

7. Release the spring module from the lower aft arm.

⚠ CAUTION: To prevent ball joint damage, always hold the ball joint pin with a wrench while loosening or tightening the lock nut.

8. Hold the lower aft ball joint with a hex tool. Remove and discard the nut that holds the ball joint to the knuckle (torque 195 Nm).
9. Disconnect the lower aft control arm from the knuckle.
10. Inspect the ball joints and seating surfaces on the knuckles for shiny, oval-shaped wear marks. Examples of damage to the knuckle seating surfaces are shown in Figure 3.

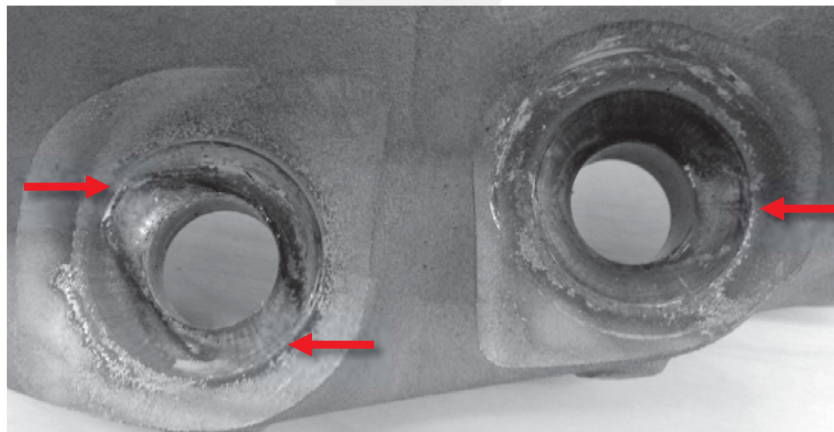


Figure 3

11. Replace the knuckles if they have visible wear marks (refer to Service Manual procedure 31010102).
12. Replace the lower control arms if the ball joints have visible wear marks (refer to Service Manual procedure 31013402 or 31013602).
13. Continue to the “Wedge-Lock Washer Installation” section of this document.

Wedge-Lock Washer Installation

1. Remove and discard the 4 nuts that hold the lower control arm ball joints to the knuckle.
2. Install a wedge-lock washer on each ball joint stud, then loosely install a new nut (Figure 4).



Figure 4 (RH side shown)

⚠ CAUTION: To prevent ball joint damage, always hold the ball joint pin with a wrench while loosening or tightening the lock nut.

3. Hold each lower control arm ball joint with a hex tool while torquing the nut to 195 Nm.
4. Check that there is no visible free play at the lower fore and aft control arms' connections to the knuckle.
5. Reinstall the wheels.
6. If the air springs were deflated, use Toolbox to inflate both front air springs.

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