



# Replace LH Front Drive Unit Clevis Mount and Both Front Halfshafts

<b>Classification</b>	Repair Bulletin	<b>Section/Group</b>	39 - Front Drive Unit	<b>Country/Region</b>	All
<b>Year</b>	2014 - 2019	<b>Model</b>	Model S, Model X	<b>Version</b>	Dual Motor

**Bulletin Classification:** This repair bulletin provides instructions and guidelines for a noted condition or a customer concern. The information provided can address a broad range of known or perceived issues with the operation of Tesla vehicles. This bulletin might not be VIN-specific. These instructions assume knowledge of motor vehicle and high voltage electrical component repairs, and should only be executed by trained professionals. Tesla 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-19-39-001 R2, dated 25-Jun-19. Each content change is marked by a vertical line in the left margin. Discard the previous version and replace it with this one.

## Condition

Older versions of the Model S and Model X LH front drive unit clevis mount contain a bushing that allows the front drive unit to move side-to-side more than expected during hard accelerations, resulting in excessive vibrations coming from the front drive unit during hard acceleration. This is exclusively an NVH issue and does not otherwise affect steering functionality, braking, or acceleration.

## Correction

An updated LH front drive unit clevis mount with an improved bushing is available which mitigates the condition. Upon customer complaint, inspect the vehicle for excessive vibrations coming from the front drive unit during hard acceleration. If the condition is present, update the LH front drive unit clevis mount and replace both front drive unit halfshafts.

Correction Description	Correction	Time
SB-19-39-001 Not Applicable	S011939001	0.00
Inspect Vehicle, Replace LH Front Drive Unit Clevis Mount And Both Front Halfshafts (Model S)	S021939001	2.05
Inspect Vehicle, Replace LH Front Drive Unit Clevis Mount And Both Front Halfshafts (Model X)	S031939001	2.10

Required Part(s):	Part Number	Description	Quantity
	1055366-00-H	CLVS ASSY,DBL ISO,LHS MTR MNT,SDU-F	1
	2007073	NUT HF M14x2.00 [10]-G720	2
	1056323-00-A	BOLT HF M14x102 PC109	2
	1137112-00-A	BOLT,TE,M10X1.5x48[10.9] U-ZNNI-MP CW	2
	1004350-00-A	BLT BTNHD M10x1.50x57 [10.9] ZnAl-W	2
	1055663-00-A	NUT PLATE ASSY,LHS MTR MNT,SDU-F	1
	1020296-00-B	WASHER SAFETY M24x39	2
	1004356-00-B	NUT HFPT M14-2.00 [10] ZnNi-W	2
	2007090-00-C	NUT HF M10x1.25 PC10 PTP COLORED	2
	1004351-00-A	NUT HF M10x1.50 [10] ZnAl-W	2
	1008722-00-A	BOLT HF M8x30 PC109 ADH MAT	4
	1009169-00-A	BOLT HF M14x2.00x50 DP [10.9] ZnAl-W	2

**For Model S vehicles:**

1030616-00-D	HALFSHAFT, FR, RH, MODEL S HPDM	1
1030615-00-D	HALFSHAFT, FR, LH, MODEL S HPDM	1

**For Model X vehicles:**

1027115-00-D	HALFSHAFT, FR RH, MODEL X	1
1027111-00-D	HALFSHAFT, FR LH, MODEL X	1

**Shop supplies:**

Brake cleaner  
 Paint pen  
 Foldable funnel  
 Oil drain container  
 Wheel chocks  
 Molykote M-77 paste

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

Special Tool(s):	Part Number	Description
	1096075-00-A	TOOL, HUB PULLER, HYDRAULIC
	1498673-00-A	KIT, CABLE AXLE REMOVER
	1081765-00-A	3/4 TON UNDERHOIST STAND
	1056566-00-A	5MM LOCATING SHIM SET FOR FRONT DU REPLACEMENT

## Procedure

- Perform a test drive where safe, quickly accelerating to highway speeds.
  - If vibration under hard acceleration is not detected, discontinue this procedure.
  - If vibration under hard acceleration is detected, continue to the next step.
- Remove the lug nut covers (if equipped) and loosen the lug nuts of the LH and RH front wheels.
- Raise the vehicle, remove the LH and RH front wheels, and then remove the LH and RH front wheel center caps.
- Reinstall the LH and RH front wheels and lug nuts (torque 175 Nm), and then lower the vehicle until the wheels are touching the ground.
- Loosen, but do not remove, the nuts that attach the LH and RH front halfshafts to the front hub assemblies (torque 245 Nm).
- Remove the rear underhood apron (refer to Service Manual procedure 12251102).
- Remove the LH and RH underhood aprons (refer to Service Manual procedure 12251202).

8. Remove the front underhood apron (refer to Service Manual procedure 12251002).
9. If equipped, remove the HEPA filter inlet duct (refer to Service Manual procedure 18105001).
10. If equipped, remove the HEPA filter outlet duct (refer to Service Manual procedure 18105202).
11. Disconnect 12V power (refer to Service Manual procedure 17010200).
12. If equipped, remove the HEPA filter housing (refer to Service Manual procedure 18100202).
13. Remove the front skidplate (refer to Service Manual procedure 30011002).
14. Drain the front gearbox fluid (refer to Service Manual procedure 39300102).
15. Remove the bolt that attaches the lower intermediate shaft to the steering rack (torque 30 Nm) (Figure 1), and then slide the shaft off the steering rack.



**Figure 1**

16. Remove the RH front wheel.
17. Remove the nut and discard the washer that attaches the RH halfshaft to the RH front hub assembly (Figure 2).

**NOTE:** The washer must be discarded and replaced with a new washer. The nut may be reused.



**Figure 2**

18. Install a hub puller on the RH front hub assembly, and then separate the halfshaft from the hub splines (Figure 3).



**Figure 3**

19. Release the grommet that attaches the RH wheel speed sensor to the RH front knuckle (Figure 4).



**Figure 4**

20. Release the clip that attaches the RH wheel speed sensor to the RH front knuckle (Figure 5).



**Figure 5**

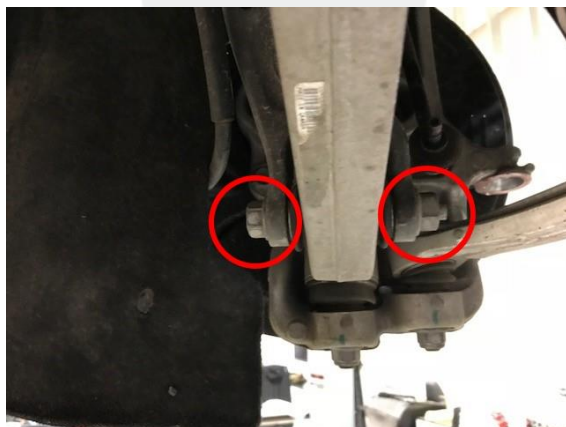
21. Remove the bolt and discard the nut that attaches the RH front knuckle to the RH front upper control arm (torque 60 Nm) (Figure 6).

**NOTE:** The nut must be discarded and replaced with a new nut. The bolt may be reused.



**Figure 6**

22. Remove the bolt and nut that attach the RH front shock absorber to the RH front lower aft link (torque 140 Nm) (Figure 7).



**Figure 7**

23. Remove and discard the nut that attaches the RH tie rod end to the RH front knuckle (torque 103 Nm), and then swing the tie rod end away from the knuckle (Figure 8).



**Figure 8**

24. Remove and discard the nut that attaches the stabilizer bar to the stabilizer bar end link (torque 70 Nm), and then swing the end link away from the stabilizer bar (Figure 9).



**Figure 9**

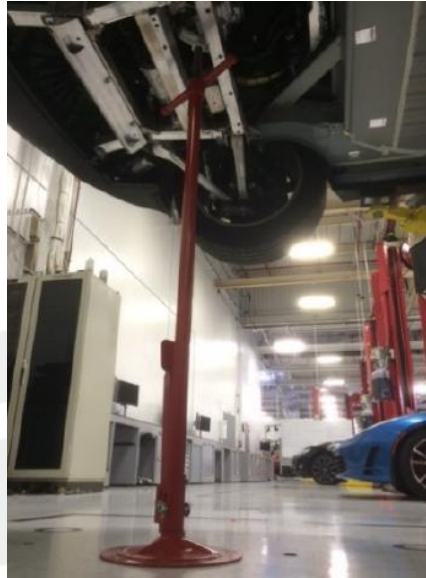
25. Remove the RH front halfshaft from the RH front hub assembly.
26. Use the cable axle remover to remove the RH front halfshaft from the RH front jackshaft (Figure 10).



**Figure 10**

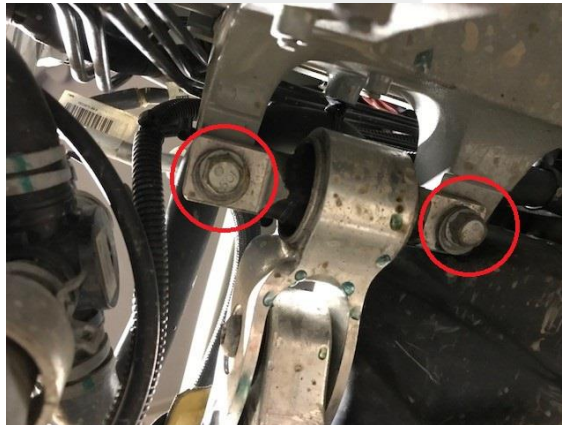
27. Repeat steps 16 to 25 on the LH front halfshaft
28. Use the cable axle remover to remove the LH front halfshaft from the front drive unit.

29. Support the front drive unit with an underhoist stand (Figure 11).



**Figure 11**

30. Remove and discard the bolts that attach the LH front drive unit clevis mount to the LH front rail (Figure 12).



**Figure 12**

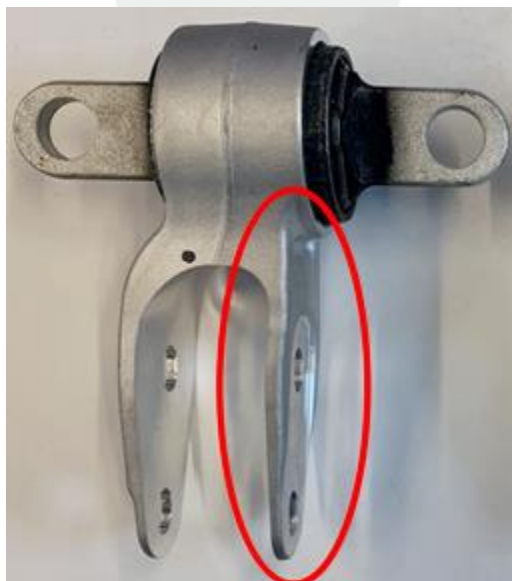
31. Remove and discard the bolts and patched nut plate that attach the LH front drive unit clevis mount to the isolator (Figure 13), and then remove the clevis mount from the vehicle.



**Figure 13**

32. Position the new LH front drive unit clevis mount on the front drive unit, and then hand-tighten the new bolts that attach the clevis mount to the isolator (Figure 13).

**NOTE:** The flat side of the clevis mount (Figure 14, circled) faces the rear of the vehicle.



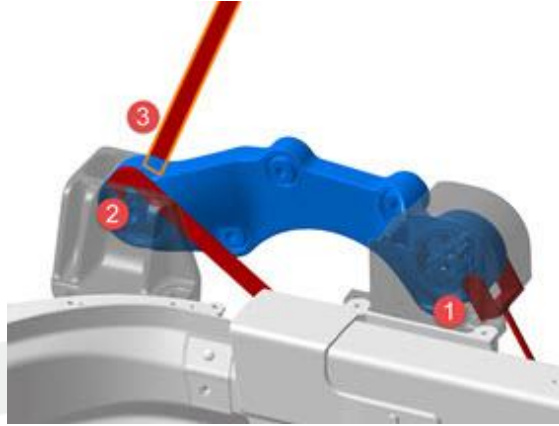
**Figure 14**

33. Move the front drive unit into position, and then hand-tighten the new bolts that attach the clevis mount to the LH front rail (Figure 12).

**TIP:** Adjust the underhoist stand to help align the mounting holes.



34. Install the drive unit mount locating shims on the RH front drive unit mount (Figure 15).



**Figure 15 (The callouts in this image are described below)**

1. 2-pronged shim tool: Position the 2-pronged shim around the RH drive unit mount front bushing (Figure 16).



**Figure 16**

2. Hook shim tool: Reach beneath the drive unit and position the hook shim tool between the mount and outer bushing.
  3. Straight shim tool: Reach downward between the V-brace and cross brace and position the straight shim tool between the mount and inner bushing.
35. Torque the bolts that attach the clevis mount to the LH front rail (torque 65 Nm) (Figure 12).
36. Check that all of the drive unit mount locating shims (Figure 15) can slide in and out of place. If the shims cannot slide in and out, loosen the LH front drive unit clevis mount front rail bolts, and then go back to step 34.
37. Torque the bolts that attach the clevis mount to the isolator (torque 50 Nm) (Figure 13).
38. Remove the drive unit mount locating shims (Figure 15).
39. Remove the underhoist stand from the working area.

40. Perform steps 28 and 25–17 in reverse sequence on the LH side of the vehicle.

**NOTE:** When performing step 22, only loosely install the bolt and nut that attach the LH front shock absorber to the LH front lower aft link (Figure 7).

**NOTE:** Before installing the LH front drive unit halfshaft, apply approximately 1 gram of Molykote M-77 Lubricant Paste only to the hub mating face on the outboard side of the halfshaft.

**! CAUTION:** Do not apply any Molykote to the halfshaft splines. If lubricant is mistakenly applied, clean the splines with a shop towel.

41. Perform steps 26–17 in reverse sequence on the RH side of the vehicle.

**NOTE:** When performing step 22, only loosely install the bolt and nut that attach the RH front shock absorber to the RH front lower aft link (Figure 7).

**NOTE:** Before installing the RH front drive unit halfshaft, apply approximately 1 gram of Molykote M-77 Lubricant Paste only to the hub mating face on the outboard side of the halfshaft.

**! CAUTION:** Do not apply any Molykote to the halfshaft splines. If lubricant is mistakenly applied, clean the splines with a shop towel.

42. Position the LH and RH front wheels on the vehicle, and then loosely install the lug nuts.

43. Position the lower intermediate shaft on the steering rack, and then install the bolt that attaches the shaft to the steering rack (torque 30 Nm) (Figure 1).

44. Install the front skidplate (refer to Service Manual procedure 30011002).

45. Lower the vehicle until the wheels are touching the ground, and then tighten the LH and RH front wheel lug nuts (torque 175 Nm).

46. Install the nuts and new washers that attach the LH and RH front halfshafts to the front hub assemblies (torque 245 Nm).

47. Install the LH and RH front wheel center caps and lug nut covers.

48. Refill the front gearbox fluid (refer to Service Manual procedure 39300102).

49. Reconnect 12V power (refer to Service Manual procedure 17010200).

50. If equipped, install the HEPA filter housing (refer to Service Manual procedure 18100202).

51. Install the front underhood apron (refer to Service Manual procedure 12251002).

52. If equipped, install the HEPA filter inlet duct (refer to Service Manual procedure 18105001).

53. If equipped, install the HEPA filter outlet duct (refer to Service Manual procedure 18105202).

54. Install the LH and RH underhood aprons (refer to Service Manual procedure 12251202).

55. Install the rear underhood apron (refer to Service Manual procedure 12251102).

56. Use the touchscreen to calibrate the LH and RH rear doors (**Model X only**).

57. Set the vehicle to Standard height (**air suspension only**).

58. Move the vehicle to a 4 post lift and chock the wheels.

59. Tighten the bolts and nuts that attach the LH and RH front shock absorbers to the LH and RH front lower aft links (torque 140 Nm) (Figure 7), and then mark each nut with a paint pen.
60. Perform a test drive where safe, quickly accelerating to highway speeds.

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**Affected VIN(s)** Affected Dual Motor Model S and Model X vehicles built before approximately May 15, 2019.

**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@tesla.com](mailto:ServiceBulletinFeedback@tesla.com).

