



# Steering Rack Water Ingress, Norway

**Classification** Campaign Bulletin    **Section/Group** 32 - Steering    **Country/Region** Norway

**Year** 2013-2014    **Model** Model S    **Version** RWD

**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 electricity 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 Document supersedes SB-14-32-001, dated 11-Dec-14. Each content change is marked by a vertical line in the left margin. Discard the previous version and replace it with this one.*

## Condition

On some Model S vehicles, water might travel through the power steering harness from the 12V battery terminal into the steering rack, and then into the front left side body harness, which might result in an alert message on the instrument cluster.

## Correction

Inspect the power steering harness connector:

- If there is evidence of water ingress, replace the steering rack, power steering harness, and front left side body harness.
- If there is no evidence of water ingress, apply heat shrink tubing to the ring terminal on the 12V fusebox side of the power steering harness.

Correction Description	Correction	Time
Vehicle Inspection Only; Heat Shrink Tubing Not Required	S011432001	0.10
Inspect X165 Connector For Water Ingress; Apply Heat Shrink Tubing	S021432001	0.80
Inspect X165 Connector For Water Ingress; Replace Steering Rack, Power Steering Harness, And Front Left Side Body Harness	S031432001	6.65

Required Part(s):	Part Number	Description	Quantity
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**If No Evidence of Water Ingress**

	1053550-00-A	HEAT SHRINK TUBING	1
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**If Evidence of Water Ingress**

	1453628-00-B	LHD STEERING GEAR-STEEL BOLTS+WAX	1
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**One of the following:**

	1011301-00-M	CABLE,ASSY,MDLS,EPAS	1
	1011301-90-C	CABLE,ASSY,MDLS,EPAS	1

**One of the following:**

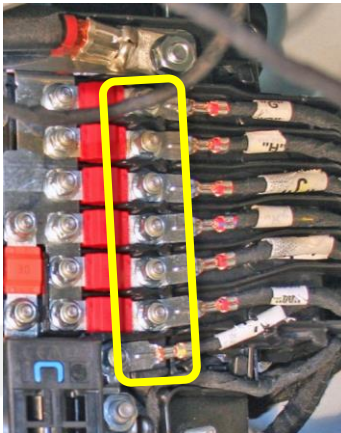
	1009096-03-H	FRONT LEFT BODY HARNESS ASSEMBLY - AIR SUSPENSION AND EU SECURITY	1
	1009096-04-H	FRONT LEFT BODY HARNESS ASSEMBLY - COIL SUSPENSION AND EU SECURITY	1

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

## Inspect For Water Ingress

1. Disconnect 12V power (refer to Service Manual procedure 17010100).
2. Remove the underhood storage unit (refer to Service Manual procedure 15240701).

3. Release the 6 nuts that attach the 12V harness cables to the 12V battery fusebox (torque 5 Nm) (Figure 1).



**Figure 1**

4. Disconnect the EPAS cable assembly from the steering rack (Figure 2).



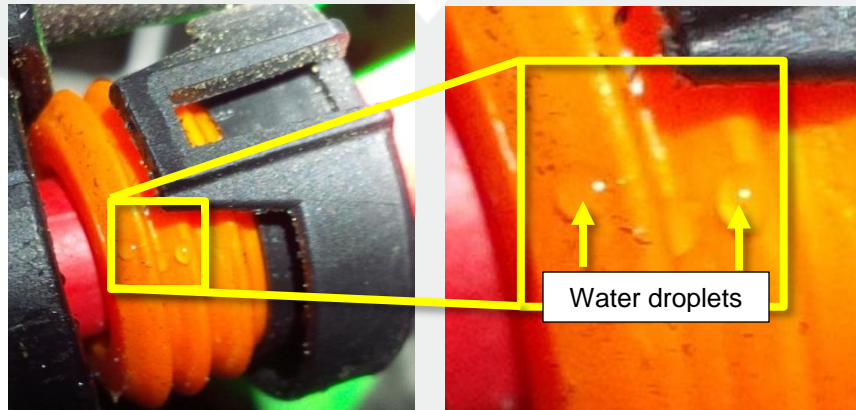
**Figure 2**

5. Thoroughly inspect the connector for evidence of water ingress.
  - a. Inspect both the male and female ends of the connection.
  - b. Remove the cover from the housing on the red positive cable (Figure 3) and inspect inside the housing.



**Figure 3**

- c. Inspect the orange gasket (Figure 4).



**Figure 4**

6. If there is no evidence of water ingress, continue to the “Apply Heat Shrink Tubing to Harness” section. If there is evidence of water ingress, skip to the “Replace Steering Rack and Harnesses” section.

## Apply Heat Shrink Tubing to Harness

1. Remove the wire separator to expose the bottom layer of harnesses.
2. Release the nut that attaches the positive power steering harness to the 12V fusebox (torque 5 Nm) (Figure 5).

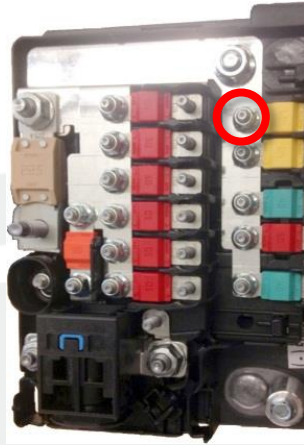



Figure 5

3. Position the heat shrink tubing onto the harness so that it covers the base of the ring terminal (Figure 6).

 **NOTE:** Make sure that the tubing is positioned so that:


- No copper will be exposed after the tubing contracts in the next step (Figure 7).
- No tubing is captured between the ring terminal and the fusebox upon reinstallation.



Figure 6



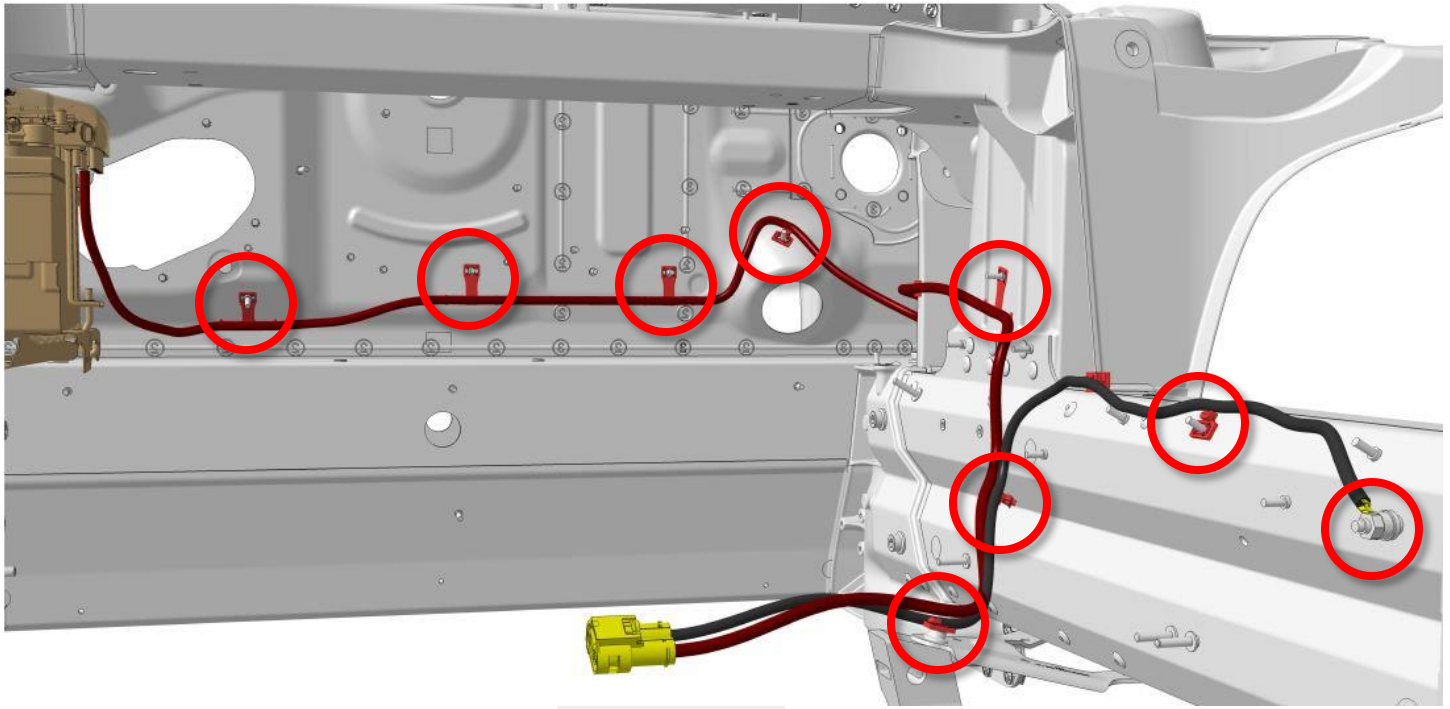
Figure 7

 **WARNING:** Put on mechanic's gloves before continuing.

4. Apply heat to the heat shrink tubing. A small amount of adhesive drips out of the sides of the tube during heating. This indicates a watertight seal.
5. Reinstall all components that were removed for access. No additional work is needed; discontinue this procedure.

## Replace Steering Rack and Harnesses

1. Remove and discard the front left side body harness (refer to Service Manual procedure 17103002).
2. Remove and discard the power steering harness (Figure 8).



**Figure 8 (Location of harness mounting points shown)**

3. Replace the steering rack (refer to Service Manual procedure 32010102).
4. Install the new power steering harness.
5. Install the new front left side body harness.
6. Reinstall all components that were removed for access.
7. Perform a four wheel alignment (refer to Service Manual procedure 31000100).
8. Test drive the vehicle to ensure that there are no alerts.

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**Affected VIN(s)** Affected Norwegian Model S vehicles built before approximately September 4, 2014.

**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.

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