



Continental TPMS Retrofit

Classification	Repair Bulletin	Section/Group	17 - Electrical	Country/Region	All
Year	2012-2014	Model	Model S	Version	Baolong TPMS

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-15-17-003 R3, dated March 27, 2017. Each content change is marked by a vertical line in the left margin. Discard the previous version and replace it with this one.

Condition

It is now possible to retrofit the Continental Tire Pressure Monitoring System (TPMS) onto vehicles that were originally equipped with a Baolong TPMS.

Correction

- Only perform this procedure when a customer-pay retrofit has been requested, or when instructed to do so by another document.

Correction Description	Correction	Time
SB-15-17-003 Not Applicable	S011517003	0.00
Retrofit Continental TPMS Module Only	S021517003	1.4
Retrofit Continental TPMS Module And Harness	S031517003	3.35

Required Part(s):	Part Number	Description	Quantity
To replace module only:			
	1039955-00-A	HOMELINK CONNECTOR CAP	1
	1034601-00-B	TPMS, ECU, RECEIVER	1
	1034602-00-A	TPMS,WHEEL_SENSOR,SILVER	4
	1008246-00-B	DUAL LOCK 25MM X 20MM	2
To replace module and ECU:			
	1039955-00-A	HOMELINK CONNECTOR CAP	1
	1056262-00-A	ASY,HRN,ADAPT,CONTI TPMS	1
	1004969-00-A	BUTYL FOIL, 300X150, 2MM THICK	1
	1034601-00-B	TPMS, ECU, RECEIVER	1
	1034602-00-A	TPMS,WHEEL_SENSOR,SILVER	4
	1008246-00-B	DUAL LOCK 25MM X 20MM	2
Shop supplies:			
Wire, single core, 260 cm, (120 in), 0.35mm ² (22 AWG)			
Electrical tape (1061317-00-B or equivalent)			
Cable ties			
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):	1061177-00-B	Kit, Wire Harness Repair	
	1050759-00-A	ATEQ TPMS Service Tool Model VT30	
	1050454-00-A	Ultra Heat Gun MATCO HG300 (or equivalent)	
	1060842-00-A	Wire Crimpers, Service (or equivalent)	

Inspection

1. Remove the rear RH sill panel trim (refer to Service Manual procedure 15184802).
2. Inspect the RH main harness:
 - If there is a 6-pin connector secured to the harness at the C-pillar (Figure 1), continue to the “Retrofit Module Only” section.

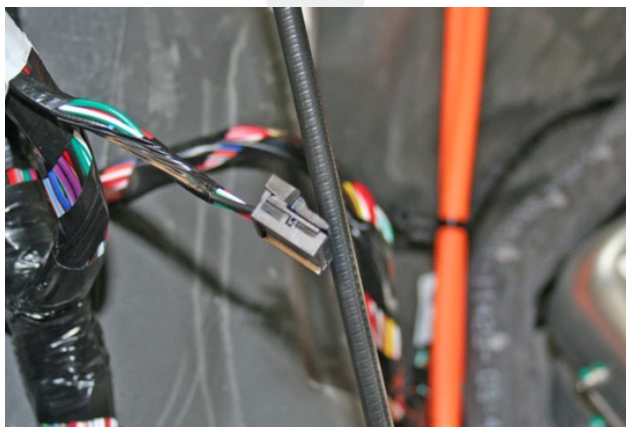


Figure 1

- If there is no 6-pin connector, skip to the “Retrofit Module and Harness” section.

Retrofit TPMS Module Only

1. Disconnect 12V power (refer to Service Manual procedure 17010100).
2. Use an IPA wipe to clean the C-pillar body between the upper trim clip and the body clip (Figure 2).



Figure 2

3. Remove the backing from one side of each piece of Dual Lock fastener.
4. Affix the Dual Lock fastener pieces to the rear of the Continental TPMS ECU.
5. Release the 6-pin connector from the tape around the harness, and then connect it to the Continental TPMS ECU.
6. Remove the remaining backing from each piece of Dual Lock fastener on the rear of the Continental TPMS ECU.
7. Secure the ECU to the C-Pillar body between the upper trim clip and the body clip (Figure 3).



Figure 3

8. Install the rear RH sill panel trim (refer to Service Manual procedure 15184802).
9. Remove the mid aero shield (refer to Service Manual procedure 12030502).

10. Disconnect the harness connector from the Baolong TPMS ECU (Figure 4).



Figure 4

11. Remove and discard the Baolong TPMS ECU.

NOTE: The Baolong TPMS ECU is affixed to the vehicle body with Dual Lock fasteners.

12. Install the connector cap onto the harness connector that was attached to the Baolong TPMS ECU (Figure 5).

⚠ CAUTION: Make sure that the connector cap is secure to protect the active CAN communication circuits.

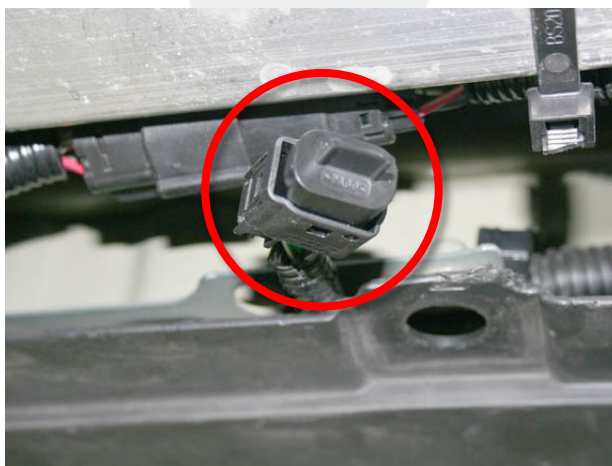


Figure 5

13. Use a cable tie to secure the connector out of the way, and then remove any excess tie (Figure 6).



Figure 6

14. If equipped, tightly roll up the TPMS antenna; and then use a cable tie to secure it to the body.
15. Install the mid aero shield (refer to Service Manual procedure 12030502).
16. Lower the vehicle to provide access to the wheels.
17. Install all components that were removed for access and reconnect 12V power.
18. Connect a laptop with Toolbox to the vehicle.
19. Use Toolbox to update the “TPMS Type” configuration variable to **Continental 2**.
20. Replace all 4 Baolong TPMS sensors with the Continental TPMS sensors (refer to Service Manual procedure 34040202).
21. Perform the ID Learn procedure for all 4 Continental sensors (refer to Service Manual procedure 34041100).
22. Perform a road test to make sure that there are no TPMS alerts.

Retrofit TPMS Module and Harness

1. Remove the RH side rear trunk trim (refer to Service Manual procedure 15245102).
2. Move the RH front seat fully rearward.
3. Remove the RH front sill trim panel (refer to Service Manual procedure 15180102).
4. Remove the RH lower B-Pillar trim panel (refer to Service Manual procedure 15184401).

5. Working in the RH sill area, peel the carpet inboard to expose the RH main electrical harness (Figure 7).



Figure 7

6. Remove the RH footwell cover assembly (refer to Service Manual procedure 14055302).
7. Carefully fold back the carpet for access to the Body Control Module (BCM) cover (Figure 8).

⚠ CAUTION: Take care not to damage components.



Figure 8

8. Remove the bolts (x4) that attach the BCM cover to the mounting bracket, and then remove the BCM cover (torque 5 Nm) (Figure 9).



Figure 9

9. Remove the bolts (x4) that attach the BCM bracket to the body, and separate the BCM bracket from the body (torque 5 Nm) (Figure 10).

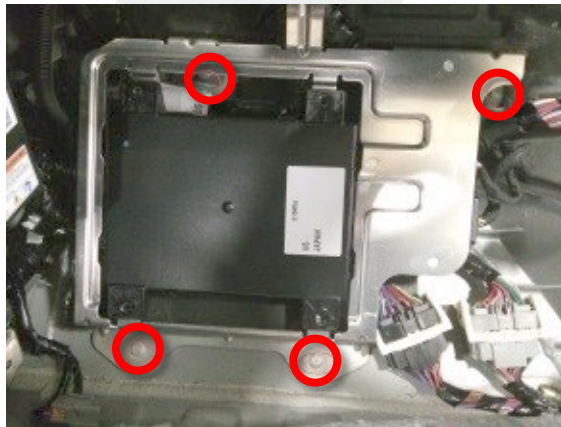


Figure 10

10. Disconnect 12V power (refer to Service Manual procedure 17010100).
11. Wrap the 2nd row seat belt around the center console to provide better access to the working area (Figure 11).



Figure 11

12. Use an IPA wipe to clean the C-pillar body between the upper trim clip and the body clip (Figure 12).



Figure 12

13. Remove the backing from one side of each piece of Dual Lock fastener.
14. Affix the Dual Lock fastener pieces to the rear of the Continental TPMS ECU.
15. Remove the remaining backing from each piece of Dual Lock fastener on the rear of the Continental TPMS ECU.
16. Secure the ECU to the C-Pillar body between the upper trim clip and the body clip (Figure 13).



Figure 13

17. Route the new TPMS harness along the RH main harness from the B-Pillar to the trunk area (Figure 14).

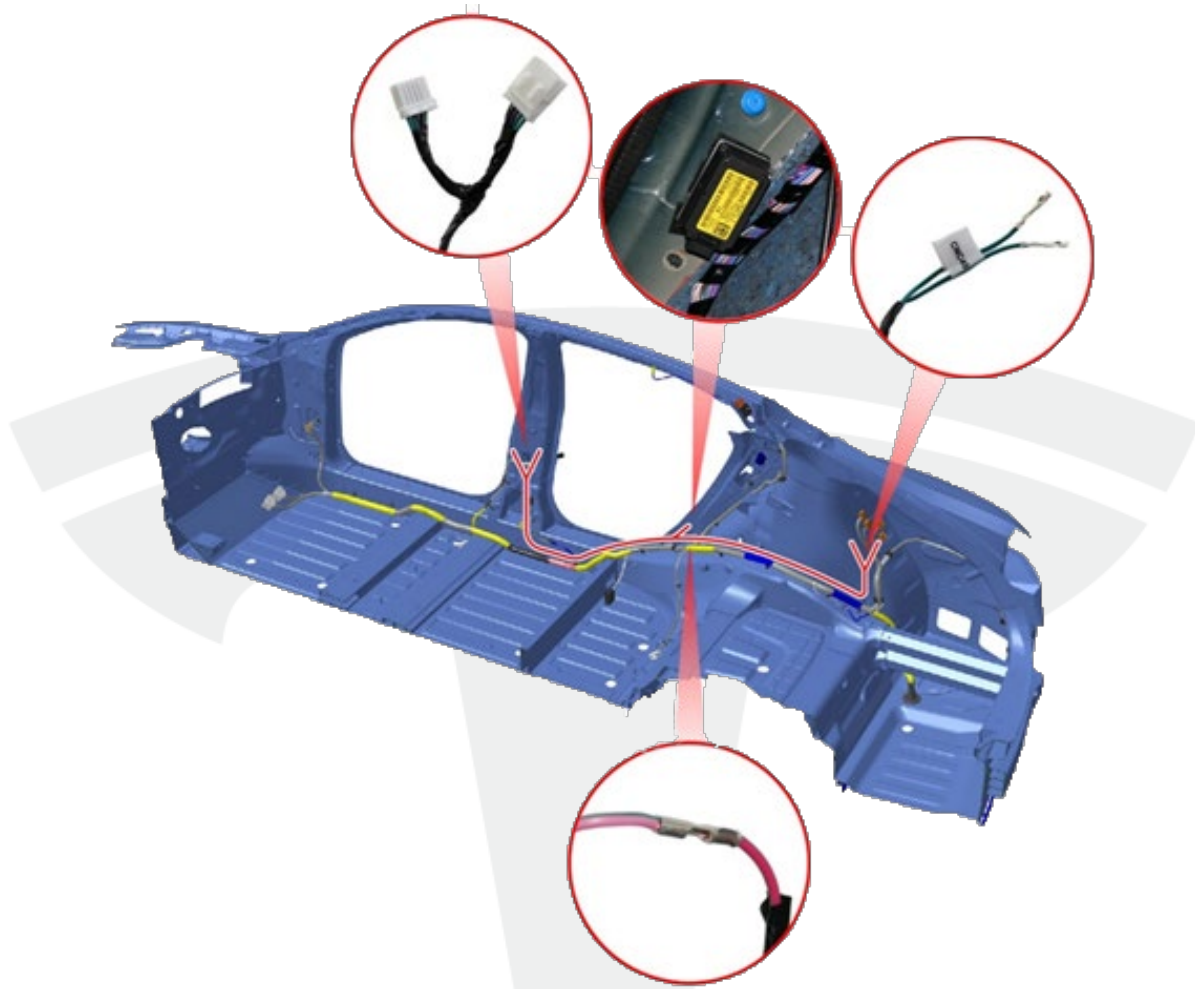


Figure 14

18. Working near the sill area, route the end of the harness with 2 connectors underneath the HV cables toward the B-Pillar (Figure 15).

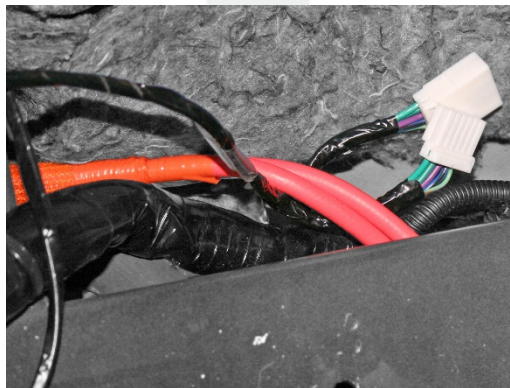


Figure 15 (TPMS harness routed under HV cables)

19. Pull the harness forward and route it under the pretensioner.

20. Reach inside the B-Pillar and gently pull out the door harness (Figure 16). If equipped, release the edge clip.



Figure 16

21. Disconnect the larger (6-pin) of the 2 harness connectors (Figure 17).

! CAUTION: Do not disconnect the smaller (16-pin) connector.



Figure 17

22. Plug the 2 connectors on the TPMS harness into the newly-exposed door harness connectors (Figure 18).



Figure 18 (TPMS harness highlighted)

23. Move the connectors and harness back inside the B-Pillar (Figure 19). Fasten the edge clip, if equipped.

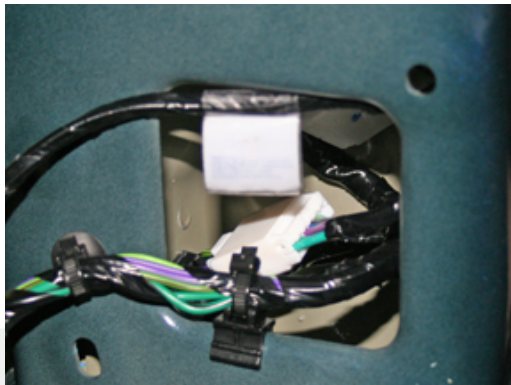


Figure 19

24. Pull the harness towards the rear of the vehicle and connect the electrical connector to the TPMS ECU (Figure 20).



Figure 20

25. Route the 2 CAN wires on the TPMS harness under the door latch cable and pull them toward the rear of the vehicle (Figure 21).

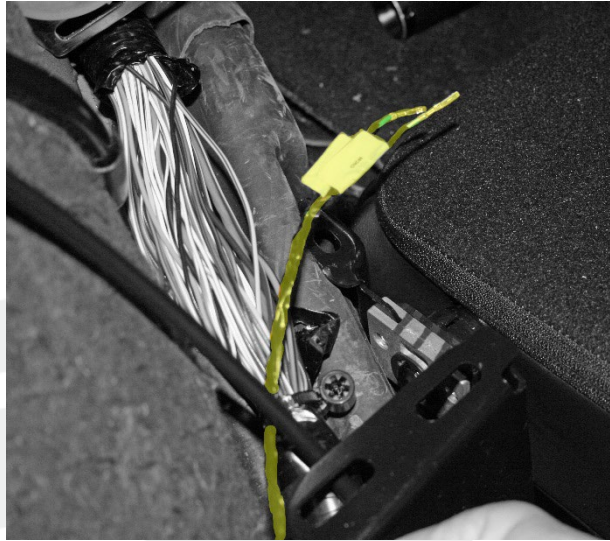


Figure 21 (TPMS harness highlighted)

26. In the RH trunk area beneath the electric park brake ECU, expose the 2 white harness connectors that are taped to the RH main harness (Figures 22 and 23).

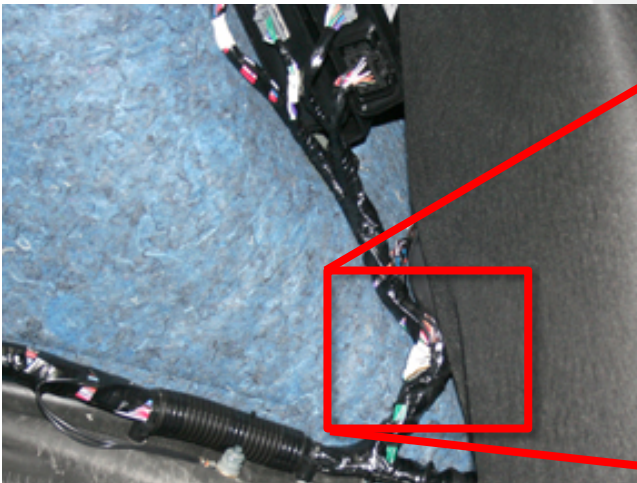


Figure 22



Figure 23

NOTE: Connector X720 has 3 green wires, and connector X719 has 3 green-white wires. The end of the TPMS harness has a green wire with terminal, and a green-white wire with terminal.

27. Release the connector lock tabs of connector X720, insert the TPMS harness green wire terminal into cavity 4 of the connector (Figure 24), and then fasten the connector lock tabs.

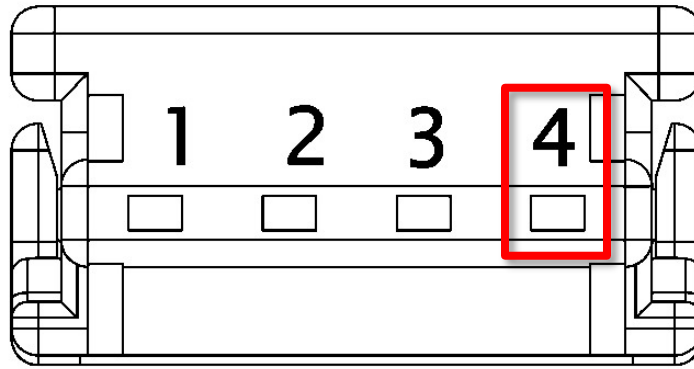


Figure 24 (Cavity 4)

28. Release the connector lock tabs of connector X719, insert the TPMS harness green-white wire terminal into cavity 4 of the connector (Figure 24), and then fasten the connector lock tabs.
29. Perform a push-pull-push test on both wires.
30. Use electrical tape to bundle the green and green-white wires together (Figure 25).



Figure 25

31. Use electrical tape to secure that bundle to the RH main harness (Figure 26).



Figure 26

32. Cut a 260 cm (120 inches) length of 0.35mm² (22 AWG) wire, use a wire stripper to remove 7mm of insulation off one end, and then twist the bare wire to prevent fraying.
33. Use the wire harness repair kit to splice this additional wire to the barrel crimp connector midpoint on the TPMS harness.
34. Crimp the connection, solder the connection, and insulate the connection with heat shrink tubing and tape according to the procedure described in SI-17-17-002, "Repairing Using a Single Splice".
35. Route the additional wire along the RH main electrical harness, from the C-pillar, along the sill to the A-pillar, and up to the BCM.
36. Lift the BCM bracket to the rear of the vehicle, and then disconnect connector X020 from the front of the BCM (Figure 27).



Figure 27

37. Remove the tape wrapping the wires between connector X020 and the body harness (Figure 28).



Figure 28

38. Identify the wire that terminates at pin 19 of connector X020 (Figure 29).

NOTE: The wire might be primarily pink, with a dark green stripe (Figure 30).

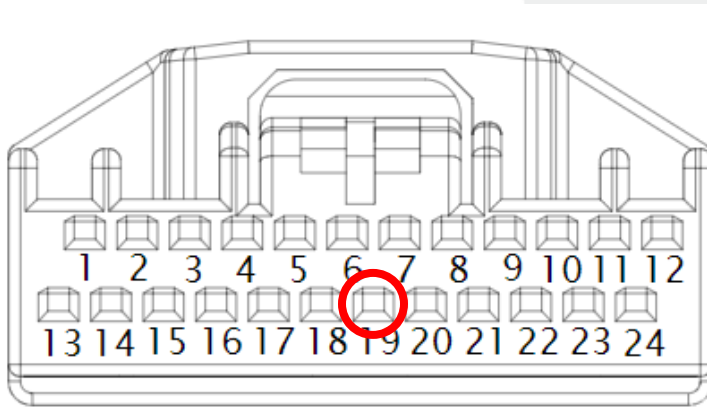


Figure 29 (Looking at end of connector)

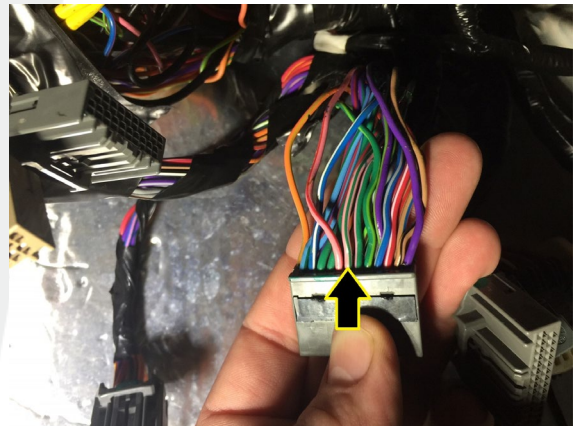


Figure 30 (Wire at terminal 19)

39. Cut the wire identified in step 38 as far from connector X020 as possible (Figure 31).

⚠ CAUTION: Make sure not to cut any other wires.



Figure 31

40. Use a wire stripper to remove approximately 7 mm of insulation from the end of the wire coming from connector X020, and then twist the bare wire to prevent fraying.

41. Slide a 30mm piece of heat shrink tubing over the wire and toward connector X020.

42. Use a wire stripper to remove 7 mm of insulation off the end of the additional wire, and then twist the bare wire to prevent fraying.

43. Use the wire harness repair kit to splice the wire coming from connector X020 to the additional wire with a barrel crimp.

44. Crimp the connection, solder the connection, and insulate the connection with heat shrink tubing and tape according to the procedure described in SI-17-17-002, "Repairing Using a Single Splice".

45. Use electrical tape to bundle the wires from connector X020 to the RH main electrical harness (Figure 32).

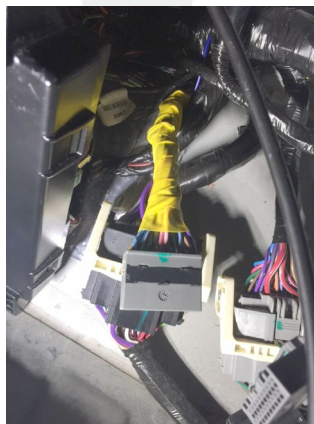


Figure 32

46. Use cable ties (x2) to bundle the additional wire to the RH main electrical harness from connector X020 to the A-pillar, and then remove any excess cable tie.

47. Use electrical tape to wrap the bundle with a spiral pattern from connector X020 to the A-pillar (Figure 33).



Figure 33

48. Attach connector X020 to the front of the BCM (Figure 34), and then set the BCM bracket forward against the body.



Figure 34

49. Install the bolts (x4) that attach the BCM bracket to the body (torque 5 Nm) (Figure 35).

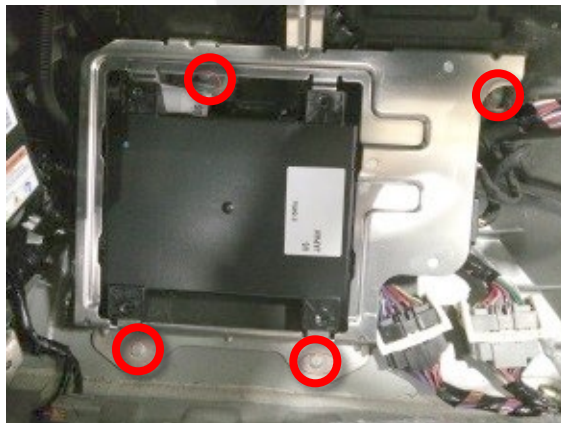


Figure 35

50. Install the BCM cover, and then install the bolts (x4) that attach the BCM cover to the mounting bracket (torque 5 Nm) (Figure 36).



Figure 36

51. Carefully lay the carpet back over the BCM cover (Figure 37).



Figure 37

52. Use a cable tie to secure the TPMS harness to the corrugated section of the RH main electrical harness behind the C-pillar (Figure 38), and then remove any excess cable tie.

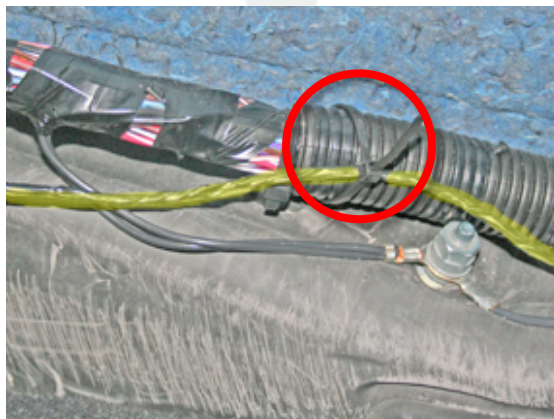


Figure 38 (TPMS harness highlighted)

53. Use a cable tie to secure the TPMS harness to the corrugated section of the RH main electrical harness near the C-pillar (Figure 39), and then remove any excess cable tie.



Figure 39 (TPMS harness highlighted)

54. Use a cable tie to secure the TPMS harness to the taped section of the main RH main electrical harness near the rear of the 2nd row seat frame (Figure 40), and then remove any excess cable tie.

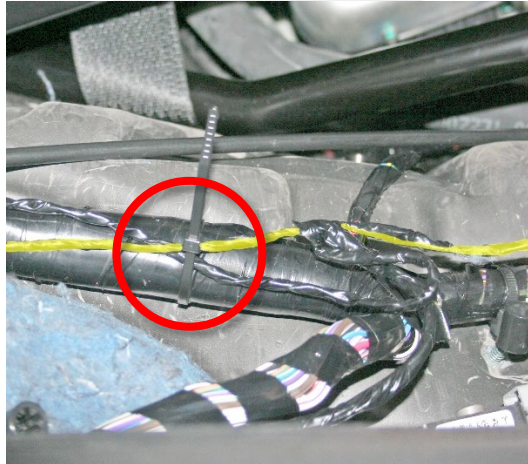


Figure 40 (TPMS harness highlighted)

55. Use a cable tie to secure the TPMS harness to the main RH main electrical harness at the rear of the charger bay (Figure 41), and then remove any excess cable tie.



Figure 41 (TPMS harness highlighted)

56. Use a cable tie to secure the TPMS harness to the main RH main electrical harness at the base of the sill panel between the HV cables and coolant hose (Figure 42), and then remove any excess cable tie.



Figure 42 (TPMS harness highlighted)

57. Use a cable tie to secure the TPMS harness to the RH main electrical harness directly behind the RH front row seat pretensioner (Figure 43), and then remove any excess cable tie.



Figure 43

58. Use a cable tie to secure the TPMS harness to the RH main harness directly in front of the RH front row seat pretensioner (Figure 44), and then remove any excess cable tie.



Figure 44

59. Use a cable tie to secure the TPMS harness to the RH main harness at the midpoint of the front sill panel (Figure 45), and then remove any excess cable tie



Figure 45

60. Use a cable tie to secure the TPMS harness to the RH main harness at the front of the front sill panel near the A-pillar (Figure 46), and then remove any excess cable tie.



Figure 46

61. Use electrical tape in a spiral pattern to secure the additional wire to the RH main electrical harness between the B-pillar and A-pillar (Figure 47).



Figure 47

62. Use electrical tape in a spiral pattern to secure the TPMS harness to the harnesses inside the B-pillar (Figure 48).



Figure 48

63. Push the harnesses completely inside the B-pillar, and then cover the hole with a butyl patch (Figure 49).



Figure 49

64. Use electrical tape in a spiral pattern to secure the additional wire and TPMS harness to the RH main electrical harness between the B-pillar and C-pillar (Figure 50).



Figure 50

65. Use electrical tape in a spiral pattern to secure the TPMS harness to the RH main electrical harness from the TPMS ECU and along the C-pillar (Figure 51).



Figure 51

66. Use electrical tape in a spiral pattern to secure the TPMS harness to the RH main electrical harness between the C-pillar and trunk (Figure 52).



Figure 52

67. Install the RH footwell cover assembly (refer to Service Manual procedure 14055302).
68. Working in the RH sill area, unfold the carpet to cover the RH main electrical harness (Figure 53).



Figure 53

69. Install the RH lower B-Pillar trim panel (refer to Service Manual procedure 15184401).
70. Install the RH front sill trim panel (refer to Service Manual procedure 15180102).
71. Move the RH front seat forward.
72. Install the RH side rear trunk trim (refer to Service Manual procedure 15245102).
73. Remove the mid aero shield (refer to Service Manual procedure 12030502).

74. Disconnect the harness connector from the Baolong TPMS ECU (Figure 54).



Figure 54

75. Remove and discard the Baolong TPMS ECU.

NOTE: The Baolong TPMS ECU is affixed to the vehicle body with Dual Lock fastener.

76. Install the connector cap onto the harness connector that was attached to the Baolong TPMS ECU (Figure 55).

CAUTION: Make sure that the connector cap is secure to protect the active CAN communication circuits.

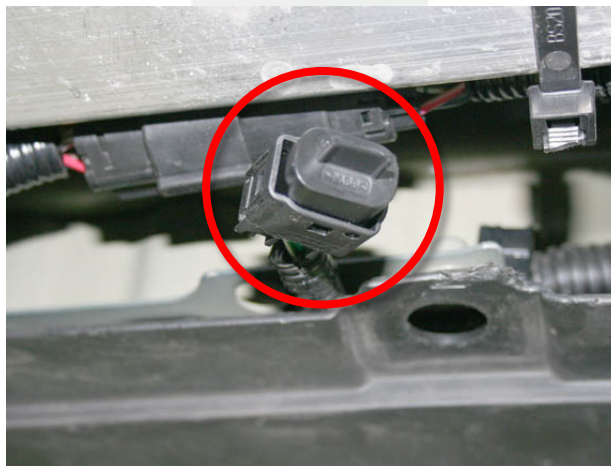


Figure 55

77. Use a cable tie to secure the connector out of the way, and then remove any excess tie (Figure 56).



Figure 56

78. If equipped, tightly roll up the TPMS antenna; and then use a cable tie to secure it to the body.

79. Install the mid aero shield (refer to Service Manual procedure 12030502).

80. Lower the vehicle to provide access to the wheels.

81. Install all components that were removed for access and reconnect electrical power.

82. Connect a laptop with Toolbox to the vehicle.

83. Use Toolbox to update the “TPMS Type” configuration variable to **Continental 2**.

84. Replace all 4 Baolong TPMS sensors with the Continental TPMS sensors (refer to Service Manual procedure 34040202).

85. Perform the ID Learn procedure for all 4 Continental sensors (refer to Service Manual procedure 34041100).

86. Perform a road test to make sure that there are no TPMS alerts.

Affected VIN(s) Affected Model S vehicles built before September 17, 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.

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