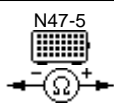
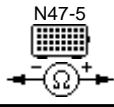
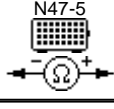
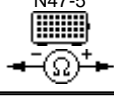
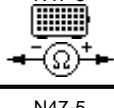
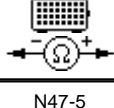
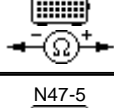
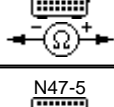
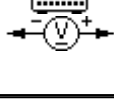
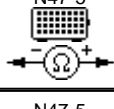
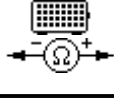
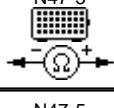
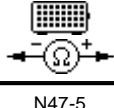
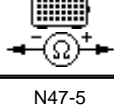
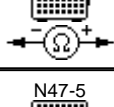
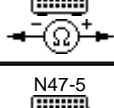
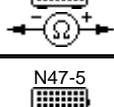
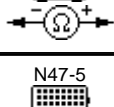
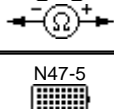



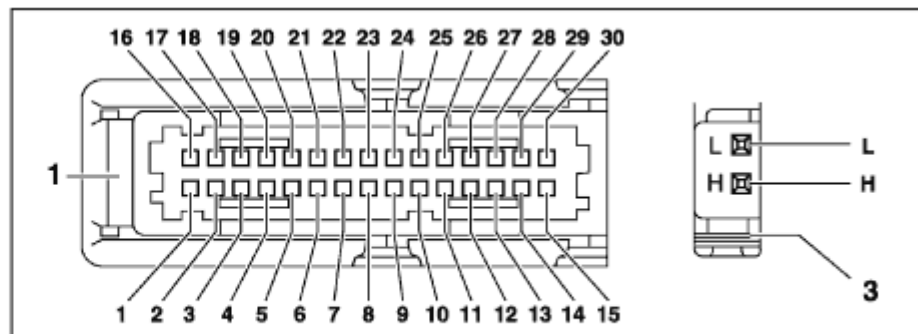
Electronic Stability Program (ESP) - Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0		<b>ESP control module (N47-5)</b> Circuit 30 Voltage supply from fuse and relay box (F1)	57 — (2.23) 57 — (2.23) 	Ignition: <b>OFF</b>  With DTC (excessive voltage) repeat the test with engine running.	11 - 14 V 11 - 14 V	Values < 11 V: Wiring, fuse f27 in F1 (fuse and relay box). Values >14 V: check generator (G1).
1.1		Voltage supply for circuit 15 from fuse and relay box (F1).	57 — (2.23) 81 — (2.47) 	Ignition: <b>ON</b>	11 - 14 V 11 - 14 V	Wiring, Fuse f22 in F1 (fuse and relay box).
2.0		<b>Diagnostic output</b> (ESP control module) (N47-5)	57 — (2.23) 	Ignition: <b>ON</b>	10 - 14 V	Wiring, ESP control module (N47-5).
3.0		<b>High-pressure/return pump (F1k25)</b> Voltage supply for circuit 30 from F1 (fuse and relay box)		Ignition: <b>OFF</b> <b>Fuse F1k25 removed</b>	11 - 14 V	F1 (fuse and relay box)
3.1		Coil resistance	46 — (2.12) 	Ignition: <b>OFF</b> Disconnect ESP control module (N47-5). <b>Fuse f1k25 connected.</b>	40 - 80 Ω	Wiring, F1k25, F1 (fuse and relay box).
3.2		Control circuit voltage supply of F1k25 relay from N47-5	57 — (2.23) 	Connect ESP control module (N47-5). Ignition: <b>ON</b>	11 - 14	ESP control module (N47-5).
4.0		<b>Steering angle sensor (N49)</b> Voltage supply circuit 30 from F1 (fuse and relay box)	2 — (2.23) 	Ignition: <b>OFF</b> Disconnect connector from N49	11 - 14 V	Fuse f13 at F1 Wiring, F1
4.1		Voltage supply circuit 15 from F1 (fuse and relay box)	2 — (2.23) 	Ignition: <b>ON</b>	11 - 14 V	Fuse f22 at F1 Wiring, F1
5.0		<b>ESP stop lamp supression (F1k6) relay</b> Voltage supply circuit 30, from fuse and relay box (F1) for control circuit of F1k6		Ignition: <b>OFF</b> Measurement to be taken at socket for F1k6, F1k6 removed.	11 - 14 V	Fuse and relay box (F1).
5.1		Signal from stop lamp switch (S9/1) (N.C.)		Ignition: <b>ON</b> F1k6 <b>removed</b> , press service brake.	11 - 14 V	Wiring, Stop lamp switch (S9/1)
5.2		Signal from stop lamp switch (S9/1) (N.O.)	57 — (2.23) 	Ignition: <b>ON</b> <b>F1k6 connected</b> , service brake not pressed  service brake pressed	11 - 14 V  < 9 V	Wiring, Stop lamp switch (S9/1)
5.3		Signal from F1k6 for activation of the stop lamps	57 — (2.23) 	Ignition: <b>ON</b> <b>F1k6 connected</b> , Press service brake.	11 - 14 V	Wiring, F1k6, ESP control module (N47-5)
6.0		<b>Stop lamp switch (S9/1)</b> Closed (N.C.)		Service brake: Not pressed: Pressed:	<b>OFF</b> <b>ON</b>	Wiring, S9/1, ESP stop lamp supression relay (F1k6), ESP control module (N47-5).
6.1		Open (N.O.)		Service brake: Not pressed: Pressed:	<b>ON</b> <b>OFF</b>	Wiring, S9/1
7.0		<b>Parking brake switch (S12)</b>		Engine: <b>at idle</b> Press parking brake pedal:  Parking brake pedal not pressed:	<b>ON</b> Parking brake warning lamp (A1e7): <b>ON</b>  <b>OFF</b> (A1e7): <b>OFF</b>	Wiring, S12, A1e7
8.0		<b>ESP OFF switch (S76/6)</b>		S76/6 in position: ON Held pressed: At rest: S76/6 in position:	<b>0.75 - 3.5</b> <b>V</b>	Wiring, S76/6, ESP control module (N47-5)

						OFF Held pressed:	> 3.5V  < 0.75V	
9.0	C1100 C1500	Left front axle VSS sensor (L6/1) Internal resistance	77 — C (2.43)		78 (2.44)	Ignition: OFF Disconnect ESP control module (N47-5).	0.8 - 2.3 kΩ	Wiring L6/1
9.1		Insulation resistance	57 — C (2.23)		77 (2.43)	Ignition: OFF Disconnect (N47-5)	> 20 kΩ	Wiring, L6/1
10.0	C1101 C1500	Right front axle VSS sensor (L6/2) Internal resistance	52 — C (2.18)		51 (2.17)	Ignition: OFF Disconnect (N47-5)	0.8 - 2.3 kΩ	Wiring, L6/2
10.1		Insulation resistance	57 — C (2.23)		52 (2.18)	Ignition: OFF Disconnect (N47-5)	> 20 kΩ	Wiring, L6/2
11.0	C1102 C1500	Left rear axle VSS sensor (L6/3) Internal resistance	26 — C (1.26)		25 (1.25)	Ignition: OFF Disconnect (N47-5)	0.6 - 1.8 kΩ	Wiring, L6/3
11.1		Insulation resistance	57 — C (2.23)		26 (1.26)	Ignition: OFF Disconnect (N47-5)	> 20 kΩ	Wiring, L6/3
12.0	C1103 C1500	Right rear axle VSS sensor (L6/4) Internal resistance	28 — C (1.28)		27 (1.27)	Ignition: OFF Disconnect ESP control module (N47-5).	0.6 - 1.8 kΩ	Wiring, L6/4
12.1		Insulation resistance	57 — C (2.23)		28 (1.28)	Ignition: OFF Disconnect (N47-5).	> 20 kΩ	Wiring, L6/4
13.0	C1314	ASR/ETS/ESP hydraulic unit (A7/3) (Traction systems) Solenoid valve voltage supply from N47-5	57 — C (2.23)		80 (2.46)	Ignition: OFF	11 - 14 V	Wiring, ESP control module (N47-5).
14.0	C1300	Left front axle solenoid valve (hold) (A7/3y6) Internal resistance	80 — C (2.46)		73 (2.39)	Ignition: OFF Disconnect (N47-5).	5.4 - 12.6 Ω	Wiring, A7/3
15.0	C1301	ASR/ETS hydraulic unit, left front axle solenoid valve (release) (A7/3y7) Internal resistance	80 — C (2.46)		72 (2.38)	Ignition: OFF Disconnect (N47-5).	2.8 - 6.6 Ω	Wiring, A7/3
16.0	C1302	Right front axle solenoid valve (hold) (A7/3y8) Internal resistance	80 — C (2.46)		74 (2.40)	Ignition: OFF Disconnect (N47-5).	5.4 - 12.6 Ω	Wiring, A7/3
17.0	C1303	Right front axle solenoid valve (release) (A7/3y9) Internal resistance	80 — C (2.46)		71 (2.37)	Ignition: OFF Disconnect (N47-5).	2.8 - 6.6 Ω	Wiring, A7/3
18.0	C1304	Left rear axle solenoid valve (hold) (A7/3y10) Internal resistance	80 — C (2.46)		69 (2.35)	Ignition: OFF Disconnect (N47-5).	5.4 - 12.6 Ω	Wiring, A7/3
19.0	C1305	Left rear axle solenoid valve (release) (A7/3y11) Internal resistance	80 — C (2.46)		70 (2.36)	Ignition: OFF Disconnect (N47-5).	2.8 - 6.6 Ω	Wiring, A7/3
20.0	C1306	Right rear axle solenoid valve (hold) (A7/3y12) Internal resistance	80 — C (2.46)		64 (2.30)	Ignition: OFF Disconnect (N47-5).	5.4 - 12.6 Ω	Wiring, A7/3
21.0	C1307	Right rear axle solenoid valve (release) (A7/3y13) Internal resistance	80 — C (2.46)		65 (2.31)	Ignition: OFF Disconnect (N47-5).	2.8 - 6.6 Ω	Wiring, A7/3
22.0	C1317	Pressure circuit 1 vacuum solenoid valve (A7/3y26) Internal resistance	80 — C (2.46)		61 (2.27)	Ignition: OFF Disconnect (N47-5).	2.8 - 6.6 Ω	Wiring, A7/3
23.0	C1319	Pressure circuit 2 vacuum solenoid valve (A7/3y27) Internal resistance	80 — C (2.46)		63 (2.29)	Ignition: OFF Disconnect (N47-5).	2.8 - 6.6 Ω	Wiring, A7/3
24.0	C1316	Pressure circuit 1 switchover solenoid valve (A7/3y24) Internal resistance	80 — C (2.46)		60 (2.26)	Ignition: OFF Disconnect (N47-5).	5.4 - 12.6 Ω	Wiring, A7/3

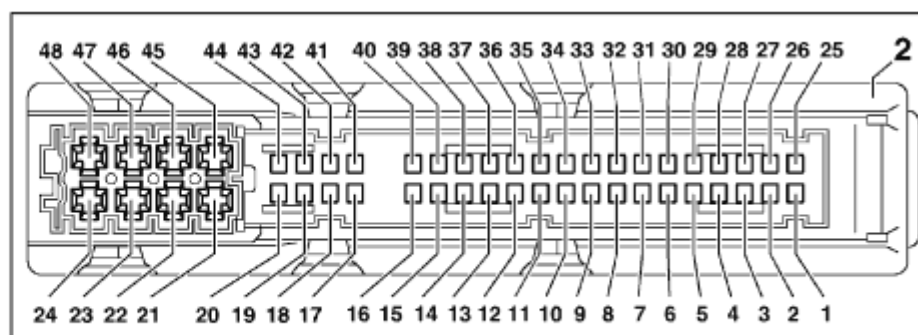
25.0	C1318	Pressure circuit 2 switchover solenoid valve (A7/3y25) Internal resistance	80 — C (2.46)		62 (2.28)	Ignition: OFF Disconnect (N47-5).	5.4 - 12.6 Ω	Wiring, A7/3
26.0	C1142	ABS lateral acceleration sensor (B43) Supply voltage from N47-5	24 — C (1.24)		22 (1.22)	Ignition: ON	4.75 - 5.25 V	Wiring, B43, N47-5
27.0	C1141	ESP brake pressure sensor 1 (B34/1) Supply voltage from N47-5	48 — C (2.14)		50 (2.16)	Ignition: ON	4.75 - 5.25 V	Wiring, B34/1, N47-5
27.1	C1141	ESP brake pressure sensor 2 (B34/2) Supply voltage from N47-5	42 — C (2.8)		44 (2.10)	Ignition: ON	4.75 - 5.25 V	Wiring, B34/2, N47-5
28.0	C1120	Rotating speed sensor for ESP (B45) Supply voltage from N47-5	17 — C (1.17)		18 (1.18)	Ignition: ON	11 - 14 V	Wiring, B45, N47-5
29.0	C1204 C1205 C1206	Membrane travel sensor (BAS) (A7/7b1) Supply voltage from N47-5	35 — C (2.1)		37 (2.3)	Ignition: ON	4.75 - 5.25 V	Wiring, A7/7b1, N47-5
30.0	C1332 C1529	Solenoid valve (BAS) (B43) Resistance	56 — C (2.22)		55 (2.21)	Ignition: OFF Disconnect (N47-5).	1 - 2 Ω	Wiring, A7/7
31.0	C1020	CAN data line Resistance	34 — C (3.L)		33 (3.H)	Ignition: OFF	55 - 66 Ω	Wiring, ⇒ 31.1 ⇒ 31.2
31.1	C1032	CAN element in instrument cluster (A1) Resistance	10 — C (B.10)		9 (B.9)	Disconnect connector B at A1 and check directly at control module.	115 - 125 Ω	A1
31.2	C1022	CAN element in engine control module (ME-SFI) (N3/10) Resistance	11 — C (D.11)		12 (D.12)	Ignition: ON Disconnect connector D at N3/10 and check directly at control module.	115 - 125 Ω	N3/10,

Connector Layout - Connector 1 (interior harness) and connector 3 (CAN data bus), ESP control module (N47-5)



P42.45-0227-04

Connector Layout - Connector 2 (engine harness), ESP control module (N47-5)



P42.45-0228-04