

5.3 Convenience Feature (CF)
Model 210

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Diagnosis – Function Test (Convenience Feature)

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy ¹⁾
⇒ 1.0 Power windows	Ignition key position “1”		
Open side windows	Press back of power window switch down to first detent.	Side window opens , as long as switch is depressed.	14 Complaint No.'s 6, 9, 12, 14
Open side windows (one-touch opening)	Press back of power window switch down past first detent.	Side window opens completely (switch does not have to be held depressed).	14 Complaint No.'s 7, 10
Close side windows	Press front of power window switch down.	Side window closes , as long as switch is depressed.	14 Complaint No.'s 8, 11, 13, 15
⇒ 2.0 Sliding/pop-up roof	Ignition key in position “1”		
Open sliding roof	Push sliding/pop-up roof switch toward rear.	Sliding roof opens.	14 Complaint No. 4
Close sliding roof	Push sliding/pop-up roof switch toward front.	Sliding roof closes.	14 Complaint No. 3
Open pop-up roof	Push sliding/pop-up roof switch up.	Pop-up roof opens.	14 Complaint No. 5
Close pop-up roof	Pull sliding/pop-up roof switch down.	Pop-up roof closes.	14 Complaint No. 3

1) Observe Preparation for Test, see 22.

Diagnosis – Function Test (Convenience Feature)

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy ¹⁾
⇒ 3.0 Central locking Side windows and sliding/pop-up roof	Using IR transmitter or ignition key, lock front doors or trunk lid and hold in this position. (Windows synchronized, 22).	Open sliding/pop-up roof or open side windows close .	14 Complaint No. 17
⇒ 4.0 Safety opening Side windows and sliding/pop-up roof	Within 5 sec. after centrally locking (Sliding/pop-up roof and side windows are not to be closed), unlock vehicle withg IR transmitter or ignition key and hold in this position.	If windows and sliding/pop-up roof are not closed completely, they open in approx. 1 – 2 sec. If windows are closed completely, the windows will open in > 1 sec. Sliding/pop-up roof will remian closed.	14 Complaint No. 17

1) Observe Preparation for Test, see 22.

Diagnosis – Diagnostic Trouble Code (DTC) Memory (CF)

Preparation for Test:

1. Fuse F1–22, and F4–3 ok,
2. Connect the Hand-Held Tester (HHT) to X11/4, according to diagram, see section 0.

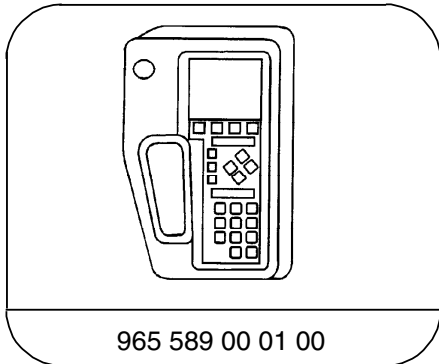


The diagnostic trouble codes (DTC's) can only be read out and erased **using the Hand-Held Tester (HHT).**

CAUTION!

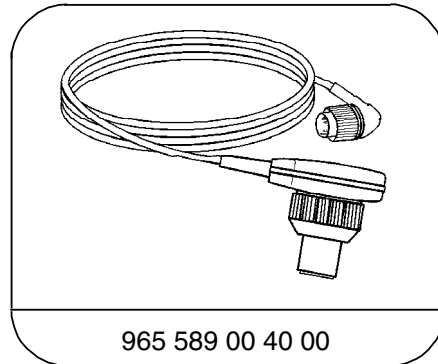
Erasing the Convenience Feature (CF) DTC memory, will also erase the DTC memory for the Combination Control Module (N10-1) and Mirror, steering column adjustment, heated mirrors (MSC).

Special Tools



965 589 00 01 00


Hand-Held-Tester



965 589 00 40 00


Test cable

Diagnosis – Diagnostic Trouble Code (DTC) Memory (CF)

DTC 	Possible cause	Test step/Remedy ¹⁾
B1000	Combination control module (N10-1) defective.	–
B1010	Circuit 30E, voltage < 9 V	23 ⇒ 3.0
B1011	Circuit 30E, voltage > 15 V	23 ⇒ 3.0
B1013	Circuit 15R, voltage supply missing at circuit 15.	23 ⇒ 4.0
B1016	Circuit 31A, voltage supply or combination control module (N10-1).	23 ⇒ 1.0
B1017	Circuit 31B, voltage supply or combination control module (N10-1).	23 ⇒ 2.0
B1024	CAN data line LOW or combination control module (N10-1).	23 ⇒ 10.0
B1025	CAN data line HIGH or combination control module (N10-1).	23 ⇒ 9.0, 10.3
B1100	Lock switch circuit SN1/SN2 from combination control module (N10-1) ΓΓ–	23 ⇒ 40.0
B1118	Sliding/pop-up roof switch (S13/2) (open), switch stuck or wire ΓΓ+	23 ⇒ 11.0, 12.0, 14.0, 16.0, 18.0


1) Observe Preparation for Test, see 22.

Diagnosis – Diagnostic Trouble Code (DTC) Memory (CF)

DTC 	Possible cause	Test step/Remedy ¹⁾
B1120	Left front power window switch (S21s1) (open), switch stuck or wire ΓΓ–	23 ⇒ 21.0, 22.0
B1121	Left front power window switch (S21s1) (open), switch stuck or wire ΓΓ–	23 ⇒ 23.0, 24.0
B1122	Left rear power window switch (S21/3) (open), switch stuck or wire ΓΓ–	23 ⇒ 25.0, 26.0
B1123	Right rear power window switch (S21/4) (open), switch stuck or wire ΓΓ–	23 ⇒ 27.0, 28.0
B1400	Left front power window motor (M10/3) or circuit 30A or combination control module (N10-1).	23 ⇒ 32.0, 33.0
B1401	Right front power window motor (M10/4) or circuit 30A or combination control module (N10-1).	23 ⇒ 34.0, 35.0
B1402	Left rear power window motor (M10/5) or circuit 30B or combination control module (N10-1).	23 ⇒ 36.0, 37.0
B1403	Right rear power window motor (M10/6) or circuit 30B or combination control module (N10-1).	23 ⇒ 38.0, 39.0

¹⁾ Observe Preparation for Test, see 22.

Diagnosis – Diagnostic Trouble Code (DTC) Memory (CF)

DTC 	Possible cause	Test step/Remedy ¹⁾
B1404	Sliding/pop-up roof microswitch (M12/1s1/s2/s4) (“open“, “up“, “close“) wire Γ1-, Γ1+ or combination control module (N10-1).	23 ⇒ 13.0, 15.0
B1405	Sliding/pop-up roof microswitch (M12/1s1/s3) (“open“, “down“) wire Γ1-, Γ1+ or combination control module (N10-1).	23 ⇒ 13.0, 17.0, 19.0
B1406	Left/right, front/rear door switches (S17/3, S17/4, S17/5, S17/6) wire Γ1+ or combination control module (N10-1).	23 ⇒ 5.0 – 8.0

1) Observe Preparation for Test, see 22.

Diagnosis – Recalling Actual values with HHT

The following tests and activations are possible via the Hand-Held Tester.

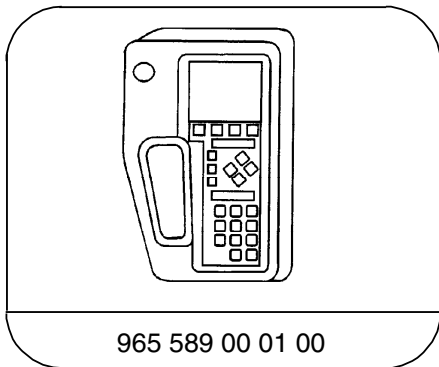
Preparation for Test

1. Fuse F1–22, and F4–1, F4–2, F4–3, F4–4 ok,
2. Battery voltage 11 – 14 V.
3. Ignition: **ON**
4. Connect the Hand-Held Tester (HHT) to X11/4, according to diagram, see section 0.

CAUTION!

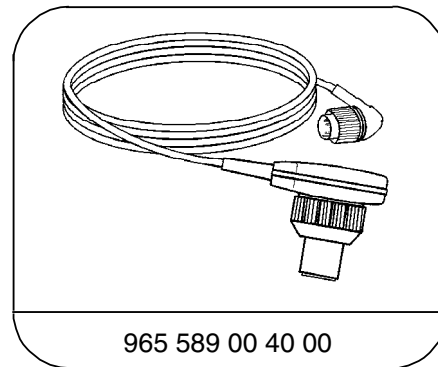
Erasing the Convenience Feature (CF) DTC memory, will also erase the DTC memory for the Combination Control Module (N10-1) and Mirror, steering column adjustment, heated mirrors (MSC).

Special Tools



965 589 00 01 00


Hand-Held-Tester



965 589 00 40 00


Test cable

Diagnosis – Recalling Actual Values with HHT

Actual value 	Possible cause	Test step/Remedy ¹⁾
	Circuit 15R	23 ⇒ 4.0
	Circuit 15	23 ⇒ 4.0
03	Central locking	23 ⇒ 40.0
04	Safety opening	23 ⇒ 40.0
05	Left front power window switch (S21s1)	23 ⇒ 21.0, 22.0
06	Left front power window motor close relay	23 ⇒ 32.0
07	Left front power window motor open relay	23 ⇒ 32.0
08	Right front power window switch (S21s2)	23 ⇒ 23.0, 24.0
09	Right front power window motor close relay	23 ⇒ 34.0
10	Right front power window motor open relay	23 ⇒ 34.0
11	Left rear power window switch (S21s3, S21/3),	23 ⇒ 25.0, 26.0


¹⁾ Observe Preparation for Test, see 22.

Diagnosis – Recalling Actual Values with HHT

Actual value 	Possible cause	Test step/Remedy ¹⁾
12	Left rear power window motor close relay	23 ⇒ 36.0
13	Left rear power window motor open relay	23 ⇒ 36.0
14	Right rear power window switch (S21s4, S21/4)	23 ⇒ 27.0, 28.0
15	Right rear power window close relay	23 ⇒ 38.0
16	Right rear power window motor open relay	23 ⇒ 38.0
17	Sliding/pop-up roof switch (S13/2): open	23 ⇒ 11.0, 14.0
18	Pop-up roof switch (S13/2): open	23 ⇒ 11.0, 16.0
19	Sliding/pop-up roof switch (S13/2): close	23 ⇒ 11.0, 12.0, 18.0
20	Sliding/pop-up roof closed	23 ⇒ 19.0
21	Activation: close pop-up roof, open sliding roof, combination control module output (N10-1).	23 ⇒ 13.0, 15.0

¹⁾ Observe Preparation for Test, see 22.

Diagnosis – Recalling Actual Values with HHT

Actual value 	Possible cause	Test step/Remedy ¹⁾
22	Activation: open pop-up roof, close sliding roof, combination control module output (N10-1).	23 ⇒ 17.0, 19.0
23	Lock switch signal: Unlock from RCL control module (N54).	23 ⇒ 40.0
24	lock switch signal: Lock from RCL control module (N54).	23 ⇒ 40.0

¹⁾ Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾
No. 1 Sliding/pop-up roof does not operate with sliding/pop-up roof switch.	Voltage supply circuit 30E, 15R Sliding/pop-up roof voltage supply Sliding/pop-up roof electrical circuit Sliding/pop-up roof relay (M12/1k1, M12/1k2) Sliding/pop-up roof motor (M12/1m1) Combination control module (N10-1)	23 ⇒ 3.0, 4.0 23 ⇒ 11.0 23 ⇒ 12.0 – 19.0
No. 2 Sliding/pop-up roof or power windows do not operate with ignition key in position “1” .	Voltage supply circuit 30A, 30B, 15R Combination control module (N10-1)	23 ⇒ 1.0, 2.0, 4.0
No. 3 Sliding/pop-up roof does not close/lower .	Sliding/pop-up roof circuit Sliding/pop-up roof relay (M12/1k1, M12/1k2) Sliding/pop-up roof motor (M12/1m1)	23 ⇒ 12.0, 13.0, 18.0, 19.0
No. 4 Sliding roof does not open.	Sliding/pop-up roof circuit Sliding/pop-up roof relay (M12/1k1, M12/1k2) Sliding/pop-up roof motor (M12/1m1)	23 ⇒ 14.0, 15.0
No. 5 Pop-up roof does not open.	Sliding/pop-up roof circuit Sliding/pop-up roof relay (M12/1k1, M12/1k2) Sliding/pop-up roof motor (M12/1m1)	23 ⇒ 16.0, 17.0
No. 6 Left front power window does not open .	Voltage supply circuit 30A, 30E, 15R Left front power window circuit Left front power window motor (M10/3) Combination control module (N10-1)	23 ⇒ 1.0, 3.0, 4.0 23 ⇒ 20.0, 21.0 23 ⇒ 32.0, 33.0

¹⁾ Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾
No. 7 Left front power window one-touch opening does not operate.	Voltage supply circuit 30A, 30E, 15R Left front power window circuit Left front power window motor (M10/3) Combination control module (N10-1)	23 ⇒ 1.0, 3.0, 4.0 23 ⇒ 20.0, 21.0 23 ⇒ 32.0, 33.0
No. 8 Left front power window does not close .	Voltage supply circuit 30A, 30E, 15R Left front power window circuit Left front power window motor (M10/3) Combination control module (N10-1)	23 ⇒ 1.0, 3.0, 4.0 23 ⇒ 20.0, 22.0 23 ⇒ 32.0, 33.0
No. 9 Right front power window does not open .	Voltage supply circuit 30B, 30E, 15R Right front power window circuit Right front power window motor (M10/4) Combination control module (N10-1)	23 ⇒ 1.0, 3.0, 4.0 23 ⇒ 20.0, 23.0 23 ⇒ 34.0, 35.0
No. 10 Right front power window one-touch opening does not operate.	Voltage supply circuit 30B, 30E, 15R Right front power window circuit Right front power window motor (M10/4) Combination control module (N10-1)	23 ⇒ 1.0, 3.0, 4.0 23 ⇒ 20.0, 23.0 23 ⇒ 34.0, 35.0
No. 11 Right front power window does not close .	Voltage supply circuit 30B, 30E, 15R Right front power window circuit Right front power window motor (M10/4) Combination control module (N10-1)	23 ⇒ 1.0, 3.0, 4.0 23 ⇒ 20.0, 24.0 23 ⇒ 34.0, 35.0

¹⁾ Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾
No. 12 Left rear power window does not open .	Voltage supply circuit 30B, 30E, 15R Left rear power window circuit Left rear power window motor (M10/5) Combination control module (N10-1)	23 ⇒ 2.0, 3.0, 4.0 23 ⇒ 20.0, 25.0 23 ⇒ 36.0, 37.0
No. 13 Left rear power window does not close .	Voltage supply circuit 30A, 30E, 15R Left rear power window circuit Left rear power window motor (M10/5) Combination control module (N10-1)	23 ⇒ 2.0, 3.0, 4.0 23 ⇒ 20.0, 26.0 23 ⇒ 36.0, 37.0
No. 14 Right rear power window does not open .	Voltage supply circuit 30A, 30E, 15R Right rear power window circuit Right rear power window motor (M10/6) Combination control module (N10-1)	23 ⇒ 2.0, 3.0, 4.0 23 ⇒ 20.0, 27.0 23 ⇒ 38.0, 39.0
No. 15 Rear right power window does not close .	Voltage supply circuit 30B, 30E, 15R Right rear power window circuit Right rear power window motor (M10/6) Combination control module (N10-1)	23 ⇒ 2.0, 3.0, 4.0 23 ⇒ 20.0, 28.0 23 ⇒ 38.0, 39.0
No. 16 Child safety lock-out for left rear or right rear door does not operate.	Circuit for rear power windows safety switch (S21/7) (center console)	23 ⇒ 29.0

1) Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾
No. 17 Central locking, power windows, sliding/pop-up roof do not operate with infrared remote central locking via RCL receiver (A26/7) (interior rearview mirror) or with ignition key	Voltage supply circuit 30A, 30B, 30E Driver's door lock circuit, front passenger's door lock circuit or trunk lid lock circuit RCL control module (N54) Lock switch circuit Combination control module (N10-1)	23 ⇒ 1.0, 2.0, 3.0 23 ⇒ 5.0, 6.0, 7.0, 8.0 23 ⇒ 43.0 D.M., Body and Accessories, Vol. 1, 4.5 23 ⇒ 32.0, 33.0

¹⁾ Observe Preparation for Test, see 22.

Electrical Test Program – Component Locations (CF)

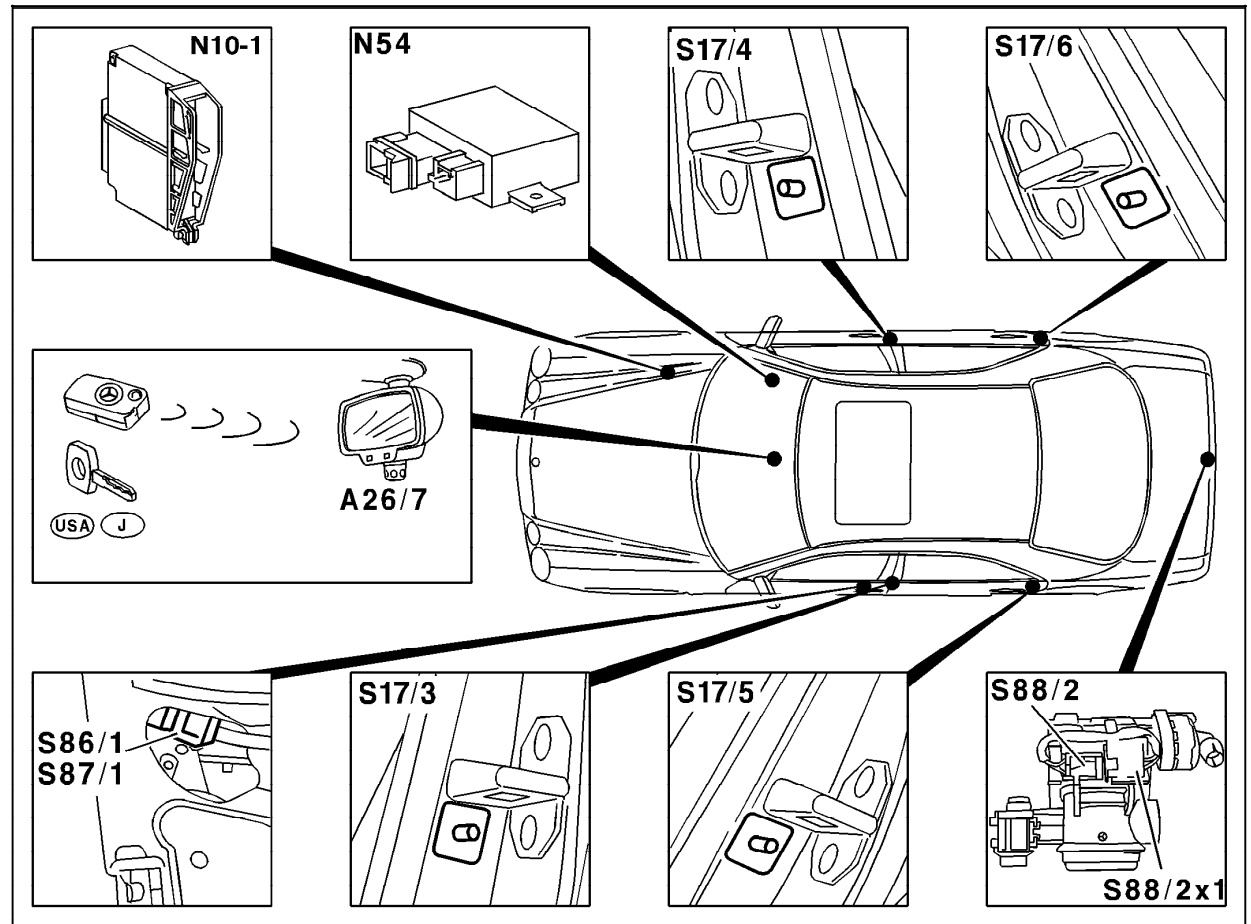


Figure 1

- A26/7 RCL receiver (interior rearview mirror)
- N10-1 Combination control module
- N54 RCL control module
- S17/3 Left front door switch
- S17/4 Right front door switch
- S17/5 Left rear door switch
- S17/6 Right rear door switch
- S86/1 Left front door switch (CF)
- S87/1 Right front door switch (CF)
- S88/2 Trunk lid lock switch (CF)
- S88/2x1 Trunk lid lock switch connector (CF)

U82.40-0208-06

Electrical Test Program – Component Locations (CF)

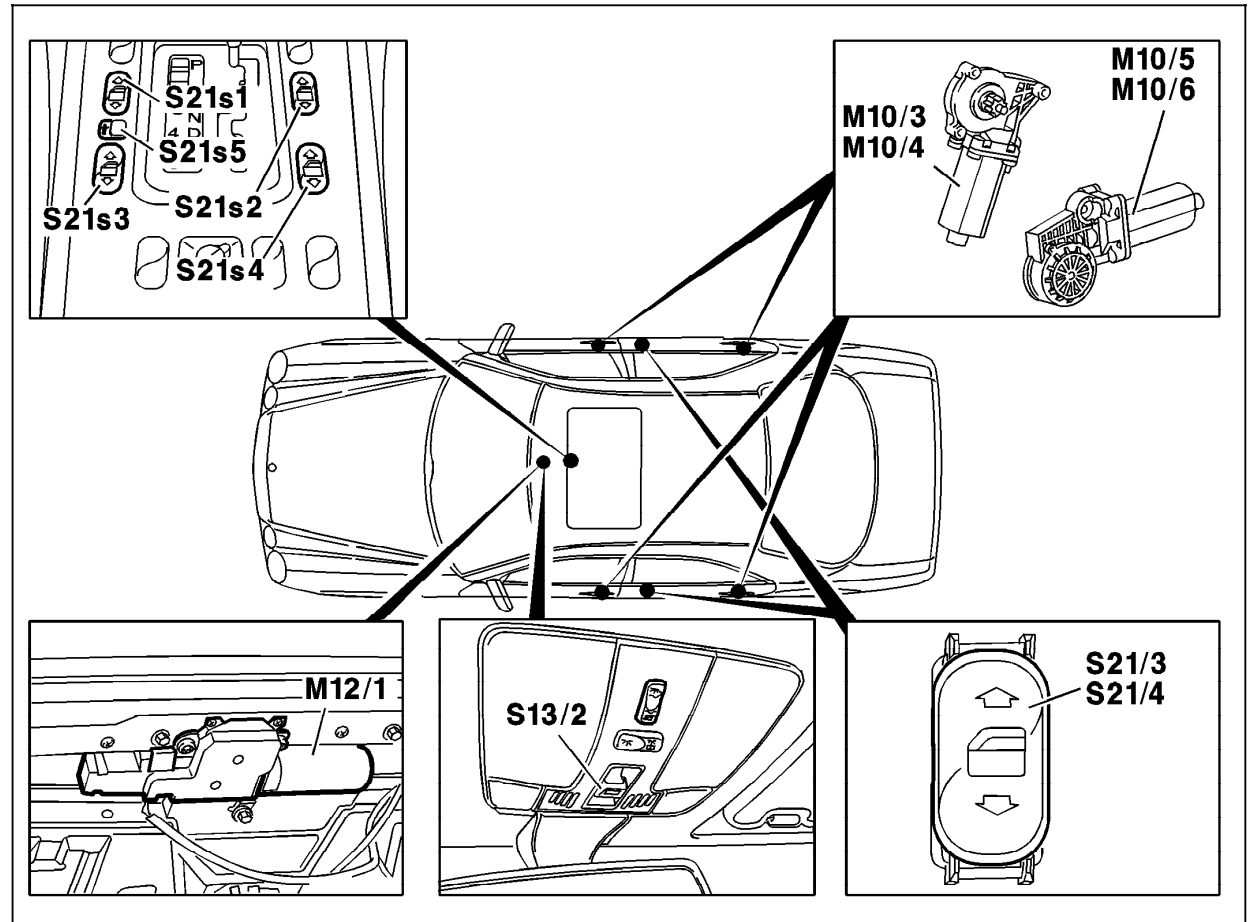


Figure 2

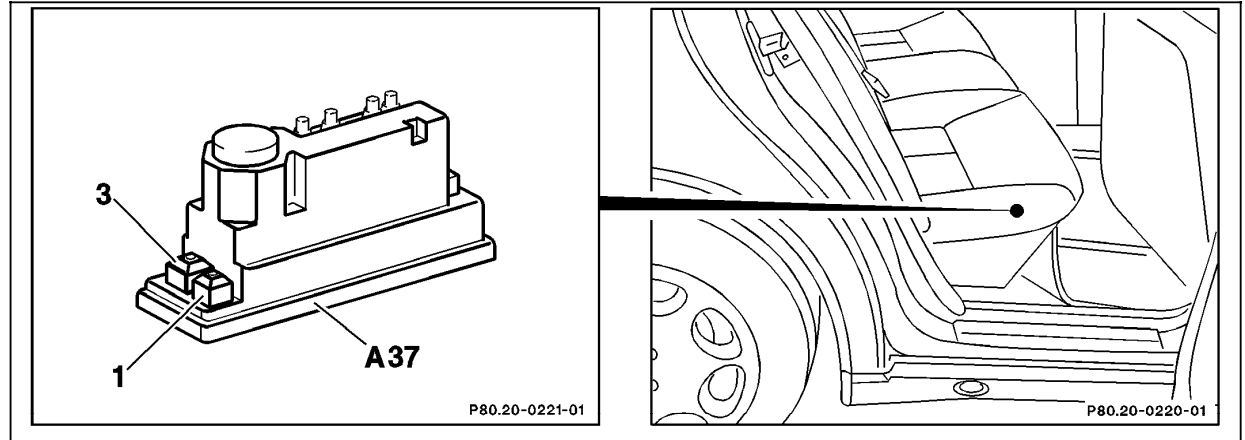
- M10/3 Left front power window motor (voltage supply)
- M10/4 Right front power window motor (voltage supply)
- M10/5 Left rear power window motor (voltage supply)
- M10/6 Right rear power window motor (voltage supply)
- M12/1 Sliding/pop-up roof
- S13/2 Sliding/pop-up roof switch
- S21s1 Left front power window switch
- S21s2 Right front power window switch
- S21s3 Left rear power window switch
- S21s4 Right rear power window switch
- S21s5 Rearpower window safety switch
- S21/3 Left rear power window switch
- S21/4 right rear power window switch

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Electrical Test Program – Component Locations (CF)

Figure 3

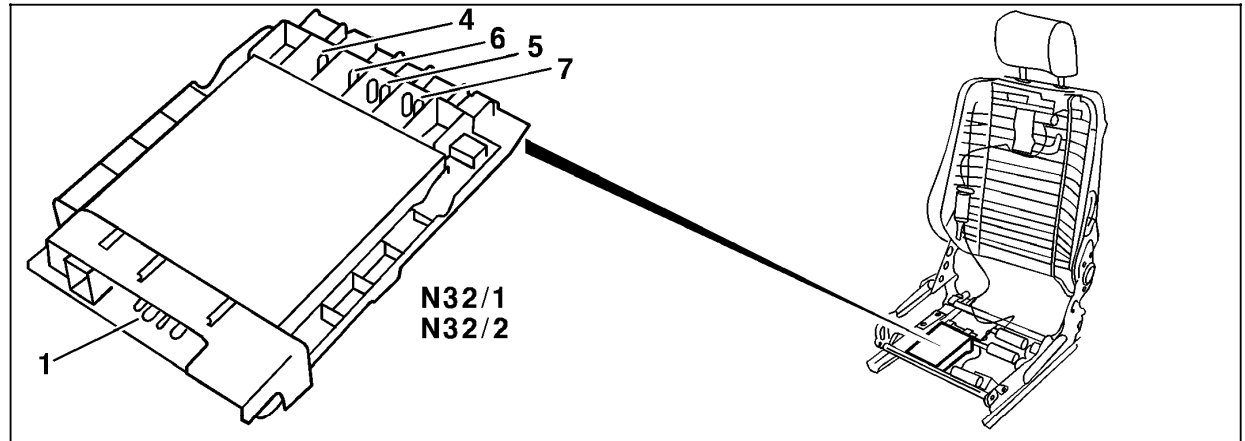
- A37 PSE control module, combined functions
- 1 Connector 1
- 2 Connector 2



P82.40-0209-04

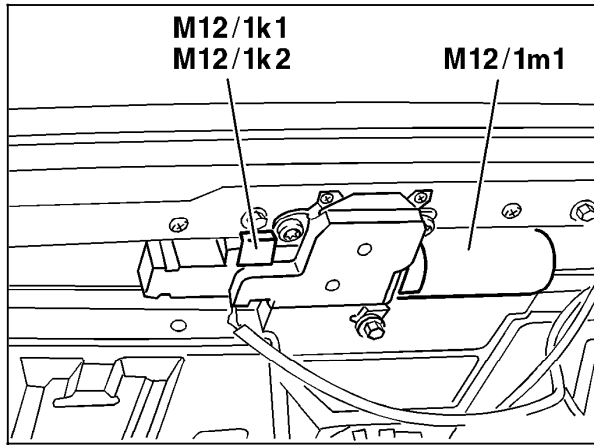
Figure 4

- N32/1 Left front ESA control module (with memory)
- N32/2 Right front ESA control module (with memory)
- 1 Connector 1
- 4 Connector 4
- 5 Connector 5
- 6 Connector 6
- 7 Connector 7



P91.29-0232-04

Electrical Test Program – Component Locations (CF)



P77.20-0255-01

Figure 5

M12/1k1	Sliding/pop-up roof relay
M12/1k2	Sliding/pop-up roof relay
M12/1m1	Sliding/pop-up roof motor

Electrical Test Program – Preparation for Test

Preliminary work:

Diagnosis - Diagnostic Trouble Code (DTC) Memory 12

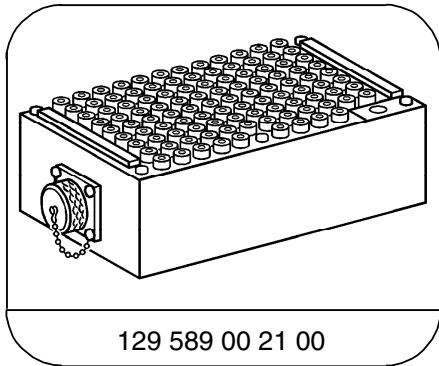
Preparation for Test

1. Fuse F4-1, F4-2, F4-3, F4-4 and F1-22 ok,
2. Battery voltage 11 – 14 V.
3. Disconnect battery ground cable prior to connecting or disconnecting any electrical connector to the combination control module (N10-1) (to prevent the storing of erroneous diagnostic trouble codes).

Electrical wiring diagrams :

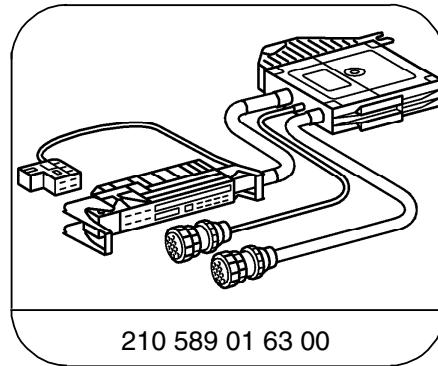
Electrical Troubleshooting Manual, Model 210, Volume 2, group 72, 77, 82

Special Tools



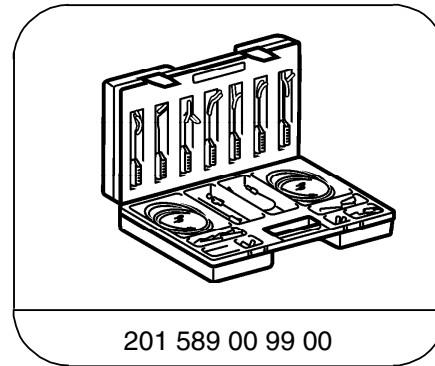
129 589 00 21 00

126-pin socket box



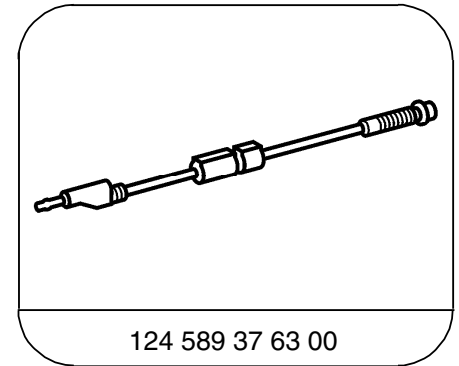
210 589 01 63 00

78-pin test cable



201 589 00 99 00

Electrical connecting set

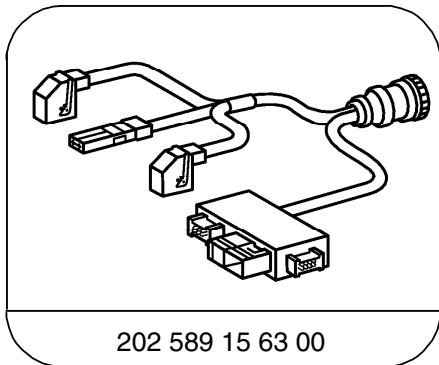


124 589 37 63 00

Fused cable

Electrical Test Program – Preparation for Test

Special Tools



18-pin and 12-pin CAN test cable

Conventional tools, test equipment

Description	Brand, model, etc.
Multimeter ¹⁾	Fluke models 23, 83, 85, 87

¹⁾ Available through the MBUSA Standard Equipment Program.

Electrical Test Program – Preparation for Test

Connection Diagram - Socket Box

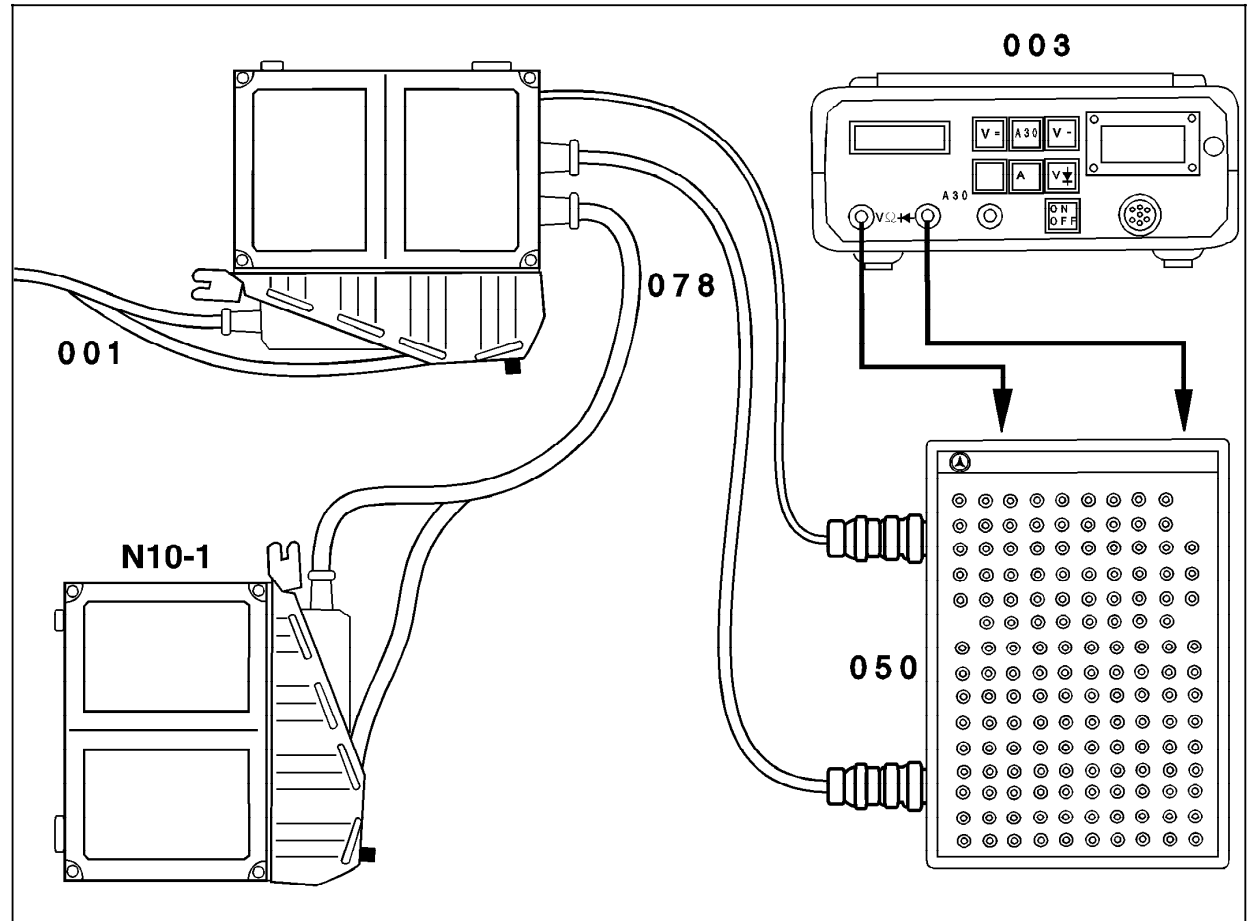


Figure 1

- 001 Vehicle harness
- 003 Multimeter
- 050 Socket box (126-pole)
- 078 Test cable 210 589 01 63 00
- N10-1 Combination control module

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Electrical Test Program – Preparation for Test

Connection Diagram - Socket Box

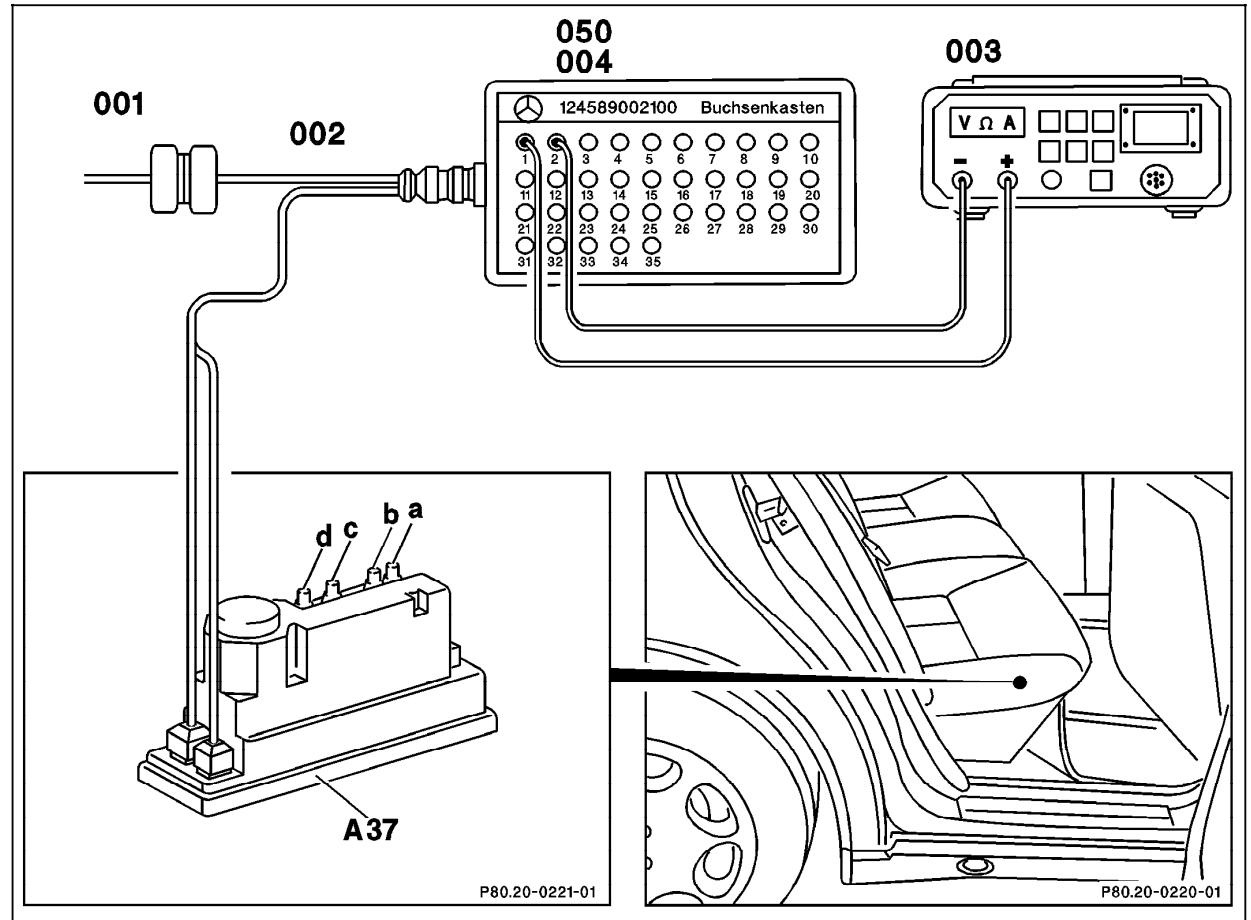

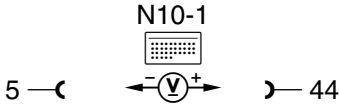
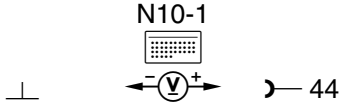
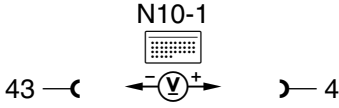
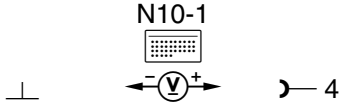
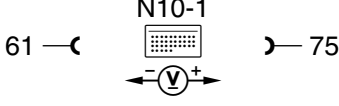
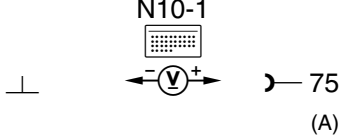


Figure 2


- A37 PSE control module, combined functions
- 001 PSE connector
- 002 Test cable set
- 003 Multimeter
- 004/050 Socket box

P80.20-0221-01
P80.20-0220-01
P80.20-0213-06


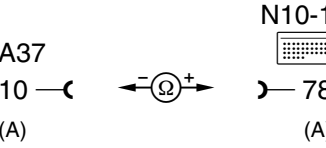
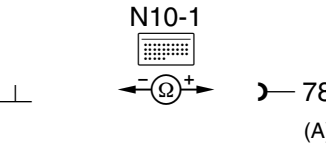
Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0	B1016 B1400 B1401	Voltage supply Circuit 30A, 31A		Ignition: OFF	11 – 14 V	⇒ 1.1 Circuit 31A.
1.1		Circuit 30A		Ignition: OFF	11 – 14 V	Wiring.
2.0	B1017 B1402 B1403	Voltage supply Circuit 30B, 31B		Ignition: OFF	11 – 14 V	2.1, Circuit 31B.
2.1		Circuit 30B		Ignition: OFF	11 – 14 V	Wiring.
3.0	B1010 B1011	Voltage supply Circuit 30E, 31E		Ignition: OFF	11 – 14 V	⇒ 3.1, Circuit 31E.
3.1		Circuit 30E		Ignition: OFF	11 – 14 V	Wiring.


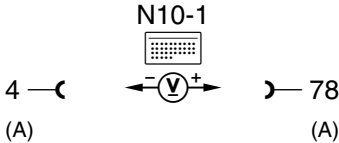
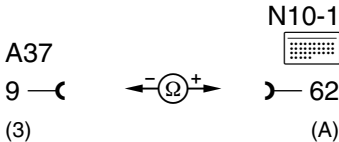
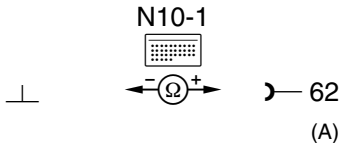
Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
4.0	BID13	Circuit 15, 15R	<p>N10-1 3 — 58 — (A)</p>	Ignition switch: Position: “1” Position: “2”	11 – 14 V 11 – 14 V	Wiring.
5.0		Left front door switch (S17/3) circuit	<p>A37 3 — (3)</p>	Ignition: OFF Left front door: CLOSE Left front door: OPEN	0 – 1 V 11 – 14 V	Wiring, S17/3
6.0		Right front door switch (S17/4) circuit	<p>A37 4 — (3)</p>	Ignition: OFF Right front door: CLOSE Right front door: OPEN	0 – 1 V 11 – 14 V	Wiring, S17/4
7.0		Left rear door switch (S17/5) circuit	<p>A37 6 — (3)</p>	Ignition: OFF Left rear door: CLOSE Left rear door: OPEN	0 – 1 V 11 – 14 V	Wiring, S17/5
8.0		Right rear door switch (S17/6) circuit	<p>A37 5 — (3)</p>	Ignition: OFF Right rear door: CLOSE Right rear door: OPEN	0 – 1 V 11 – 14 V	Wiring, S17/6


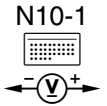
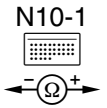
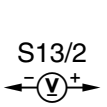
Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
9.0	B1021 B1025	CAN H data line from PSE control module (A37) to combination control module (N10-1) -//-		Ignition: OFF Disconnect coupling 1 and 3 from PSE (A37) and coupling A from combination control module (N10-1).	< 1 Ω	Wiring, ⇒ 9.1
9.1		CAN H data line from PSE control module (A37) to combination control module (N10-1) ΓΓ-		Ignition: OFF ⚠ CAUTION! Disconnect coupling 1 and 3 from PSE (A37) and coupling A from combination control module (N10-1). Disconnect coupling 1 from seat memory at left/right ESA control module (N32/1, N32/2).	>20 kΩ	Wiring, ⇒ 9.2


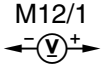

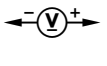

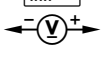
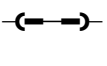

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
9.2		CAN H data line from PSE control module (A37) to combination control module (N10-1) Γ1+		Ignition: OFF ⚠ CAUTION! Disconnect coupling 1 and 3 from PSE (A37) and coupling A from N10-1. Disconnect coupling 1 from seat memory at N32/1, N32/2.	< 1 V	Wiring.
10.0	B1021 B1024 B1025	CAN L data line from PSE control module (A37) to combination control module (N10-1) -//-		Ignition: OFF ⚠ CAUTION! Disconnect coupling 1 and 3 from PSE (A37) and coupling A from N10-1. Disconnect coupling 1 from seat memory at N32/1, N32/2.	< 1 Ω	Wiring, ⇒ 10.1
10.1		CAN L data line from PSE control module (A37) to combination control module (N10-1) Γ1-		Ignition: OFF ⚠ CAUTION! Disconnect coupling 1 and 3 from PSE (A37) and coupling A from N10-1. Disconnect coupling 1 from seat memory at N32/1, N32/2.	>20 kΩ	Wiring, ⇒ 10.2



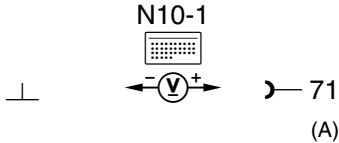

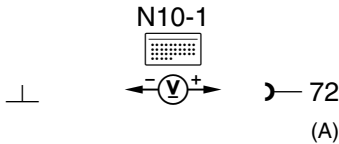
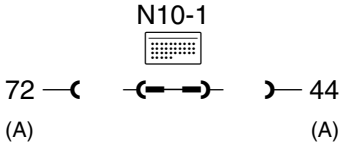
Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
10.2		CAN L data line from PSE control module (A37) to combination control module (N10-1) Γ1+		Ignition: OFF CAUTION! Disconnect coupling 1 and 3 from PSE (A37) and coupling A from N10-1. Disconnect coupling 1 from seat memory at N32/1, N32/2.	< 1 V	Wiring, ⇒ 10.3
10.3		CAN L/CAN H data line Γ1- to each other		Ignition: OFF CAUTION! Disconnect coupling 1 and 3 from PSE (A37) and coupling A from N10-1. Disconnect coupling 1 from seat memory at N32/1, N32/2.	>20 kΩ	Wiring.
11.0		Voltage supply Sliding/pop-up roof Sliding/pop-up roof switch (S13/2)		S13/2: Rest position	11 – 14 V	Wiring.


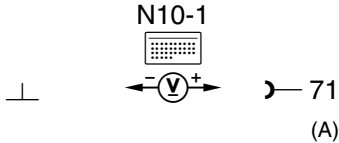
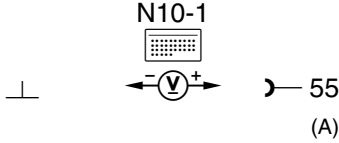
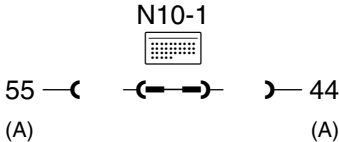
Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
11.1		Voltage supply Sliding/pop-up roof Sliding/pop-up roof motor (M12/1)	6 —(—  —) 4 M12/1		11 – 14 V	Wiring.
12.0		Activation of combination control module (N10-1) by sliding/pop-up roof switch (S13/2) Function: Close sliding/pop-up roof	⊥  —) 71 N10-1 (A)	Ignition: OFF S13/2: Close sliding/pop-up roof	6 – 9 V	Wiring, Sliding/pop-up roof switch (S13/2).
13.0		Activation of sliding/pop-up roof relay (M121k1) by combination control module (N10-1) Function: Close sliding/pop-up roof	⊥  —) 56 N10-1 (A)	Ignition: OFF S13/2 (Set in position): Close sliding/pop-up roof	11 – 14 V, while sliding/pop-up roof is closing.	Nominal value achieved, ⇒ 13.1 ⇒ 12.0, N10-1
13.1		Activation of sliding/pop-up roof relay (M121k1) by combination control module (N10-1) Function: Close sliding/pop-up roof	56 —(—  —) 44 (A) (A)	Ignition: OFF  CAUTION! Disconnect coupling A from N10-1. Bridge sockets 56 and 44 with fused jumper wire 124 589 37 63 00	Sliding/pop-up roof closes.	Wiring, Sliding/pop-up roof relays (M12/1k1, M12/1k2), Sliding/pop-up roof motor (M12/1m1).


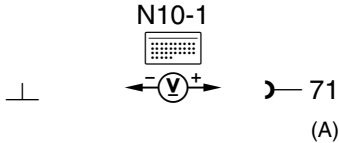
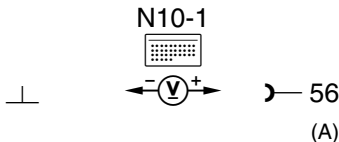
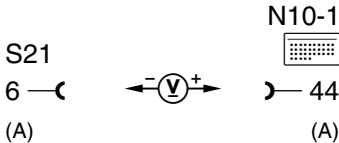
Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
14.0		<p>Activation of combination control module (N10-1) by sliding/pop-up roof switch (S13/2) Function: Open sliding/pop-up roof</p>		Ignition: OFF S13/2 (Set in position): Open sliding/pop-up roof	3 – 5 V	Wiring, Sliding/pop-up roof switch (S13/2).
15.0		<p>Activation of sliding/pop-up roof relay (M121k1) by combination control module (N10-1) Function: Open sliding/pop-up roof</p>		Ignition: ON S13/2 (Set in position): Open sliding/pop-up roof	11 – 14 V, within 25 seconds.	Nominal value achieved, ⇒ 15.1 ⇒ 14.0, N10-1
15.1		<p>Activation of sliding/pop-up roof relay (M121k1) by combination control module (N10-1) Function: Open sliding/pop-up roof</p>		Ignition: OFF ⚠ CAUTION! Disconnect coupling A from N10-1. Bridge sockets 56 and 44 with fused jumper wire 124 589 37 63 00	Sliding/pop-up roof opens.	Wiring, Sliding/pop-up roof relays (M12/1k1, M12/1k2), Sliding/pop-up roof motor (M12/1m1).


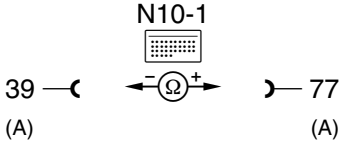
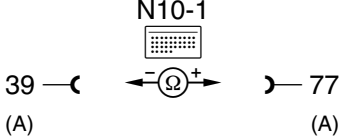
Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
16.0	B1118	<p>Activation of combination control module (N10-1) by sliding/pop-up roof switch (S13/2) Function: Open pop-up roof</p>		Ignition: OFF S13/2 (Set in position): Open pop-up roof	11 – 14 V	Wiring, Sliding/pop-up roof switch (S13/2).
17.0	B1405	<p>Activation of sliding/pop-up roof relay (M121k1) by combination control module (N10-1) Function: Open pop-up roof</p>		Ignition: ON S13/2 (Set in position): Open pop-up roof	11 – 14 V, within 25 seconds.	Nominal value achieved, ⇒ 17.1 ⇒ 16.0, N10-1
17.1		<p>Activation of sliding/pop-up roof relay (M121k1) by combination control module (N10-1) Function: Open pop-up roof</p>		Ignition: OFF ⚠ CAUTION! Disconnect coupling A from N10-1. Bridge sockets 55 and 44 with fused jumper wire 124 589 37 63 00	Pop-up roof opens.	Wiring, Sliding/pop-up roof relays (M12/1k1, M12/1k2), Sliding/pop-up roof motor (M12/1m1).


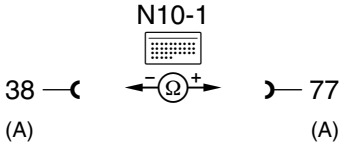
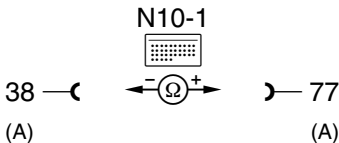
Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
18.0	B1118	<p>Activation of combination control module (N10-1) by sliding/pop-up roof switch (S13/2) Function: Close pop-up roof</p>		<p>Ignition: OFF S13/2 (Set in position): Close pop-up roof</p>	6 – 9 V	Wiring, Sliding/pop-up roof switch (S13/2).
19.0	B1405	<p>Activation of sliding/pop-up roof relay (M121k1) by combination control module (N10-1) Function: Close pop-up roof</p>		<p>Ignition: ON S13/2 (Set in position): Close pop-up roof</p>	11 – 14 V, while pop-up roof closes.	<p>Nominal value achieved, ⇒ 13.1 ⇒ 18.0, N10-1</p>
20.0		<p>Activation of center console switch group (S21) by combination control module (N10-1)</p>			11 – 14 V	Wiring, N10-1




Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
21.0	B1120	<p>Left front power window switch (S21s1) circuit Function: Open window</p>		<p>Ignition: OFF Disconnect coupling A from N10-1. S21s1: Rest position</p> <p>S21s1: Press and hold to open. (position "1").</p> <p>Press to open. (position "2")</p>	<p>>20 kΩ</p> <p>approx. 750 Ω</p> <p><10 Ω</p>	<p>Wiring, Left front power window switch (S21s1).</p>
22.0	B1120	<p>Left front power window switch (S21s1) circuit Function: Close window</p>		<p>Ignition: OFF Disconnect coupling A from N10-1. S21s1: Rest position</p> <p>S21s1: Press and hold to close</p>	<p>>20 kΩ</p> <p>approx. 200 Ω</p>	<p>Wiring, S21s1</p>



Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
23.0	B1121	Right front power window switch (S21s2) circuit Function: Open window		Ignition: OFF Disconnect coupling A from N10-1. S21s2: Rest position S21s2: Press and hold to open. (position "1"). Press to open. (position "2")	>20 kΩ approx. 750 Ω <10 Ω	Wiring, Right front power window switch (S21s2).
24.0	B1121	Right front power window switch (S21s2) circuit Function: Close window		Ignition: OFF Disconnect coupling A from N10-1. S21s2: Rest position S21s2: Press and hold to close	>20 kΩ approx. 200 Ω	Wiring, S21s2


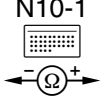
Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
25.0	B1122	<p>Left rear power window switch (S21s3, S21/3) circuit Function: Open window</p>	<p style="text-align: center;">N10-1 </p> <p>37 —(—  —) 77 (A) (A)</p>	<p>Ignition: OFF Disconnect coupling A from N10-1. Rear power window safety switch (S21s5) in position: Unlock</p> <p>S21s3 and S21/3: Rest position</p> <p>S21s3: Press and hold to open. (position “1”).</p> <p>S21/3: Press and hold to open.</p>	<p>>20 kΩ</p> <p><10 Ω</p> <p><10 Ω</p>	<p>Wiring, S21s3, S21/3.</p> <p>Wiring, S21s3</p> <p>Wiring, ⇒ 29.0,30.0, S21/3</p>



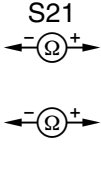
Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
26.0	B1122	<p>Left rear power window switch (S21s3, S21/3) circuit Function: Close window</p>	<p style="text-align: center;">N10-1 </p> <p>37 —◀ —(Ω)—▶ — 77 (A) (A)</p>	<p>Ignition: OFF Disconnect coupling A from N10-1. Rear power window safety switch (S21s5) in position: Unlock</p> <p>S21s3 and S21/3: Rest position</p> <p>S21s3: Press and hold to close. (position “1”).</p> <p>S21/3: Press and hold to close.</p>	<p>>20 kΩ</p> <p>approx. 470 Ω</p> <p>approx. 470 Ω</p>	<p>Wiring, S21s3, S21/3.</p> <p>Wiring, S21s3.</p> <p>Wiring, ⇒ 29.0,30.0, S21/3</p>


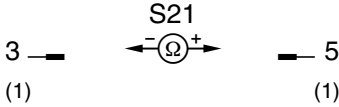
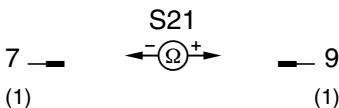
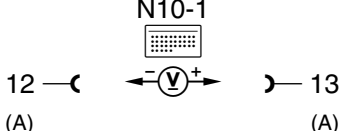
Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
27.0	B1123	<p>Right rear power window switch (S21s4, S21/4) circuit Function: Open window</p>	<p>N10-1</p>  <p>36 —(A) —(A) 77</p>	<p>Ignition: OFF Disconnect coupling A from N10-1. Rear power window safety switch (S21s5) in position: Unlock</p> <p>S21s4 and S21/4: Rest position</p> <p>S21s4: Press and hold to open. (position “1”).</p> <p>S21/4: Press and hold to open.</p>	<p>>20 kΩ</p> <p><10 Ω</p> <p><10 Ω</p>	<p>Wiring, S21s4, S21/4.</p> <p>Wiring, S21s4.</p> <p>Wiring, ⇒ 29.0, 31.0, S21/4</p>


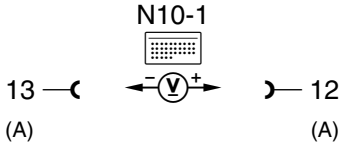
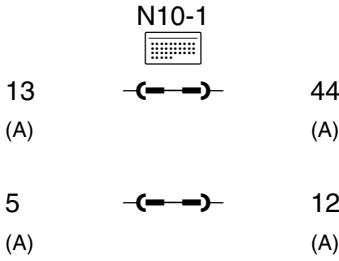

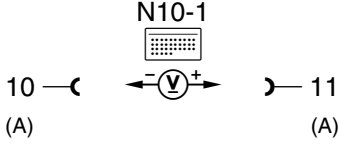
Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
28.0	B1123	<p>Right rear power window switch (S21s4, S21/4) circuit Function: Close window</p>	<p>N10-1 </p>	<p>Ignition: OFF Disconnect coupling A from N10-1. Rear power window safety switch (S21s5) in position: Unlock</p> <p>S21s4 and S21/4: Rest position</p> <p>S21s4: Press and hold to close. (position "1").</p> <p>S21/4: Press and hold to close.</p>	<p>>20 kΩ</p> <p><470 Ω</p> <p><470 Ω</p>	<p>Wiring, S21s4, S21/4</p> <p>Wiring, S21s4</p> <p>Wiring, ⇒ 29.0,31.0, S21/4</p>
29.0		<p>Rear power window safety switch (S21s5) for left/right rear power window switch (S21/3, S21/4) Child safety</p>	<p>S21 </p>	<p>Ignition: OFF Disconnect connector from center console switch group (S21). S21s5: unlocks</p>	<p><10 Ω</p>	<p>Center console switch group (S21).</p>


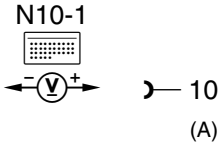
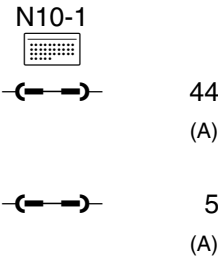
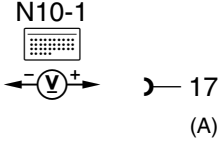
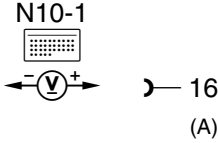
Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
30.0		Center console switch group (S21) internal connection between: left rear power window switch (S21s3) and left rear power window switch (S212/3)		Ignition: OFF Disconnect coupling 1 from S21.	<1 Ω	S21
31.0		Center console switch group (S21) internal connection between: right rear power window switch (S21s3) and rightrear power window switch (S212/4)		Ignition: OFF Disconnect coupling 1 from S21.	<1 Ω	S21
32.0	B1400	Activation of left front power window motor (M10/3)		Ignition: ON Left front power window switch (S21s1): Press and hold to open. (position "1"). Press to open. (position "2").	Within 25 seconds: 11 – 14 V 11 – 14 V	Wiring, ⇒ 21.0 ⇒ 32.1

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
32.1		Activation of left front power window motor (M10/3)		Ignition: ON Left front power window switch (S21s1): Press and hold to close.	Within 25 seconds: 11 – 14 V	Wiring, ⇒ 22.0, Combination control module (N10-1).
33.0	81400	Left front power window motor (M10/3)		Ignition: OFF  CAUTION! Disconnect coupling A from N10-1. Bridge sockets 13 and 44 with fused jumper wire 124 589 37 63 00	Left front power window opens.	Wiring, M10/3
34.0	81401	Activation of right front power window motor (M10/4)		Ignition: ON Left front power window switch (S21s2): Press and hold to open. (position "1"). Press to open. (position "2").	Within 25 seconds: 11 – 14 V 11 – 14 V	Wiring, ⇒ 23.0, ⇒ 34.1






Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
34.1		Activation of right front power window motor (M10/4)	 <p>11 (A) ← (V) → 10 (A)</p>	Ignition: ON Right front power window switch (S21s2): Press and hold to close.	Within 25 seconds: 11 – 14 V	Wiring, ⇒ 24.0, Combination control module (N10-1).
35.0	81401	Right front power window motor (M10/4)	 <p>11 (A) ← → 44 (A) 10 (A) ← → 5 (A)</p>	Ignition: OFF ⚠ CAUTION! Disconnect coupling A from N10-1. Bridge sockets 11 and 44 with fused jumper wire 124 589 37 63 00	Right front power window opens.	Wiring, M10/4
36.0	81402	Activation of left rear power window motor (M10/5)	 <p>16 (A) ← (V) → 17 (A)</p>	Ignition: ON Left rear power window switch (S21s3 or S21/3): Press and hold to open. (position "1").	within 25 seconds: 11 – 14 V	Wiring, ⇒ 25.0, ⇒ 36.1
36.1		Activation of left rear power window motor (M10/5)	 <p>17 (A) ← (V) → 16 (A)</p>	Ignition: ON Left rear power window switch (S21s3 or S21/3): Press and hold to close.	within 25 seconds: 11 – 14 V	Wiring, ⇒ 26.0, N10-1


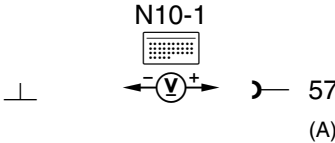
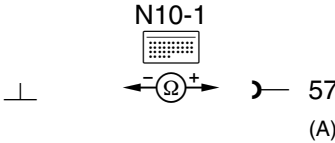
5.3 Convenience Feature (CF)

Model 210

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
37.0	B1402	Left rear power window motor (M10/5)	<p>N10-1</p>  <p>17 (A) ← → 4 (A)</p> <p>16 (A) ← → 43 (A)</p>	<p>Ignition: OFF</p> <p>⚠ CAUTION!</p> <p>Disconnect coupling A from N10-1.</p> <p>Bridge sockets 17 and 4 with fused jumper wire 124 589 37 63 00</p>	Left rear power window opens.	Wiring, M10/5
38.0	B1403	Activation of right rear power window motor (M10/6)	<p>N10-1</p>  <p>14 (A) ← (V) → 15 (A)</p>	<p>Ignition: ON</p> <p>Right rear power window switch (S21s4 or S21/4): Press and hold to close. (position "1").</p>	within 25 seconds: 11 – 14 V	Wiring, ⇒ 27.0, ⇒ 38.1
38.1		Activation of right rear power window motor (M10/6)	<p>N10-1</p>  <p>15 (A) ← (V) → 14 (A)</p>	<p>Ignition: ON</p> <p>Right rear power window switch (S21s4 or S21/4): Press and hold to close.</p>	within 25 seconds: 11 – 14 V	Wiring, ⇒ 28.0, N10-1
39.0	B1403	Right rear power window motor (M10/6)	<p>N10-1</p>  <p>15 (A) ← → 4 (A)</p> <p>14 (A) ← → 43 (A)</p>	<p>Ignition: OFF</p> <p>⚠ CAUTION!</p> <p>Disconnect coupling A from N10-1.</p> <p>Bridge sockets 15 and 4 with fused jumper wire 124 589 37 63 00</p>	Right rear power window opens.	Wiring, M10/6

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
40.1		Activation of combination control module (N10-1) from RCL control module (N54) Function: Unlock vehicle using safety opening		Ignition: OFF Using IR transmitter (RCL): Press and hold unlock. S86/1 and S88/2 in: Rest position Using ignition key: S86/1: In position: Open. Using ignition key: S88/2: In position: Open.	4 – 6 V 11 – 14 V 4 – 6 V 4 – 6 V	⇒ 40.2 ⇒ 40.2 ⇒ 40.2 ⇒ 40.2
40.2		Activation of combination control module (N10-1) from RCL control module (N54) Function: Lock and unlock vehicle using convenience feature Γ1-		Ignition: OFF Disconnect coupling 1 from RCL control module (N54) and coupling A from combination control module (N10-1)	>20 kΩ	Wiring, D.M., Body and Accessories, Vol. 1, 4.5 11 RCL