5.1 Model 140

Diagnosis - Function Test

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy [1]
⇒ 1.0 **Power windows**	Ignition key position 1, or one front door open.		
Open side windows.	Press **back** of power window switch down to first detent.	Side window **opens**, as long as switch is depressed.	13 Complaint No.'s 7, 12, 17, 22
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)**.**	13 Complaint No.'s 8, 13, 18, 23
Close side windows	Press **front** of power window switch down to first detent.	Side window **closes**, as long as switch is depressed.	13 Complaint No.'s 9, 14, 19, 24
Close side windows (one-touch closing)	Press **front** of power window switch down past first detent.	Side window **closes** completely (switch does not have to be held depressed)**.**	13 Complaint No.'s 10, 15, 20, 25
Side windows open when front doors are opened [3]	Open left or right front door.	Left or right front **and rear** [4] side window open approx. 4mm.	13 Complaint No.'s 31, 32
Side windows close when front doors are closed [3]	Left or right front side **and rear** window is 4mm open. Close left or right front door.	Left or right front **and rear** [4] side window closes.	13 Complaint No.'s 33, 34
Rear side windows open (4mm), when front window opens [4].	Open left/right front side window	Left/right front side window opens, left/right rear side window opens approx. 4 mm.	13 Complaint No.'s 37, 38

[1] Observe Preparation for Test, see 22.
[3] Coupé only
[4] Coupé only as of chassis end number 1A-139150

Diagnosis - Function Test

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy [1]
⇒ 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.	13 Complaint No. 5
Close sliding roof	Push sliding/pop-up roof switch toward front.	Sliding roof closes.	13 Complaint No. 4
Open pop-up roof	Push sliding/pop-up roof switch up.	Pop-up roof opens.	13 Complaint No. 6
Close pop-up roof	Pull sliding/pop-up roof switch down.	Pop-up roof closes.	13 Complaint No. 4

[1] Observe Preparation for Test, see 22.

Diagnosis - Function Test

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy [1]
⇒ 3.0 **Central locking** Side windows and sliding/pop-up roof	Using ignition key, **lock** front doors or trunk lid and hold key in this position (Windows synchronized, 22).	Sliding/pop-up roof and/or window(s) **close if open.**	13 Complaint No. 29
⇒ 4.0 **Safety opening** Side windows and sliding/pop-up roof	Within 10 sec. after centrally locking vehicle (step 3 above), **unlock** vehicle with ignition key and hold in this position.	If windows and sliding/pop-up roof are not closed completely, they **open** immediately. If windows are closed completely, the windows will open after 2 sec. sliding/pop-up roof will open after 4 sec.	Convenience control module (N57)

[1] Observe Preparation for Test, see 22.

Diagnosis - Diagnostic Trouble Code (DTC) Memory

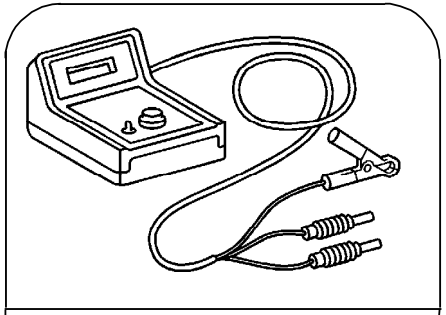
Preparation for Test:

- Check fuse F4-11.
- Check fuse F3-35.
- Connect impulse counter scan tool or Hand-Held Tester (HHT) to 38-pole data link connector (X11/4) according to connection diagram shown in section 0.

Note:

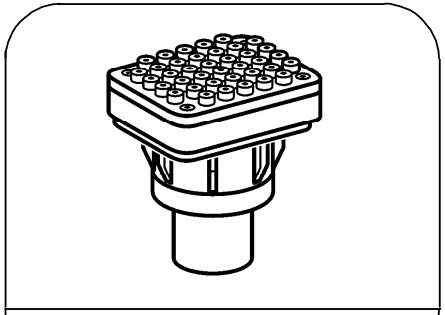
Connect yellow wire of impulse counter scan tool to socket 31.

Special Tools



124 589 19 21 00

Pulse counter



140 589 14 63 00

Adapter

Electrical wiring diagrams

See Electrical Troubleshooting Manual, Model 140, Volume 2.

Diagnosis - Diagnostic Trouble Code (DTC) Memory

Diagnostic trouble code (DTC)		Possible cause	Test step/Remedy [1]
1	001	No malfunction in memory.	–
2	002	Closing circuit for left front power window motor (M10/3), control module (N57).	23 ⇒ 1.0, 29
3	003	Opening circuit for left front power window motor (M10/3), control module (N57).	23 ⇒ 1.0, 29
4	004	Closing circuit for right front power window motor (M10/4), control module (N57).	23 ⇒ 2.0, 30
5	005	Opening circuit for right front power window motor (M10/4), control module (N57).	23 ⇒ 2.0, 30
6	006	Closing circuit for left rear power window motor (M10/5), control module (N57).	23 ⇒ 2.0, 31
7	007	Opening circuit for left rear power window motor (M10/5), control module (N57).	23 ⇒ 2.0, 31
8	008	Closing circuit for right rear power window motor (M10/6), control module (N57).	23 ⇒ 1.0, 32
9	009	Opening circuit for right rear power window motor (M10/6), control module (N57).	23 ⇒ 1.0, 32
10	010	Switch for left front power window (S21/1): closing time exceeded.	23 ⇒ 11.0, 13.0
11	011	Switch for left front power window (S21/1): opening time exceeded.	23 ⇒ 10.0, 12.0
12	012	Switch for right front power window (S21/2): closing time exceeded.	23 ⇒ 15.0, 17.0

[1] Observe Preparation for Test, see 22.

Diagnosis - Diagnostic Trouble Code (DTC) Memory

Diagnostic trouble code (DTC)		Possible cause	Test step/Remedy [1]
13	013	Switch for right front power window (S21/2): opening time exceeded.	23 ⇒ 14.0, 16.0
14	014	Left rear power window circuit (S21/3) and left rear power window switch, front console (S21/5): closing time exceeded.	23 ⇒ 19.0, 21.0
15	015	Left rear power window circuit (S21/3) and left rear power window switch, front console (S21/5): opening time exceeded.	23 ⇒ 18.0, 22.0
16	016	Right rear window circuit (S21/4) and right rear power window switch, front console (S21/6): closing time exceeded.	23 ⇒ 23.0, 25.0
17	017	Right rear window circuit (S21/4) and right rear power window switch, front console (S21/6): opening time exceeded.	23 ⇒ 22.0, 24.0
18	018	Circuit for left front (S86/1), right front (S87/1), trunk lid (S88/2) lock switch: closing time exceeded (lock switch circuit 2).	23 ⇒ 27.0
19	019	Circuit for left front (S86/1), right front (S87/1), trunk lid (S88/2) lock switch : opening time exceeded (lock switch circuit 1).	23 ⇒ 27.0
20	020	Left front power window switch (S21/1): short to ground or wiring.	23 ⇒ 10.0 – 13.0
21	021	Right front power window switch (S21/2): short to ground or wiring.	23 ⇒ 14.0 – 17.0
22	022	Left rear window circuit (S21/3) and left rear power window switch, front console (S21/5): short to ground or wiring.	23 ⇒ 18.0 – 21.0
23	023	Right rear window circuit (S21/4) and right rear power window switch, front console (S21/6): short to ground or wiring.	23 ⇒ 22.0 – 25.0

[1] Observe Preparation for Test, see 22.

Diagnosis - Diagnostic Trouble Code (DTC) Memory

Diagnostic trouble code (DTC)		Possible cause	Test step/Remedy [1]
24	024	Left front power window motor circuit (M10/3): speed sensor or wiring	23 ⇒ 29.0
25	025	Right front power window motor circuit (M10/4): speed sensor or wiring.	23 ⇒ 30.0
26	026	Left rear power window motor circuit (M10/5): speed sensor or wiring.	23 ⇒ 31.0
27	027	Right rear power window motor circuit (M10/6): speed sensor or wiring.	23 ⇒ 32.0
28	028	Left front power window motor circuit (M10/3): sensor wiring reversed.	–
29	029	Right front power window motor circuit (M10/4): sensor wiring reversed.	–
30	030	Left rear power window motor circuit (M10/5): sensor wiring reversed.	–
31	031	Right rear power window motor circuit (M10/6): sensor wiring reversed.	–
32	032	Left front power window motor circuit (M10/3): speed sensor signal defective.	23 ⇒ 29.0
33	033	Right front power window motor circuit (M10/4): speed sensor signal defective.	23 ⇒ 30.0
34	034	Left rear power window motor circuit (M10/5): speed sensor signal defective.	23 ⇒ 31.0
35	035	Right rear power window motor circuit (M10/6): speed sensor signal defective.	23 ⇒ 32.0
36	036	Control module (N57) defective.	–
37	037	Low voltage (<9 V) (circuit 30E, fuse F4-11).	23 ⇒ 3.0
38	038	Sliding/pop-up roof switch circuit (S13/2): short, check wiring harness.	23 ⇒ 6.0 – 9.0
39	039	Voltage supply circuit 30A, control module (N57).	23 ⇒ 1.0
40	040	Voltage supply circuit 30B, control module (N57).	23 ⇒ 2.0

[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 30A, 30E Sliding/pop-up roof circuit Sliding/pop-up roof relay (K24) Sliding/pop-up roof motor (M12)	23 ⇒ 1.0, 3.0, 23 ⇒ 6.0, 7.0, 8.0.
No. 2 Sliding/pop-up roof or power windows do not operate with ignition key in **position 1**.	Voltage supply circuit 30A, 30B, 15R CF module (N57)	23 ⇒ 1.0, 2.0, 4.0.
No. 3 ***Not applicable to U.S. version vehicles.***		
No. 4 Sliding/pop-up roof does not **close/lower.**	Sliding/pop-up roof circuit Sliding/pop-up roof relay module (K24) Sliding/pop-up roof motor (M12)	23 ⇒ 6.0.
No. 5 Sliding roof does not open.	Sliding/pop-up roof circuit Sliding/pop-up roof relay module (K24) Sliding/pop-up roof motor (M12)	23 ⇒ 7.0.
No. 6 Pop-up roof does not open.	Sliding/pop-up roof circuit Sliding/pop-up roof relay module (K24) Sliding/pop-up roof motor (M12)	23 ⇒ 8.0.

[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 does not **open.**	Voltage supply circuit 30A, 30E Left front power window circuit Left front power window motor (M10/3) CF module (N57)	23 ⇒ 1.0, 3.0. 23 ⇒ 10.0. 23 ⇒ 29.0.
No. 8 **Left front** power window one-touch **opening** does not operate.	Voltage supply circuit 30A, 30E Window not calibrated to base position Left front power window switch (S21/1) Left front power window motor (M10/3) CF module (N57)	23 ⇒ 1.0, 3.0 (SMS, Repair Instructions, Job No. 72-186). 23 ⇒ 12.0. 23 ⇒ 29.0.
No. 9 **Left front** power window does not **close**.	Voltage supply circuit 30A, 30E Left front power window switch (S21/1) Left front power window motor (M10/3) CF module (N57)	23 ⇒ 1.0, 3.0. 23 ⇒ 11.0. 23 ⇒ 29.0.
No. 10 **Left front** power window one-touch **closing** does not operate.	Voltage supply circuit 30A, 30E Window not calibrated to base position Left front power window switch (S21/1) Left front power window motor (M10/3) CF module (N57)	23 ⇒ 1.0, 3.0 (SMS, Repair Instructions, Job No. 72-186). 23 ⇒ 13.0. 23 ⇒ 29.0.

[1] Observe Preparation for Test, see 22.

Diagnosis - Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy [1]
No. 11 **Left front** power window cannot be calibrated to base position.	Left front power window motor (M10/3) CF module (N57)	23 ⇒ 29.0.
No. 12 **Right front** power window does not **open.**	Voltage supply circuit 30B, 30E Right front power window switch (S21/2) Right front power window motor (M10/4) CF module (N57)	23 ⇒ 2.0, 3.0. 23 ⇒ 14.0. 23 ⇒ 30.0.
No. 13 **Right front** power window one-touch **opening** does not operate.	Voltage supply circuit 30B, 30E Window not calibrated to base position Right front power window switch (S21/2) Right front power window motor (M10/4) CF module (N57)	23 ⇒ 2.0, 3.0. (SMS, Repair Instructions, Job No. 72-186). 23 ⇒ 16.0. 23 ⇒ 30.0.
No. 14 **Right front** power window does not **close**.	Voltage supply circuit 30B, 30E Right front power window switch (S21/2) Right front power window motor (M10/4) CF module (N57)	23 ⇒ 2.0, 3.0. 23 ⇒ 15.0. 23 ⇒ 30.0.
No. 15 **Right front** power window one-touch **closing** does not operate.	Voltage supply circuit 30B, 30E Window not calibrated to base position Right front power window switch (S21/2) Right front power window motor (M10/4) CF module (N57)	23 ⇒ 2.0, 3.0. (SMS, Repair Instructions, Job No. 72-186). 23 ⇒ 17.0. 23 ⇒ 30.0.

[1] Observe Preparation for Test, see 22.

Diagnosis - Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy [1]
No. 16 **Right front** power window cannot be calibrated to base position.[1]	Right front power window motor (M10/4) CF module (N57)	23 ⇒ 30.0.
No. 17 **Left rear** power window does not **open**.	Voltage supply 30B, 30E Left rear power window circuit Left rear power window motor (M10/5) CF module (N57)	23 ⇒ 2.0, 3.0. 23 ⇒ 18.0, 30.0. 23 ⇒ 31.0.
No. 18 [2] **Left rear** power window one-touch **opening** does not operate.	Voltage supply 30B, 30E Window not calibrated to base position Left rear power window circuit Left rear power window motor (M10/5) CF module (N57)	23 ⇒ 2.0, 3.0. (SMS, Repair Instructions, Job No. 72-188). 23 ⇒ 20.0, 26.0. 23 ⇒ 31.0.
No. 19 **Left rear** power window does not **close.**	Voltage supply 30B, 30E Left rear power window circuit Left rear power window motor (M10/5) CF module (N57)	23 ⇒ 2.0, 3.0. 23 ⇒ 19.0, 26.0. 23 ⇒ 31.0.

1) Observe Preparation for Test, see 22.
2) Sedan only

Diagnosis - Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy [1]
No. 20 [2] **Left rear** power window one-touch **closing** does not operate.	Voltage supply 30B, 30E Window not calibrated to base position Left rear power window circuit Left rear power window motor (M10/5) CF module (N57)	23 ⇒ 2.0, 3.0. (SMS, Repair Instructions, Job No. 72-188). 23 ⇒ 21.0, 26.0. 23 ⇒ 31.0.
No. 21 **Left rear** power window cannot be calibrated to base position.[1]	Left rear power window motor (M10/5) CF module (N57)	23 ⇒ 31.0.
No. 22 **Right rear** power window does not **open**.	Voltage supply 30A, 30E Right rear power window circuit Right rear power window motor (M10/6)	23 ⇒ 1.0, 3.0. 23 ⇒ 22.0, 26.0. 23 ⇒ 32.0
No. 23 [2] **Right rear** power window one-touch **opening** does not operate.	Voltage supply 30A, 30E Window not calibrated to base position Right rear power window circuit Right rear power window motor (M10/6) CF module (N57)	23 ⇒ 1.0, 3.0. (SMS, Repair Instructions, Job No. 72-188). 23 ⇒ 24.0, 26.0. 23 ⇒ 32.0.
No. 24 **Rear right** power window does not **close**.	Voltage supply 30A, 30E Right rear power window circuit Right rear power window motor (M10/6) CF module (N57)	23 ⇒ 1.0, 3.0. 23 ⇒ 23.0, 26.0. 23 ⇒ 32.0.

1) Observe Preparation for Test, see 22.
2) Sedan only

Diagnosis - Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy [1]
No. 25 [2] **Right rear** power window one-touch **closing** does not operate.	Voltage supply 30A, 30E Window not calibrated to base position Right rear power window circuit Right rear power window motor (M10/6) CF module (N57)	23 ⇒ 1.0, 3.0. (SMS, Repair Instructions, Job No. 72-188). 23 ⇒ 25.0, 27.0. 23 ⇒ 32.0.
No. 26 **Right rear** window can not be calibrated to base position. [1]	Right rear power window motor (M10/6) CF module (N57)	23 ⇒ 32.0.
No. 27 Child safety lock-out for left rear or right rear door does not operate.	Circuit for rear power windows safety switch (S21/7)	23 ⇒ 26.0.
No. 28 Window loses calibration after one actuation to end position.	Power window stop adjustment	(SMS, Repair Instructions, Job Nos. 72-185, or 72-187).
No. 29 Central locking, power windows, sliding/pop-up roof does not operate with the ignition key via the driver's door, front passenger's door or trunk lid lock.	Voltage supply circuit 30A, 30B, 30E Window not calibrated to base position Driver's door lock circuit, front passenger's door lock circuit or trunk lid lock circuit CF module (N57)	23 ⇒ 1.0, 2.0, 3.0. (SMS, Repair Instructions, Job Nos. 72-186, 72-188). 23 ⇒ 27.0.

[1] Observe Preparation for Test, see 22.

[2] Sedan only

Diagnosis - Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Remedy/Test step [1]
No. 30 Seat adjustment does not operate (Fuse F3-32 has no voltage) with either front door open or ignition key in position 1.	Voltage supply circuit 30B, 30E Convenience system relay (K24) CF module (N57)	23 ⇒ 2.0, 3.0. 23 ⇒ 28.0.
No. 31 [3] Left front and **left rear** [4] side window does not open (4mm), when opening the left front door.	Left front rotary tumbler microswitch (S86s2) Window not calibrated to base position CF module (N57)	23 ⇒ 33.0. (SMS, Repair Instructions, Job Nos. 72-186, 72-188).
No. 32 [3] Right front and **right rear** [4] side window does not open (4mm), when opening the right front door.	Right front rotary tumbler microswitch (S87s2) Window not calibrated to base position CF module (N57)	23 ⇒ 34.0. (SMS, Repair Instructions, Job Nos. 72-186, 72-188).
No. 33 [3] Left front and **left rear** [4] side window does not close (4mm), when closing the left front door.	Left front rotary tumbler microswitch (S86s2) Window not calibrated to base position CF module (N57)	23 ⇒ 33.0. (SMS, Repair Instructions, Job Nos. 72-186, 72-188).
No. 34 [3] Right front and **right rear** [4] side window does not close (4mm), when closing the right front door.	Right front rotary tumbler microswitch (S87s2) Window not calibrated to base position CF module (N57)	23 ⇒ 33.0. (SMS, Repair Instructions, Job Nos. 72-186, 72-188).

[1] Observe Preparation for Test, see 22.
[3] Coupé only
[4] Coupé only, as of chassis end number 1A-139150

Diagnosis - Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Remedy/Test step [1]
No. 35 Safety circuit activates for no apparent reason (window stops and reverses 2 inches, after pressing one-touch closing).	Window improperly calibrated to base position Mechanical interference as window raises Front and rear windows adjusted incorrectly	(SMS, Repair Instructions, Job Nos. 72-185, 72-186, 72-195, 72-196). Identify and eliminate mechanical interference (see Diagnostic Directory, topic no. 72A91121).
No. 36 One or all side windows lose base calibration. [1]	Voltage supply circuit 30E (low voltage) Left front power window motor (M10/3) circuit Right front power window motor (M10/4) circuit Left rear power window motor (M10/5) circuit Right rear power window motor (M10/6) circuit CF module (N57)	23 ⇒ 3.0. 23 ⇒ 29.0. 23 ⇒ 30.0. 23 ⇒ 31.0. 23 ⇒ 32.0.
No. 37 [4] Left rear side window does not open (4 mm) or close, when opening or closing the left front side window.	Window not calibrated to base position CF module (N57)	(SMS, Repair Instructions, Job No. 72-188).
No. 38 [4] Right rear side window does not open (4 mm) or close, when opening or closing the right front side window.	Window not calibrated to base position CF module (N57)	(SMS, Repair Instructions, Job No. 72-188).

[1] Observe Preparation for Test, see 22.
[4] Coupé only, as of chassis end number 1A-139150

Electrical Test Program - Component Locations

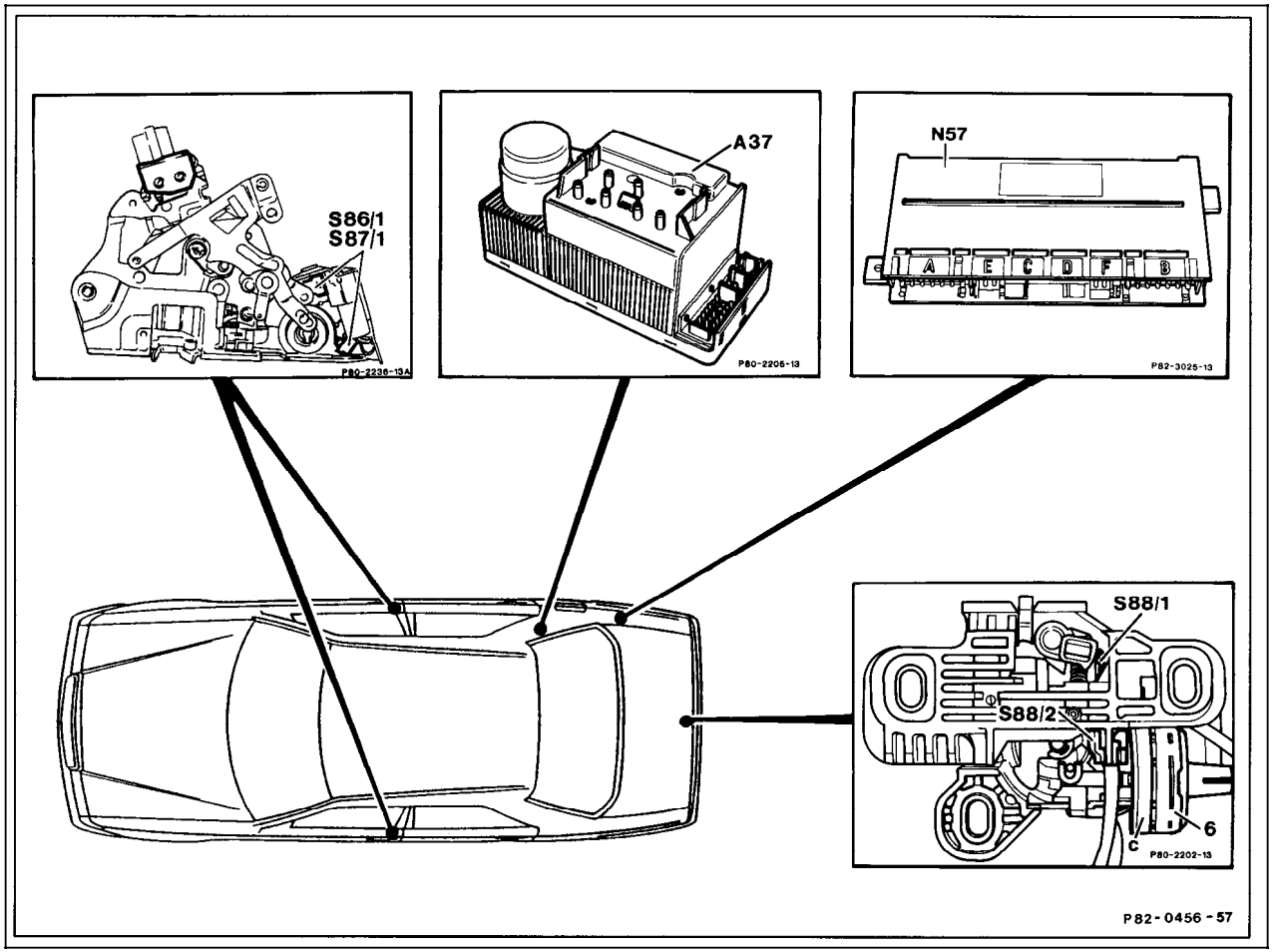


Figure 1

A37, A37/1	PSE control module
N57	CF control module
S86/1	Left front door lock switch
S87/1	Right front door lock switch (mirror image of left shown)
S88/2	Trunk lid lock switch

P82-0456-57

Electrical Test Program - Component Locations

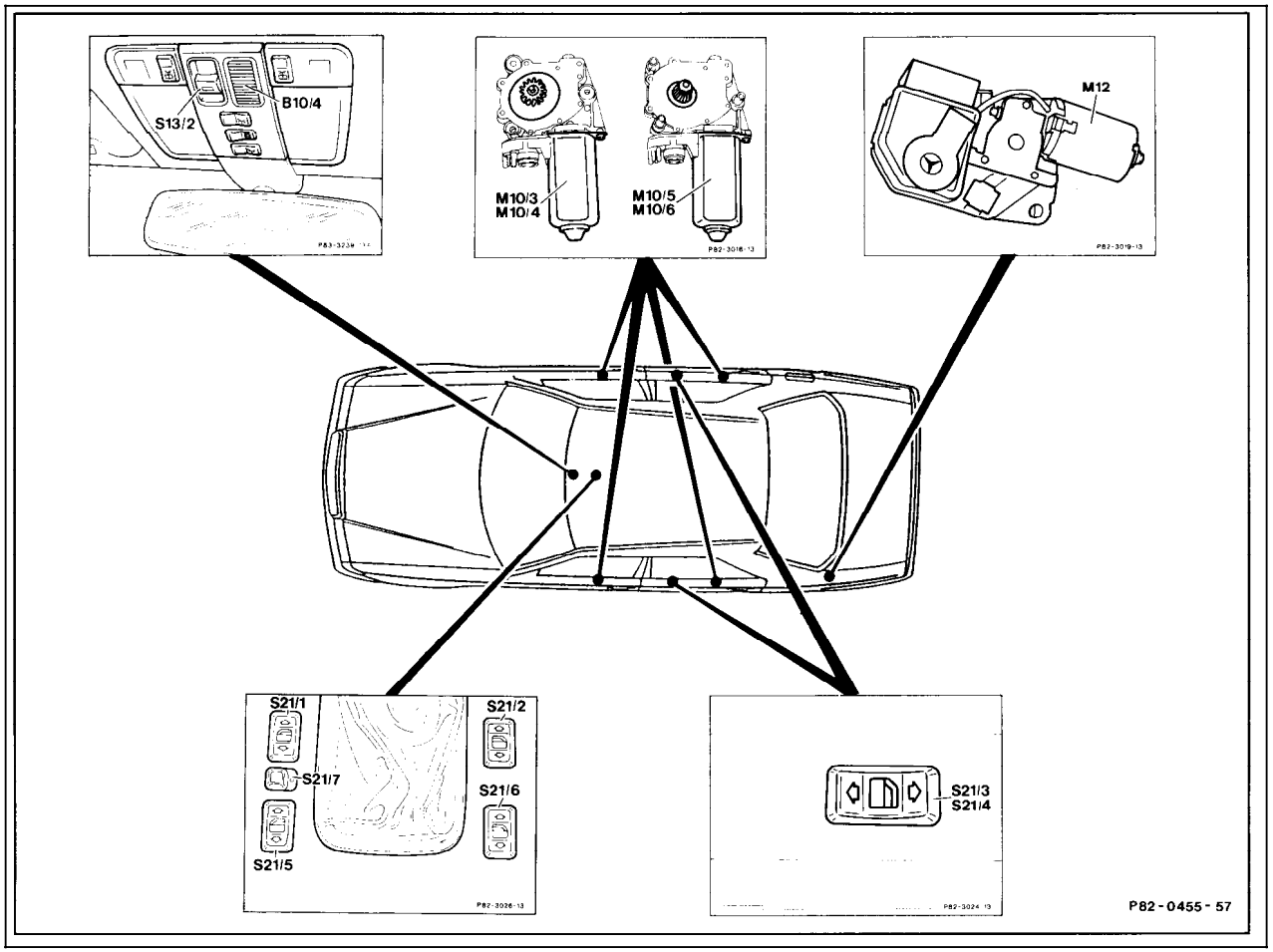


Figure 2

M10/3	Left front power window motor
M10/4	Right front power window motor
M10/5	Left rear power window motor
M10/6	Right rear power window motor
M12	Sliding/pop-up roof drive assembly
S13/2	Sliding/pop-up roof switch
S21/1	Left front power window switch (center console)
S21/2	Right front power window switch (center console)
S21/3	Left rear power window switch
S21/4	Right rear power window switch
S21/5	Left rear power window switch (center console)
S21/6	Right rear power window switch (enter console)
S21/7	Rear power windows safety switch (center console)

P82-0455-57

Electrical Test Program - Preparation for Test

Preliminary work:
Diagnosis - Diagnostic Trouble Code (DTC) Memory 12

Preparation for Test:

1. Battery voltage 11-14 V.
2. Check fuse F3-35.
3. Check fuses F4-5, F4-6, F4-11 and F4-14.
4. Disconnect battery ground cable each time the control module (N57) is connected or disconnected (to prevent the storing of erroneous diagnostic trouble codes).
5. Calibrate windows to base position. To do so close the windows with the power window switch (do not use one-touch closing) and hold each button pressed with the window at the stop for 1 – 2 seconds.

Electrical wiring diagrams

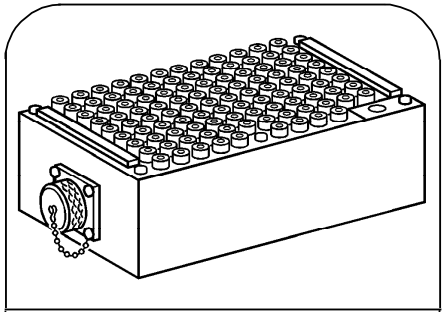
See Electrical Troubleshooting Manual, Model 140, Volume 2.

Note regarding test connection column:

The letters and numbers in parentheses, for example in ⇒ 2.0 (B.21), mean the following:

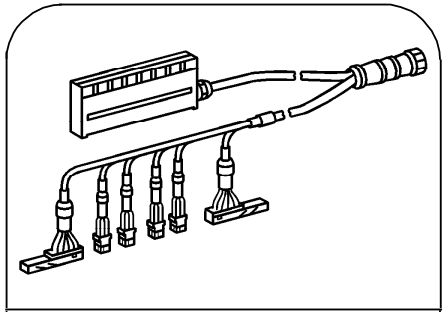
B = Connector B
21 = Socket 21 of connector B in wiring diagram.

Special Tools



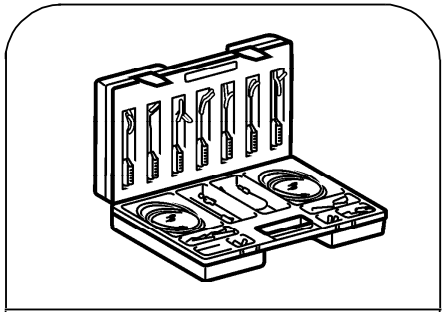
129 589 00 21 00

126-pin socket box



140 589 12 63 00

Test cable



201 589 00 99 00

Electrical connecting set

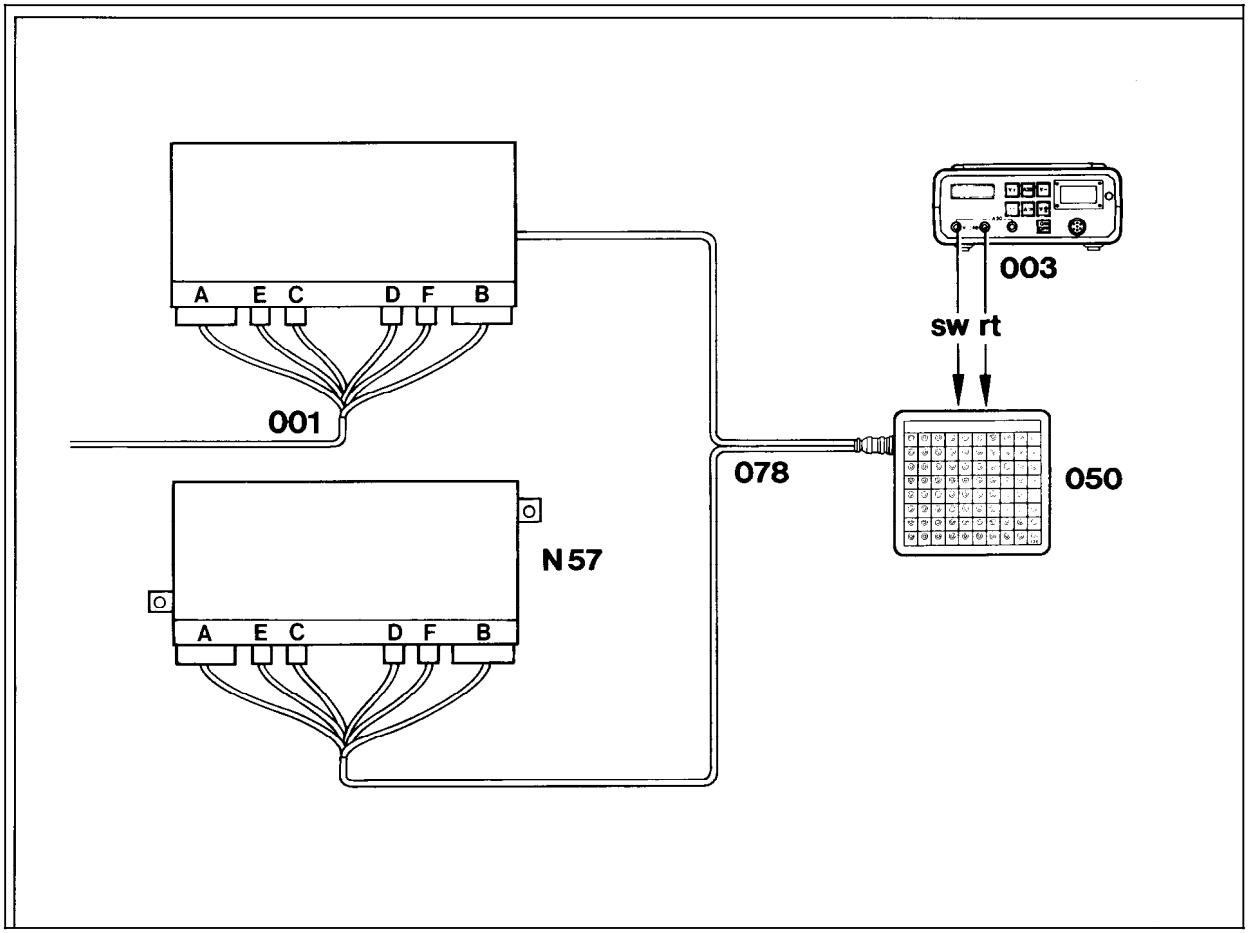
Equipment

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



P82-0454-57

Figure 1

001	Vehicle harness
003	Multimeter
050	Socket box (126-pole)
078	Test cable (62-pole) 140 589 12 63 00
N57	CF control module

Electrical Test Program - Test

Test step / DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 1.0 DTC 2, 3, 8, 9, 39	**Voltage supply Circuit 30A**	N57 10 (A.10) — V — 21 (A.21)	Ignition: **OFF**	11 – 14 V	⇒ 1.1, Circuit 31A.
⇒ 1.1	Circuit 30A	N57 ⊥ — V — 21 (A.21)	Ignition: **OFF**	11 – 14 V	Circuit 30A.
⇒ 2.0 DTC 4, 5, 6, 7, 40	**Voltage supply Circuit 30B**	N57 62 (B.21) — V — 53 (B.12)	Ignition: **OFF**	11 – 14 V	⇒ 2.1, Circuit 31B.
⇒ 2.1	Circuit 30B	N57 ⊥ — V — 53 (B.12)	Ignition: **OFF**	11 – 14 V	Circuit 30B.
⇒ 3.0 DTC 37	**Voltage supply Circuit 30E**	N57 11 (A.11) — V — 16 (A.16)	Ignition: **OFF**	11 – 14 V	⇒ 3.1, Circuit 31E.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 3.1	Circuit 30E	N57 ⊥ V 16 (A.16)	Ignition: **OFF**	11 – 14 V	Circuit 30E.
⇒ 4.0 37	**Voltage supply** **Circuit 15R**	N57 10 (A.10) V 8 (A.8)	Ignition lock in position **1**	11 – 14 V	Circuit 15R, Circuit 31A.
⇒ 5.0	**Front door contact switches (S17/3, S17/4) circuit**	N57 10 (A.10) V 9 (A.9)	Pull fuse (F3-17) Ignition: **OFF** Front doors: **Closed**	11 – 14 V	Wiring, Left door switch (S17/3), Right door switch (S17/4), CF control module (N57), ATA control module (N26), PSE control module (A37 or A37/1).
			Left front door: **OPEN** (right front door closed).	<2 V	Wiring, ⇒ 5.1.
			Right front door: **OPEN** (left front door closed).	<2 V	Wiring, ⇒ 5.1.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 5.1	S17/3, S17/4	N57 10 (A.10) — V — 9 (A.9)	Ignition: **OFF** Overhead console: all switches in **OFF** position. Disconnect connector 1 of A37 or A37/1. Disconnect connector A of N57. All doors: **CLOSED**	11 – 14 V	Wiring, ⇒ 5.2, ⇒ 5.3.
⇒ 5.2	S17/3	N57 10 (A.10) — V — 9 (A.9)	See ⇒ 5.1 Disconnect S17/4 connector.	11 – 14 V	Wiring, S17/3.
⇒ 5.3	S17/4	N57 10 (A.10) — V — 9 (A.9)	See ⇒ 5.1 Disconnect S17/3 connector.	11 – 14 V	Wiring, S17/4.

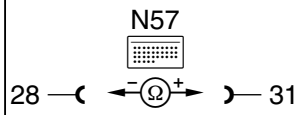
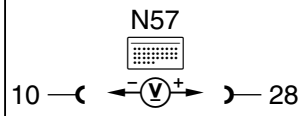
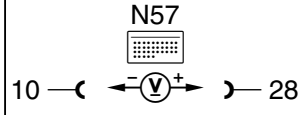
Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 6.0	**Sliding/pop–up roof circuit (S13/2)** Function: Closing sliding/pop–up roof	N57 10 (A.10) — V — 30 (C.3)	Ignition: **ON** S13/2: **Rest position.**	<1 V	Wiring, ⇒ 6.1, ⇒ 6.2.
			Press and hold in close position.	11 – 14 V	Wiring, ⇒ 6.1, ⇒ 6.2.
				Sliding/pop–up roof closes.	Sliding/pop–up roof motor (M12m1), Sliding/pop–up roof relay (M12k1).
⇒ 6.1	S13/2	N57 28 (C.1) — Ω — 30 (C.3)	Ignition: **OFF** Disconnect connector C from N57. S13/2: **Rest position.**	>20 kΩ	Wiring, S13/2.
			Press and hold sun roof in close position.	<1 Ω	Wiring, S13/2.
			Press and hold pop–up roof in close position.	<1 Ω	Wiring, S13/2.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 6.2	S13/2, N57	N57 10 (A.10) — V — 28 (C.1)	Ignition: **ON**	11 – 14 V	Wiring, ⇒ 6.3.
⇒ 6.3	N57	N57 10 (A.10) — V — 28 (C.1)	Ignition: **OFF** Disconnect connector C of sliding/pop–up roof wiring harness from test cable (22, Figure 1). Ignition: **ON**	 11 – 14 V	 N57.
⇒ 7.0	**Sliding/pop–up roof circuit (S13/2)** Function: Opening sliding roof	N57 10 (A.10) — V — 31 (C.4)	Ignition: **ON** S13/2: **Rest position.** **Press and hold sliding roof in open position.**	 <1V 11 – 14 V Sliding roof opens.	Wiring, ⇒ 7.1, ⇒ 7.2. Wiring, ⇒ 7.1, ⇒ 7.2. Sliding/pop–up roof motor (M12m1), Sliding/pop–up roof relay (M12k1).

Electrical Test Program - Test

Test step **DTC**	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 7.1	S13/2		Ignition: **OFF** Disconnect connector C from N57. S13/2: **Rest position.** **Press and hold sliding roof in open position.**	 >20 kΩ <1 Ω	Wiring, S13/2. Wiring, S13/2.
⇒ 7.2	S13/2, N57		Ignition: **ON**	11 – 14 V	Wiring, ⇒ 7.3.
⇒ 7.3	N57		Ignition: **OFF** Disconnect connector C of sliding/pop–up roof wiring harness from test cable (22, Figure 1). Ignition: **ON**	 11 – 14 V	 N57.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 8.0 38	**Sliding/pop–up roof circuit (S13/2)** Function: Opening pop–up roof	N57 10 (A.10) — V — 29 (C.2)	Ignition: **ON** S13/2: **Rest position.**	<1 V	Wiring, ⇒ 8.1, ⇒ 8.2.
			Press and hold pop–up roof in open position.	11 – 14 V	Wiring, ⇒ 8.1, ⇒ 8.2.
				Pop–up roof opens.	Sliding/pop–up roof motor (M12m1), Sliding/pop–up roof relay (M12k1).
⇒ 8.1	S13/2	N57 28 (C.1) — Ω — 29 (C.2)	Ignition: **OFF** Disconnect connector C from N57. S13/2: **Rest position.**	>20 kΩ	Wiring, S13/2.
			Press and hold pop–up roof in open position.	<1 Ω	Wiring, S13/2.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 8.2	S13/2, N57	N57 10 (A.10) — V — 28 (C.1)	Ignition: **ON**	11 – 14 V	Wiring, ⇒ 8.3.
⇒ 8.3	N57	N57 10 (A.10) — V — 28 (C.1)	Ignition: **OFF** Disconnect connector C of sliding/pop–up roof harness from test cable (22, Figure 1). Ignition: **ON**	 11 – 14 V	 N57.
⇒ 9.0	**USA/ECE model recognition** [1]	N57 33 (D.2) — Ω — 34 (D.3)	Ignition: **OFF** Disconnect connector D from N57.	Code USA: <1 Ω Code ECE: >20 kΩ	Wiring. Wiring.

[1] ECE = European version.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 10.0 11 20	**Left front window circuit (S21/1)** Function: Opening	N57 10 (A.10) — V — 24 (E.3)	Ignition: **ON** S21/1: **Rest position.**	9 – 14 V	Wiring, ⇒ 10.1, CF control module (N57).
			Press and hold to open (position “1“).	<1 V	Wiring, ⇒ 10.1.
			Press and hold to open (position “2“).	<1 V	Wiring, ⇒ 10.1.
⇒ 10.1	S21/1	N57 10 (A.10) — Ω — 24 (E.3)	Ignition: **OFF** Disconnect connector E from (N57). S21/1: **Rest position.**	>20 kΩ	Wiring, S21/1.
			Press and hold to open (position “1“).	<2 Ω	Wiring, S21/1.
			Press and hold to open (position “2“).	<2 Ω	Wiring, S21/1.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 11.0 10 20	**Left front window circuit (S21/1)** Function: Closing	N57 10 (A.10) — V — 26 (E.5)	Ignition: **ON** S21/1: **Rest position.** **Press and hold to close** (position “1“). **Press and hold to close** (position “2“).	 9 – 14 V <1 V <1 V	Wiring, ⇒ 11.1, CF control module (N57). Wiring, ⇒ 11.1. Wiring, ⇒ 11.1.
⇒ 11.1	S21/1	N57 10 (A.10) — Ω — 26 (E.5)	Ignition: **OFF** Disconnect connector E from N57. S21/1: **Rest position.** **Press and hold to close** (position “1“). **Press and hold to close** (position “2“).	 >20 kΩ <2 Ω <2 Ω	 Wiring, S21/1. Wiring, S21/1. Wiring, S21/1.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 12.0 11 20	**Left front window circuit (S21/1)** Function: One–touch operation	N57 10 (A.10) — V — 27 (E.6)	Ignition: **ON** S21/1: **Rest position.** **Press and hold to open** (position “1“). **Press and hold to open** (position “2“).	 9 – 14 V 9 – 14 V <1 V	Wiring, ⇒ 12.1, CF control module (N57). Wiring, ⇒ 12.1. Wiring, ⇒ 12.1.
⇒ 12.1	S21/1	N57 10 (A.10) — Ω — 27 (E.6)	Ignition: **OFF** Disconnect connector E from N57. S21/1: **Rest position.** **Press and hold to open** (position “1“). **Press and hold to open** (position “2“).	 >20 kΩ >20 kΩ <2 Ω	 Wiring, S21/1. Wiring, S21/1. Wiring, S21/1.

Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 13.0 10 20	**Left front window circuit (S21/1)** Function: One–touch operation	N57 10 (A.10) — V — 27 (E.6)	Ignition: **ON** S21/1: **Rest position.**	9 – 14 V	Wiring, ⇒ 13.1, CF control module (N57).
			Press and hold to close (position “1“).	9 – 14 V	Wiring, ⇒ 13.1, N57.
			Press and hold to close (position “2“).	<1 V	Wiring, ⇒ 13.1.
⇒ 13.1	S21/1	N57 10 (A.10) — Ω — 27 (E.6)	Ignition: **OFF** Disconnect connector E from N57. S21/1: **Rest position.**	>20 kΩ	Wiring, S21/1.
			Press and hold to close (position “1“).	>20 kΩ	Wiring, S21/1.
			Press and hold to close (position “2“).	<2 Ω	Wiring, S21/1.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 14.0 13 21	**Right front window circuit (S21/2)** Function: Opening	N57 10 (A.10) — V — 38 (F.3)	Ignition: **ON** S21/2: **Rest position.**	9 – 14 V	Wiring, ⇒ 14.1, CF control module (N57).
			Press and hold to open (position “1“).	<1 V	Wiring, ⇒ 14.1.
			Press and hold to open (position “2“).	<1 V	Wiring, ⇒ 14.1.
⇒ 14.1	S21/2	N57 10 (A.10) — Ω — 38 (F.3)	Ignition: **OFF** Disconnect connector F from N57. S21/2: **Rest position.**	>20 kΩ	Wiring, S21/2.
			Press and hold to open (position “1“).	<2 Ω	Wiring, S21/2.
			Press and hold to open (position “2“).	<2 Ω	Wiring, S21/2.

Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 15.0 12 21	**Right front window circuit (S21/2)** Function: Closing	N57 10 — (A.10) — (V) — 36 (F.1)	Ignition: **ON** S21/2: **Rest position.**	9 – 14 V	Wiring, ⇒ 15.1, CF control module (N57).
			Press and hold to close (position “1“).	<1 V	Wiring, ⇒ 15.1.
			Press and hold to close (position “2“).	<1 V	Wiring, ⇒ 15.1.
⇒ 15.1	S21/2	N57 10 — (A.10) — (Ω) — 36 (F.1)	Ignition: **OFF** Disconnect connector F from N57. S21/2: **Rest position.**	>20 kΩ	Wiring, S21/2.
			Press and hold to close (position “1“).	<2 Ω	Wiring, S21/2.
			Press and hold to close (position “2“).	<2 Ω	Wiring, S21/2.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 16.0 13 21	**Right front window circuit (S21/2)** Function: One–touch operation	N57 10 (A.10) — V — 37 (F.2)	Ignition: **ON** S21/2: **Rest position.**	 9 – 14 V	Wiring, ⇒ 16.1, CF control module (N57).
			Press and hold to open (position “1“).	9 – 14 V	Wiring, ⇒ 16.1, N57.
			Press and hold to open (position “2“).	<1 V	Wiring, ⇒ 16.1.
⇒ 16.1	S21/2	N57 10 (A.10) — Ω — 37 (F.2)	Ignition: **OFF** Disconnect connector F from N57. S21/2: **Rest position.**	 >20 kΩ	 Wiring, S21/2.
			Press and hold to open (position “1“).	>20 kΩ	Wiring, S21/2.
			Press and hold to open (position “2“).	<2 Ω	Wiring, S21/2.

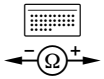
Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 17.0 12 21	**Right front window circuit (S21/2)** Function: One–touch operation	N57 10 (A.10) — V — 37 (F.2)	Ignition: **ON** S21/2: **Rest position.**	 9 – 14 V	Wiring, ⇒ 17.1, CF control module (N57).
			Press and hold to close (position “1“).	9 – 14 V	Wiring, ⇒ 17.1, N57.
			Press and hold to close (position “2“).	<1 V	Wiring, ⇒ 17.1.
⇒ 17.1	S21/2	N57 10 (A.10) — Ω — 37 (F.2)	Ignition: **OFF** Disconnect connector F from N57. S21/2: **Rest position.**	 >20 kΩ	 Wiring, S21/2.
			Press and hold to close (position “1“).	>20 kΩ	Wiring, S21/2.
			Press and hold to close (position “2“).	<2 Ω	Wiring, S21/2.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 18.0 15 22	**Left rear window switch (S21/3) and front console switch (S21/5) circuit** Function: Opening	N57 10 (A.10) — 39 (F.4)	Ignition: **ON** Rear power window safety switch (S21/7): **OFF** S21/3 and S21/5: **Rest position.**	9 – 14 V	Wiring, ⇒ 18.1, ⇒ 18.2, CF control module (N57).
	S21/3		**Press and hold to open** (position “1“).	<1 V	Wiring, ⇒ 18.1, ⇒ 30.0.
			Press and hold to open (position “2“).	<1 V	Wiring, ⇒ 18.1.
	S21/5		**Press and hold to open** (position “1“).	<1 V	Wiring, ⇒ 18.2.
			Press and hold to open (position “2“).	<1V	Wiring, ⇒ 18.2.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 18.1	S21/3	N57  10 (A.10) — 39 (F.4)	Ignition: **OFF** Disconnect connector F from N57. S21/3 and S21/5:		
			Rest position.	>20 kΩ	Wiring, S21/3, S21/5.
			Press and hold to open (position “1“).	<3 Ω	Wiring, S21/3.
			Press and hold to open (position “2“).	<3 Ω	Wiring, S21/3.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 18.2	S21/5, (center console)	N57 10 (A.10) — Ω — 39 (F.4)	Ignition: **OFF** Disconnect connector F from N57. Disconnect left rear door plug connection (X35/3) (Figure 6). S21/5: **Rest position.**	>20 kΩ	Wiring, S21/5.
			Press and hold to open (position “1“).	<2 Ω	Wiring, S21/5.
			Press and hold to open (position “2“).	<2 Ω	Wiring, S21/5.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 19.0 14 22	**Left rear window switch (S21/3) and front console switch (S21/5) circuit** Function: Closing	N57 10 (A.10) — 41 (F.6)	Ignition: **ON** Rear power window safety switch (S21/7): **OFF** S21/5 and S21/3: **Rest position.**	9 – 14 V	Wiring, ⇒ 19.1, ⇒ 19.2.
	S21/3		**Press and hold to close** (position “1“).	<1 V	Wiring, ⇒ 19.1, ⇒ 26.0.
			Press and hold to open (position “2“).	<1 V	Wiring, ⇒ 19.1.
	S21/5		**Press and hold to close** (position “1“).	<1 V	Wiring, ⇒ 19.2.
			Press and hold to close (position “2“).	<1V	Wiring, ⇒ 19.2.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 19.1	S21/3	N57 10 (A.10) — Ω — 41 (F.6)	Ignition: **OFF** Disconnect connector F from N57. S21/5 and S21/3: **Rest position.**	>20 kΩ	Wiring, S21/3, S21/5.
			Press and hold to close (position “1“).	<3 Ω	Wiring, S21/3.
			Press and hold to close (position “2“).	<3 Ω	Wiring, S21/3.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 19.2	S21/5, (center console)	N57 10 (A.10) — Ω — 41 (F.6)	Ignition: **OFF** Disconnect connector F from N57. Disconnect left rear door plug connection (X35/3) (Figure 6). S21/5:		
			Rest position.	>20 kΩ	Wiring, S21/5.
			Press and hold to close (position “1“).	<2 Ω	Wiring, S21/3.
			Press and hold to close (position “2“).	<2 Ω	Wiring, S21/5.

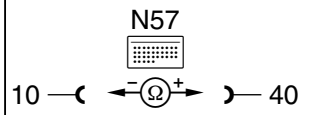
Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 20.0 15 22	**Left rear window switch (S21/3) and front console switch (S21/5) circuit** Function: One–touch operation	N57 10 (A.10) — (V) — 40 (F.5)	Ignition: **ON** Rear power window safety switch (S21/7): **OFF** S21/5 and S21/3: **Rest position.**	9 – 14 V	Wiring, ⇒ 20.1, ⇒ 20.2, CF control module (N57).
	S21/3		**Press and hold to open** (position “1“).	9 – 14 V	Wiring, ⇒ 20.1, N57.
			Press and hold to open (position “2“).	<1 V	Wiring, ⇒ 20.1, ⇒ 26.0.
	S21/5		**Press and hold to open** (position “1“).	9 – 14 V	Wiring, ⇒ 20.2, N57.
			Press and hold to open (position “2“).	<1V	Wiring, ⇒ 20.2.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 20.1	S21/3	N57 10 (A.10) — Ω — 40 (F.5)	Ignition: **OFF** Disconnect connector F from N57. S21/5 and S21/3: **Rest position**	>20 kΩ	Wiring, S21/3, S21/5.
			Press and hold to open (position “1“).	>20 kΩ	Wiring, S21/3.
			Press and hold to open (position “2“).	<3 Ω	Wiring, S21/3.

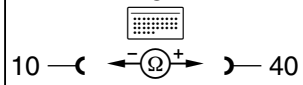
Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 20.2	S21/5, (center console)		Ignition: **OFF** Disconnect connector F from N57. Disconnect left rear door plug connection (X35/3) (Figure 6). S21/5: **Rest position.**	>20 kΩ	Wiring, S21/5.
			Press and hold to open (position “1“).	>20 kΩ	Wiring, S21/5.
			Press and hold to open (position “2“).	<2 Ω	Wiring, S21/5.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 21.0 14 22	**Left rear window switch (S21/3) and front console switch (S21/5) circuit** Function: One–touch operation	N57 10 (A.10) — 40 (F.5)	Ignition: **ON** Rear power window safety switch (S21/7): **OFF** S21/5 and S21/3: **Rest position.**	9 – 14 V	Wiring, ⇒ 21.1, ⇒ 21.2, CF control module (N57).
	S21/3		**Press and hold to close** (position “1“).	9 – 14 V	Wiring, ⇒ 21.1, N57.
			Press and hold to close (position “2“).	<1 V	Wiring, ⇒ 21.1.
	S21/5		**Press and hold to close** (position “1“).	9 – 14 V	Wiring, ⇒ 21.2, N57.
			Press and hold to close (position “2“).	<1 V	Wiring, ⇒ 21.2.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 21.1	S21/3	N57  10 (A.10) — 40 (F.5)	Ignition: **OFF** Disconnect connector F from N57. S21/5 and S21/3:		
			Rest position.	>20 kΩ	Wiring, S21/3, S21/5.
			Press and hold to close (position “1“).	>20 kΩ	Wiring, S21/3.
			Press and hold to close (position “2“).	<3 Ω	Wiring, S21/3.

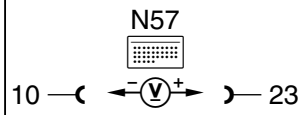
Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 21.2	S21/5, (center console)	N57 10 (A.10) — Ω — 40 (F.5)	Ignition: **OFF** Disconnect connector F from N57. Disconnect left rear door plug connection (X35/3) (Figure 6). S21/5: **Rest position.**	>20 kΩ	Wiring, S21/5.
			Press and hold to close (position “1“).	>20 kΩ	Wiring, S21/5.
			Press and hold to close (position “2“).	<2 Ω	Wiring, S21/5.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 22.0 17 23	**Right rear window circuit (S21/4, S21/6)** Function: Opening	N57 10 (A.10) — 23 (E.2)	Ignition: **ON** Rear power window safety switch (S21/7): **OFF** S21/4 and S21/6: **Rest position.**	9 – 14 V	Wiring, ⇒ 22.1, ⇒ 22.2, CF control module (N57).
	S21/4		**Press and hold to open** (position “1“).	<1 V	Wiring, ⇒ 22.1, ⇒ 26.0.
			Press and hold to open (position “2“).	<1 V	Wiring, ⇒ 22.1.
	S21/6		**Press and hold to open** (position “1“).	<1V	Wiring, ⇒ 22.2.
			Press and hold to open (position “2“).	<1V	Wiring, ⇒ 22.2.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 22.1	S21/4		Ignition: **OFF** Disconnect connector E from N57. S21/4 and S21/6: **Rest position.**	>20 kΩ	Wiring, S21/4, S21/6.
			Press and hold to open (position “1“).	<3 Ω	Wiring, S21/4.
			Press and hold to open (position “2“).	<3 Ω	Wiring, S21/4.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 22.2	S21/6, (center console)	N57 10 (A.10) — Ω — 23 (E.2)	Ignition: **OFF** Disconnect connector E from N57. Disconnect right rear door plug connection (X35/4) (Figure 6). S21/6: **Rest position.**	>20 kΩ	Wiring, S21/6.
			Press and hold to open (position “1“).	<2 Ω	Wiring, S21/6.
			Press and hold to open (position “2“).	<2 Ω	Wiring, S21/6.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 23.0 16 23	**Right rear window circuits (S21/4, S21/6)** Function: Closing	N57 10 (A.10) — 22 (E.1)	Ignition: **ON** Rear power window safety switch (S21/7): **OFF** S21/4 and S21/6: **Rest position.**	9 – 14 V	Wiring, ⇒ 23.1, ⇒ 23.2, CF control module (N57).
	S21/4		**Press and hold to close** (position “1“).	<1 V	Wiring, ⇒ 23.1, ⇒ 26.0.
			Press and hold to close (position “2“).	<1 V	Wiring, ⇒ 23.1.
	S21/6		**Press and hold to close** (position “1“).	<1V	Wiring, ⇒ 23.2.
			Press and hold to close (position “2“).	<1V	Wiring, ⇒ 23.2.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 23.1	S21/4	N57 10 (A.10) — Ω — 22 (E.1)	Ignition: **OFF** Disconnect connector E from N57. S21/4 and S21/6: **Rest position.**	>20 kΩ	Wiring, S21/4, S21/6.
			Press and hold to close (position “1“).	<3 Ω	Wiring, S21/4.
			Press and hold to close (position “2“).	<3 Ω	Wiring, S21/4.

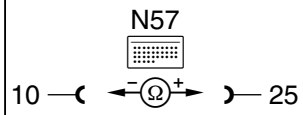
Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 23.2	S21/6, (center console)	N57 10 (A.10) — Ω — 22 (E.1)	Ignition: **OFF** Disconnect connector E from N57. Disconnect right rear door plug connection (X35/4) (Figure 6). S21/6: **Rest position.**	>20 kΩ	Wiring, S21/6.
			Press and hold to close (position “1“).	<2 Ω	Wiring, S21/6.
			Press and hold to close (position “2“).	<2 Ω	Wiring, S21/6.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 24.0 17 23	**Right rear window circuit (S21/4, S21/6)** Function: One–touch operation	N57 10 (A.10) — 25 (E.4)	Ignition: **ON** Rear power windows safety switch (S21/7): **OFF** S21/4 and S21/6: **Rest position.**	9 – 14 V	Wiring, ⇒ 24.1, ⇒ 24.2, CF control module (N57).
	S21/4		**Press and hold to open** (position “1“).	9 – 14 V	Wiring, ⇒ 24.1, N57.
			Press and hold to open (position “2“).	<1 V	Wiring, ⇒ 24.1, ⇒ 26.0.
	S21/6		**Press and hold to open** (position “1“).	9 – 14 V	Wiring, ⇒ 24.2, N57.
			Press and hold to open (position “2“).	<1V	Wiring, ⇒ 24.2.

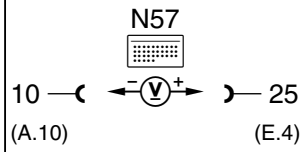
Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 24.1	S21/4		Ignition: **OFF** Disconnect connector E from N57. S21/4 and S26/6: **Rest position.**	>20 kΩ	Wiring, S21/4, S21/6.
			Press and hold to open (position “1“).	>20 kΩ	Wiring, S21/4.
			Press and hold to open (position “2“).	<3 Ω	Wiring, S21/4.

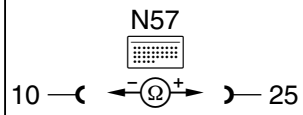
Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 24.2	S21/6, (center console)	N57 10 (A.10) — Ω — 25 (E.4)	Ignition: **OFF** Disconnect connector E from N57. Disconnect right rear door plug connection (X35/4) (Figure 6). S26/6:		
			Rest position.	>20 kΩ	Wiring, S21/6.
			Press and hold to open (position “1“).	>20 kΩ	Wiring, S21/6.
			Press and hold to open (position “2“).	<2 Ω	Wiring, S21/6.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 25.0 16 23	**Right rear window circuit (S21/4, S21/6)** Function: One–touch operation		Ignition: **ON** Rear power window safety switch (S21/7): **OFF** S21/4 and S21/6: **Rest position.**	9 – 14 V	Wiring, ⇒ 25.1, ⇒ 25.2, CF control module (N57).
	S21/4		**Press and hold to close** (position “1“).	9 – 14 V	Wiring, ⇒ 25.1, N57.
			Press and hold to close (position “2“).	<1 V	Wiring, ⇒ 25.1.
	S21/6		**Press and hold to close** (position “1“).	9 – 14 V	Wiring, ⇒ 25.2, N57.
			Press and hold to close (position “2“).	<1V	Wiring, ⇒ 25.2.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 25.1	S21/4		Ignition: **OFF** Disconnect connector E from N57. S21/4 and S26/6: **Rest position.**	>20 kΩ	Wiring, S21/4, S21/6.
			Press and hold to close (position “1“).	>20 kΩ	Wiring, S21/4.
			Press and hold to close (position “2“).	<3 Ω	Wiring, S21/4.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 25.2	S21/6, (center console)	N57 10 (A.10) — Ω — 25 (E.4)	Ignition: **OFF** Disconnect connector E from N57. Disconnect right rear door plug connection (X35/4) (Figure 6). S21/6: **Rest position.**	>20 kΩ	Wiring, S21/6.
			Press and hold to close (position “1“).	>20 kΩ	Wiring, S21/6.
			Press and hold to close (position “2“).	<2 Ω	Wiring, S21/6.

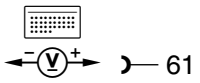
Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 26.0	**Rear power windows safety switch (center console) (S21/7)**	N57 10 (A.10) — (V) — 39 (F.4)	Ignition: **ON** Hold left rear power window switch (S21/3) in **open** position. S21/7: **OFF**	<1 V	Wiring, ⇒ 26.1, CF control module (N57).
			S21/7: **ON**	9 – 14 V	Wiring, ⇒ 26.1, ⇒ 18.0.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 26.1	S21/7, (center console)	N57 10 (A.10) — Ω — 39 (F.4)	Ignition: **OFF** Disconnect connector F from N57. Hold left rear power window switch (S21/3) in **open** position.		
			S21/7: **OFF**	>20 kΩ	Wiring, S21/7.
			S21/7: **ON**	<2 Ω	Wiring, S21/7.

Electrical Test Program - Test

Test step / DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 27.0 19	**Lock switch circuit: Left front (S86/1), right front (S87/1) and trunk lid (S88/2)** Function: Opening	N57  10 (A.10) — 61 (B.20)	S86/1, S87/1 and S88/2: **Rest position.**	9 – 14 V	Wiring, ⇒ 27.1, ⇒ 27.2, ⇒ 27.3, CF control module (N57), PSE control module (A37 or A37/1).
	S86/1		**Hold to open position.**	<1 V	Wiring, ⇒ 27.1.
	S87/1		**Hold to open position.**	<1 V	Wiring, ⇒ 27.2.
	S88/2		**Hold to open position.**	<1 V	Wiring, ⇒ 27.3.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ [27.0]	Function: Closing	N57 10 (A.10) — V — 57 (B.16)	S86/1, S87/1 and S88/2: **Rest position.**	9 – 14 V	Wiring, ⇒ 27.1, ⇒ 27.2, ⇒ 27.3, CF control module (N57), PSE control module (A37 or A37/1).
	S86/1		**Hold to close position.**	<1 V	Wiring, ⇒ 27.1.
	S87/1		**Hold to close position.**	<1 V	Wiring, ⇒ 27.2.
	S88/2		**Hold to close position.**	<1 V	Wiring, ⇒ 27.3.

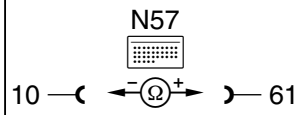
Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 27.1	S86/1	⊥ Ω X35/1 (AL.3)	Ignition: **OFF** Disconnect plug connection A, left front door (X35/1) (Figure 5). S86/1:		
			Rest position.	>20 kΩ	Wiring, S86/1.
			Hold to open position.	<10 Ω	Wiring, S86/1.
			Hold to close position.	>20 kΩ	Wiring.
		⊥ Ω X35/1 (AL.4)	S86/1: **Rest position.**	>20 kΩ	Wiring, S86/1.
			Hold to open position.	<10 Ω	Wiring, S86/1.
			Hold to close position.	>20 kΩ	Wiring.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 27.2	S87/1	⊥ Ω X35/2 (AR.3)	Ignition: **OFF** Disconnect plug connection A, right front door (X35/2) (Figure 5). S87/1:		
			Rest position.	>20 kΩ	Wiring, S87/1.
			Hold to open position.	<10 Ω	Wiring, S87/1.
			Hold to close position.	>20 kΩ	Wiring.
			S87/1:		
		⊥ Ω X35/2 (AR.4)	**Rest position.**	>20 kΩ	Wiring, S87/1.
			Hold to close position.	<10 Ω	Wiring, S87/1.
			Hold to open position.	>20 kΩ	Wiring.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 27.3	S88/2		Disconnect battery ground cable. Disconnect connector B from N57. Disconnect PSE control module (A37 or A37/1). Disconnect plug connections A, left front door (X35/1) and right front door (X35/2) (Figure 5). S88/2:		
			Rest position.	>20 kΩ	Wiring, S88/2.
			Hold to open position.	<10 Ω	Wiring, S88/2.
			Hold to close position.	>20 kΩ	Wiring.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ [27.3]	S88/2	N57 10 (A.10) — Ω — 57 (B.16)	S88/2: **Rest position.**	>20 kΩ	Wiring, S88/2.
			Hold to close position.	<10 Ω	Wiring, S88/2.
			Hold to open position.	>20 kΩ	Wiring.
⇒ 28.0	**Convenience relay module circuit (K24)**	⊥ — V — F3-32	Ignition: **OFF** All doors: **Closed**	<2 V	Wiring, ⇒ 28.1, ⇒ 5.0, ⇒ 28.2.
			Left front door: **Open**	11 – 14 V	Wiring, ⇒ 28.1, ⇒ 5.0, ⇒ 28.2.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 28.1	K24	N57 21 (A.21) — 32 (D.1) F3-32 (Input side of fuse 32) ⊥ — V —)	Ignition: **OFF** Disconnect connector D of N57.	11 – 14 V	Wiring, K24.
⇒ 28.2	N57	N57 10 (A.10) — V — 32 (D.1)	Ignition: **OFF** Disconnect connector D of taillamp harness from test cable (22, Figure 1). All doors: **Closed** Left front door: **Open**	<2 V 11 – 14 V	⇒ 5.0, N57. ⇒ 5.0, N57.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 29.0 2 3 24 32	**Left front power window motor (M10/3) circuit**	N57 18 — (A.18) 19 — (A.19)	Ignition: **ON**	6 – 12 V	Wiring, ⇒ 29.2.
		N57 12 — (A.12) 15 — (A.15)	S21/1: **Rest position.**	<2 V	Wiring, CF control module (N57).
			Press and hold to open position.	8 – 14 V while window opens	Wiring, ⇒ 10.0, ⇒ 29.1, N57.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ [29.0]	M10/3 circuit	N57 12 (A.12) — V — 15 (A.15)	S21/1: **Press and hold to close position.**	–8 to –14 V while window closes	Wiring, ⇒ 11.0, ⇒ 29.1, CF control module (N57).
		N57 18 (A.18) — V — 13 (A.13)	**Press and hold to open position.**	2 – 3 V while window opens	Wiring, M10/3, N57.
		N57 18 (A.18) — V — 3 (A.3)	**Press and hold to open position.**	2 – 3 V while window opens	Wiring, M10/3, N57.
⇒ 29.1	M10/3	N57 15 (A.15) — 21 (A.21)	Ignition: **OFF,** window closed ⚠ **CAUTION !** **Disconnect connector A** from N57. Bridge sockets 15 and 21 using fused jumper wire 124 589 37 63 00.	Window opens.	Wiring, M10/3.
		12 (A.12) — 10 (A.10)	Bridge sockets 12 and 10.		

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 29.2	N57	N57 16 (A.16) — 53 (B.12) 8 (A.8) — 53 (B.12) 11 (A.11) — 62 (B.21) 18 (A.18) — 19 (A.19)	Disconnect connector A of taillamp harness from test cable (22, Figure 1). Socket box bridge connections provide voltage supply and ground for N57 (circuits 30E, 15R, 31E).	6 – 12 V	CF control module (N57).
⇒ 30.0 4 5 25 33	**Right front power window motor (M10/4) circuit**	N57 59 (B.18) — 44 (B.3)	Ignition: **ON**	6 – 12 V	Wiring, N57, ⇒ 30.2.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ [30.0]	M10/4	N57 48 (B.7) — V — 51 (B.10)	S21/2: **Rest position.**	<2 V	Wiring, CF control module (N57).
			Press and hold to open position.	8 – 14 V while window opens.	Wiring, ⇒ 14.0, ⇒ 30.1, N57.
			Press and hold to close position.	–8 to –14 V while window closes.	Wiring, ⇒ 15.0, ⇒ 30.1, N57.
		N57 59 (B.18) — V — 45 (B.4)	S21/2: **Press and hold to open position.**	2 – 3 V while window opens.	Wiring, M10/4.
		N57 59 (B.18) — V — 50 (B.9)	S21/2: **Press and hold to open position.**	2 – 3 V while window opens	Wiring, M10/4.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 30.1	M10/4	N57 51 (B.10) — 21 (A.21) 48 (B.7) — 10 (A.10)	Ignition: **OFF,** window closed. ⚠ **CAUTION !** **Disconnect connector B** from N57. Bridge sockets 51 and 21 using fused jumper wire 124 589 37 63 00. Bridge sockets 48 and 10.	Window opens	Wiring, M10/4.
⇒ 30.2	N57	N57 59 (B.18) — V — 44 (B.3)	Disconnect connector B of taillamp wiring harness from test cable (22, Figure 1). Ignition: **ON**	6 – 12 V	N57.

Electrical Test Program - Test

Test step / DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 31.0 DTC 6 DTC 7 DTC 26 DTC 34	**Left rear power window motor (M10/5) circuit**	N57 46 (B.5) — V — 58 (B.17)	Ignition: **ON**	6 – 12 V	Wiring, ⇒ 31.2.
		N57 42 (B.1) — V — 56 (B.15)	S21/5: **Rest position.**	<2 V	Wiring, N57.
			Press and hold to open position.	8 – 14 V while window opens.	Wiring, ⇒ 18.0, ⇒ 31.1, Convenience control module (N57).
			Press and hold to close position.	–8 to –14 V while window closes.	Wiring, ⇒ 19.0, ⇒ 31.1, N57.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ [31.0]	M10/5	N57 46 (B.5) — 52 (B.11)	S21/5: **Press and hold to open position.**	2 – 3 V while window opens.	Wiring, M10/5.
		N57 46 (B.5) — 54 (B.13)	S21/5: **Press and hold to open position.**	2 – 3 V while window opens.	Wiring, M10/5.
⇒ 31.1	M10/5	N57 56 (B.15) — 21 (A.21)	Ignition: **OFF,** window closed. ⚠ **CAUTION !** **Disconnect connector B** from N57. Bridge sockets 56 and 21 using fused jumper wire 124 589 37 63 00.	Window opens.	Wiring, M10/5.
		42 (B.1) — 10 (A.10)	Bridge sockets 42 and 10.		

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 31.2	N57	N57 46 (B.5) — V — 58 (B.17)	Disconnect connector B to taillamp harness from test c able (22, Figure 1). Ignition: **ON**	 6 – 12 V	 CF control module (N57).
⇒ 32.0 8 9 27 35	**Right rear power window (M10/6) circuit**	N57 4 (A.4) — V — 5 (A.5)	Ignition: **ON**	6 – 12 V	Wiring, ⇒ 32.2
		N57 1 (A.1) — V — 7 (A.7)	S21/6: **Rest position.**	 <2 V	 Wiring, N57.
			Press and hold to open position.	8 – 14 V while window opens.	Wiring, ⇒ 22.0, ⇒ 32.1, N57.
			Press and hold to close position.	–8 to –14 V while window closes.	Wiring, ⇒ 23.0, ⇒ 32.1, N57.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ [32.0]	M10/6 circuit	N57 4 (A.4) — 2 (A.2)	S21/6: **Press and hold to open position.**	2 – 3 V while window opens.	Wiring, M10/6.
		N57 4 (A.4) — 20 (A.20)	**Press and hold to open position.**	2 – 3 V while window opens.	Wiring, M10/6.
⇒ 32.1	M10/6	N57 7 (A.7) — 21 (A.21)	Ignition: **OFF,** window closed. ⚠ **CAUTION !** **Disconnect connector A** from N57. Bridge sockets 7 and 21 using fused jumper wire 124 589 37 63 00.	Window opens.	Wiring, M10/6.
		1 (A.1) — 10 (A.10)	Bridge sockets 1 and 10.		

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 32.2	N57	N57 16 (A.16) — 53 (B.12) 8 (A.8) — 53 (B.12) 11 (A.11) — 62 (B.21) 4 (A.4) — V — 5 (A.5)	Disconnect connector A of taillamp harness from test cable (22, Figure 1). Socket box bridge connections provide voltage supply and ground for N57 (circuits 30E, 15R, 31E).	6 – 12 V	N57.
⇒ 33.0	**Left door rotary tumbler microswitch (S86s2)** (Coupé only) Voltage supply	N57 62 (B.21) — V — 43 (B.2)	Left door: open closed	0 - 1 V 11 - 14 V	Wiring, S86s2.
⇒ 34.0	**Right door rotary tumbler microswitch (S87s2)** (Coupé only) Voltage supply	N57 62 (B.21) — V — 49 (B.8)	Right door: open closed	0 - 1 V 11 - 14 V	Wiring, S87s2.

Electrical Test Program - Test

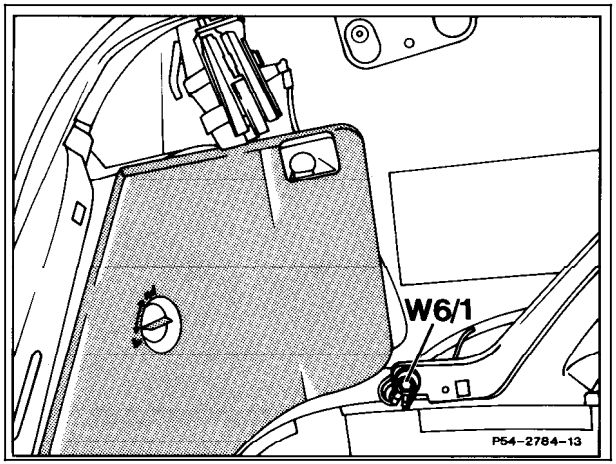


Figure 1 P54-2784-13

W6/1 Ground (left taillamp in trunk)

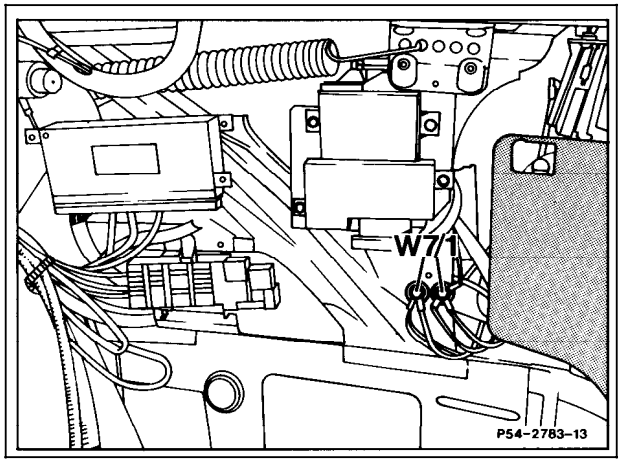


Figure 2 P54-2783-13

W7/1 Ground (right rear taillamp in trunk)

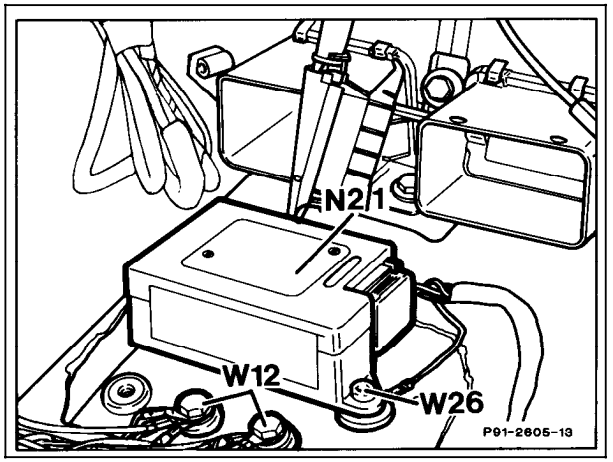
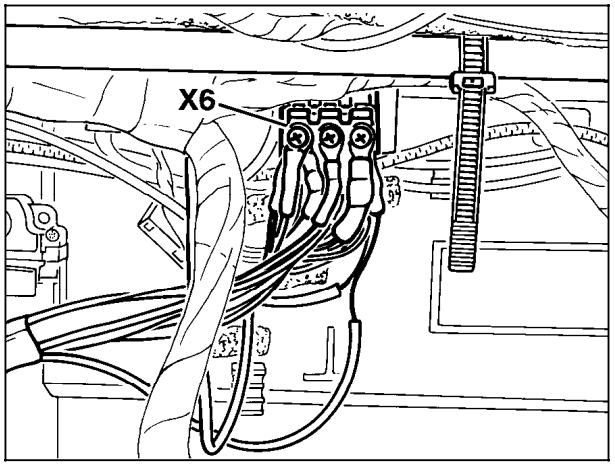


Figure 3 P91-2605-13

W12 Ground (center console)

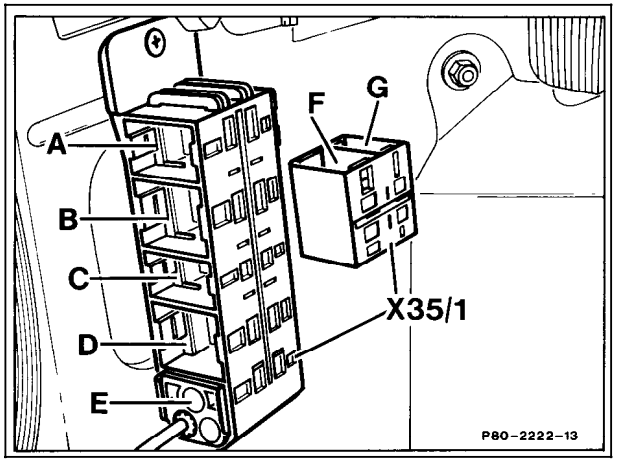
Electrical Test Program - Test



P82-3066-13

Figure 4

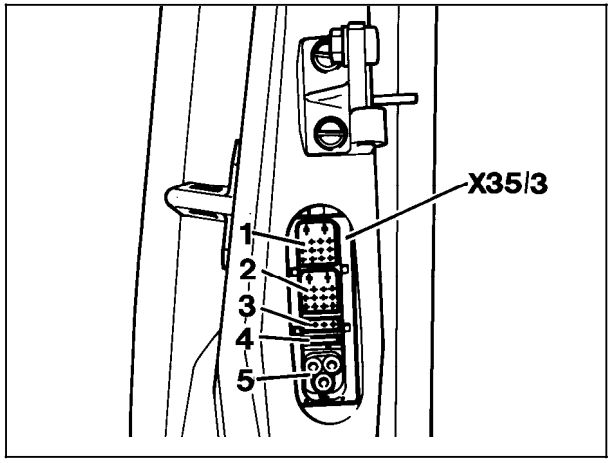
X6 Terminal block (terminal 58d) (3- or 4-pole)



P80-2222-13

Figure 5

X35/1 Left front door separation point
X35/2 Right front door separation point

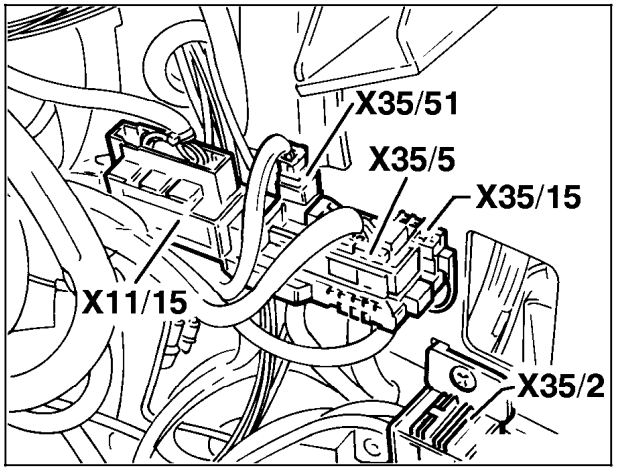


P54-2808-13

Figure 6

X35/3 Left rear door separation point
X35/4 Right rear door separation point
(mirror image of left shown)

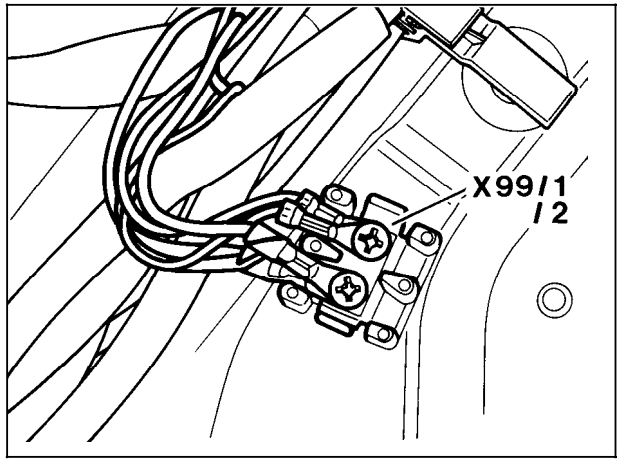
Electrical Test Program - Test



P54-2842-13

Figure 7

X35/5 Module box/taillamp harness plug connection (ABS/ASR/ASD) (12-pole)



P82-2995-13A

Figure 8

X99/1 Terminal block (left front door ground)
X99/2 Terminal block (right front door ground) (mirror image of left shown)