

5.5 Model 163

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Diagnosis

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Diagnosis – Function Test (Power Windows)

Preparation for Test:

1. Fuses ok.
2. Battery voltage 11 to 14 V.
3. Convenience Feature functional.

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy ¹⁾
⇒ 1.0 Left front window Manual Open/Close	Press left front power window switch (S21s1) down to first detent: Pull switch up:	Window opens as long as switch is pressed down. Window closes as long as switch is pulled up.	23a ⇒ 4.0, 23a ⇒ 5.0
⇒ 2.0 Left front window One-touch Opening	Press left front power window switch (S21s1) down to second detent:	Window opens completely after briefly (<.3 sec.) pressing switch.	23a ⇒ 7.0, 23a ⇒ 4.0, 23a ⇒ 6.0
⇒ 3.0 Right front window Manual Open/Close	Press right front power window switch (S21s2) down to first detent: Pull switch up:	Window opens as long as switch is pressed down. Window closes as long as switch is pulled up.	23a ⇒ 9.0, 23a ⇒ 10.0
⇒ 4.0 Right front window One-touch Opening	Press right front power window switch (S21s2) down to second detent:	Window opens completely after briefly (<.3 sec.) pressing switch.	23a ⇒ 12.0, 23a ⇒ 9.0, 23a ⇒ 11.0

1) Observe Preparation for Test, see 22.

Diagnosis – Function Test (Power Windows)

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy ¹⁾
⇒ 5.0 Left rear window Manual Open/Close	Press left rear power window switch (S21s3) in center console down : Pull switch up:	Window opens as long as switch is pressed down. Window closes as long as switch is pulled up.	23a ⇒ 14.0, 23a ⇒ 15.0
⇒ 6.0 Left rear window Manual Open/Close	Press left rear power window switch (S21/15s1) (rear center console) down : Pull switch up:	Window opens as long as switch is pressed down. Window closes as long as switch is pulled up.	23a ⇒ 16.0

1) Observe Preparation for Test, see 22.

Diagnosis – Function Test (Power Windows)

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy ¹⁾
⇒ 7.0 Right rear window Manual Open/Close	Press right rear power window switch (S21s4) in center console down : Pull switch up:	Window opens as long as switch is pressed down. Window closes as long as switch is pulled up.	23a ⇒ 18.0, 23a ⇒ 19.0
⇒ 8.0 Right rear window Manual Open/Close	Press right rear power window switch (S21/15s2) (rear center console) down : Pull switch up:	Window opens as long as switch is pressed down. Window closes as long as switch is pulled up.	23a ⇒ 20.0

1) Observe Preparation for Test, see 22.

Diagnosis – Function Test (Rear Power Vent Windows)

Preparation for Test:

1. Fuses ok.
2. Battery voltage 11 to 14 V.
3. Convenience Feature functional.

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy ¹⁾
⇒ 1.0 Left rear power vent window	Press upper half of left rear power vent window switch (S21/13): Press lower half of same switch:	Left rear power vent window opens as long as switch is pressed. Left rear power vent window closes as long as switch is pressed.	23b ⇒ 1.0, 23b ⇒ 2.0
⇒ 2.0 Right rear power vent window	Press upper half of right rear power vent window switch (S21/14): Press lower half of same switch:	Right rear power vent window opens as long as switch is pressed. Right rear power vent window closes as long as switch is pressed.	23b ⇒ 3.0, 23b ⇒ 4.0

¹⁾ Observe Preparation for Test, see 22.

Diagnosis – Function Test (Sliding/Pop-Up Roof)

Preparation for Test:

1. Fuses OK.
2. Battery voltage 11 to 14 V
3. Convenience Feature functional.

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy ¹⁾
⇒ 1.0 Open sliding roof.	Press sliding/pop-up roof switch (S13/2) toward rear .	Sliding roof opens as long as switch is pressed to rear .	23c ⇒ 4.0
⇒ 2.0 Open sliding roof. "Express Open" Function	Briefly (< 0.3 sec.) press sliding/pop-up roof switch (S13/2) toward rear.	Sliding roof opens completely .	23c ⇒ 4.0
⇒ 3.0 Close sliding roof.	Press sliding/pop-up roof switch (S13/2) forward .	Sliding roof closes as long as switch is pressed forward .	23c ⇒ 5.0
⇒ 4.0 Open pop-up roof.	Push sliding/pop-up roof switch (S13/2) up .	Pop-up roof opens as long as switch is pushed up .	23c ⇒ 3.0
⇒ 5.0 Close pop-up roof.	Pull sliding/pop-up roof switch (S13/2) downward .	Pop-up roof closes as long as switch is pulled downward .	23c ⇒ 5.0

¹⁾ Observe Preparation for Test, see 22.

Diagnosis – Function Test (Electric sliding roof - Skyview Top)

Preparation for Test:

1. Fuses OK.
2. Battery voltage 11 to 14 V
3. Convenience Feature functional.

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy ¹⁾
⇒ 1.0 Open/close sliding roof.	<p>Press sliding roof switch (S13/4) toward rear.</p> <p>Press sliding roof switch (S13/) forward.</p>	<p>Sliding roof opens as long as switch is pressed towards rear.</p> <p>Sliding roof closes as long as switch is pressed forward.</p>	<p>23d ⇒ 1.0</p> <p>23d ⇒ 2.0</p> <p>23d ⇒ 3.0</p>
⇒ 2.0 Open sliding roof. "Express Open" Function	Briefly (< 0.3 sec.) press sliding roof switch (S13/4) toward rear.	Sliding roof opens completely .	<p>23d ⇒ 1.0</p> <p>23d ⇒ 3.0</p>

¹⁾ Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart (Power Windows)

Preparation for Test:

1. Fuses OK.
2. Battery voltage 11 to 14 V
3. Convenience Feature functional.

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾
All power windows do not function.	Wiring, Convenience relay (F1k14) Center console switch group (S21) All Activity Module (AAM) (N10)	Check (F1k14) 23a ⇒ 1.0
Left front power window does not function.	Center console switch group (S21) Voltage supply Left front power window switch (S21s1) Left front power window motor (M10/3) (voltage supply)	23a ⇒ 4.0 23a ⇒ 5.0, 23a ⇒ 8.0
Manual Open/Close of left front power window does not function.	Center console switch group (S21) Voltage supply Left front power window switch (S21s1)	23a ⇒ 4.0 23a ⇒ 5.0

¹⁾ Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart (Power Windows)

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾
One-touch opening (express opening) of left front power window does not function.	LF power window relay (F1k18) Center console switch group (S21) Voltage supply Left front power window switch (S21s1) All Activity Module (AAM) (N10)	23a ⇒ 7.0 23a ⇒ 4.0 23a ⇒ 6.0
Right front power window does not function.	Center console switch group (S21) Voltage supply Right front power window switch (S21s2) Right front power window motor (M10/4) (voltage supply)	23a ⇒ 9.0 23a ⇒ 10.0 23a ⇒ 13.0
Manual Open/Close of right front power window does not function.	Center console switch group (S21) Voltage supply Right front power window switch (S21s2)	23a ⇒ 9.0 23a ⇒ 10.0

1) Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart (Power Windows)

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾
One-touch opening (express opening) of right front power window does not function.	RF power window relay (F1k16) Center console switch group (S21) Voltage supply Right front power window switch (S21s2) All Activity Module (AAM) (N10)	23a ⇒ 12.0 23a ⇒ 9.0 23a ⇒ 11.0
Manual Open/Close of left rear power window does not function.	Center console switch group (S21) Voltage supply Left rear power window switch (S21s3) Left rear power window switch (S21/15s1) (rear center console) Left rear power window motor (M10/5)	23a ⇒ 14.0 23a ⇒ 15.0 23a ⇒ 16.0 23a ⇒ 17.0
Manual Open/Close of left rear power window via left rear power window switch (S21/15s1) (rear center console) does not function.	Rear power windows safety switch (S21s5) Left rear power window switch (S21/15s1) (rear center console)	23a ⇒ 22.0 23a ⇒ 16.0

1) Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart (Power Windows)

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾
Manual Open/Close of right rear power window does not function.	Center console switch group (S21) Voltage supply Right rear power window switch (S21s4) Right rear power window switch (S21/15s2) (rear center console) Right rear power window motor (M10/6)	23a ⇒ 18.0 23a ⇒ 19.0 23a ⇒ 20.0 23a ⇒ 21.0
Manual Open/Close of right rear power window via right rear power window switch (s21/15s2) (rear center console) does not function.	Rear power windows safety switch (S21s5) Right rear power window switch (s21/15s2) (rear center console)	23a ⇒ 22.0 23a ⇒ 20.0

1) Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart (Rear Power Vent Windows)

Preparation for Test:

1. Fuses OK.
2. Battery voltage 11 to 14 V
3. Convenience Feature (CF) is functional.

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾
Left/right rear power vent windows do not function.	Wiring.	
Left rear power vent window does not function.	Left rear power vent window switch (S21/13) Left rear power vent window motor (M21/8)	23b ⇒ 1.0, 23b ⇒ 2.0
Right rear power vent window does not function.	Right rear power vent window switch (S21/14) Right rear power vent window motor (M21/9)	23b ⇒ 3.0, 23b ⇒ 4.0

¹⁾ Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart (Sliding/Pop-Up Roof)

Preparation for Test:

1. See 21

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾
Sliding/pop-up roof does not function at all.	Sliding/pop-up roof switch (S13/2) Voltage supply Sliding/pop-up roof drive assembly (M12) Voltage supply - electronic evaluation	23c ⇒ 1.0, 23c ⇒ 2.0
Sliding/pop-up roof functions in pop-up mode only.	Sliding/pop-up roof has lost initialization.	Perform Initialization again, see Introduction Manual.
Sliding/pop-up roof does not close.	Sliding/pop-up roof switch (S13/2) Sliding/pop-up roof drive assembly (M12) Voltage supply - electronic evaluation	23c ⇒ 5.0

¹⁾ Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart (Sliding/Pop-Up Roof)

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾
Pop-up roof does not function (open).	Sliding/pop-up roof switch (S13/2) Sliding/pop-up roof drive assembly (M12) Voltage supply - electronic evaluation	23c ⇒ 3.0
Sliding/pop-up roof does not open.	Sliding/pop-up roof switch (S13/2) Sliding/pop-up roof drive assembly (M12) Voltage supply - electronic evaluation	23c ⇒ 4.0

¹⁾ Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart (Electric sliding roof - Skyview Top)

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾
Electric sliding roof does not function (open).	Sliding roof switch (S13/4) Right sliding roof motor (M12/3)	23d ⇒ 1.0 23d ⇒ 2.0 23d ⇒ 3.0
Electric sliding roof stuck/opens slowly	Left sliding roof motor (M12/4)	23d ⇒ 4.0
Electric sliding roof moves only forward closing direction	Sliding roof has lost initialization Sliding roof switch (S13/4) Right sliding roof motor (M12/3) Voltage supply - electronic evaluation	Perform Initialization again, see Instruction manual 23d ⇒ 1.0 23d ⇒ 2.0

¹⁾ Observe Preparation for Test, see 22.

Electrical Test Program – Component Locations

Power Windows

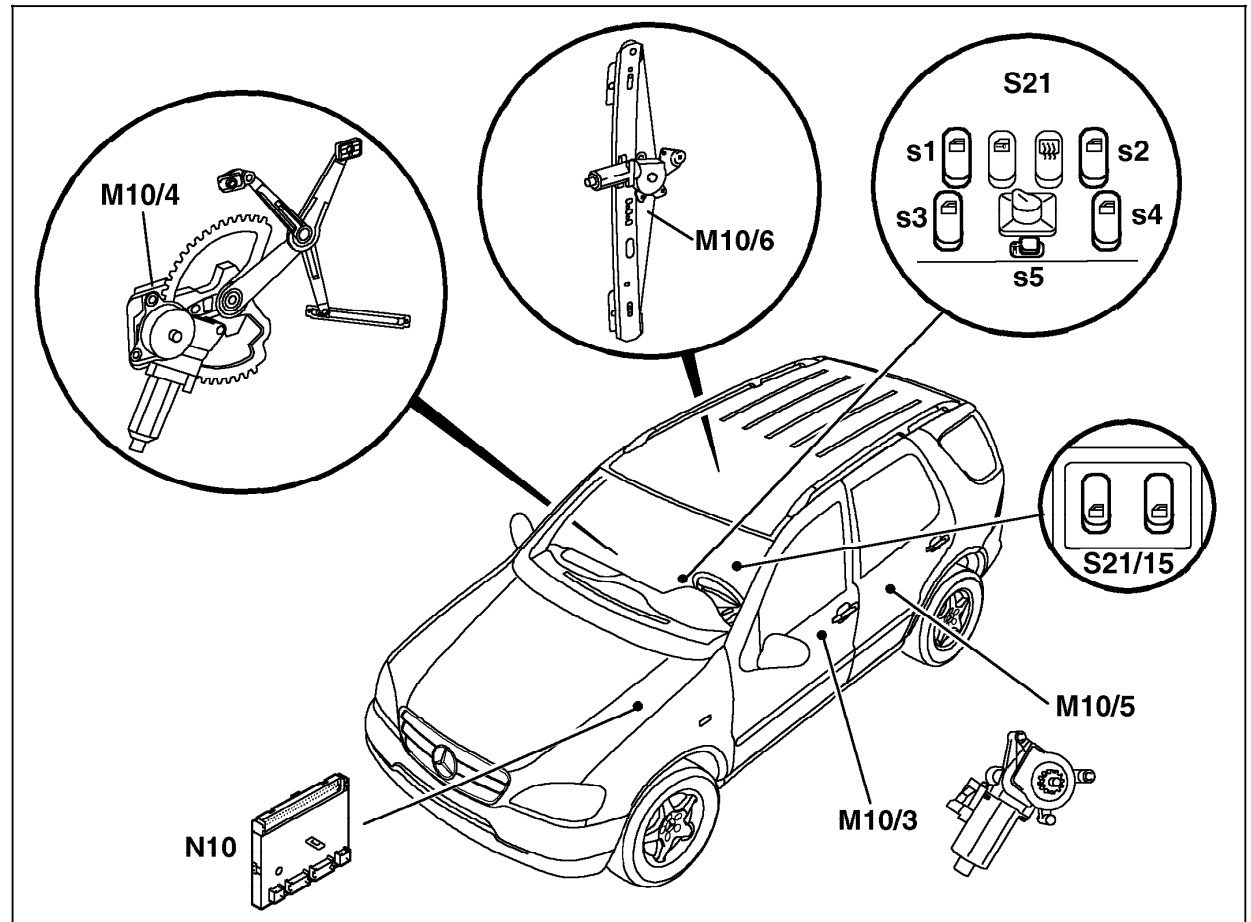


Figure 1

- 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
- M10/6 Right rear power window motor
- N10 All Activity Module (AAM)
- 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 Rear power windows safety switch
- S21/15 power window combination switch (rear center console)

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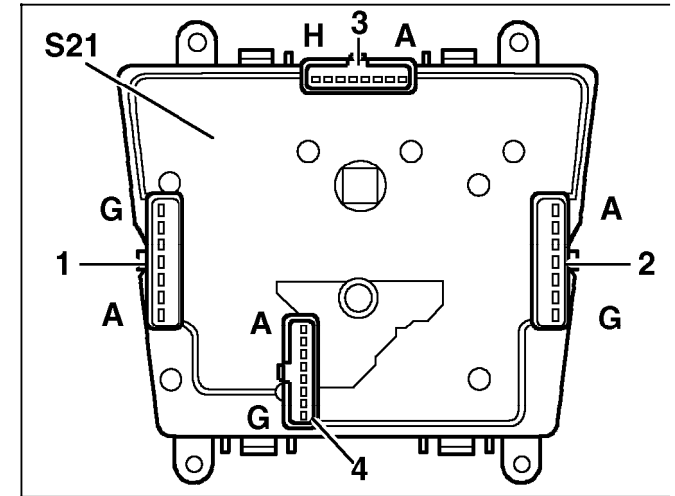
Electrical Test Program – Component Locations

Connector Layout for:

Center console switch group (S21)

- 1 Connector 1
- 2 Connector 2
- 3 Connector 3
- 4 Connector 4
- S21 Center console switch group

Figure 2

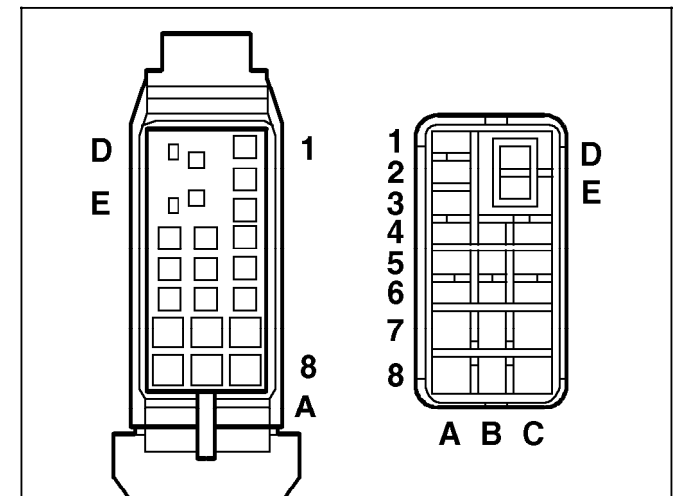


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Connector layout for:

- Left front door separation point (X35/1)
- Right front door separation point (X35/2)
- Left rear door separation point (X35/3)
- Right rear door separation point (X35/4)

Figure 3



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Electrical Test Program – Component Locations

Sliding/Pop-Up Roof

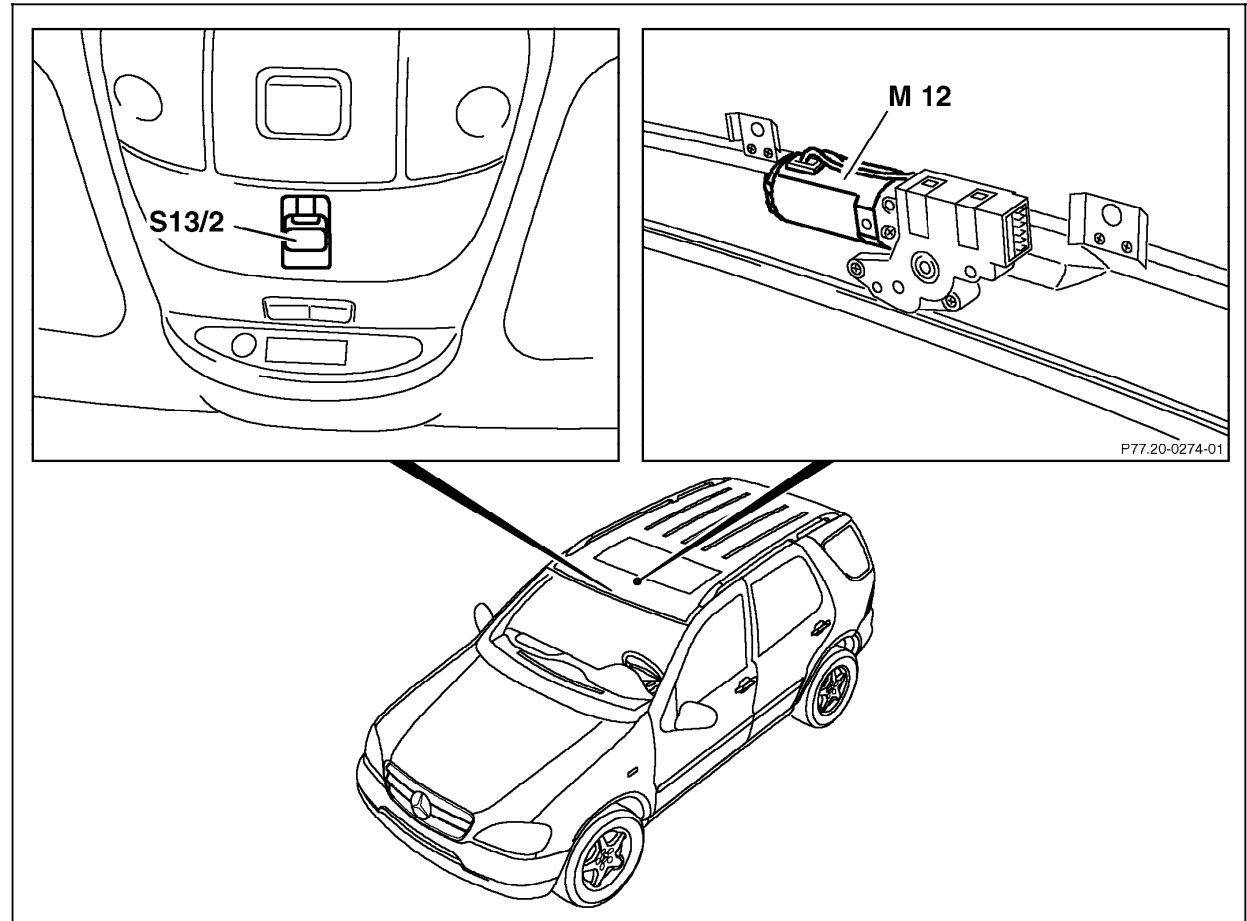


Figure 4

- M12 Sliding/pop-up roof drive assembly
- S13/2 Sliding/pop-up roof switch

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Electrical Test Program – Component Locations

Electric sliding roof

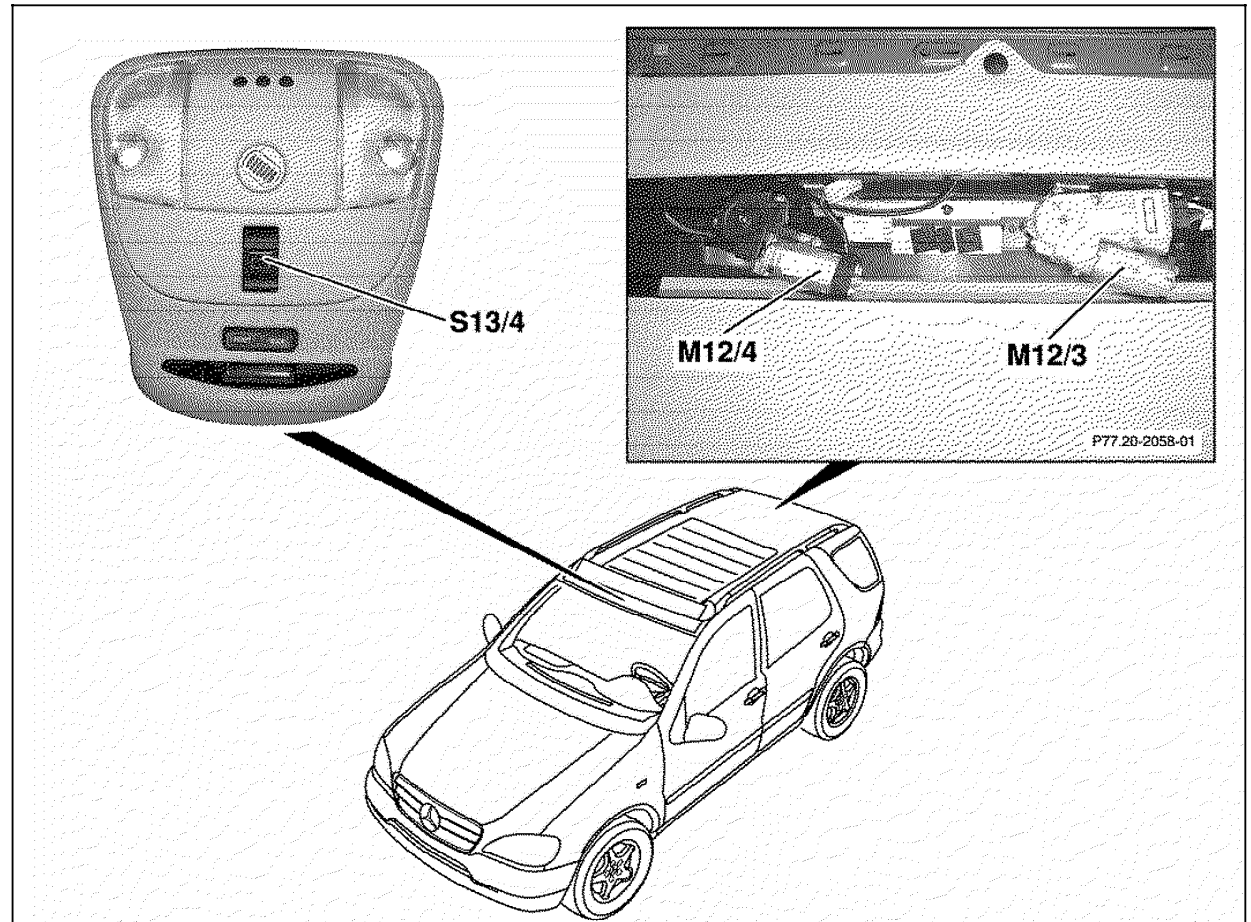


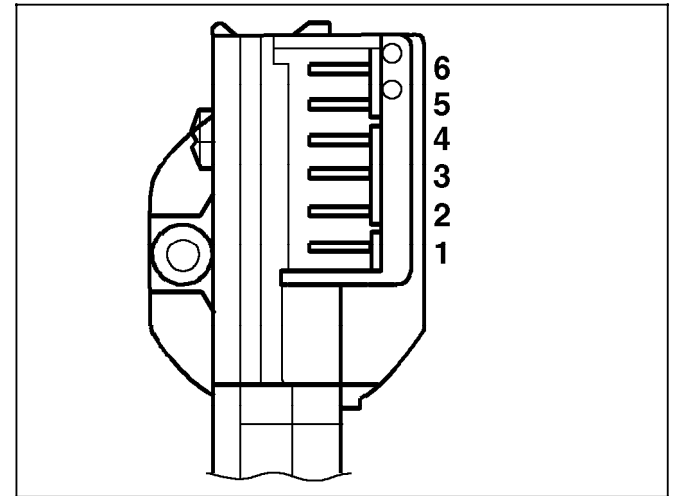
Figure 4

- M12/3 Sliding roof motor right
- M12/4 Sliding roof motor left
- S13/4 Sliding roof switch

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Electrical Test Program – Component Locations

Connector layout for:
Sliding/pop-up roof drive assembly (M12)



P54.25-0370-01

Figure 5

Electrical Test Program – Preparation for Test

CAUTION!

Injury hazard from pinching and crushing, in extreme cases extremities can even be severed when caught in the mechanism.

CAUTION!

When working on components activated via hand, electrically via motors, hydraulically, pneumatically via linkages, it is possible that severe injury can result in the severing, pinching, or crushing of body parts.

Do not allow any body parts to be in the general area of the moving components.

Protective measures:

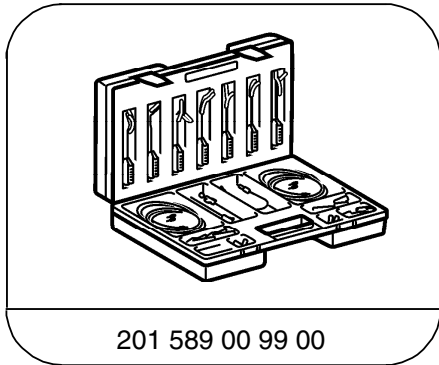
- Supervise work.
- Do not reach into the moving mechanism at any time during any tests.
- Keep away from the moving mechanism of components which are being activated via the HHT and or directly via circuit 30.
- Ensure that all test cables are of sufficient length.

Electrical wiring diagrams:

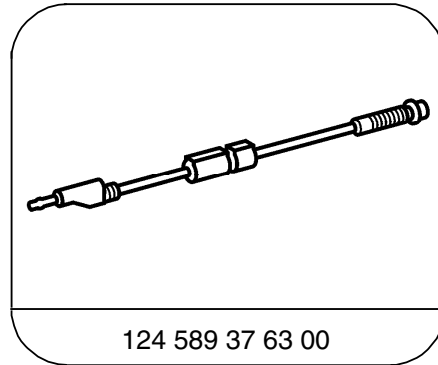
Electrical Troubleshooting Manual, Model 163,
(available in Work Shop Information System [WIS] only)

Electrical Test Program – Preparation for Test

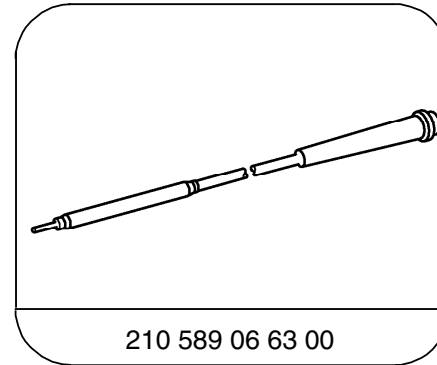
Special Tools



Electrical connecting set



Fused cable




Adapter cable



Test equipment; See MBUSA Standard Service Equipment Program

Description	Brand, model, etc.
Digital multimeter	Fluke models 23, 77 III, 83, 85, 87

Electrical Test Program – Test (Power Windows)





Preparation for Test:

1. See 21
2.  **CAUTION!** See 22/1
3. Fuses OK.
4. Battery voltage 11 – 14 V
5. Convenience Feature functional.

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy ¹⁾
1.0		Left front power window One-touch Opening HHT-activation		Ignition: ON Activation of LF power window relay (F1k18) via HHT. Press F1 on HHT: Press F2 on HHT:	Relay closes. Relay opens.	If values not OK: Wiring, Check function of convenience relay (F1k14), LF power window relay (F1k18), 23a ⇒ 7.0, Left front power window switch (S21s1), 23a ⇒ 4.0, 23a ⇒ 6.0, All Activity Module (N10). If values OK: Wiring, Left front power window switch (S21s1).


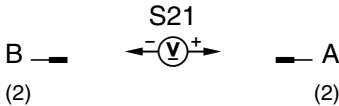
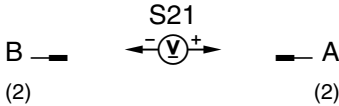
¹⁾ Observe Preparation for Test, see 22.

Electrical Test – Program Test (Power Windows)

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy ¹⁾
2.0		Right front power window One-touch Opening HHT-activation		Ignition: ON Activation of RF power window relay (F1k16) via HHT. Press F3 on HHT: Press F4 on HHT:	Relay closes. Relay opens.	If values not OK: Wiring, RF power window relay (F1k16), 23a ⇒ 12.0, Right front power window switch (S21s2), 23a ⇒ 9.0, 23a ⇒ 11.0, All Activity Module (N10). If values OK: Wiring, Right front power window switch (S21s2).
3.0		HHT Serial Interface Connection between N10 and data link connector (X11/4) for diagnostics.	X11/4 12 —  — N10 A3 (4)	Ignition: OFF Remove N10 and disconnect connector 4 (24-pole).	$\leq 5 \Omega$	Wiring.
4.0		Left front power window switch (S21s1) Voltage supply	B —  — C (1) (2)	Do not disconnect connectors 1 and 2	11 – 14 V	Wiring.


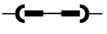
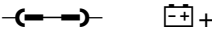


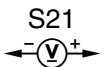
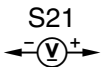
¹⁾ Observe Preparation for Test, see 22.

Electrical Test – Program Test (Power Windows)

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy ¹⁾
5.0		Left front power window switch (S21s1) Function		Do not disconnect connector 2 Press switch to first detent (manual open) Pull switch UP (close window)	11 – 14 V (as long switch is pressed) – 11 to – 14 V	S21s1
6.0		Left front power window switch (S21s1) One-touch Opening Function		Do not disconnect connector 2 Press switch to second detent. (one-touch opening)	11 – 14 V (approx. 4 sec.)	Wiring, LF power window relay (F1k18), S21s1, All Activity Module (N10).
7.0		LF power window relay (F1k18) Function		Swap LF power window relay (F1k18) with relay of same type, i.e.: F1k16 Press left front power window switch (S21s1) to second detent:	Window opens completely.	If values are OK: LF power window relay (F1k18), If values are not OK: Wiring, Left front power window switch (S21s1) 23a ⇒ 4.0, 23a ⇒ 6.0, N10


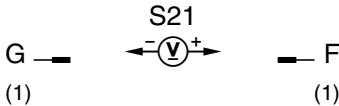
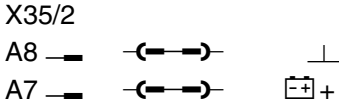

1) Observe Preparation for Test, see 22.

Electrical Test – Program Test (Power Windows)

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy ¹⁾
8.0		Left front power window motor (M10/3) Activation	X35/1 A8 —  A7 — 	Ignition: OFF Disconnect X35/1  CAUTION! See notes on 22/1  For battery connection, use safety cable 124 589 37 63 00	Window motor runs.	Wiring, M10/3
9.0		Right front power window switch (S21s2) Voltage supply	B —  S21 — E (1) (1)	Do not disconnect connector 1	11 – 14 V	Wiring.
10.0		Right front power window switch (S21s2) Function	G —  S21 — F (1) (1)	Do not disconnect connector 1 Press switch to first detent (manual open) Pull switch UP (close window)	11 – 14 V (as long as switch is pressed) – 11 to – 14 V	S21s2


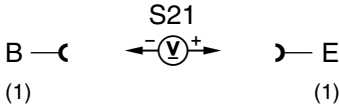
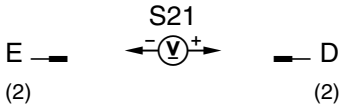
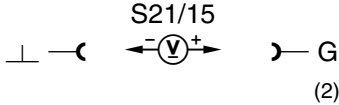
1) Observe Preparation for Test, see 22.

Electrical Test – Program Test (Power Windows)

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy ¹⁾
11.0		Right front power window switch (S21s2) One-touch Opening Function		Do not disconnect connector 1 Press switch to second detent. (one-touch opening)	11 – 14 V (approx. 4 sec.)	Wiring, RF power window relay (F1k16), S21s2, All Activity Module (N10).
12.0		RF power window relay (F1k16) Function		Swap RF power window relay (F1k16) with relay of same type, i.e.: F1k18 Press right front power window switch (S21s2) to second detent:	Window opens completely.	If values are OK: RF power window relay (F1k16), If values are not OK: Wiring, Right front power window switch (S21s2), 23a ⇒ 9.0, 23a ⇒ 11.0, N10
13.0		Right front power window motor (M10/4) Activation		Ignition: OFF Disconnect X35/2 ⚠ CAUTION! See notes on 22/1  For battery connection, use safety cable 124 589 37 63 00	Window motor runs.	Wiring, M10/4




1) Observe Preparation for Test, see 22.

Electrical Test – Program Test (Power Windows)

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy ¹⁾
14.0		Left rear power window switch (S21s3) Voltage supply		Do not disconnect connector 1	11 – 14 V	Wiring, S21s3
15.0		Left rear power window switch (S21s3) Function		Do not disconnect connector 2 Press switch: (manual open) Pull switch UP (close window)	11 – 14 V (as long as switch is pressed) – 11 to – 14 V	S21s3
16.0		Left rear power window switch (S21/15s1) (rear center console) Voltage supply		Do not disconnect connector 2	11 – 14 V	Wiring, S21s3, ⇒ 1.1


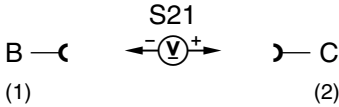
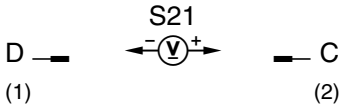
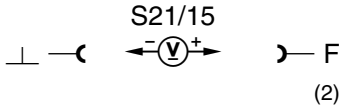
1) Observe Preparation for Test, see 22.

Electrical Test – Program Test (Power Windows)

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy ¹⁾
16.1		Left rear power window switch (S21/15s1) (rear center console) Function	<p>S21/15</p> <p>A —(— ←(V)→ — B</p> <p>(2) (2)</p>	<p>Do not disconnect connector 2, Rear power window safety switch (S21s5) not pressed. Press S21/15s1: (manual open)</p> <p>Pull switch UP: (close window)</p>	<p>11 – 14 V</p> <p>11 – 14 V (as long as switch is pressed)</p> <p>– 11 to – 14 V</p>	Wiring, S21s5, S21/15s1
17.0		Left rear power window motor (M10/5) Activation	<p>X35/3</p> <p>A8 — — —(→)←</p> <p>A7 — — —(→)←</p> <p>⊥ + — — —(→)←</p>	<p>Ignition: OFF Disconnect X35/3</p> <p> CAUTION! See notes on 22/1</p> <p></p> <p>For battery connection, use safety cable 124 589 37 63 00</p>	Window motor runs.	Wiring, M10/5


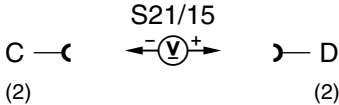
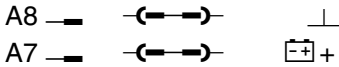

1) Observe Preparation for Test, see 22.

Electrical Test – Program Test (Power Windows)

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy ¹⁾
18.0		Right rear power window switch (S21s4) Voltage supply		Do not disconnect connectors 1 and 2	11 – 14 V	Wiring, S21s4
19.0		Right rear power window switch (S21s4) Function		Do not disconnect connector 1 Press switch: (manual open) Pull switch UP (close window)	11 – 14 V (as long as switch is pressed) – 11 to – 14 V	Wiring, S21s4
20.0		Right rear power window switch (S21/15s2) (rear center console) Voltage supply		Do not disconnect connector 2	11 – 14 V	Wiring, S21s4, ⇒ 1.1


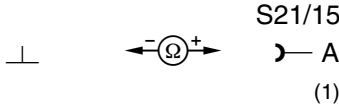
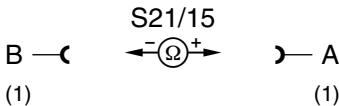
1) Observe Preparation for Test, see 22.

Electrical Test – Program Test (Power Windows)

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy ¹⁾
20.1		Right rear power window switch (S21/15s2) (rear center console) Function	<p>S21/15</p> 	<p>Do not disconnect connector 2, Rear power window safety switch (s21s5) not pressed. Press S21/15s2: (manual open)</p> <p>Pull switch UP: (close window)</p>	<p>11 – 14 V</p> <p>11 – 14 V (as long as switch is pressed)</p> <p>– 11 to – 14 V</p>	Wiring, S21s5, S21/15
21.0		Right rear power window motor (M10/6) Activation	<p>X35/4</p> 	<p>Ignition: OFF Disconnect X35/4</p> <p>CAUTION! See notes on 22/1</p>  <p>For battery connection, use safety cable 124 589 37 63 00</p>	Window motor runs.	Wiring, M10/6

1) Observe Preparation for Test, see 22.


Electrical Test – Program Test (Power Windows)


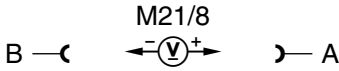
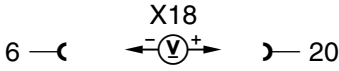
⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy ¹⁾
22.0		Rear power window safety switch (S21s5) Function		Do not disconnect connector 1 at power window combination switch (S21/15) (rear center console). Position rear power window safety switch to right (safety switch OFF). Position rear power window safety switch to left (safety switch ON).	<1 Ω >20 kΩ	Wiring, S21s5, S21/15 ⇒ 1.1
22.1		Rear power window safety switch (S21s5) Resistance		Disconnect connector 1.	<1 Ω	Wiring, S21s5, S21/15

1) Observe Preparation for Test, see 22.

Electrical Test Program – Test (Rear Power Vent Windows)


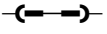
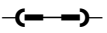





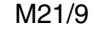

Preparation for Test:

1.  CAUTION! See 22/1
2. Fuses OK.
3. Battery voltage 11 – 14 V
4. Convenience Feature functional.

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy ¹⁾
1.0		Left rear power vent window switch (S21/13) Function		Disconnect connector at left rear power vent window motor (M21/8). Press upper half of switch: Press lower half of switch:	11 – 14 V – 11 to – 14 V	Wiring, ⇒ 1.1
1.1		Left rear power vent window switch (S21/13) Function		Disconnect connector at Interior/taillamp harness connector (X18) (12-pole). Press upper half of switch: Press lower half of switch:	11 – 14 V – 11 to – 14 V	Wiring, S21/13


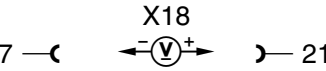
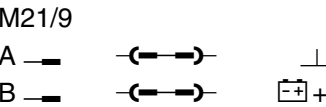

1) Observe Preparation for Test, see 22.

Electrical Test Program – Test (Rear Power Vent Windows)

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy ¹⁾
2.0		Left rear power vent window motor (M21/8) Activation	M21/8 A —  B —   	Ignition: OFF Disconnect connector at motor.  CAUTION! See notes on 22/1  For battery connection, use safety cable 124 589 37 63 00	Window motor runs.	Wiring, M21/8
3.0		Right rear power vent window switch (S21/14) Function	A —   M21/9  B	Disconnect connector at right rear power vent window motor (M21/9). Press upper half of switch: 11 – 14 V Press lower half of switch: – 11 to – 14 V	11 – 14 V – 11 to – 14 V	Wiring, ⇒ 3.1

1) Observe Preparation for Test, see 22.

Electrical Test Program – Test (Rear Power Vent Windows)


⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy ¹⁾
3.1		Right rear power vent window switch (S21/14) Function		Disconnect connector at Interior/taillamp harness connector (X18) (12-pole). Press upper half of switch: Press lower half of switch:	11 – 14 V – 11 to – 14 V	Wiring, S21/14
4.0		Right rear power vent window motor (M21/9) Activation		Ignition: OFF Disconnect connector at motor. ⚠ CAUTION! See notes on 22/1  For battery connection, use safety cable 124 589 37 63 00	Window motor runs.	Wiring, M21/9

1) Observe Preparation for Test, see 22.

Electrical Test Program – Test (Sliding/Pop-Up Roof)




Preparation for Test:

1. See 21
2. Fuses OK.
3. Battery voltage 11 – 14 V
4. Convenience Feature functional.

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy ¹⁾
1.0		Sliding/pop-up roof switch (S13/2) Voltage supply	B —(←(V)→)— A S13/2	Disconnect connector at S13/2	11 – 14 V	Wiring.
2.0		Sliding/pop-up roof drive assembly (M12) Evaluation-electronics Voltage supply	6 —(←(V)→)— 5 S13/2	Disconnect connector at M12	11 – 14 V	Wiring.
3.0		Sliding/pop-up roof switch (S13/2) Open pop-up roof Function	6 —(←(V)→)— 1 M12	Disconnect connector at M12 Press switch up: (open pop-up roof)	11 – 14 V (as long as switch is pressed up)	Wiring, S13/2

1) Observe Preparation for Test, see 22.

Electrical Test Program – Test (Sliding/Pop-Up Roof)


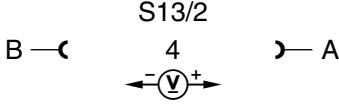
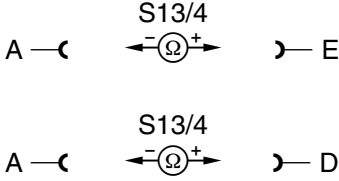
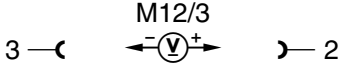
⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy ¹⁾
4.0		Sliding/pop-up roof switch (S13/2) Open sliding roof Function		Disconnect connector at M12 Press switch backward: (open sliding roof)	11 – 14 V (as long as switch is pressed backward)	Wiring, S13/2
5.0		Sliding/pop-up roof switch (S13/2) Close sliding/pop-up roof Function		Disconnect connector at M12 Press switch forward: (open sliding roof)	11 – 14 V (as long as switch is pressed forward)	Wiring, S13/2

1) Observe Preparation for Test, see 22.

Electrical Test Program – Test (Electric sliding roof)


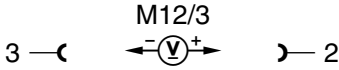
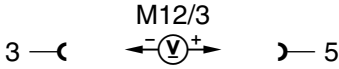
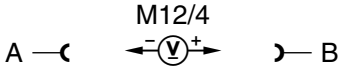
Preparation for Test:

1. See 21
2. Fuses OK.
3. Battery voltage 11 – 14 V
4. Convenience Feature functional.

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy ¹⁾
1.0		Electric sliding roof switch (S13/4) Voltage supply		Ignition ON Disconnect connector at S13/4	11 – 14 V	Wiring. If values are OK: ⇒ 1.1
1.1		Switch contacts Continuity test		Ignition OFF Disconnect connector at S13/4 Press switch forward Press switch backward	< 1 Ω	S13/4
2.0		Right sliding roof motor (M12/3) Evaluation-electronics Voltage supply		Ignition OFF Disconnect connector at M12/3	11 – 14 V	Wiring.

¹⁾ Observe Preparation for Test, see 22.

Electrical Test Program – Test (Electric sliding roof)

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy ¹⁾
3.0		Sliding roof motor (M12/3) Activation Open sliding roof		Ignition OFF Disconnect connector at M12/3 Press switch backwards	11 – 14 V (as long as switch is pressed backward)	Wiring, S13/4 ⇒ 1.0 If values are OK: ⇒ 4.0
3.1		Activation Close sliding roof		Ignition OFF Disconnect connector at M12/3 Press switch forward:	11 – 14 V (as long as switch is pressed forward)	Wiring, S13/4 ⇒ 1.0 If values are OK: ⇒ 4.0
4.0		Left sliding roof motor (M12/4) Voltage supply		Disconnect connector at M12/4 Ignition ON Press sliding roof switch (S13/4) backward: forward:	11 – 14 V -11 – 14 V	Wiring, M12/4

1) Observe Preparation for Test, see 22.