7.1 Models 202, 208, 210 as of M.Y. 1998

The following systems/functions are described in this section:

- Windshield wipers
- Rain sensor (B38)
- Rear window wiper/washer
- Headlamp cleaning system (HCS)
- Front dome lamp
- Rear dome lamp
- Entrance/exit lamps
- Heated rear window

Activation

Windshield wipers
The combination switch (S4) signal is a voltage coded signal sent to the electronic ignition switch control module (N73). From there it is sent via CAN bus to the signal pick-up and actuation module (N10/1[left-front]). N10/1 in turn switches on the wiper motor (M6/1). The windshield washer pump (M5/1) is also actuated by the signal pick-up and actuation module (N10/1[left-front]).

Rain sensor (B38)
The rain sensor signal is received by the roof control panel control module (N70) and then sent via CAN data line to the signal pick-up and actuation module (N10/1[left-front]).

Rear window wiper/washer
The switch signal is transferred as a voltage coded signal to the signal pick-up and actuation module (N10/1[left-front]). The function wiping signal is transferred from the signal pick-up and actuation module (N10/1[left-front]) to the PSE control module (A37) via CAN data line. A37 in turn actuates the rear window wiper motor (M6/4). With the function washing, the switch signal is sent via CAN data line from the signal pick-up and actuation module (N10/1[left-front]) to the windshield washer pump (M5/1) or rear window washer pump (M5/3).

Headlamp cleaning system
The switch signal is transferred as a voltage coded signal to the signal pick-up and actuation module (N10/1[left-front]). N10/1 in turn actuates the headlamp washer pump (M5/2).

Front dome lamp
The left/right front door switches (S17/3, S17/4) conduct a ground signal to the PSE control module (A37). In turn, the PSE control module (A37) sends a CAN message "Door open" to the roof control panel control module (N70).

Rear dome lamp - except model 208.4
The left/right rear door switches (S17/5, S17/6) send a ground signal to the PSE control module (A37) and in turn the PSE control module switches on the rear dome lamp (E15/3). Should the switch for the rear dome lamp be pressed on the roof control panel control module (N70), N70 will in turn send a CAN message to the PSE control module. PSE control module will switch on the rear dome lamp (E15/3) as a result.

Entrance/exit lamps
If a door is opened, the corresponding door switch sends a ground signal to the PSE control module (A37). As a result, the PSE control module (A37) sends a CAN message "Door open" to the passenger compartment bus. The door control module responsible for the open door receives the CAN message and in turn switches on the corresponding entrance/exit lamp.

Heated rear window

The switch for the heated rear window is integrated into the A/C pushbutton control module. If the switch is pressed, a voltage coded signal is sent to the signal pick-up and actuation module (N10/1[left-front]). N10/1 in turn sends a CAN message "Heated rear window ON" to the PSE control module (A37). The relay integrated in the PSE control module (A37) is then actuated. At the same time, the signal pick-up and actuation module (N10/1[left-front]) actuates the LED in the heated rear window switch. Should the switch be pressed again, the CAN message as sent by N10/1 to A37 and the LED in the switch is interrupted. A timed shut-off occurs in appox. 12 minutes, which is actuated in turn by N10/1

Heated rear window - Model 208.4

With the soft top up and locked, the roll bar/power soft top control module (N52) sends a coded signal via the CAN bus to the PSE control module (A37). When the soft top is opened, the signal is no longer sent to the PSE control module (A37) and the heated rear window (R1) is switched off. The window cannot be switched back on until the top is in the up position and locked.

Diagnosis – Diagnostic Trouble Code (DTC) Memory

Preparation for Test (DTC readout):

1. Fuses OK.
2. Ignition: **ON**
3. Connect Hand-Held Tester (HHT) according to connection diagram shown in section 0.
4. Voltage supply to control modules and CAN data lines ok, see 23,
5. All CAN data lines must be connected.

i

The diagnostic trouble codes (DTC's) can only be read out and erased using the Hand-Held Tester (HHT).
DTCs for the system being checked may be located in other control modules, therefore it is important to check the DTC memory on all control modules that are relevant to the system being checked.
While performing the DTC readout, it is possible that DTCs may appear that are not relevent to the system being checked, meaning that all stored DTCs in that particular control module are being displayed.

Non-relevant DTCs are described in each system as necessary.

Note regarding Diagnostic Trouble Codes (DTC's):

Current diagnostic trouble codes are highlighted in black on the display.

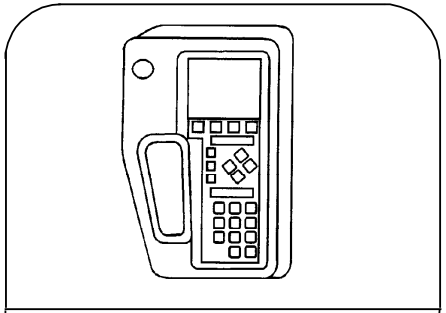
Additional detailed fault information based on fault type is displayed with nearly all diagnostic codes (DTC's) such as:

> Ω	Resistance too great
< Ω	Resistance too low
⌐¬–	Short circuit to ground (GND)
⌐¬+	Short circuit to positive (POS)
–//–	Open circuit

Fault frequency
Faults are noted by frequency of occurrence, i.e.: 4 periodic faults, 4 occurances.

Diagnosis – Diagnostic Trouble Code (DTC) Memory

Special Tools



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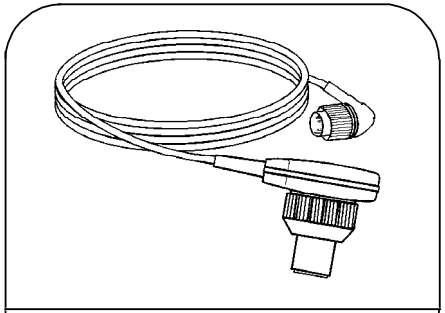
Hand-Held-Tester



965 589 00 40 00

Test cable

Conventional tools, test equipment

Description	Brand, model, etc.
Multimeter [1)]	Fluke models 23, 83, 85, 87, 88

1) Available through the MBUSA Standard Equipment Program.

Diagnosis – Diagnostic Trouble Code (DTC) Memory

DTC 	Possible cause	Test step/Remedy [1]
B1000	Electronic ignition lock control module (N73)	Replace N73
B1000	Roof control panel control module (N70)	Replace N70
B1000	Signal pick-up and activation module (SAM) (N10/1)	Replace N10/1
B1010	Low voltage	23 ⇒ 1.0–11.0
B1011	Excessive voltage	23 ⇒ 1.0–11.0
B1507	CAN: communication fault between electronic ignition lock control module (N73) and Roof control panel control module (N70)	23 ⇒ 54.0–62.0, 64.0, 67.0, 89.0–96.0
B1509	CAN: communication fault between electronic ignition lock control module (N73) and Signal pick-up and activation module (SAM) (N10/1)	23 ⇒ 89.0–96.0
B1141	HCS switch (S4/1), signal > 25 seconds	23 ⇒ 122.0
B1142	Tailgate window wiper switch (S6/1s4), signal > 25 seconds	23 ⇒ 121.0

[1] Observe Preparation for Test, see 22.

Diagnosis – Diagnostic Trouble Code (DTC) Memory

DTC	Possible cause	Test step/Remedy [1]
B1217 000	Rain sensor (B38), no communication	23 ⇒ 112.0–114.0
B1217 001	Rain sensor (B38) faulty	Replace B38
B1217 002	Rain sensor (B38) not adapted to windshield (IR beam functional problems)	Clean windshield, Replace wiper blade insert, B38, Replace optical unit of B38, replace windshield.
B1217 003	Excessive windshield surface temperature	Windshield temperature > 65°C (148°F), replace B38
B1217 004	Sporatic faults	if often, replace B38
B1217 006	Wiper system operation not synchronised	Erase DTC memory, Operate windshield wiper through 40 cycles.
B1483	Activation of windshield washer relay (K40/2k3) ⌜7+, ⌜7– (tailgate)	23 ⇒ 116.0–118.0
B1484	Activation of windshield washer relay (K40/2k3) ⌜7– (windshield)	23 ⇒ 109.0
B1643	Rain sensor (B38) no communication	23 ⇒ 113.0–115.0
B1729	PSE control module (A37), combined functions	Replace A37

[1] Observe Preparation for Test, see 22.

Diagnosis – Diagnostic Trouble Code (DTC) Memory

DTC 	Possible cause	Test step/Remedy [1]
B1000	Roof control panel control module (N70)	Replace N70
B1010	Low voltage	23 ⇒ 1.0–11.0
B1011	Excessive voltage	23 ⇒ 1.0–11.0
B1143	Dome lamp switch on/off (N70s4), signal > 25 seconds, ⌐¬	See 13
B1144	Work lamp switch on/off (N70s5), signal > 25 seconds, ⌐¬ **Model 208.4 only:** Left front work lamp switch on/off (N70s6), signal > 25 seconds, ⌐¬ Right front work lamp switch on/off (N70s7), signal > 25 seconds, ⌐¬	See 13
B1145	Door switch on/off (N70s3), signal > 25 seconds, ⌐¬	See 13
B1146	Rear dome lamp switch on/off (N70s2), signal > 25 seconds, ⌐¬	See 13
B1212	Voltage supply for left and right vanity mirror, ⌐¬	Wiring, Replace N70
B1407	Entrance/exit lamps (E17)	23 ⇒ 130.0 23 ⇒ 131.0

[1] Observe Preparation for Test, see 22.

Diagnosis – Diagnostic Trouble Code (DTC) Memory

DTC 	Possible cause	Test step/Remedy [1]
B1000	Signal pick-up and activation module (SAM) (N10/1)	Replace N10/1
B1010	Low voltage	23 ⇒ 1.0–11.0
B1011	Excessive voltage	23 ⇒ 1.0–11.0
B1115	Heated rear window switch, signal > 25 seconds, ⌜⌝+	23 ⇒ 133.0
B1729	PSE control module (A37), combined functions	Replace A37

[1] Observe Preparation for Test, see 22.

Diagnosis – Recalling Actual Values with HHT

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

Preparation for Test:

1. Fuses OK.
2. Ignition: **ON**
3. Connect Hand-Held Tester (HHT) according to connection diagram shown in section 0.
4. Voltage supply to control modules and CAN data lines ok, see 23.
5. All CAN data lines must be connected.

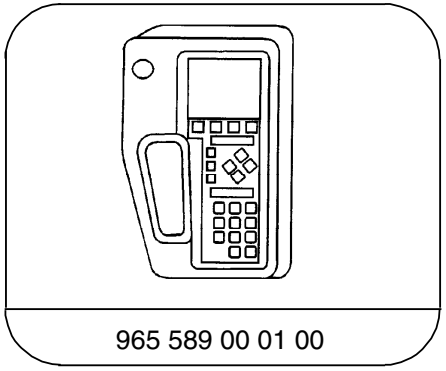
Abreviations:

OCP	Over-head control panel control module (N70)
ESA L	Left seat adjustment
ESA R	Right seat adjustment
EIS	Electronic ignition switch (N73)
PSE	Pneumatic system control module, combined function (A37)
DCM 1	Front driver-side door control module (N69/1)
DCM 2	Front passenger-side door control module (N69/2)
SAM	Signal pick-up and activation module (N10/1)
LCP	Lower control panel control module (N72)

The above noted abreviations are in the second column of the following actual values tables in **bold type** to advise of hints (regarding in which of the control modules the actual values or activations are stored).

Actual values for the system being checked may be located in other control modules, therefore it is important to check the DTC memory on all control modules that are relevant to the system being checked.
When calling up actual values, all actual values will appear for that particular control module.

Special Tools



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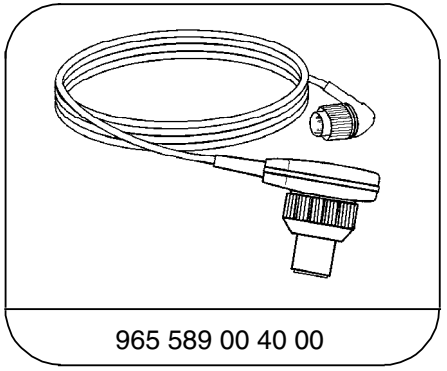
Hand-Held-Tester



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Test cable

Electrical Test Program – Test Actual Values

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
1.0	EIS	**Circuit 15R**		Ignition key in position 1: Ignition: **ON** Ignition: **OFF**	 YES NO	23 ⇒ 3.0, 23 ⇒ 105.0
2.0	EIS	**Circuit 15**		Ignition key in position 2: Ignition: **ON** Ignition: **OFF**	 YES NO	23 ⇒ 2.0,
3.0	OCP	**Low voltage**			9.5 – 15.5	23 ⇒ 1.0
4.0	OCP	**Excessive voltage**			9.5 – 15.5	23 ⇒ 1.0
5.0	EIS	**Interval Wipe** **Activation of electronic ignition switch control module (N73) by combination switch (S4).**		Ignition: **ON** Set combination switch (S4) to: Interval wipe	 Interval	23 ⇒ 110.0
6.0	EIS	**Windshield wiper stage 1** **Activation of electronic ignition switch control module (N73) by combination switch (S4).**		Ignition: **ON** Set combination switch (S4) to: Wipe stage 1	 Stage 1	23 ⇒ 110.0

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test Actual Values

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
7.0	EIS	**Windshield wiper stage 2 Activation of electronic ignition switch control module (N73) by combination switch (S4).**		Ignition: **ON** Set combination switch (S4) to: Wipe stage 2	 Stage 2	23 ⇒ 110.0
8.0	EIS	**Windshield wiper wash Activation of electronic ignition switch control module (N73) by combination switch (S4).**		Ignition: **ON** Set combination switch (S4) to wash Wash **ON**: Wash **OFF**:	 YES NO	23 ⇒ 111.0
9.0	SAM	**Activation of: Wiper stage 1 relay (K40/2k1) by signal pick-up and activation module (SAM) (N10/1)**		Ignition: **ON** HHT: Activation Menu Press button F2:	 Stage 1 Wiper motor runs.	23 ⇒ 106.0, 107.0
10.0	SAM	**Activation of: Wiper stage 2 relay (K40/2k2) by signal pick-up and activation module (SAM) (N10/1)**		Ignition: **ON** HHT: Activation Menu Press button F2:	 Stage 2 Wiper motor runs.	23 ⇒ 107.0, 108.0

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test Actual Values

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
11.0	SAM	**Activation of: Washer stage 1 relay (K40/2k3)** by signal pick-up and activation module (SAM) (N10/1)		Ignition: **ON** HHT: Activation Menu Press button F2:	ON OFF Washer pump runs.	23 ⇒ 109.0
12.0	SAM	**Tailgate window wiper switch (S6/1s4)** (Model 210 wagon only)		Ignition: **ON** Switch (S6/1s4): Press **"wipe"** : Not pressed:	 ON OFF	23 ⇒ 116.0
13.0	SAM	**Tailgate window wiper switch (S6/1s4)** (Model 210 wagon only)		Ignition: **ON** Switch (S6/1s4): Press **"wash"** : Not pressed:	 ON OFF	23 ⇒ 116.0
14.0	PSE	**Rear window wiper motor (M6/4)** (Model 210 wagon only)		Ignition: **ON** HHT: Activation Menu Press button F2: Press button F3	ON OFF Rear window wiper motor runs.	23 ⇒ 115.0

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test Actual Values

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
15.0	SAM	**Activation of: Windshield washer relay (K40/2k3) by signal pick-up and activation module (SAM) (N10/1)** (Model 210 wagon: washer pump M5/1)		Ignition: **ON** HHT: Activation Menu Press button F2:	ON OFF Washer pump runs.	23 ⇒ 117.0
16.0	SAM	**Headlamp cleaning system (HCS) Activation of: Signal pick-up and activation module (SAM) (N10/1) by HCS switch (S4/1)**		Ignition: **ON** HCS switch (S4/1): **ON:**	ON OFF	23 ⇒ 114.0
17.0	SAM	**Headlamp cleaning system (HCS) Activation of: HCS pump (K40/2k5) by Signal pick-up and activation module (SAM) (N10/1)**		Ignition: **ON** HCS switch (S4/1): Press **ON** :	ON OFF	23 ⇒ 120.0

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test Actual Values

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
18.0	SAM	**Headlamp washer pump (M5/2)**		Ignition: **ON** HHT: Activation Menu Press button F2:	ON OFF Washer pump runs.	23 ⇒ 120.0
19.0	OCP	**Rear dome lamp switch on/off (N70s2)** **Except Model 208.4**		Ignition: **ON** Switch (N70s2): Press **ON**:	√ 0	Roof control panel control module (N70)
20.0	OCP	**Door switch on/off (N70s3)**		Ignition: **ON** Switch (N70s3): Press **ON:**	ON OFF	(N70)
21.0	OCP	**Dome lamp switch on/off (N70s4)**		Ignition: **ON** Switch (N70s4): Press **ON:**	ON OFF	(N70)

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test Actual Values

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
22.0	OCP	**Work lamp switch (N70s5)** **Model 208.4 only:** **Work lamp switch (N70s6)** **Work lamp switch (N70s7)**		Ignition: **ON** Switch (N70s5): Press **ON:**	ON OFF	Roof control panel control module (N70)
23.0	OCP	**Activation of:** **Dome lamp**		Dome lamp switch on/off (N70s4): **OFF** HHT: Activation Menu Press button F2:	ON OFF	(N70)
24.0	OCP	**Activation of:** **Work lamp (n70s5)** **Model 208.4 only:** **Work lamp (N70s6)** **Work lamp (N70s7)**		Work lamp switch on/off (N70s5): **OFF** HHT: Activation Menu Press button F2:	ON OFF	(N70)
25.0	DCMI	**Activation of:** **Entrance/exit lamp (driver's side)**		HHT: Activation Menu Press button F2: Press button F3:	ON OFF	23 ⇒ 127.0, Front driver-side door control module (N69/1).

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test Actual Values

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
26.0	DCM2	**Activation of: Entrance/exit lamp (passenger- side)**		HHT: Activation Menu Press button F2: Press button F3:	 ON OFF	23 ⇒ 127.0, Front passenger-side door control module (N69/2).
27.0	DCM3	**Activation of: Entrance/exit lamp (left rear)**		HHT: Activation Menu Press button F2: Press button F3:	 ON OFF	23 ⇒ 128.0, Rear driver-side door control module (N69/3).
28.0	DCM4	**Activation of: Entrance/exit lamp (right rear)**		HHT: Activation Menu Press button F2: Press button F3:	 ON OFF	23 ⇒ 128.0, Rear passenger-side door control module (N69/4).
29.0	DCM1	**Entrance/exit lamp (driver's side)**		Ignition: **ON** Open driver's door: Close driver's door:	 ON OFF	23 ⇒ 127.0, DM, B&A, Vol. 1, 3.4 PSE 23 Front driver-side door control module (N69/l).
30.0	DCM2	**Entrance/exit lamp (passenger- side)**		Ignition: **ON** Open passenger-side door: Close passenger-side door:	 ON OFF	23 ⇒ 127.0, DM, B&A, Vol. 1, 3.4 PSE 23 Front passenger-side door control module (N69/2).

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test Actual Values

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
31.0	DCM3	**Entrance/exit lamp (left rear)**		Ignition: **ON** Open left rear door: Close left rear door:	 ON OFF	23 ⇒ 128.0, DM, B&A, Vol. 1, 3.4 PSE 23 Rear driver-side door control module (N69/3).
32.0	DCM4	**Entrance/exit lamp (right rear)**		Ignition: **ON** Open right rear door: Close right rear door:	 ON OFF	23 ⇒ 128.0, DM, B&A, Vol. 1, 3.4 PSE 23 Rear passenger-side door control module (N69/4).
33.0	DCP	**Activation of:** **Signal tone N70h1)** **Model 208.4 only**		Ignition: **ON** HHT: Activation Menu Press button F2: Press button F3:	 ON OFF	Roof control panel control module (N70)
34.0	SAM	**Heated rear window switch (in N22)**		Heated rear window switch: Press on: Press OFF:	 ON OFF	23 ⇒ 121.0

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test Actual Values

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
34.0	PSE	**Heated rear window relay located in PSE control module (A37)**		Ignition: **ON** HHT: Activation Menu Press button F2: Press button F3:	ON OFF Relay in PSE can be heard switching audibly.	
35.0		**Activation of:** **LED in heated rear window switch (located in N22)**		Ignition: **ON** HHT: activation menu Press button F2: Press button F3:	LED: ON OFF	Wiring, Signal pick-up and activation module (SAM) (N10/1), A/C pushbutton control module (Automatic A/C) (N22).
36.0	E15	**CAN low**			√ F	23
37.0	E15	**CAN high**			√ F	23

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test Actual Values

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
38.0	EIS	**Electronic ignition switch (N73) coded**			YES NO	Necessary to code N73
39.0	EIS	**PSE control module (A37) coded**			YES NO	Necessary to code A37
40.0	EIS	**Signal pick-up and activation module (SAM) (N10/1) coded**			YES NO	Necessary to code N10/1
41.0	EIS	**Lower control field control module (N72) coded**			YES NO	Necessary to code N72
42.0	EIS	**Roof control panel control module (N70) coded**			YES NO	Necessary to code N70
43.0	EIS	**Front driver-side door control module (N69/l) coded**			YES NO	Necessary to code N69/1
44.0	EIS	**Front passenger-side door control module (N69/2) coded**			YES NO	Necessary to code N69/2

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test Actual Values

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
45.0	E15	**Rear driver-side door control module (N69/3) coded**			YES NO	Necessary to code N69/3
46.0	E15	**Rear passenger-side door control module (N69/4) coded**			YES NO	Necessary to code N69/4
47.0	E15	**Left front ESA control module (N32/1) (with memory)**			YES NO	Necessary to code N32/1
48.0	E15	**Right front ESA control module (N32/2) (with memory)**			YES NO	Necessary to code N32/2
49.0	E15	***Non-USA vehicles only***				
50.0	E15	**Roll bar/power soft top control module (N52)**				Necessary to code N52

[1] Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy [1]
No. 1 **Windshield wiper system** does not function	Voltage supply circuit 15R, 31 Combination switch (S4) Wiper stage 1 relay (K40/2k1) Wiper stage 2 relay (K40/2k2) Electronic ignition switch control module (N73) Signal pick-up and activation module (SAM) (N10/1) Driver-side fuse and relay module box (K40/2)	23 ⇒ 96.0 – 110.0
No. 2 Windshield wiper does not function when **wash function** is selected	Voltage supply circuit 15R, 31 Combination switch (S4) Electronic ignition switch control module (N73) Signal pick-up and activation module (SAM) (N10/1)	23 ⇒ 96.0 – 100.0, 102.0, 109.0, 111.0
No. 3 Windshield wiper system does not function when **interval** function is selected.	Voltage supply circuit 15R, 31 Electronic ignition switch control module (N73) Signal pick-up and activation module (SAM) (N10/1) Windshield washer relay (K40/2k3) Driver-side fuse and relay module box (K40/2)	23 ⇒ 96.0 – 100.0, 102.0, 106.0, 110.0
No. 4 Windshield wiper system **Stage 1** does not function	Voltage supply circuit 15R, 31 Combination switch (S4) Electronic ignition switch control module (N73) Signal pick-up and activation module (SAM) (N10/1) Wiper stage 1 relay (K40/2k1) Driver-side fuse and relay module box (K40/2)	23 ⇒ 96.0 – 100.0, 102.0, 107.0, 110.0

[1] Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy [1]
No. 5 Windshield wiper system **Stage 2** does not function	Voltage supply circuit 15R, 31 Combination switch (S4) Electronic ignition switch control module (N73) Signal pick-up and activation module (SAM) (N10/1) Wiper stage 2 relay (K40/2k2) Driver-side fuse and relay module box (K40/2)	23 ⇒ 96.0 – 100.0, 103.0, 107.0, 110.0
No. 6 Windshield wiper system with ignition ON, can not be turned OFF	Wiper motor (M6/1) Signal pick-up and activation module (SAM) (N10/1) Driver-side fuse and relay module box (K40/2)	23 ⇒ 101.0
No. 7 **Rain sensor (B38)** does not function	Roof control panel control module (N70) Electronic ignition switch control module (N73) Signal pick-up and activation module (SAM) (N10/1) Wiper stage 1 relay (K40/2k1) Driver-side fuse and relay module box (K40/2)	23 ⇒ 112.0 – 114.0
No. 8 **Rear window wiper/washer** system does not function when selected (Model 210 wagon only)	Voltage supply circuit 15R, 31 Rain sensor (B38) Tailgate window wiper switch (S6/1s4) Rear window wiper motor (M6/4) Signal pick-up and activation module (SAM) (N10/1) PSE control module (A37)	23 ⇒ 115.0, 118.0

[1] Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy [1]
No. 9 **Rear window wash** does not function when selected (Model 210 wagon only)	Voltage supply circuit 15R, 31 Tailgate window wiper switch (S6/1s4) Signal pick-up and activation module (SAM) (N10/1) Washer pump (M5/1)	23 ⇒ 100.0, 104.0, 116.0 – 118.0
No. 10 **Headlamp cleaning system (HCS)** does not function when selected	Voltage supply circuit 15R, 31 HCS switch (S4/1) Signal pick-up and activation module (SAM) (N10/1) Headlamp washer pump (M5/2)	23 ⇒ 100.0, 105.0, 119.0 – 121.0
No. 11 ***Non-USA vehicles only,*** ***continue to next test step.***		
No. 12 **Dome lamp** with delay/front reading lamp (N70e1) does not function	Door contact switches (S17/3, S17/4, S17/5, S17/6) Roof control panel control module (N70) PSE control module (A37)	23 ⇒ 122.0, DM, B&A, Vol. 1, 3.4 PSE 23
No. 13 **Dome lamp** with delay/front reading lamp (N70e1) does not go out after approx. 5 minutes.	Door contact switches (S17/3, S17/4, S17/5, S17/6) Roof control panel control module (N70) PSE control module (A37)	DM, B&A, Vol. 1, 3.4 PSE 23
No. 14 **Left/right/front/rear entrance/exit lamps (E17/5, E17/6, E17/9, E17/10)** do not illuminate	Door contact switches (S17/3, S17/4, S17/5, S17/6) Door control modules (N69/1, N69/2, N69/3, N69/4) Roof control panel control module (N70) PSE control module (A37)	23 ⇒ 127.0, 128.0 DM, B&A, Vol. 1, 3.4 PSE 23

[1] Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy [1]
No. 15 **Left/right/front/rear entrance/exit lamps (E17/5, E17/6, E17/9, E17/10)** do not go out after approx. 5 minutes	Door contact switches (S17/3, S17/4, S17/5, S17/6) Roof control panel control module (N70) PSE control module (A37)	DM, B&A, Vol. 1, 3.4 PSE 23
No. 16 **Left and right vanity mirror (E14/5)** does not function	Roof control panel control module (N70)	23 ⇒ 131.0
No. 17 **Rear dome lamp (E15/3)** does not function	Door contact switches (S17/3, S17/4, S17/5, S17/6) Rear dome lamp (E15/3) Roof control panel control module (N70) PSE control module (A37)	23 ⇒ 123.0, 124.0, DM, B&A, Vol. 1, 3.4 PSE 23
No. 18 **Rear dome lamp (E15/3)** does not go out after approx. 5 minutes	Door contact switches (S17/3, S17/4, S17/5, S17/6) Rear dome lamp (E15/3) Roof control panel control module (N70) PSE control module (A37)	DM, B&A, Vol. 1, 3.4 PSE 23

[1] Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy [1]
No. 19 **Heated rear window** does not function	Heated rear window switch (located in N22) Signal pick-up and activation module (SAM) (N10/1) PSE control module (A37)	23 ⇒ 132.0, 133.0
Model 208.4 only:	Soft top is not completely closed or a fault is stored in the Roll bar/power soft top control module (N52).	Close and lock soft top; Check Roll bar/power soft top control module (N52) for DTC's.
No. 20 **LED in heated rear window** does not illuminate	Heated rear window switch (located in N22) Signal pick-up and activation module (SAM) (N10/1)	23 ⇒ 27.0
No. 21 **Heated rear window** does not shut-off after approx. 12 minutes	Signal pick-up and activation module (SAM) (N10/1)	Replace N10/1

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Component Locations (NS)

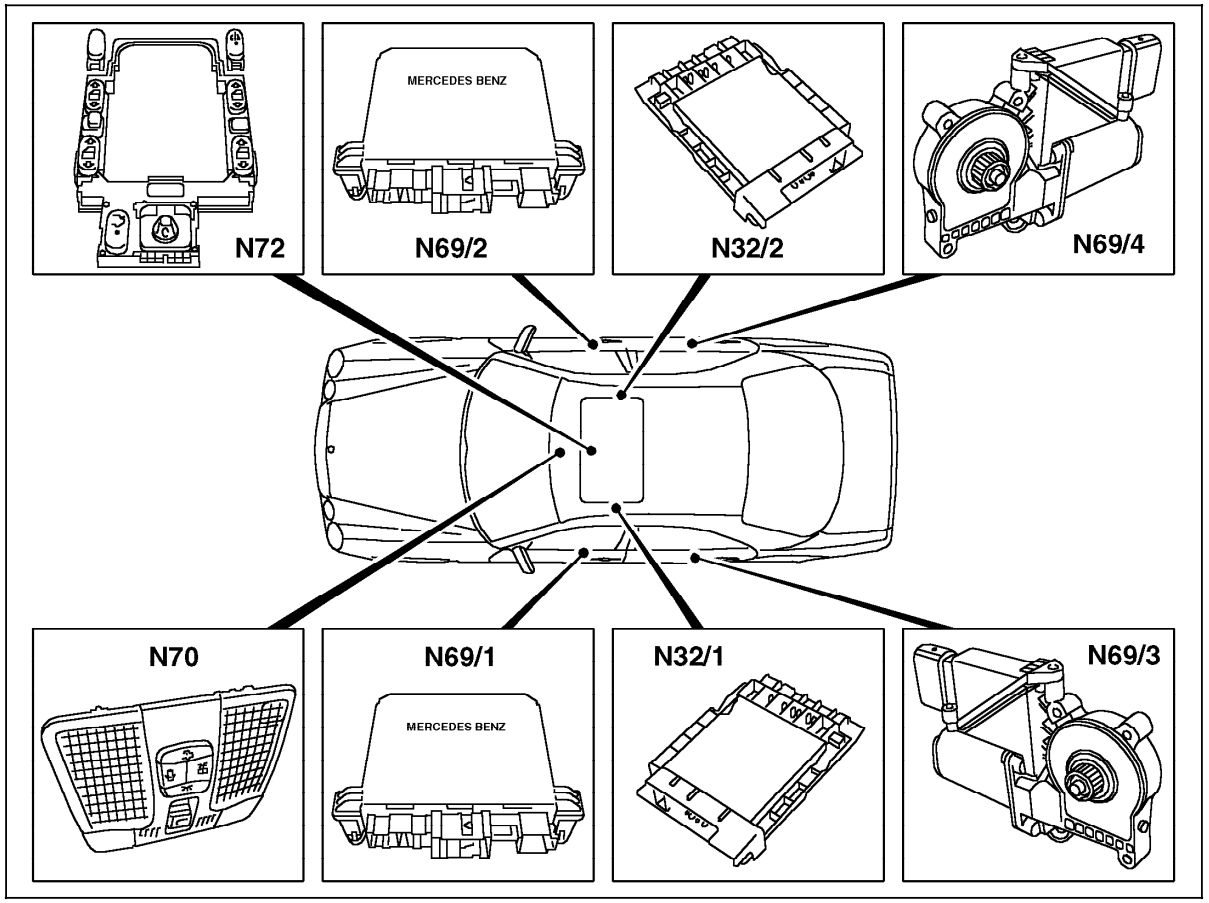
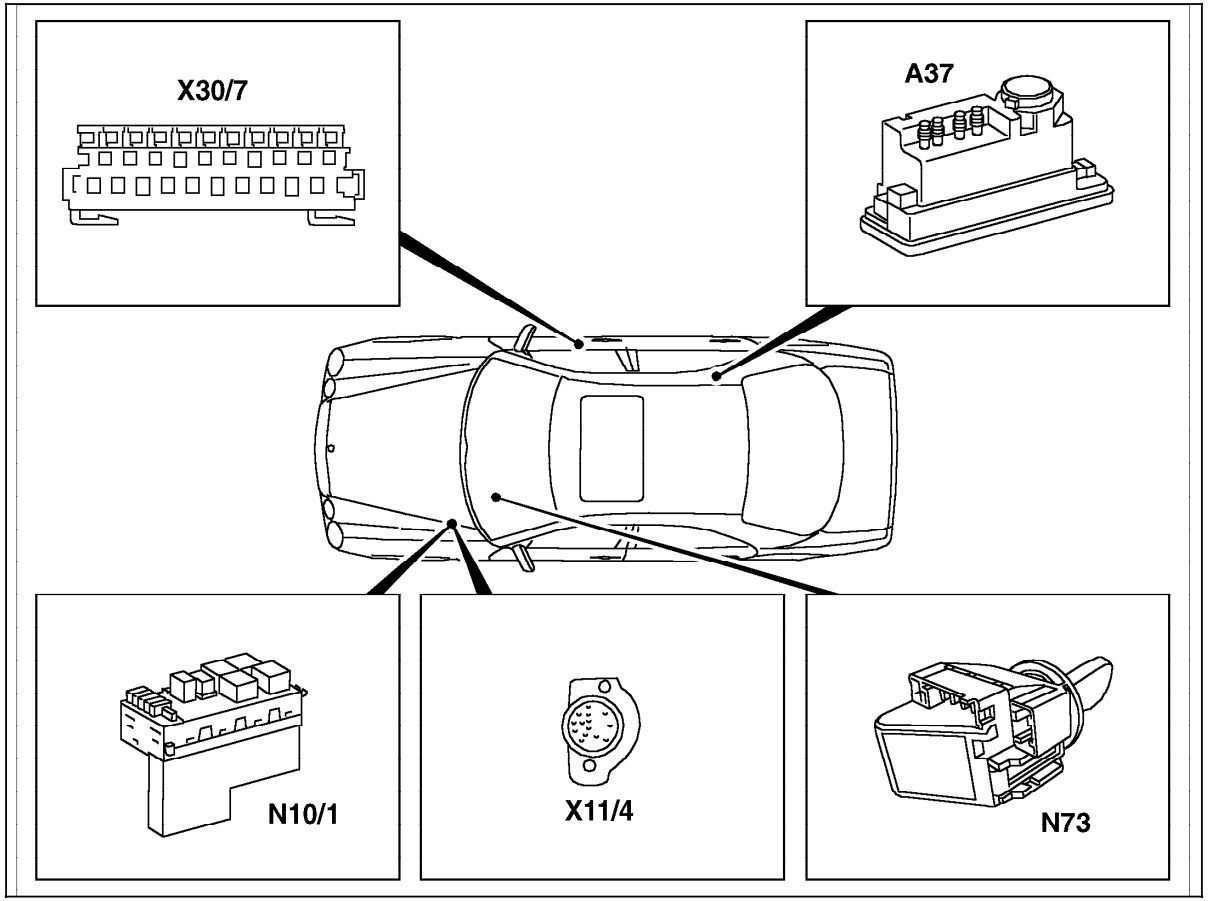


Figure 1

N32/1 Left front ESA control module (with memory)
N32/2 Right front ESA control module (with memory)
N69/1 Front driver-side door control module
N69/2 Front passenger-side door control module
N69/3 Rear driver-side door control module
N69/4 Rear passenger-side door control module
N70 Roof control panel control module
N72 Lower control field control module

Electrical Test Program – Component Locations (NS)



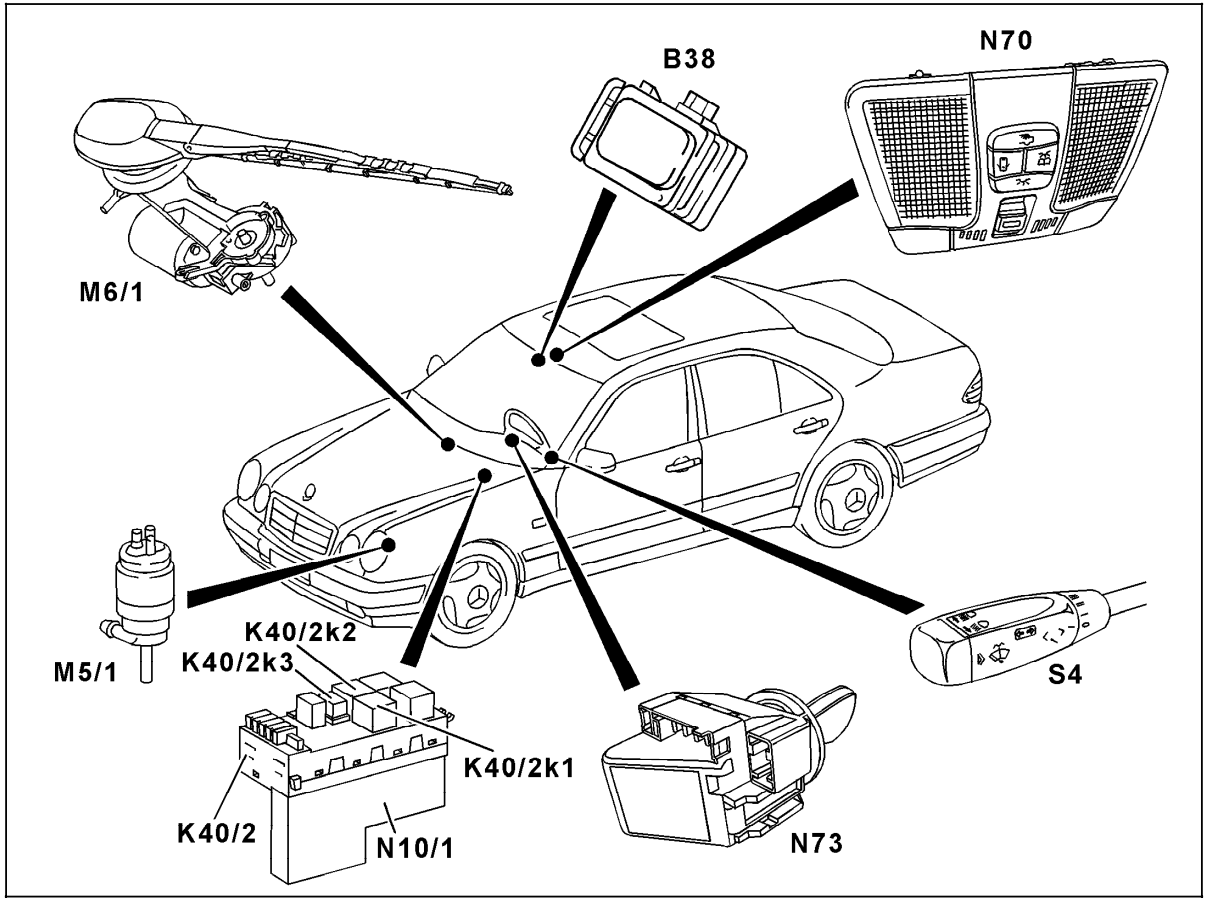
P54.21-0238-06

Figure 2

A37 PSE control module
N10/1 Signal pick-up and activation module (SAM) left front
N73 Electronic ignition lock control module
X11/4 Data link connector (DTC readout)
X30/7 Star point coupler databus (CAN) tie-in connector

Electrical Test Program – Component Locations (NS)

Front Windshield Wiper System
(Model 210 shown)



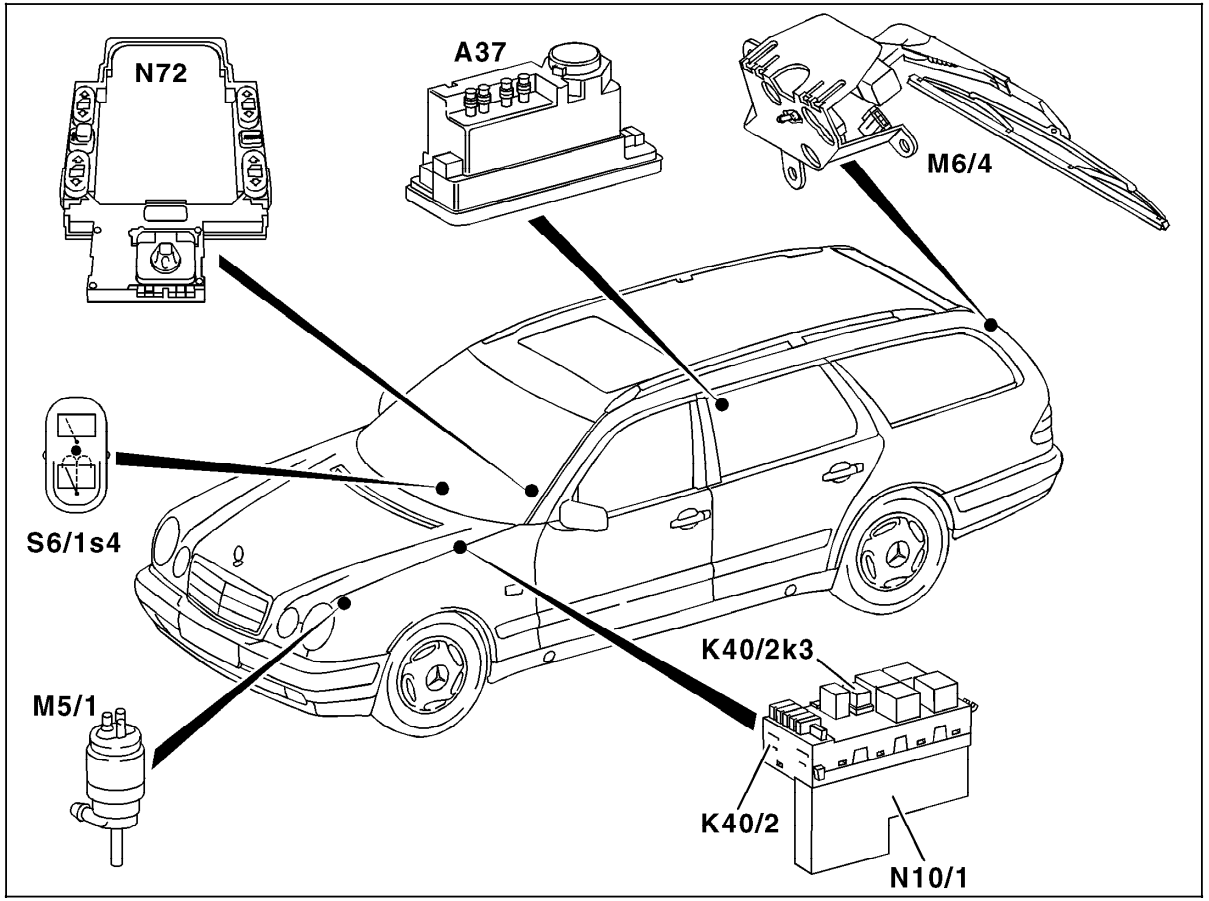
P82.30-0299-06

Figure 3

B38	Rain sensor
K40/2	Driver-side fuse and relay module box
K40/2k1	Wiper stage 1 relay
K40/2k2	Wiper stage 2 relay
K40/2k3	Windshield washer relay
M5/1	Windshield washer pump
M6/1	Wiper motor
N10/1	Signal pick-up and activation module (SAM) left front
N73	Electronic ignition lock control module
S4	Combination switch

Electrical Test Program – Component Locations (NS)

Rear Window Wiper/Washer System
(Model 210 wagon shown)



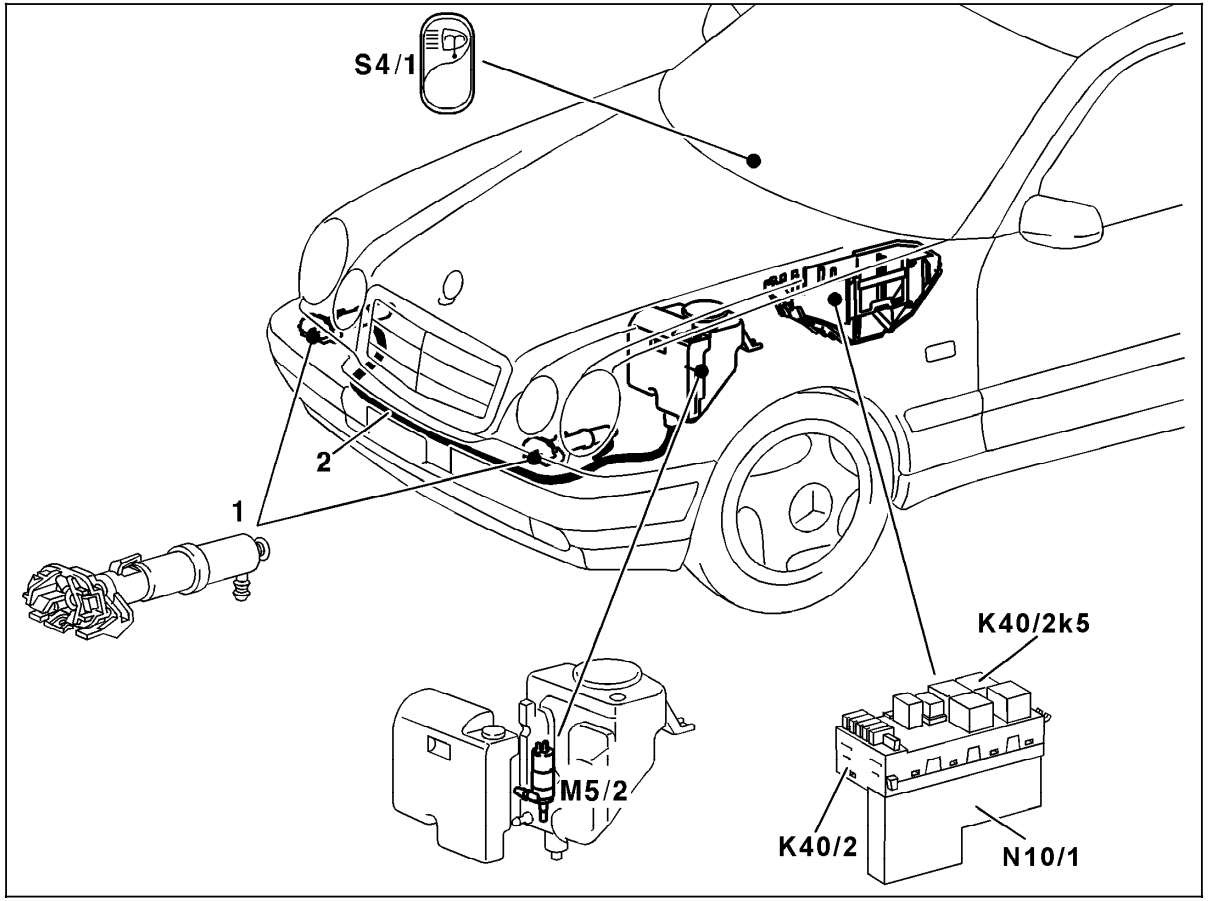
P82.30-0308-06

Figure 4

A37	PSE control module
K40/2	Driver-side fuse and relay module box
K40/2k3	Windshield washer relay
M5/1	Windshield washer pump
M6/4	Rear window wiper motor
N10/1	Signal pick-up and activation module (SAM) left front
N72	Lower control field control module
S6/1s4	Tailgate window wiper switch

Electrical Test Program – Component Locations (NS)

Headlamp Cleaning System (HCS)
Models 208, 210
(Model 210 shown)



P82.15-0236-06

Figure 5

K40/2	Driver-side fuse and relay module box
K40/2k5	HCS pump relay
M5/2	Headlamp washer pump
N10/1	Signal pick-up and activation module (SAM) left front
S4/1	HCS switch
1	Telescoping nozzle
2	Washer fluid hose

Electrical Test Program – Component Locations (NS)

Headlamp Cleaning System (HCS)
Model 202

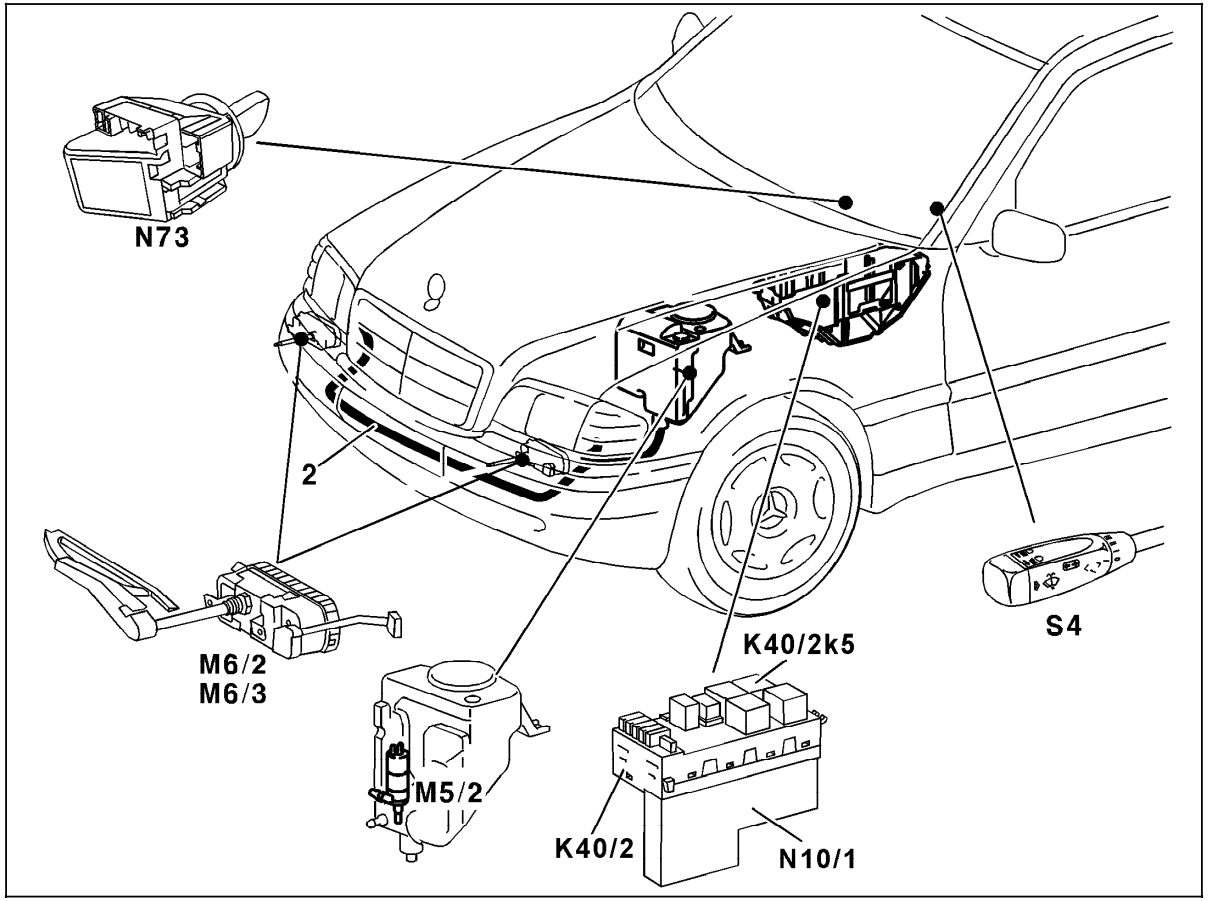


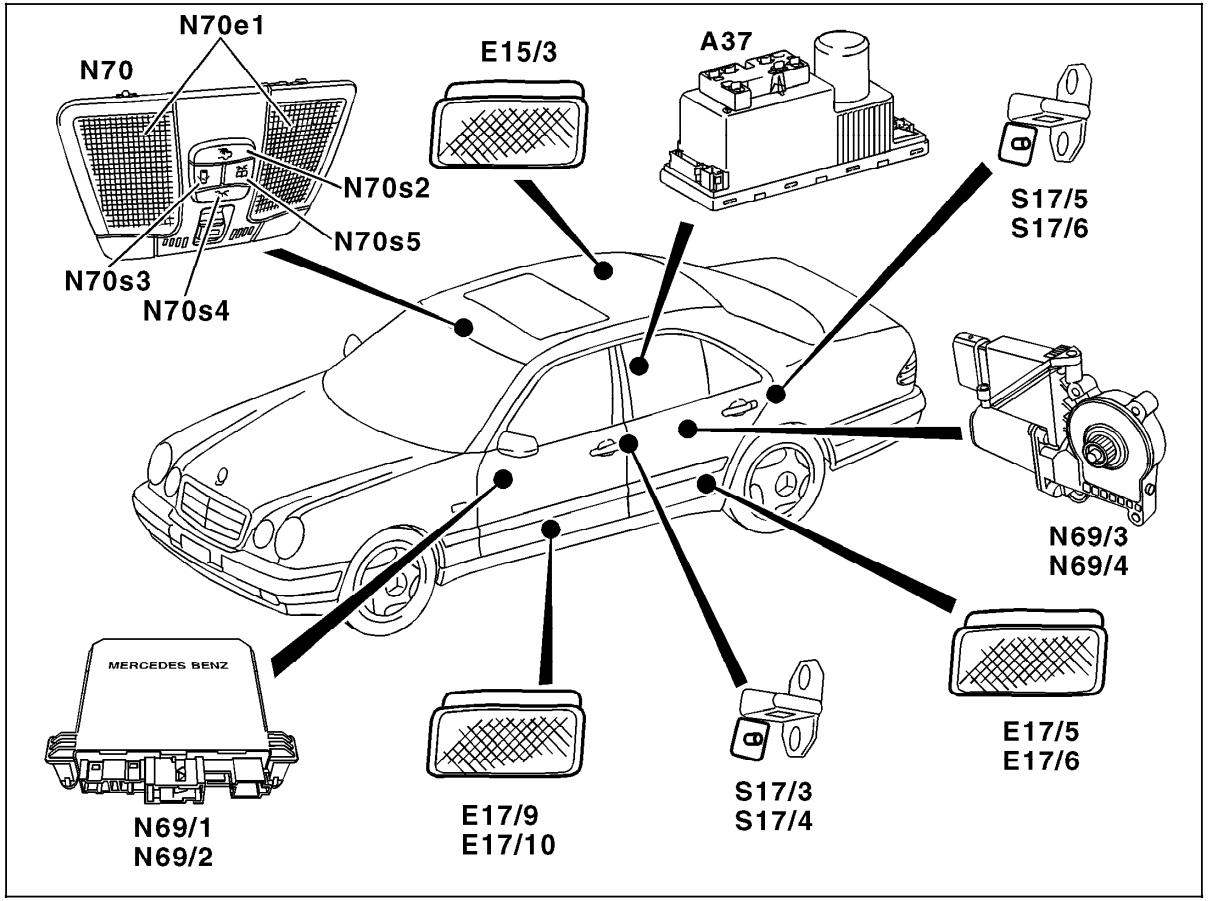
Figure 6

K40/2	Driver-side fuse and relay module box
K40/2k5	HCS pump relay
M5/2	Windshield washer pump
M6/2	Left headlamp wiper motor
M6/3	Right headlamp wiper motor
N10/1	Signal pick-up and activation module (SAM) left front
N73	Electronic ignition lock control module
S4	Combination switch

P82.15-0238-06

Electrical Test Program – Component Locations (NS)

Interior Lighting
Models 202, 210 Sedan, C208
(Model 210 sedan shown)



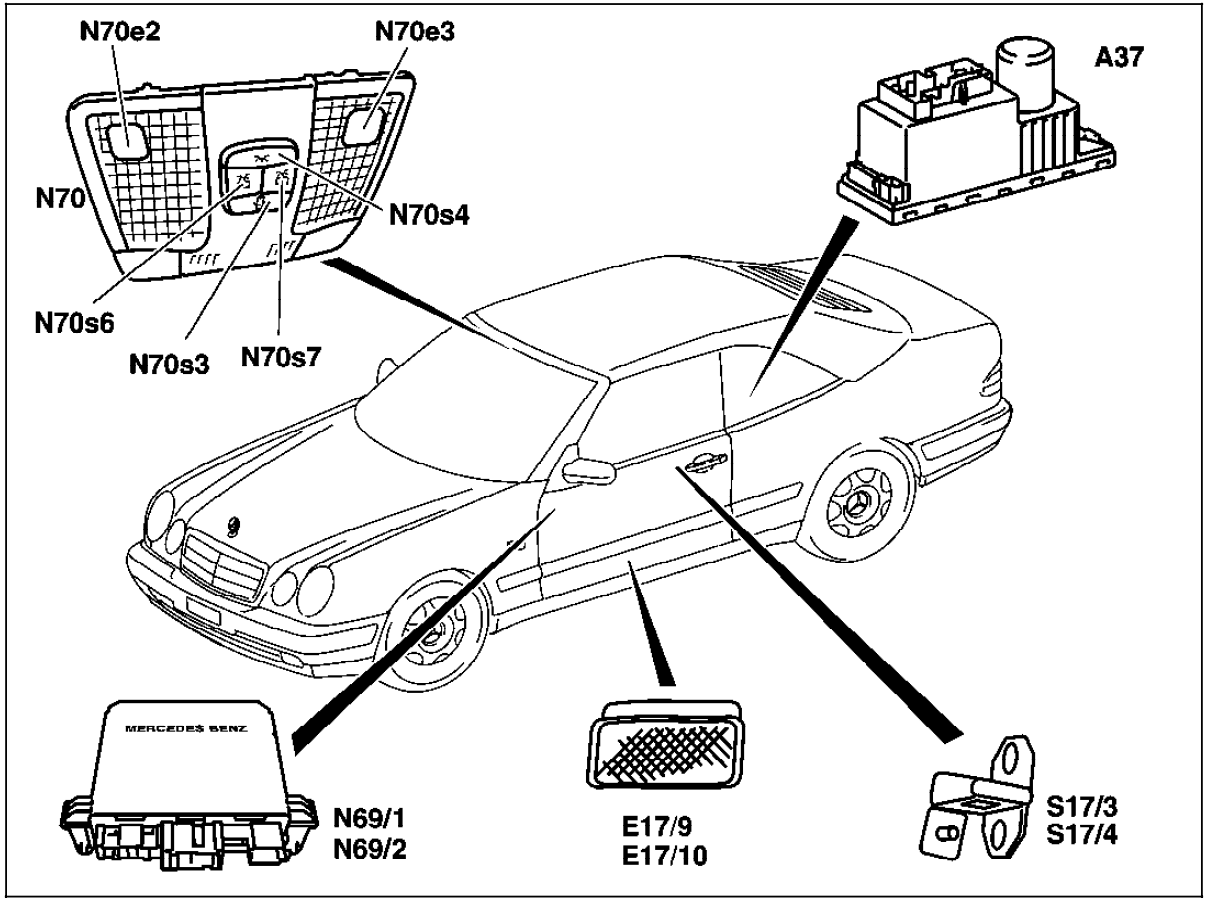
P82.20-0276-06

Figure 7

A37	PSE control module
E15/3	Rear dome lamp
E17/5	Left rear door entrance/exit lamp
E17/6	Right rear door entrance/exit lamp
E17/9	Left front door entrance/exit lamp
E17/10	Right front door entrance/exit lamp
N69/1	Front driver-side door control module
N69/2	Front passenger-side door control module
N69/3	Rear driver-side door control module
N69/4	Rear passenger-side door control module
N70	Roof control panel control module
N70e1	Dome lamp with delay/front reading lamp
N70s2	Rear dome lamp switch on/off
N70s3	Door switch on/off
N70s4	Dome lamp switch on/off
N70s5	Work lamp switch on/off
S17/3	Left front door switch
S17/4	Right front door switch
S17/5	Left rear door switch
S17/6	Right rear door switch

Electrical Test Program – Component Locations (NS)

Interior Lighting
Model 208.4



P82.20-2008-06

Figure 8

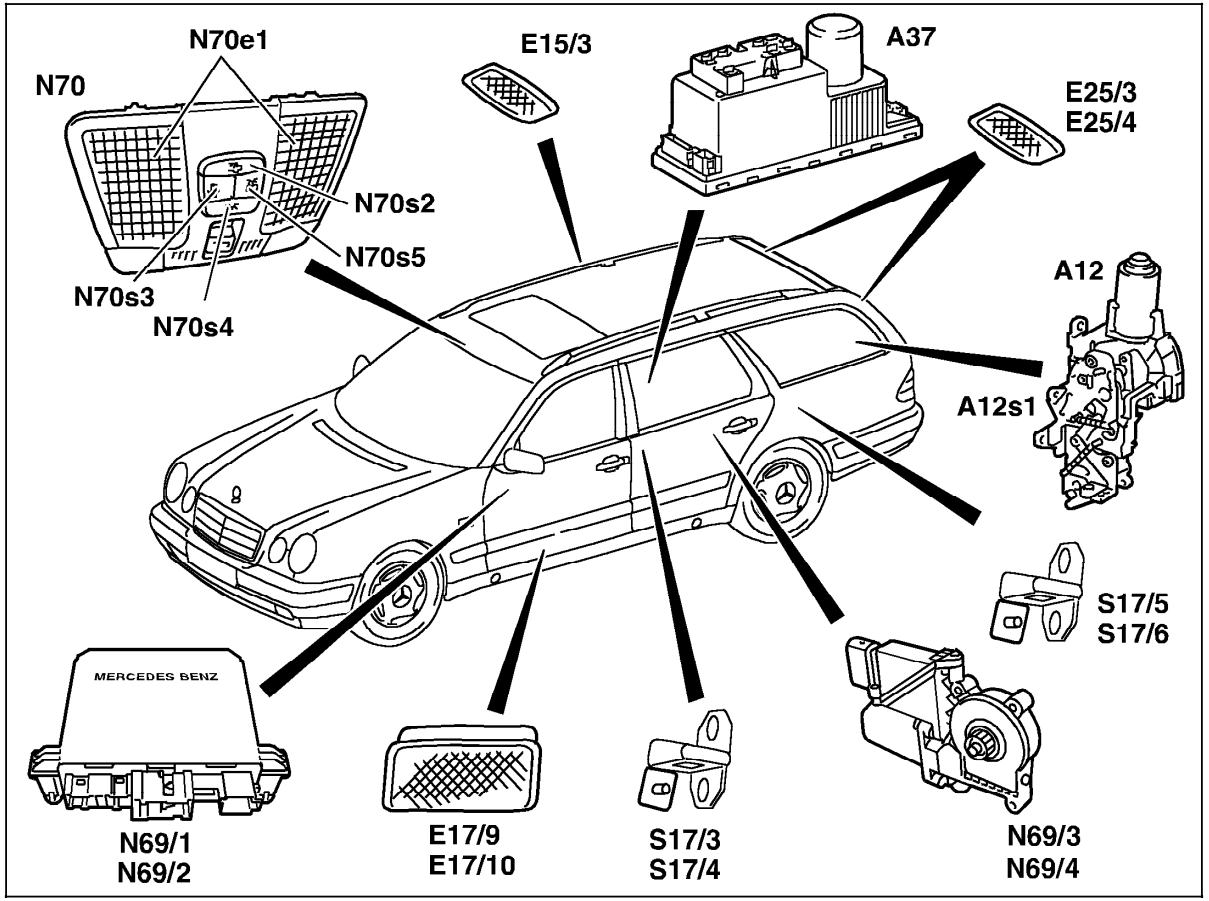
A37	PSE control module
E17/9	Left front door entrance/exit lamp
E17/10	Right front door entrance/exit lamp
N69/1	Front driver-side door control module
N69/2	Front passenger-side door control module
N70	Roof control panel control module
N70e2	Dome lamp with delay/front left reading lamp
N70e3	Dome lamp with delay/front right reading lamp
N70s3	Door switch on/of
N70s4	Dome lamp switch on/off
N70s6	Dome lamp switch left front
N70s7	Dome lamp switch right front
S17/3	Left front door switch
S17/4	Right front door switch

Electrical Test Program – Component Locations (NS)

Interior Lighting
Model 210 Wagon shown

Figure 9

A12	Tailgate closing assist
A12s1	Tailgate closing assist switch/interior illlumination switch
A37	PSE control module
E15/3	Rear dome lamp
E17/5	Left rear door entrance/exit lamp
E17/6	Right rear door entrance/exit lamp
E17/9	Left front door entrance/exit lamp
E17/10	Right front door entrance/exit lamp
E25/3	Left D-pillar interior lamp
E25/4	Right D-pillar interior lamp
N69/1	Front driver-side door control module
N69/2	Front passenger-side door control module
N69/3	Rear driver-side door control module
N69/4	Rear passenger-side door control module
N70	Roof control panel control module
N70e1	Dome lamp with delay/front reading lamp
N70s2	Rear dome lamp switch on/off
N70s3	Door switch on/off
N70s4	Dome lamp switch on/off
N70s5	Work lamp switch on/off
S17/3	Left front door switch
S17/4	Right front door switch
S17/5	Left rear door switch
S17/6	Right rear door switch



P82.20-0316-06

Electrical Test Program – Component Locations (NS)

Heated rear window
Model 210 Sedan shown

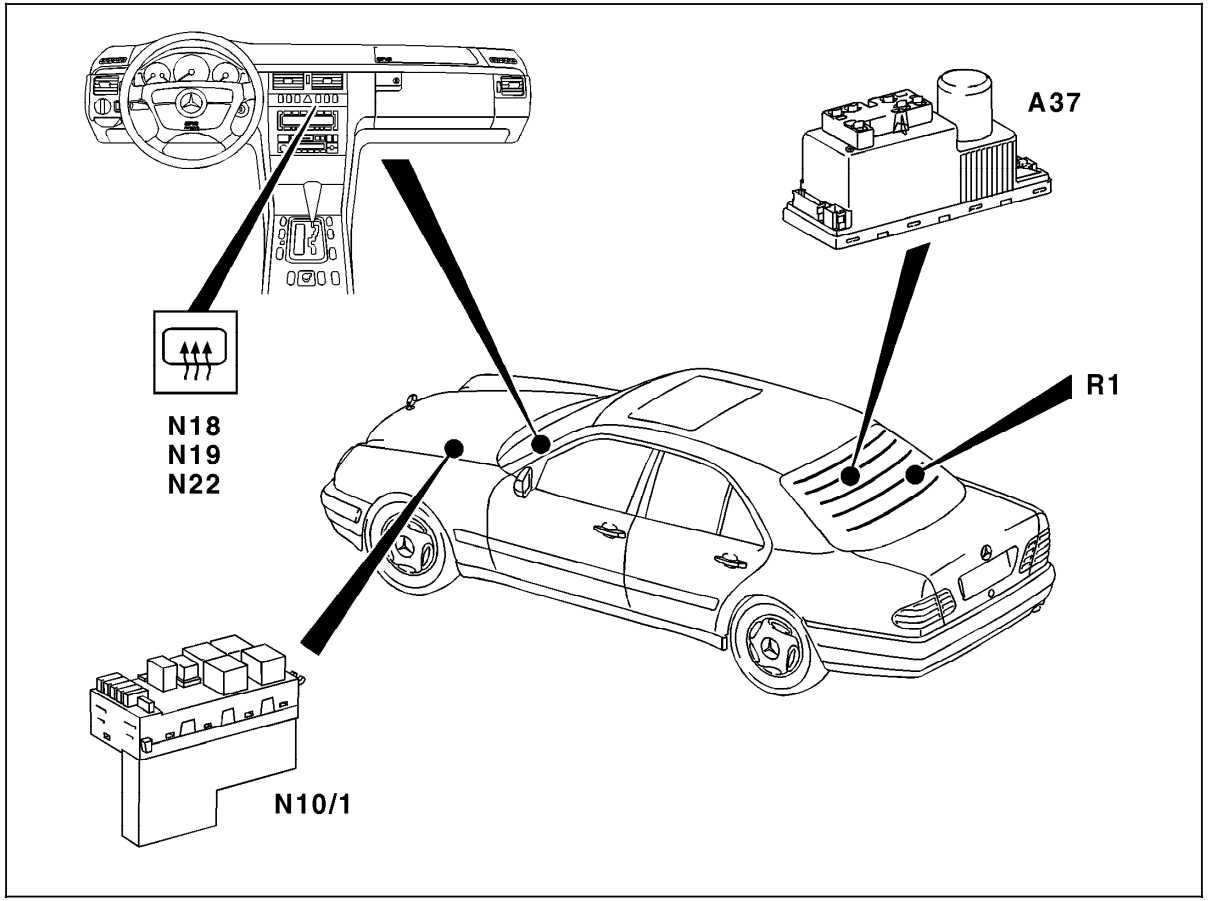


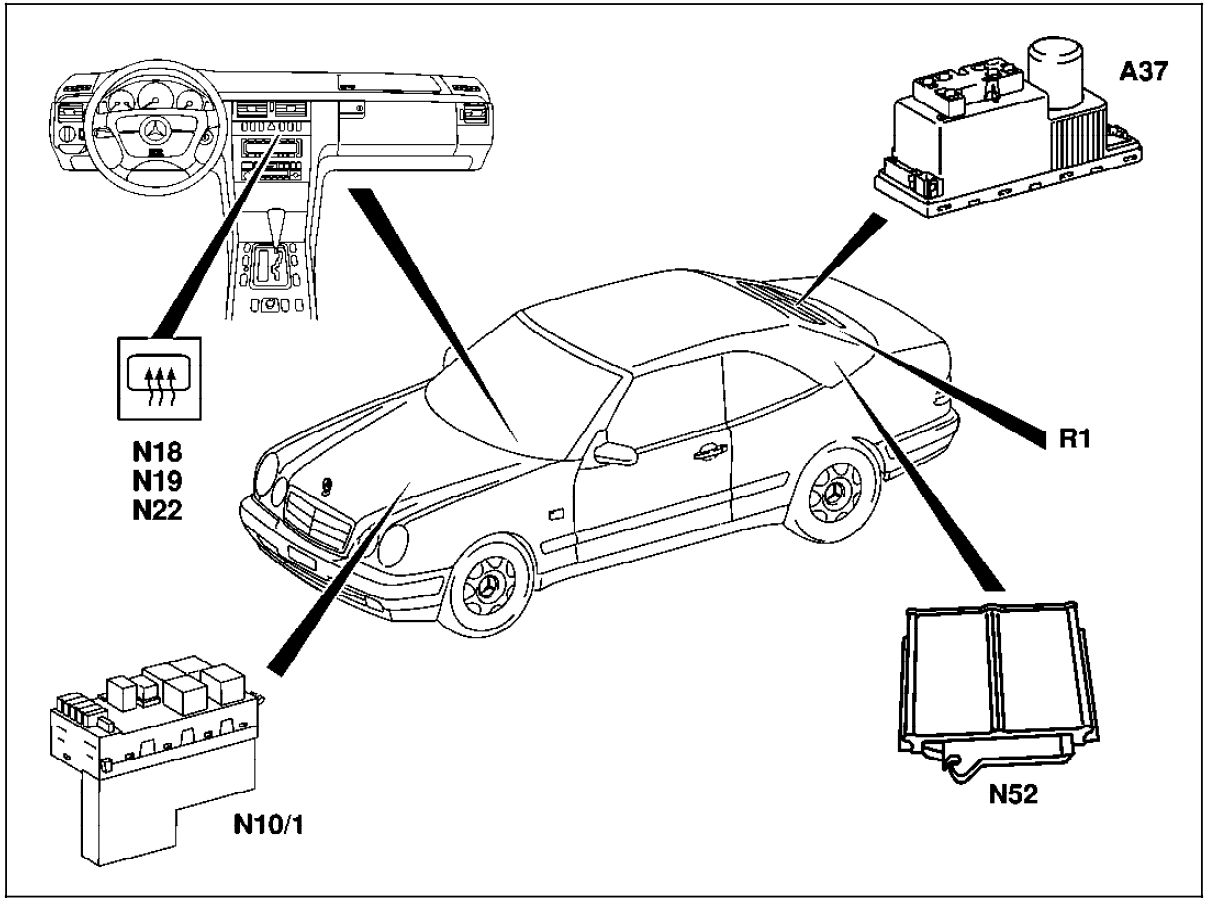
Figure 9

A37	PSE control module
N10/1	Signal pick-up and activation module
N22	A/C pushbutton control module (Automatic A/C)
R1	Heated rear window

P67.29-0210-06

Electrical Test Program – Component Locations (NS)

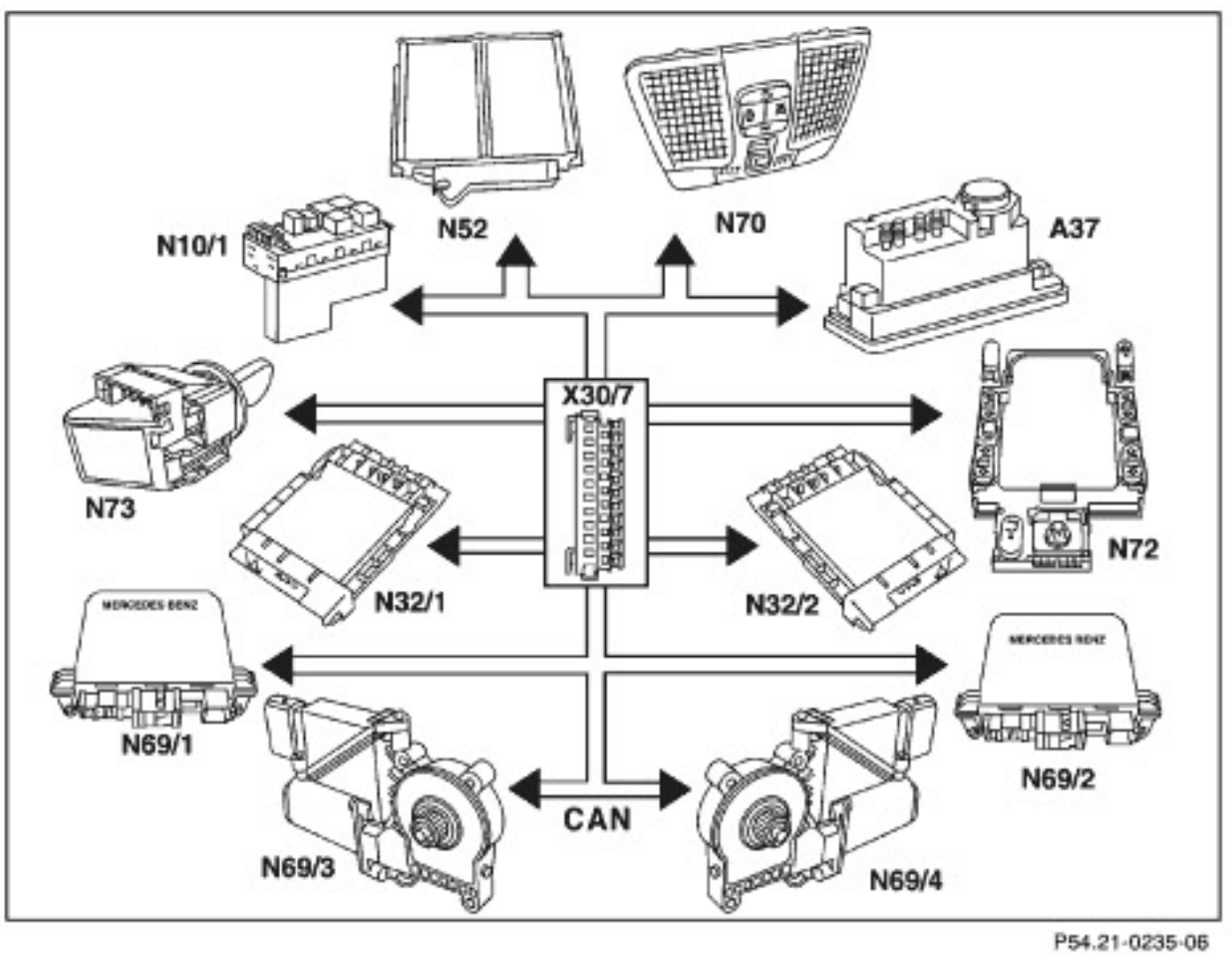
Heated rear window
Model 208.4 shown



P67.29-2003-06

Figure 10

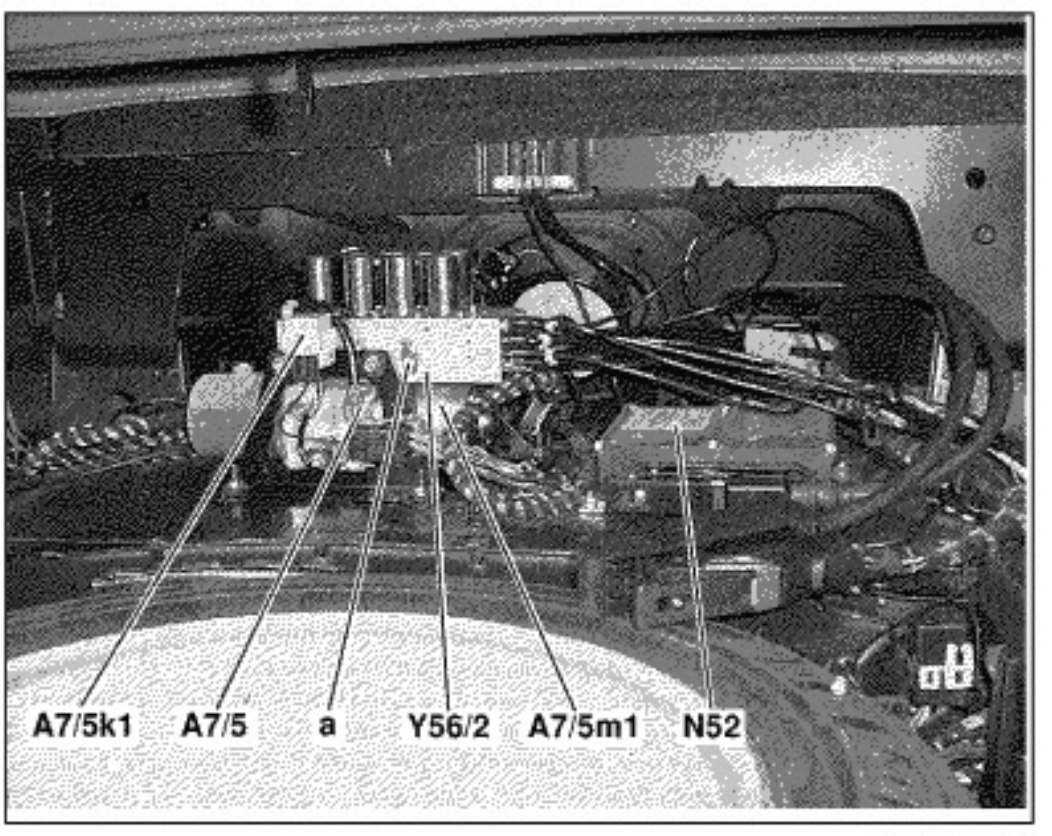
A37	PSE control module
N10/1	Signal pick-up and activation module
N18	Heat pushbutton control module
N19	Air conditioning pushbutton control module
N22	A/C pushbutton control module (Automatic A/C)
N52	Roll bar/power soft top control module
R1	Heated rear window



P54.21-0235-06

Figure 1

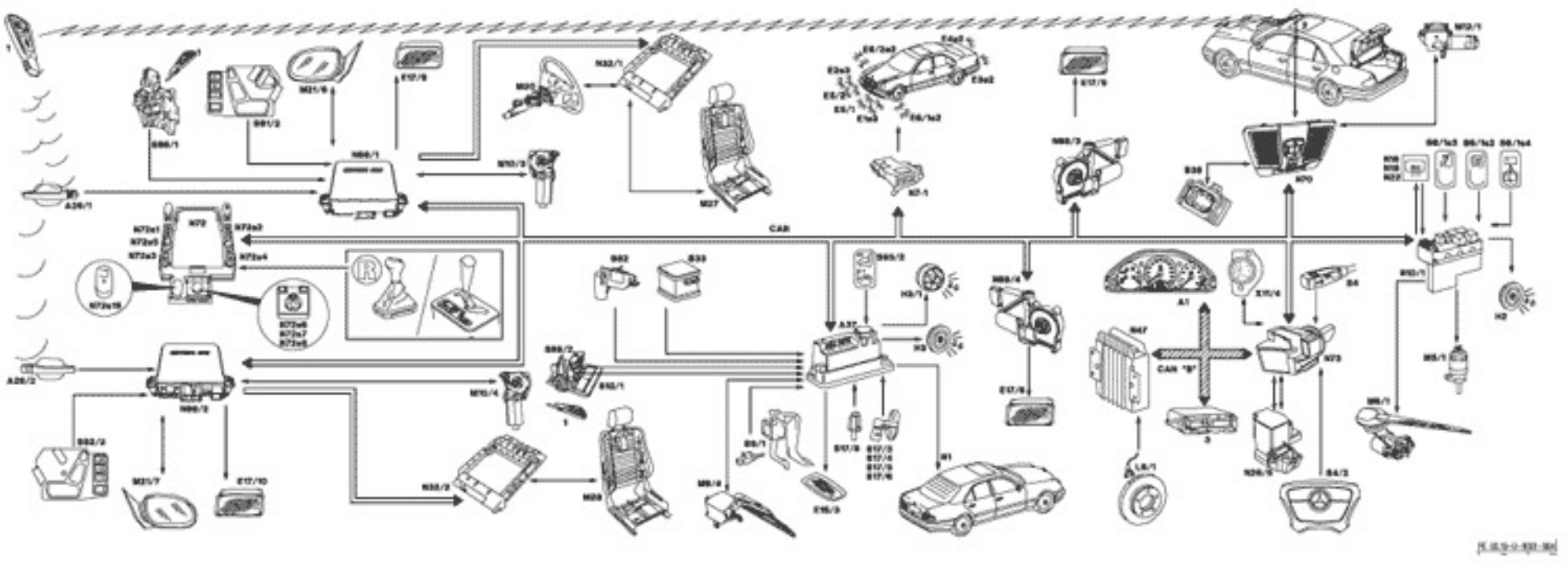
A37	PSE control module
CAN	Control Area Network
N10/1	Signal pick-up and activation module (SAM) left front
N32/1	Left front ESA control module (with memory)
N32/2	Right front ESA control module (with memory)
N69/1	Front driver-side door control module
N69/2	Front passenger-side door control module
N69/3	Rear driver-side door control module
N69/4	Rear passenger-side door control module
N70	Roof control panel control module
N72	Lower control field control module
N73	Electronic ignition lock control module
X30/7	Star point coupler databus (CAN) tie-in connector



P77.37-2007-11

Figure 2

A37	PSE control module
A7/5	Roll bar hydraulic unit (power soft top)
A7/5k1	Hydraulic unit relay
A7/5m1	Motor
N52	Roll bar/power soft top control module
Y56/2	Soft top control valve block (7 connections)
a	Maunually switchable check valve for emergency operation of soft top



A1	Instrument cluster	24G
A26/1	Left front door IR receiver unit	2E
A26/2	Right front door IR receiver	1H
A37	PSE control module	18G
B33	ATA tow sensor	15F
B38	Rain sensor	25D
CAN	Controller Area Network	16E
CAN "B"	Controller Area Network "B"	24H
E1e3	Marker lamp	18C
E2e3	Marker lamp	17B
E3e2	Tail/parking lamp	20B
E4e2	Tail/parking lamp	20A
E5/1	Left fog lamp	17C
E5/2	Right fog lamp	17B
E6/1e2	Side marker lamp	19C
E6/2e2	Side marker lamp	18A
E15/3	Rear dome lamp	17L
E17/5	Left rear entrance/exit lamp	22B
E17/6	Right rear entrance/exit lamp	21H
E17/9	Left front entrance/exit lamp	9B
E17/10	Right front entrance/exit lamp	5K

H2	Fanfare horns	31G
H3	Alarm horn	19G
H3/1	Alarm siren with auxiliary battery	19F
L6/1	Left front VSS	24K
M5/1	Windshield washer pump	29H
M6/1	Wiper motor	28J
M6/4	Rear window wiper motor	15K
M10/3	Left front power window motor	11D
M10/4	Right front power window motor	10H
M12/1	Sliding/pop-up roof	30A
M20	ESC motor	11B
M21/6	Left outside rearview mirror	7B
M21/7	Right outside rearview mirror	3K
M27	Left front ESA motor group (with memory)	15E
M28	Right front ESA motor group (with memory)	12K
N7-1	Lights control module	19D
N10/1	Signal pickup- and activation module (SAM) left front	29F
N18	Automatic heater pushbutton control module	29D
N19	Air conditioning pushbutton control module	29D
N22	A/C pushbutton control module	29D
N26/5	Electronic steering locking control module	26K

N32/1	Left front ESA control module (with memory)	13B
N32/2	Right front ESA control module (with memory)	9K
N47	Traction system control module	23G
N69/1	Front driver side door control module	8D
N69/2	Front passenger side door control module	4J
N69/3	Rear driver-side door control module	22C
N69/4	Rear passenger-side door control module	21F
N70	Roof control unit control module	27D
N72	Lower control field control module	5E
N72s1	Left front power window switch	3E
N72s2	Right front power window switch	5E
N72s3	Left rear power window switch	3F
N72s4	Right rear power window switch	6F
N72s5	Child safety lock switch	3E
N72s6	Outside mirror-vertical adjustment	6G
N72s7	Outside mirror-horizontal adjustment	6G
N72s8	Outside mirror-left/right	6G
N72s15	RTR switch	3G
N73	Electronic ignition-starter switch (EIS) control module	27H
R	Reverse gear	8F
R1	Rear window defroster element	20K

S4	Combination switch	28F
S4/2	Horn switch	27K
S6/1s2	Interior switch (CL)	30C
S6/1s3	RHR unlocking switch	29C
S6/1s4	Tailgate window wiper switch	31C
S9/1	Stop lamp switch (4-pole)	16J
S15/1	Trunk release switch	13H
S17/3	Left front door switch	18J
S17/4	Right front door switch	18K
S17/5	Left rear door switch	18K
S17/6	Right rear door switch	18K
S17/8	Trunk lamp switch	18J
S62	Engine hood switch (ATA)	13F
S85/2	ATA status/towing/interior protection switch	18F
S86/1	Left front door lock switch (CF)	4C
S88/2	Trunk lid lock switch (CF)	12G
S91/2	Left front door ESA switch group (with memory)	6C
S92/2	Right front door ESA switch group (with memory)	2J
X11/4	Diagnostic data link connector	26F
1	Keys	1A, 5A,12J
2	Antenna	27A
3	Engine control module	25J

Electrical Test Program - Preparation for Test

Preparation for Test:

1. Battery voltage > 11 V,
2. Fuses ok,
3. Disconnect the battery negative cable prior to disconnecting or connecting any of the connectors of the control modules, otherwise fault codes may be stored in error in the memory.
4. CAN data lines are ok, see 23

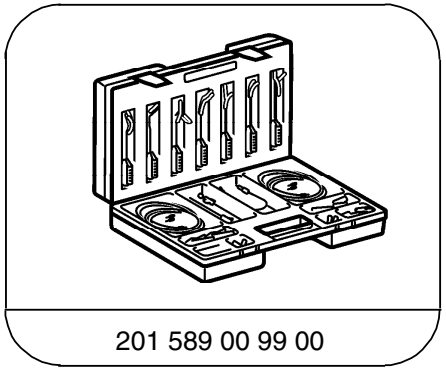
Electrical Wiring Diagrams:

See Electric Troubleshooting Manual: Model 202, Groups 00, 54, 67, 82
Model 208, Groups 00, 54, 67, 82
Model 210, Groups 00, 54, 67, 82

i

For test measuring purposes, the CAN connection to the following control modules must be connected:
PSE control module (A37)
Signal pickup-and activation module (SAM) (N10/1)

Special Tools



201 589 00 99 00

Electrical connecting set

Electrical Test Program - Preparation for Test

Conventional tools, test equipment

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

1) Available through the MBUSA Standard Equipment Program.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
1.0	**Electronic ignition switch control module (N73)** Voltage supply Circuit 30, 31	N73 3 (B) — V — 2 (A) N73 3 (B) — V — 3 (A)		11 – 14 V	Wiring.
2.0	**Electronic ignition switch control module (N73)** Voltage supply Circuit 15	N73 3 (B) — V — 1 (A)	Ignition: **ON**	11 – 14 V	Wiring.
3.0	**Electronic ignition switch control module (N73)** Voltage supply Circuit 15R	A37 3 (B) — V — 4 (A)	Ignition: **Position 1**	11 – 14 V	Wiring.
4.0	**Front driver/passenger-side door control module (N69/1, N69/2),** Voltage supply Circuit 30, 31	N69/1 N69/2 3 (1) — V — 1 (1)		11 – 14 V	Wiring.

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
5.0	**Rear driver/passenger-side door control module (N69/3, N69/4)** Voltage supply Circuit 30, 31	N69/3 N69/4 3 — (V) — 8		11 – 14 V	Wiring.
6.0	**Roof control panel control module (N70)** Voltage supply Circuit 30, 31	N70 1 (A) — (V) — 2 (A)		11 – 14 V	Wiring.
7.0	**Left/right front ESA control module (with memory) (N32/1, N32/2)** Voltage supply Circuit 30, 31	N32/1 N32/2 11 (1) — (V) — 2 (1) N32/1 N32/2 11 (1) — (V) — 3 (1)		11 – 14 V	Wiring.

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
8.0	**Signal pick-up and activation module (SAM) (N10/1)** Voltage supply Circuit 30, 31	N10/1 12 (6) — V — 13 (6)		11 – 14 V	Wiring.
9.0	**Lower control field control module (N72)** Voltage supply Circuit 30, 31	N72 6 (A) — V — 5 (A)		11 – 14 V	Wiring.
10.0	**PSE control module (A37)** Voltage supply Circuit 30, 31	A37 3 (2) — V — 4 (2)		11 – 14 V	Wiring.
11.0	***Non-USA vehicles only, continue to next test step.***				
12.0	**Data line CAN H** PSE control module (A37) –//– (open circuit)	X30/7 1 (10) — Ω — A37 8 (1)	Disconnect connector 1 of A37 and connector 10 of X30/7	<1 Ω	Wiring.

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
13.0	**Data line CAN H** PSE control module (A37) ⌜⌝– (short circuit to grnd)	⊥ Ω A37) 8 (1)	Disconnect connector 1 of A37 and connector 10 of X30/7	>20 kΩ	Wiring.
14.0	**Data line CAN H** PSE control module (A37) ⌜⌝+ (short circuit to pos.)	+ Ω A37) 8 (1)	Disconnect connector 1 of A37 and connector 10 of X30/7	>20 kΩ	Wiring.
15.0	**Data line CAN L** PSE control module (A37) –//– (open circuit)	X30/7 2 ((10) Ω A37) 9 (1)	Disconnect connector 1 of A37 and connector 10 of X30/7	<1 Ω	Wiring.
16.0	**Data line CAN L** PSE control module (A37) ⌜⌝– (short circuit to grnd)	⊥ Ω A37) 9 (1)	Disconnect connector 1 of A37 and connector 10 of X30/7	>20 kΩ	Wiring.
17.0	**Data line CAN L** PSE control module (A37) ⌜⌝+ (short to pos.)	+ Ω A37) 9 (1)	Disconnect connector 1 of A37 and connector 10 of X30/7	> 20 kΩ	Wiring.

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
18.0	**Data line CAN H/L** PSE control module (A37) ⌜⌝ (short circuit)	N69/1 8 (3) — Ω — 9 (1)	Disconnect connector 1 of N69/1 and connector 10 of X30/7	>20 kΩ	Wiring.
19.0	**Data line CAN H** Front driver-side door control module (N69/1) –//– (open circuit)	X30/7 1 (9) — Ω — N69/1 18 (S3)	Disconnect connector S3 of N69/1 and connector 9 of X30/7	<1 Ω	Wiring.
20.0	**Data line CAN H** Front driver-side door control module (N69/1) ⌜⌝– (short circuit to grnd)	⊥ — Ω — N69/1 18 (S3)	Disconnect connector S3 of N69/1 and connector 9 of X30/7	>20 kΩ	Wiring.
21.0	**Data line CAN H** Front driver-side door control module (N69/1) ⌜⌝+ (short to pos.)	+ — Ω — N69/1 18 (S3)	Disconnect connector S3 of A37 and connector 10 of X30/7	>20 kΩ	Wiring.
22.0	**Data line CAN L** Front driver-side door control module (N69/1) –//– (open circuit)	X30/7 2 (9) — Ω — N69/1 9 (S3)	Disconnect connector S3 of N69/1 and connector 9 of X30/7	<1 Ω	Wiring.

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
23.0	**Data line CAN L** Front driver-side door control module (N69/1) ⌜⌝– (short circuit to grnd)	⊥ Ω N69/1 ❩— 9 (S3)	Disconnect connector S3 of N69/1 and connector 9 of X30/7	>20 kΩ	Wiring.
24.0	**Data line CAN L** Front driver-side door control module (N69/1) ⌜⌝+ (short to pos.)	+ Ω N69/1 ❩— 9 (S3)	Disconnect connector S3 of N69/1 and connector 9 of X30/7	>20 kΩ	Wiring.
25.0	**Data line CAN H/L** Front driver-side door control module (N69/1) ⌜⌝(short circuit)	18 —❨ (3) N69/1 Ω ❩— 9 (S3)	Disconnect connector S3 of N69/1 and connector 9 of X30/7	>20 kΩ	Wiring.
26.0	**Data line CAN H** Front passenger-side door control module (N69/2) –//– (open circuit)	X30/7 1 —❨ (8) Ω N69/2 ❩— 18 (S3)	Disconnect connector S3 of N69/2 and connector 8 of X30/7	<1 Ω	Wiring.

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
27.0	**Data line CAN H** Front passenger-side door control module (N69/2) ⌜⌝– (short circuit to grnd)	⊥ Ω N69/2 ❩— 18 (S3)	Disconnect connector S3 of N69/2 and connector 8 of X30/7	>20 kΩ	Wiring.
28.0	**Data line CAN H** Front passenger-side door control module (N69/2) ⌜⌝+ (short to pos.)	+ Ω N69/2 ❩— 18 (S3)	Disconnect connector S3 of N69/2 and connector 8 of X30/7	>20 kΩ	Wiring.
29.0	**Data line CAN L** Front passenger-side door control module (N69/2) –//– (open circuit)	X30/7 1 —❨ (8) Ω N69/2 ❩— 9 (S3)	Disconnect connector S3 of N69/2 and connector 8 of X30/7	<1 Ω	Wiring.
30.0	**Data line CAN L** Front passenger-side door control module (N69/2) ⌜⌝– (short circuit to grnd)	⊥ Ω N69/2 ❩— 9 (S3)	Disconnect connector S3 of N69/2 and connector 8 of X30/7	>20 kΩ	Wiring.

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
31.0	**Data line CAN L** Front passenger-side door control module (N69/2) (open circuit) ⌜⌝+ (short to pos.)	+ ◄–Ω+► N69/2 ❩— 9 (S3)	Disconnect connector S3 of N69/2 and connector 8 of X30/7	>20 kΩ	Wiring.
32.0	**Data line CAN H/L** Front passenger-side door control module (N69/2) ⌜⌝ (short circuit)	18 —❨ (S3) N69/2 ◄–Ω+► ❩— 9 (S3)	Disconnect connector S3 of N69/2 and connector 8 of X30/7	>20 kΩ	Wiring.
33.0	**Data line CAN H** Rear driver-side door control module (N69/3) –//– (open circuit)	X30/7 1 —❨ (7) ◄–Ω+► N69/3 ❩— 9	Disconnect connector from N69/3 and connector 7 of X30/7	<1 Ω	Wiring.
34.0	**Data line CAN H** Rear driver-side door control module (N69/3) ⌜⌝– (short circuit to grnd)	⊥ ◄–Ω+► N69/3 ❩— 9	Disconnect connector from of N69/3 and connector 7 of X30/7	>20 kΩ	Wiring.

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
35.0	**Data line CAN H** Rear driver-side door control module (N69/3) ⌈⌉+ (short to pos.)	Battery + ← −Ω+ → N69/3 9	Disconnect connector from N69/3 and connector 7 of X30/7	>20 kΩ	Wiring.
36.0	**Data line CAN L** Rear driver-side door control module (N69/3) –//– (open circuit)	X30/7 2 (7) ← −Ω+ → N69/3 4	Disconnect connector from of N69/3 and connector 7 of X30/7	<1 Ω	Wiring.
37.0	**Data line CAN L** Rear driver-side door control module (N69/3) ⌈⌉– (short circuit to grnd)	⊥ ← −Ω+ → N69/3 4	Disconnect connector from of N69/3 and connector 7 of X30/7	>20 kΩ	Wiring.
38.0	**Data line CAN L** Rear driver-side door control module (N69/3) ⌈⌉+ (short to grnd)	Battery + ← −Ω+ → N69/3 4	Disconnect connector from of N69/3 and connector 7 of X30/7	>20 kΩ	Wiring.

1) Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1)]
39.0	**Data line CAN H / L** Rear driver-side door control module (N69/3) ⌈⌉ (short circuit)	N69/3 4 —(–Ω+)— 9	Disconnect connector from of N69/3 and connector 7 of X30/7	>20 kΩ	Wiring.
40.0	**Data line CAN H** Rear passenger-side door control module (N69/4) –//– (open circuit)	X30/7 N69/4 1 —(–Ω+)— 9 (6)	Disconnect connector from of N69/4 and connector 6 of X30/7	<1 Ω	Wiring.
41.0	**Data line CAN H** Rear passenger-side door control module (N69/4) ⌈⌉– (short to grnd)	N69/4 ⊥ –Ω+)— 9	Disconnect connector from of N69/4 and connector 6 of X30/7	>20 kΩ	Wiring.
42.0	**Data line CAN H** Rear passenger-side door control module (N69/4) ⌈⌉+ (short to pos.)	N69/4 battery + –Ω+)— 9	Disconnect connector from of N69/4 and connector 6 of X30/7	>20 kΩ	Wiring.
43.0	**Data line CAN L** Rear passenger-side door control module (N69/4) –//– (open circuit)	X30/7 N69/4 2 —(–Ω+)— 4 (6)	Disconnect connector from of N69/4 and connector 6 of X30/7	<1 Ω	Wiring.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
44.0	**Data line CAN L** Rear passenger-side door control module (N69/4) ⌜⌝– (short to grnd)	⊥ Ω N69/4) 4	Disconnect connector from N69/4 and connector 6 of X30/7	>20 kΩ	Wiring.
45.0	**Data line CAN L** Rear passenger-side door control module (N69/4) ⌜⌝+ (short to pos.)	+ Ω N69/4) 4	Disconnect connector from N69/4 and connector 6 of X30/7	>20 kΩ	Wiring.
46.0	**Data line CAN H/L** Rear passenger-side door control module (N69/4) ⌜⌝ (short circuit)	4 — N69/4 Ω) 9	Disconnect connector from of N69/3 and connector 7 of X30/7	>20 kΩ	Wiring.
47.0	**Data line CAN H** Lower control field control module (N72) –//– open circuit	X30/7 1 — (1) Ω N72) 4 (A)	Disconnect connector A from of N72 and connector 1 of X30/7	<1 Ω	Wiring.

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
48.0	**Data line CAN H** Lower control field control module (N72) ⌜⌝– (short to grnd)	⊥ ◄–Ω+► N72 ❩— 4 (A)	Disconnect connector A from N72 and connector 1 of X30/7	>20 kΩ	Wiring.
49.0	**Data line CAN H** Lower control field control module (N72) ⌜⌝+ (short to pos.)	⊟+ ◄–Ω+► N72 ❩— 4 (A)	Disconnect connector A from N72 and connector 1 of X30/7	>20 kΩ	Wiring.
50.0	**Data line CAN L** Lower control field control module (N72) –//– open circuit	X30/7 2 —❨ (1) ◄–Ω+► N72 ❩— 3 (A)	Disconnect connector A from N72 and connector 1 of X30/7	<1 Ω	Wiring.
51.0	**Data line CAN L** Lower control field control module (N72) ⌜⌝– (short to grnd)	⊥ ◄–Ω+► N72 ❩— 3 (A)	Disconnect connector A from N72 and connector 1 of X30/7	>20 kΩ	Wiring.

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
52.0	**Data line CAN L** Lower control field control module (N72) ⌜⌝+ (short to pos.)	N72 + ⟷ Ω ⟷ 3 (A)	Disconnect connector A from N72 and connector 1 of X30/7	>20 kΩ	Wiring.
53.0	**Data line CAN H/L** Lower control field control module (N72) ⌜⌝ (short circuit)	N10/1 4 ⟷ Ω ⟷ 3 (A) (4)	Disconnect connector 4 from N72 and connector 1 of X30/7	>20 kΩ	Wiring.
54.0	**Data line CAN H** Signal pick-up and activation module (SAM) (N10/1) –//– (open circuit)	X30/7 N10/1 1 ⟷ Ω ⟷ 2 (2) (4)	Disconnect connector 4 from of N10/1 and connector 2 of X30/7	<1 Ω	Wiring.
55.0	**Data line CAN H** Signal pick-up and activation module (SAM) (N10/1) ⌜⌝– (short to grnd)	N10/1 ⊥ ⟷ Ω ⟷ 2 (4)	Disconnect connector 4 from of N10/1 and connector 2 of X30/7	>20 kΩ	Wiring.

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
56.0	**Data line CAN H** Signal pick-up and activation module (SAM) (N10/1) ┌┐+ (short to pos.)	battery + –Ω+ N10/1 2 (4)	Disconnect connector 4 from N10/1 and connector 2 of X30/7	>20 kΩ	Wiring.
57.0	**Data line CAN L** Signal pick-up and activation module (SAM) (N10/1) –//– (open circuit)	X30/7 2 (2) –Ω+ N10/1 1 (4)	Disconnect connector 4 from N10/1 and connector 2 of X30/7	<1 Ω	Wiring.
58.0	**Data line CAN L** Signal pick-up and activation module (SAM) (N10/1) ┌┐– (short to grnd)	⊥ –Ω+ N10/1 1 (4)	Disconnect connector 4 from N10/1 and connector 2 of X30/7	>20 kΩ	Wiring.
59.0	**Data line CAN L** Signal pick-up and activation module (SAM) (N10/1) ┌┐+ (short to pos.)	battery + –Ω+ N10/1 1 (4)	Disconnect connector 4 from N10/1 and connector 2 of X30/7	>20 kΩ	Wiring.

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
60.0	**Data line CAN H/L** Signal pick-up and activation module (SAM) (N10/1) ⌜⌝ (short circuit)	N10/1 2 (4) — Ω — 1 (4)	Disconnect connector 4 from N10/1 and connector 2 of X30/7	>20 kΩ	Wiring.
61.0	**Data line CAN H** Roof control panel control module (N70) –//– (open circuit)	X30/7 1 (3) — Ω — N70 6 (A)	Disconnect connector A from N70 and connector 3 of X30/7	<1 Ω	Wiring.
62.0	**Data line CAN H** Roof control panel control module (N70) ⌜⌝– (short to grnd)	⊥ — Ω — N70 6 (A)	Disconnect connector A from of N70 and connector 3 of X30/7	>20 kΩ	Wiring.
63.0	**Data line CAN H** Roof control panel control module (N70) ⌜⌝+ (short to pos.)	+ — Ω — N70 6 (A)	Disconnect connector A from N70 and connector 3 of X30/7	>20 kΩ	Wiring.

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
64.0	**Data line CAN L** Roof control panel control module (N70) –//– (open circuit)	X30/7 2 —((3) Ω N70)— 3 (4)	Disconnect connector A from N70 and connector 3 of X30/7	<1 Ω	Wiring.
65.0	**Data line CAN L** Roof control panel control module (N70) ⌜⌝– (short to grnd)	⊥ Ω N70)— 3 (A)	Disconnect connector A from N70 and connector 3 of X30/7	>20 kΩ	Wiring.
66.0	**Data line CAN L** Roof control panel control module (N70) ⌜⌝+ (short to pos.)	+ (battery) Ω N70)— 3 (A)	Disconnect connector A from of N70 and connector 3 of X30/7	>20 kΩ	Wiring.
67.0	**Data line CAN H/L** Roof control panel control module (N70) ⌜⌝ (short circuit)	N32/1 6 —((A) Ω)— 3 (A)	Disconnect connector A from N70 and connector 3 of X30/7	>20 kΩ	Wiring.

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
68.0	**Data line CAN H** Left front ESA control module (with memory) (N32/1) –//– (open circuit)	X30/7 1 —((4) ⊖Ω⊕ N32/1)— 7 (1)	Disconnect connector 1 from N32/1 and connector 4 of X30/7	<1 Ω	Wiring.
69.0	**Data line CAN H** Left front ESA control module (with memory) (N32/1) ⌜⌝– (short to grnd)	⊥ ⊖Ω⊕ N32/1)— 7 (1)	Disconnect connector 1 from N32/1 and connector 4 of X30/7	>20 kΩ	Wiring.
70.0	**Data line CAN H** Left front ESA control module (with memory) (N32/1) ⌜⌝+ (short to pos.)	⊟+ ⊖Ω⊕ N32/1)— 7 (1)	Disconnect connector 1 from N32/1 and connector 4 of X30/7	>20 kΩ	Wiring.
71.0	**Data line CAN L** Left front ESA control module (with memory) (N32/1) –//– (open circuit)	X30/7 2 —((4) ⊖Ω⊕ N32/1)— 6 (1)	Disconnect connector 1 from N32/1 and connector 4 of X30/7	<1 Ω	Wiring.

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
72.0	**Data line CAN L** Left front ESA control module (with memory) (N32/1) ⌜⌝– (short to grnd)	⊥ Ω N32/1 ❩— 6 (1)	Disconnect connector 1 from N32/1 and connector 4 of X30/7	>20 kΩ	Wiring.
73.0	**Data line CAN L** Left front ESA control module (with memory) (N32/1) ⌜⌝+ (short to pos.)	+ Ω N32/1 ❩— 6 (1)	Disconnect connector 1 from of N32/1 and connector 4 of X30/7	>20 kΩ	Wiring.
74.0	**Data line CAN H/L** Left front ESA control module (with memory) (N32/1) ⌜⌝ (short circuit)	7 —❨ (1) N32/1 Ω ❩— 6 (1)	Disconnect connector 1 from N32/1 and connector 4 of X30/7	>20 kΩ	Wiring.
75.0	**Data line CAN H** Right front ESA control module (with memory) (N32/2) –//– (open circuit)	X30/7 1 —❨ (5) Ω N32/2 ❩— 7 (1)	Disconnect connector 1 from N32/2 and connector 5 of X30/7	<1 Ω	Wiring.

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
76.0	**Data line CAN H** Right front ESA control module (with memory) (N32/2) ⌜⌝– (short to grnd)	⊥ Ω N32/2 ❩— 7 (1)	Disconnect connector 1 from of N32/2 and connector 5 of X30/7	>20 kΩ	Wiring.
77.0	**Data line CAN H** Right front ESA control module (with memory) (N32/2) ⌜⌝+ (short to pos.)	+ Ω N32/2 ❩— 7 (1)	Disconnect connector 1 from of N32/2 and connector 5 of X30/7	>20 kΩ	Wiring.
78.0	**Data line CAN L** Right front ESA control module (with memory) (N32/2) –//– (open circuit)	X30/7 2 —❨ (5) Ω N32/2 ❩— 6 (1)	Disconnect connector 1 from of N32/2 and connector 5 of X30/7	<1 Ω	Wiring.
79.0	**Data line CAN L** Right front ESA control module (with memory) (N32/2) ⌜⌝– (short to grnd)	⊥ Ω N32/2 ❩— 6 (1)	Disconnect connector 1 from of N32/2 and connector 5 of X30/7	>20 kΩ	Wiring.

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
80.0	**Data line CAN L** Right front ESA control module (with memory) (N32/2) ⌐¬+ (short to pos.)	+ –Ω+ N32/2)— 6 (1)	Disconnect connector 1 from of N32/2 and connector 5 of X30/7	>20 kΩ	Wiring.
81.0	**Data line CAN H/L** Right front ESA control module (with memory) (N32/2) ⌐¬ (short circuit)	N32/2 7 —((1) –Ω+)— 6 (1)	Disconnect connector 1 from N32/1	>20 kΩ	Wiring.
82.0	***Non-USA vehicles only, continue to next test step.***				
83.0	***Non-USA vehicles only, continue to next test step.***				

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
84.0	***Non-USA vehicles only, continue to next test step.***				
85.0	***Non-USA vehicles only, continue to next test step.***				
86.0	***Non-USA vehicles only, continue to next test step.***				
87.0	***Non-USA vehicles only, continue to next test step.***				
88.0	***Non-USA vehicles only, continue to next test step.***				
89.0	**Data line CAN H** Electronic ignition switch control module (N73) –//– (open circuit)	N10/1 6 (2) — Ω — N73 10 (B)	Disconnect connector B from N73 and connector 2 of N10/1	<1 Ω	Wiring.

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
90.0	**Data line CAN H** Electronic ignition switch control module (N73) ⌜⌝– (short to grnd)	⊥ Ω N73 — 10 (B)	Disconnect connector B from N73 and connector 2 from N10/1	>20 kΩ	Wiring.
91.0	**Data line CAN H** Electronic ignition switch control module (N73) ⌜⌝+ (short to pos.)	+ Ω N73 — 10 (B)	Disconnect connector B from N73 and connector 2 from N10/1	>20 kΩ	Wiring.
92.0	**Data line CAN L** Electronic ignition switch control module (N73) –//– (open circuit)	N10/1 7 (2) Ω N73 — 11 (B)	Disconnect connector B from N73 and connector 2 from N10/1	<1 Ω	Wiring.
93.0	**Data line CAN L** Electronic ignition switch control module (N73) ⌜⌝– (short to grnd)	⊥ Ω N73 — 11 (B)	Disconnect connector B from N73 and connector 2 from N10/1	>20 kΩ	Wiring.

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
94.0	**Data line CAN L** Electronic ignition switch control module (N73) ┌┐+ (short to pos.)	+ –Ω+ N73 11 (B)	Disconnect connector B from N73 and connector 2 from N10/1	>20 kΩ	Wiring.
95.0	**Data line CAN H/L** Electronic ignition switch control module (N73) ┌┐ (short circuit)	N73 10 (B) –Ω+ 11 (B)	Disconnect connector B from N73 and connector 2 of N10/1	>20 kΩ	Wiring.
96.0	**Wiper motor (M6/1)** **Stage: Interval wipe** Voltage supply	M6/1 5 –V+ 1	Ignition: **ON** Disconnect connector from M6/1, Set combination switch (S4) to: Stage: Interval wipe	11 – 14 V, approx. 10 seconds are measureable.	Wiring, ⇒ 100.0, 102.0, 106.0, 110.0, Driver-side fuse and relay module box (K40/2), Wiper stage 1 relay (K40/2k1)
97.0	**Wiper motor (M6/1)** **Stage 1** Voltage supply	M6/1 5 –V+ 1	Ignition: **ON** Disconnect connector from M6/1, Set combination switch (S4) to: Stage 1	11 – 14 V, approx. 10 seconds are measureable.	Wiring, ⇒ 100.0, 102.0, 106.0, 110.0, K40/2, K40/2k1

1) Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
98.0	**Wiper motor (M6/1)** **Stage 2** Voltage supply	M6/1 5 (M7) — V — 3 (M7)	Ignition: **ON** Disconnect connector from M6/1, Set combination switch (S4) to: Stage 2	11 – 14 V, approx. 5 seconds are measureable.	Wiring, ⇒ 100.0, 103.0, 107.0, 110.0, K40/2, Wiper stage 2 relay (K40/2k2).
99.0	**Windshield washer pump (M5/1)** Voltage supply	M5/1 1 — V — 2	Disconnect connector from M5/1, Set combination switch (S4) to: Wash	11 – 14 V	Wiring, ⇒ 100.0, 104.0, 108.0, 111.0, K40/2, Windshield washer relay (K40/2k3).
100.0	**Wiper motor (M6/1)** **Circuit 31**	M6/1 5 — V — +	Ignition: **OFF**	11 – 14 V	Wiring, ⇒ 100.1
100.1	**Circuit 31**	K40/2 4 (M7) — V — +	Ignition: **OFF**	11 – 14 V	Wiring, ⇒ 100.2, K40/2
100.2	**Circuit 31**	K40/2 4 (C1) — V — +	Ignition: **OFF**	11 – 14 V	Wiring.

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
101.0	**Windshield wiper system Circuit 31b** Activation of: Signal pick-up and activation module (SAM) (N10/1) by wiper motor (M6/1)	⊥ ◄–Ⓥ+► K40/2 ❩— 5 (6)	Remove N10/1 from K40/2 Ignition: **ON** Wiper arm "parked"	<1 V	Wiper motor (M6/1)
102.0	**Wiper stage 1 relay (K40/2k1)** Voltage supply Circuit 15R	⊥ ◄–Ⓥ+► K40/2k1 ❩— 5	Remove wiper stage 1 relay (K40/2k1). Ignition: **ON**	11 – 14 V	Wiring, ⇒ 105.0, K40/2
103.0	**Wiper stage 2 relay (K40/2k2)** Voltage supply Circuit 15R	⊥ ◄–Ⓥ+► K40/2k2 ❩— 1	Remove wiper stage 2 relay (K40/2k2). Ignition: **ON**	11 – 14 V	Wiring, ⇒ 105.0, K40/2
104.0	**Windshield washer relay (K40/2k3)** Voltage supply Circuit 15R	⊥ ◄–Ⓥ+► K40/2k3 ❩— 1 (15)	Remove windshield washer relay (K40/2k3). Ignition: **ON**	11 – 14 V	Wiring, ⇒ 105.0, K40/2

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
105.0	**Driver-side fuse and relay module box (K40/2)** Voltage supply Circuit 15R	⊥ – V + K40/2 ❩— 1 (C1)	Remove connector C1 from K40/2 Ignition: **ON**	11 – 14 V	Wiring.
106.0	**Windshield wiper system Interval wipe** Activation of: Wiper stage 1 relay (K40/2k1) by Signal pick-up and activation module (SAM) (N10/1)	K40/2k1 2 —☾ – V + 🔋 +	Remove wiper stage 1 relay (K40/2k1). Ignition: **ON** Combination switch (S4) set to: Interval wipe	Cycled voltage: 11 – 14 V	⇒ 110.0, N10/1, K40/2, Electronic ignition switch control module (N73).
107.0	**Wiper stage 1** Activation of: Wiper stage 1 relay (K40/2k1) by Signal pick-up and activation module (SAM) (N10/1)	K40/2k1 1 —☾ – V + 🔋 +	Remove wiper stage 1 relay (K40/2k1). Ignition: **ON** Combination switch (S4) set to: Stage 1	11 – 14 V	⇒ 110.0, N10/1, K40/2, Electronic ignition switch control module (N73).
108.0	**Wiper stage 2** Activation of: Wiper stage 2 relay (K40/2k2) by Signal pick-up and activation module (SAM) (N10/1)	K40/2k2 1 —☾ – V + 🔋 +	Remove wiper stage 2 relay (K40/2k2). Ignition: **ON** Combination switch (S4) set to: Stage 2	11 – 14 V	⇒ 110.0, N10/1, K40/2, Electronic ignition switch control module (N73).

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
109.0 B14B4	**Windshield wiper system Wash** Activation of: windshield washer relay (K40/2k3) by Signal pick-up and activation module (SAM) (N10/1)	⊥ ◄–(V)+► K40/2k3 ❩— 86	Remove windshield washer relay (K40/2k3). Ignition: **ON** Combination switch (S4) set to: Wash	11 – 14 V	⇒ 111.0, N10/1, K40/2, Electronic ignition switch control module (N73).
110.0	**Combination switch (S4)** Activation of electronic ignition switch control module (N73)	⊥ ◄–(Ω)+► N73 ❩— 1 (B)	Disconnect connector B from N73 Ignition: **ON** **Interval wipe:** **Stage 1:** **Stage 2:**	 31.5 – 31.7 Ω 31.0 – 31.1 Ω 30.8 – 30.9 Ω	Wiring, S4
111.0	**Combination switch (S4) Wash function** Activation of electronic ignition switch control module (N73)	⊥ ◄–(Ω)+► N73 ❩— 2 (B)	Remove connector B from N73 Ignition: **ON** Combination switch (S4) set to: Single wipe: Wash:	 31.0 – 31.1 Ω 30.8 – 30.9 Ω	Wiring, S4

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
112.0 B1484 B1643	**Rain sensor (B38)** Actuation line for rain sensor (B38) –//– (open circuit)	B38 3 —( N70) — 3 (E)	Disconnect connector (E) from N70 and connector from B38	<1 Ω	Wiring.
113.0 B1217 B1643	**Rain sensor (B38)** Actuation line for rain sensor (B38) ⌐¬+ (short circuit to pos.)	B38 3 —( +	Disconnect connector (E) from N70 and connector from B38	>20 kΩ	Wiring.
114.0 B1217 B1643	**Rain sensor (B38)** Actuation line for rain sensor (B38) ⌐¬- (short circuit to grnd)	B38 3 —( N70 ⊥	Disconnect connector (E) from N70 and connector from B38	>20 kΩ	Wiring.
115.0	**Rear window wiper motor (M6/4)** Activation by PSE control module (A37)	M6/4 3 —( + (1)	Disconnect connector from M6/4 Tailgate window wiper switch (S6/1s4): **Activate Wipe**	11 – 14 V	Wiring, ⇒ 118.0, A37, Signal pick-up and activation module (SAM) (N10/1).

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
116.0 B1483	**Windshield washer pump (M5/1)** **Model 210 Wagon** **Activate relay: Wash function**	M5/1 1 — ◄ –V+ ► — 4	Tailgate window wiper switch (S6/1s4): **Activate Wash**	11 – 14 V	Wiring, ⇒ 117.0, 118.0, N10/1, K40/2
117.0 B1483	**Windshield washer relay (K40/2k3)** Activation by: Signal pick-up and activation module (SAM) (N10/1)	K40/2k23 88.1 — ◄ –V+ ► — +	Remove windshield washer relay (K40/2k3) Tailgate window wiper switch (S6/1s4): **Activate Wash**	11 – 14 V	Wiring, ⇒ 111.0, N10/1, K40/2
118.0 B1142	**Tailgate window wiper switch (S6/1s4)** Activation by: Signal pick-up and activation module (SAM) (N10/1)	⊥ ◄ –Ω+ ► N10/1 — 4 (1)	Disconnect connector 2 from N10/1 Switch (S6/1s4): **Rest position:** **Press wipe and keep depressed:** **Press wash and keep depressed:**	 >20 kΩ 200 Ω <1 Ω	Wiring, (S6/1s4).

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
119.0	**Headlamp washer pump (M5/2)** Activation of HCS pump relay (K40/2k5)	M5/2 2 — ◄ –V+ ► — 1	Press HCS switch (S4/1).	11 – 14 V, measurable for approx. 1 second.	Wiring, ⇒ 121.0, N10/1, K40/2
120.0	**HCS pump relay (K40/2k5)** Activation of: Signal pick-up and activation module (SAM) (N10/1)	K40/2k5 1 — ◄ –V+ ► — +	Remove HCS pump relay (K40/2k5). Press HCS switch (S4/1).	11 – 14 V, measurable for approx. 1 second.	Wiring, ⇒ 121.0, N10/1, K40/2
121.0 BII4I	**HCS switch (S4/1)** Activation of: Signal pick-up and activation module (SAM) (N10/1)	N10/1 7 — ◄ –V+ ► — + (1)	Disconnect connector 1 from N10/1. Press HCS switch (S4/1).	11 – 14 V	Wiring, N10/1, K40/2
122.0	**Dome lamp with delay/front reading lamp (N70e1)** Activation by PSE control module (A37)		Ignition: **OFF** Door switch ON/OFF (N70s2) Driver/passenger door: **OPEN** **CLOSED**	N70e1 **ON** **OFF**	DM, B&A, Vol. 1, 3.4 PSE, 23, N70, A37

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
123.0	**Rear dome lamp (E15/3)** Activation of PSE (A37) via Roof control panel control module (N70) **Except Model 208.4**	E15/3 2 — (–V+) — 1	Rear dome lampswitch on/off (N70s2): **ON**	11 – 14 V	Wiring, N70, A37
124.0	**Rear dome lamp (E15/3)** Activation via PSE control module (A37)	E15/3 2 — (–V+) — 1	Rear dome lampswitch on/off (N70s2): **OFF** Dome lamp switch on/off (N70s4): **ON** Left/right rear door: **OPEN** Left/right rear door: **CLOSED**	11 – 14 V 11 – 14 V <1 V	Wiring, DM, B&A, Vol. 1, 3.4 PSE, 23, N70, PSE control module (A37)
125.0	**Left/right D-pillar interior lamp (E25/3, E15/4), Model 210 Wagon** Activation of PSE control module (A37) by roof control panel control module (N70)	E25/3 E25/4 2 — (–V+) — 1	Rear dome lampswitch on/off (N70s2): **ON**	11 – 14 V	Wiring, N70, A37

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
126.0		**Left/right D-pillar interior lamp (E25/3, E15/4), Model 210 Wagon** Activation of rear dome lamp (E15/3) by PSE control module (A37)	E25/3 E25/4 2 —(–V+)— 1	Rear dome lampswitch on/off (N70s2): **OFF** Dome lamp switch on/off (N70s4): **ON** **Rear door left/right:** **OPEN** **CLOSED** **Tailgate:** **OPEN** **CLOSED**	 11 – 14 V <1 V 11 – 14 V <1 V	Wiring, DM, B&A, Vol. 1, 3.4 PSE, 23, Tailgate closing assist switch/interior illumination switch (A12s1), A37, N70
127.0 B1407		**Left/right front door entrance/exit lamp (E17/9, E17/10)** Activation from frontdriver/passenger-side door control module (N69/1, N69/2)	E17/9 E17/10 1 —(–V+)— 2	Ignition: **OFF** Rear dome lamp switch on/off (N70s2): **ON** **Driver/passenger door:** **OPEN** **CLOSED**	 11 – 14 V <1 V	Wiring, DM, B&A, Vol. 1, 3.4 PSE, 23, A37, N70, N69/1, N69/2

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
128.0 B140 7	**Left/right rear door entrance/exit lamp (E17/5, E17/6)** Activation from rear driver/passenger-side door control module (N69/3, N69/4)	E17/5 E17/6 1 — ◄ –V+ ► — 2	Ignition: **OFF** Rear dome lampswitch on/off (N70s2): **ON** **Left/right rear door:** **OPEN** **CLOSED**	11 – 14 V, 11 – 14 V, <1 V	Wiring, DM, B&A, Vol. 1, 3.4 PSE, 23, A37, N70, N69/3, N69/4
129.0	**Front dome lamp with delay/reading lamp (N70e1)** **Delay: 5 min.** Roof control panel control module (N70)		Ignition: **OFF** Door: **OPEN** After approx. 5 minutes:	 N70 illuminated. N70 goes out.	N70
130.0	**Entrance/exit lamps (E17/5, E17/6, E17/9, E17/10)** Roof control panel control module (N70)		Ignition: **OFF** Door: **OPEN** After approx. 5 minutes:	 Entrance/exit lamps illuminated. Entrance/exit lamps go out.	N70

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy [1]
131.0 B1212	**Left and right vanity mirror (E14/5)** Voltage supply Activation by Roof control panel control module (N70)	N70 1 (D) – V – 3 (D) N70 2 (D) – V – 3 (D)	Ignition: **OFF** Disconnect connector D from N70	11 – 14 V	⇒ 6.0 N70
132.0 B1115	**Heated rear window** Activation of signal pick-up and activation module (SAM) (N10/1) by switch in A/C pushbutton control module (Automatic A/C) (N22)	⊥ – V – N10/1 (2) 1	Ignition: **ON** Heated rear window on, keep button depressed: Switch not pressed: Heated rear window off, keep button depressed:	 6.2 – 8.0 V <1 V 6.2 – 8.0 V	Wiring, N22
133.0	**Heated rear window** Activation of relays in A37	A37 ⊥ – V – 3	Ignition: **ON** Heated rear window on.	11– 14 V	Wiring, A37

[1] Observe Preparation for Test, see 22.

Version Coding

- The electronic ignition lock control module (N73) must be version coded.
- The version coding is menu-driven, menu point 6 in the HHT.

Possible version coding

Version	
Vehicle version	W202/S202/A208/C208/W210/S210
Engine management	M111/other
Left hand/right hand steering	LHS/RHS
Country version	Australia/Rest of the world
Rain sensor	Yes/No
Vehicle models	Production/Armored/Taxi with emergency alarm/Taxi without emergency alarm
Multi-function control module, special vehicles	Yes/No
Electric seat adjustment, driver's seat with memory	Yes/No
Electric seat adjustment, passenger seat with memory	Yes/No
One touch window opening feature actrivated	Yes/No