15.4 Electric Seat Adjustment (ESA)

Model 208

Model 210 as of 3/97

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

⚠ CAUTION!

Injury hazard from pinching and crushing, in extreme cases extremities can even be severed when caught in the mechanism.
Do not allow any body parts to be in the general area of the moving components.

Preparation for Test:

1. Review 12, 20, 21, 31,
2. Check fuses, ok,
3. Ignition **ON**.
4. Connect the Hand-Held Tester (HHT) to X11/4, according to diagram, see section 0.
5. Voltage supply for the control module and CAN wiring ok, refer to DM, Body and Accessories, Volume 2, section 7.1, 23
6. All CAN wiring must be contacted.

i

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

The DTC's from one system can be stored in other control modules, therefore the DTC memory from other control modules that are relevant to the system being checked should also be readout.

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.

DTC's which are not relevant to the system being checked may also be stored in the respective system's DTC memory.

Note regarding DTC's

Current DTC's are highlighted in black on the display. Additional detailed fault information based on fault type is displayed with nearly all DTC's such as:

> Ω resistance too great
< Ω resistance too low
Γ¬+ short circuit to positive (POS)
Γ¬– short circuit to ground (GND)
–//– open circuit

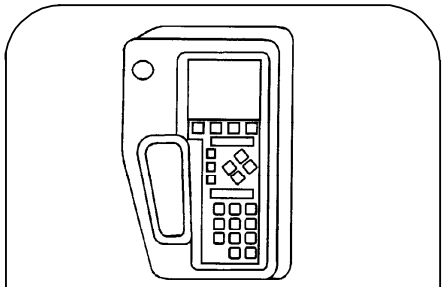
A single DTC may also have additional information such as a readout of repeated faults.

Repeated faults

Counting of a faults (e.g.):
4 = intermittant fault (fault occurred 4 times).

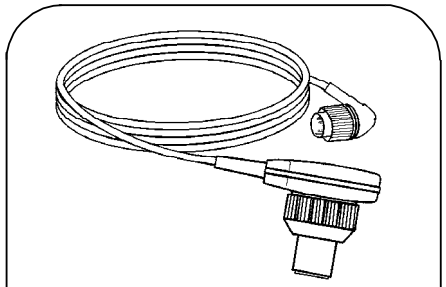
Diagnosis – Diagnostic Trouble Code (DTC) Memory (ESA)

Special Tools



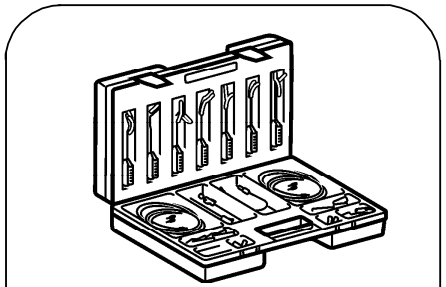
965 589 00 01 00

Hand-Held-Tester



965 589 00 40 00

Test cable



201 589 00 99 00

Electrical connecting set

Test equipment; See MBUSA Standard Service Equipment Program

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

Diagnosis – Diagnostic Trouble Code (DTC) Memory (ESA, Left-Side)

DTC	Possible cause	Test step/Remedy [1]
B1000	Left front ESA control module (N32/1)	N32/1
B1010	Left front ESA control module (N32/1), low voltage	D.M., Body and Accessories, Volume 2, section 7.1, 23
B1011	Left front ESA control module (N32/1), excess voltage	D.M., Body and Accessories, Volume 2, section 7.1, 23
B1156	Left front seatback release microswitch (S91/3) signal > 25 secs or wiring ⌜⌝ (Model 208 up to 6/98 only) Left front seatback release microswitch (S91/3) or left front hibernation microswitch (S91/1s2) signal > 25 secs or wiring ⌜⌝ (Model 208 as of 06/98 only)	23 ⇒ 19.0 23 ⇒ 20.0
B1200	Left front ESA motor group (with memory), fore/aft motor (M27m1) (Hall sensor defective) or wiring −//−	23 ⇒ 2.0
B1201	Left front ESA motor group (with memory), raise/lower motor (M27m3) (Hall sensor defective) or wiring −//−	23 ⇒ 5.0
B1202	Left front ESA motor group (with memory), rear raise/lower motor (M27m2) (Hall sensor defective) or wiring −//−	23 ⇒ 8.0

[1] Observe Preparation for Test, see 22.

Diagnosis – Diagnostic Trouble Code (DTC) Memory (ESA, Left-Side)

DTC	Possible cause	Test step/Remedy [1]
B1203	Left front ESA motor group (with memory), head restraint raise/lower motor (M27m4) (Hall sensor defective) or wiring –//–	23 ⇒ 14.0
B1204	Left front ESA motor group (with memory), backrest fore/aft motor (M27m5) (Hall sensor defective) or wiring –//–	13 ⇒ 11.0
B1510 **Model 208**	Left front ESA control module (N32/1)	N32/1
B1850 B1851	Left front ESA control module (N32/1) does not communicate with front driver-side door control module (N69/1)	D.M., Body and Accessories, Volume 2, section 7.1, 23
B1852 **Model 208**	Left front ESA control module (N32/1) does not communicate with electronic ignition lock control module (N73)	D.M., Body and Accessories, Volume 2, section 7.1, 23
B1853 **Model 208**	Left front ESA control module (N32/1) does not communicate with PSE control module (A37)	D.M., Body and Accessories, Volume 2, section 7.1, 23
B1854 **Model 208**	Left front ESA control module (N32/1) does not communicate with electronic ignition lock control module (N73)	D.M., Body and Accessories, Volume 2, section 7.1, 23

[1] Observe Preparation for Test, see 22.

Diagnosis – Diagnostic Trouble Code (DTC) Memory (Door Control Module)

DTC 	Possible cause	Test step/Remedy [1]
B1111	Backrest fore/aft switch (S91/2s5), memory button 3 (S91/2s8) or memory store button switch (S91/2s9) binding or wiring ⌜⌝	23 ⇒ 10.0, 17.0
B1112	Front raise lower switch (S91/2s3), headrest raise lower/switch (S91/2s4) or memory button 2 switch (S91/2s7) signal > 25 secs or wiring ⌜⌝	23 ⇒ 4.0, 13.0, 17.0
B1113	Rear raise /lowerswitch (S91/2s2), fore/aft switch (S91/2s1) or memory button 1 switch (S91/2s6) signal > 25 secs or wiring ⌜⌝	23 ⇒ 1.0, 7.0, 17.0

[1] Observe Preparation for Test, see 22.

Diagnosis – Diagnostic Trouble Code (DTC) Memory ESA (Right-Side)

DTC 	Possible cause	Test step/Remedy [1]
B1000	Right front seat ESA control module with memory (N32/2)	N32/2
B1010	Right front seat ESA control module with memory (N32/2), low voltage	D.M., Body and Accessories, Volume 2, section 7.1, 23
B1011	Right front seat ESA control module with memory (N32/2) excess voltage	D.M., Body and Accessories, Volume 2, section 7.1, 23
B1156 **Model 208**	Right front seatback release microswitch (S92/3) signal > 25 secs or wiring ⌜⌝ (Model 208 up to 6/98 only) Left front seatback release microswitch (S92/3) or right front hibernation microswitch (S92/1s2) signal > 25 secs or wiring ⌜⌝ (Model 208 as of 06/98 only)	23 ⇒ 19.0 23 ⇒ 20.0
B1200	Fore/aft motor (M28m1) (Hall sensor defective) or wiring −//−	23 ⇒ 2.0
B1201	Front raise/lower motor (M28m3) (Hall sensor defective) or wiring −//−	23 ⇒ 5.0
B1202	Rear raise/lower motor (M28m2) (Hall sensor defective) or wiring −//−	23 ⇒ 8.0

[1] Observe Preparation for Test, see 22.

Diagnosis – Diagnostic Trouble Code (DTC) Memory ESA (Right- Side)

DTC	Possible cause	Test step/Remedy [1]
B1203	Head restraint raise/lower motor (M28m4) (Hall sensor defective) or wiring –//–	13 ⇒ 14.0
B1204	Backrest fore/aft motor (M28m5) (Hall sensor defective) or wiring –//–	13 ⇒ 11.0
B1510 **Model 208**	Right front ESA control module (N32/2)	N32/2
B1850 B1851	Right front ESA control module (N32/2) does not communicate with front passenger-side door control module (N69/2)	D.M., Body and Accessories, Volume 2, section 7.1, 23
B1852 **Model 208**	Right front ESA control module (N32/2) does not communicate with electronic ignition lock control module (N73)	D.M., Body and Accessories, Volume 2, section 7.1, 23
B1853 **Model 208**	Right front ESA control module (N32/2) does not communicate with PSE control module (A37)	D.M., Body and Accesssories, Volume 2, section 7.1, 23
B1854 **Model 208**	Right front ESA control module (N32/2) does not communicate with electronic ignition lock control module (N73)	D.M., Body and Accessories, Volume 2, section 7.1, 23

[1] Observe Preparation for Test, see 22.

Diagnosis – Diagnostic Trouble Code (DTC) Memory (Door Control Module)

DTC 	Possible cause	Test step/Remedy [1]
B1111	Backrest fore/aft switch (S92/2s5), memory button 3 (S92/2s8) or memory store button switch (S92/2s9) binding or wiring ⌜⌝	23 ⇒ 10.0, 17.0
B1112	Front raise lower switch (S92/2s3), headrest raise lower/switch (S92/2s4) or memory button 2 switch (S92/2s7) binding or wiring ⌜⌝	23 ⇒ 4.0, 13.0, 17.0
B1113	Rear raise /lowerswitch (S92/2s2), fore/aft switch (S92/2s1) or memory button 1 switch (S92/2s6) binding or wiring ⌜⌝	23 ⇒ 1.0, 7.0, 17.0

[1] Observe Preparation for Test, see 22.

Diagnosis – Function Test, Recalling Actual Values with HHT

⚠ CAUTION!

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

Preparation for Function Test, Recalling Actual Values:

1. Review 12, 20, 21, 31,
2. Fuses ok,
3. Battery voltage ok,
4. Connect the Hand-Held Tester (HHT) to X11/4, according to diagram, see section 0,
5. Voltage supply for control module and CAN-data wiring ok, refer to DM Body and Accessories, Volume 2, section 7.1, 23,
6. All CAN-data wiring contacted,
7. Ignition **ON**, or open relevant left door,
8. Additional test for seatback activation: vehicle speed < 5mph (Model 208 only).

Function sequence:

The voltage-coded signals from the power seat switches (S91/1, S92/2) are read into the associated door control modules (N69/1, N69/2). The door control modules (N69/1, N69/2) send a CAN message to the associated ESA control module (N32/1, N32/2) which actuates the seat adjustment motors.

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.

Actual values and activations from one system may be stored in several control modules, therefore the actual values and activations of control modules which are relevant to the system should be retreived.
When retreiving actual values, all available actual values from the respective control module appear.

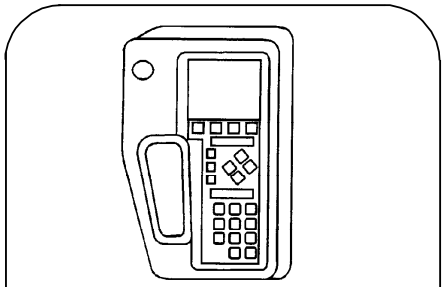
Abbreviations:

ESA L	Electric seat adjustment, left
ESA R	Electric seat adjustment, right
EIS	Electronic ignition switch/lock control module (N73)
PSE	Pneumatic system equipment (A37)
DCM 1	Front driver door control module (N69/1)
DCM 2	Front driver door control module (N69/2)

The abbreviations listed above are found in the second column of the following test table test steps and they indicate in which control module(s) the actual values or activations are stored.

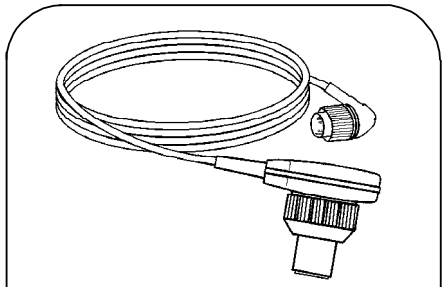
Diagnosis – Function Test, Recalling Actual Values with HHT

Special Tools



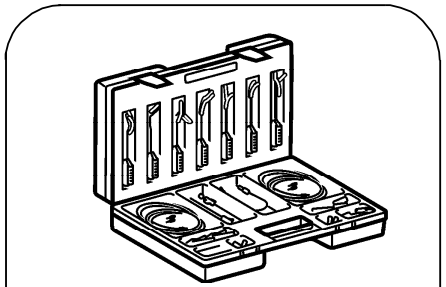
965 589 00 01 00

Hand-Held-Tester



965 589 00 40 00

Test cable



201 589 00 99 00

Electrical connecting set

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 – Function Test, Recalling Actual values with HHT

⇒		Test scope	Test connection	Activation	Nominal value	Possible cause/Remedy [1]
1.0	EIS (DAS)	**Circuit 15**		Ignition switch position 2: **ON** **OFF**	 ON OFF	23 ⇒ 4.0
2.0	PSE	**Door switch**		< 10.0 V > 10.0 V	YES NO	DM, Body and Accessories, Vol. 1, section 3.4, 23 PSE
3.0	PSE	**Door switch**		> 15.5 V < 15.5 V	YES NO	DM, Body and Accessories, Vol. 1, section 3.4, 23 PSE
4.0	ESA L	**Left front ESA motor group (with memory)** **fore/aft motor (M27m1)** (Hall sensor)		Left front ESA switch group (with memory) fore/aft switch (S91/2s1) Press switch forward: Press switch aft:	 Value increases, seat moves forward. Value decreases, seat moves backward.	Wiring, 23 ⇒ 2.0

[1] Observe Preparation for test, see 22.

Electrical Test Program – Function Test, Recalling Actual Values with HHT

⇒		Test scope	Test connection	Activate	Nominal value	Possible cause/Remedy [1]
5.0	ESA L	**Left front ESA motor group (with memory) rear raise/lower motor (M27m2)** (Hall sensor)		Left front ESA switch group (with memory) raise/lower switch (S91/2s2) Press switch up: Press switch down:	 Value increases, seat rises at rear. Value decreases, seat lowers at rear.	Wiring, 23 ⇒ 8.0
6.0	ESA L	**Left front ESA motor group (with memory) front raise/lower motor (M27m3)** (Hall sensor)		Left front ESA switch group (with memory) fore/aft switch (S91/2s1) Press switch up: Press switch down:	 Value increases, seat rises at front. Value decreases, seat lowers at front.	Wiring, 23 ⇒ 5.0

[1] Observe Preparation for test, see 22.

Electrical Test Program – Function Test, Recalling Actual Values with HHT

⇒		Test scope	Test connection	Activation	Nominal value	Possible cause/Remedy [1]
7.0	ESA L	**Left front ESA motor group (with memory), head restraint raise/lower motor (M27m4)** (Hall sensor)		Left front ESA switch group (with memory), head restraint raise/lower switch (S91/2s4) Press switch up: Press switch down	 Value increases, head restraint rises. Value decreases, head restraint lowers.	Wiring, 23 ⇒ 14.0
8.0	ESA L	**Left front ESA motor group (with memory), backrest fore/aft motor (M27m5**) (Hall sensor)		Left front ESA switch group (with memory), backrest fore/aft switch (S91/2s5) Press switch forward: Press switch aft:	 Value increases, backrest moves forward. Value decreases, backrest moves backward.	Wiring, 23 ⇒ 11.0

[1] Observe Preparation for test, see 22.

Electrical Test Program – Function Test, Recalling Actual Values with HHT

⇒		Test scope	Test connection	Activation	Nominal value	Possible cause/Remedy [1]
9.0	ESA L	**Left front seat back release microswitch (S91/3)** (Model 208 up to 6/98)		Seat back: Unlocked: Locked:	 ON OFF	23 ⇒ 19.0 Left front ESA control module (N32/1).
		Left front seatback release microswitch (S91/3) or left front hibernation microswitch (S91/1s2) (Model 208 as of 06/98 only)		Seat back: Unlocked and tilted only 20 degrees forward: Tilted completely forward and locked:	 ON OFF	23 ⇒ 20.0 Left front ESA control module (N32/1).
10.0	ESA L	**Left front seatback inclination microswitch (S91/1)** (model 208)		Seat back tilted: Forward: Backward:	 ON OFF	23 ⇒ 21.0 Left front ESA control module (N32/1).
11.0	DCM 1	**Left front door ESA switch group (with memory), fore/aft switch** (S91/2s1)		S91/2s1 pressed forward: S91/2s1 pressed backward:	FORE AFT	23 ⇒ 1.0

[1] Observe Preparation for test, see 22.

Electrical Test Program – Function Test, Recalling Actual Values with HHT

⇒		Test scope	Test connection	Activation	Nominal value	Possible cause/Remedy [1]
12.0	DCM1	**Left front door ESA switch group (with memory), front raise lower switch (S91/2s3)**		S91/2s3 pressed up: S91/2s1 pressed down:	RAISE LOWER	23 ⇒ 4.0
13.0	DCM1	**Left front door ESA switch group (with memory), rear raise lower switch (S91/2s2)**		S91/2s2 pressed up: S91/2s2 pressed down:	RAISE LOWER	23 ⇒ 7.0
14.0	DCM1	**Left front door ESA switch group (with memory), backrest fore/aft switch (S91/2s5)**		S91/2s5 pressed forward: S91/2s5 pressed aft:	FORE AFT	23 ⇒ 10.0
15.0	DCM1	**Left front door ESA switch group (with memory), head restraint raise/lower (S91/2s4)**		S91/2s4 pressed up: S91/2s4 pressed down:	RAISE LOWER	23 ⇒ 13.0
16.0	DCM1	**Left front door ESA switch group (with memory), memory button 1 switch (S91/2s6)**		**Button 1: Rest** position: Press button:	NOT ACTIVATED ACTIVATED	23 ⇒ 17.0

[1] Observe Preparation for test, see 22.

Electrical Test Program – Function Test, Recalling Actual Values with HHT

⇒		Test scope	Test connection	Activation	Nominal value	Possible cause/Remedy [1]
17.0	DCM1	**Left front door ESA switch group (with memory), memory button 2 switch (S91/2s7)**		**Button 2: Rest** position: Press button:	NOT ACTIVATED ACTIVATED	23 ⇒ 17.0
18.0	DCM1	**Left front door ESA switch group (with memory), memory button 3 switch (S91/2s8)**		**Button 3: Rest** position Press button:	NOT ACTIVATED ACTIVATED	23 ⇒ 17.0
19.0	DCM1	**Left front door ESA switch group (with memory), memory store button (S91/2s9)**		**Green button: Rest** position: Press button:	NOT ACTIVATED ACTIVATED	23 ⇒ 17.0
20.0	EIS (DAS)	**Circuit 15**		**Ignition switch:** Position 2 **ON** **OFF**	 ON OFF	DM, Body and Accessories, Vol. 2, section 7.1, 23 NS
21.0	PSE	**Door switch**		< 10.0 V > 10.0 V	YES NO	DM, Body and Accessories, Vol. 1, section 3.4, 23 PSE
22.0	PSE	**Door switch**		>15.5 V < 15.5 V	YES NO	DM, Body and Accessories, Vol. 1, section 3.4, 23 PSE

[1] Observe Preparation for test, see 22.

Electrical Test Program – Function Test, Recalling Actual Values with HHT

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy [1]
23.0	ESA R	**Right front ESA motor group (with memory) fore/aft motor (M28m1)** (Hall sensor)		Right front ESA switch group (with memory) fore/aft switch (S92/2s1) Press switch forward: Press switch aft:	 Value increases, seat moves forward. Value decreases, seat moves backward.	23 ⇒ 2.0
24.0	ESA R	**Right front ESA motor group (with memory) rear raise/lower motor (M28m2)** (Hall sensor)		Right front ESA switch group (with memory) raise lower/switch (S92/2s2) Press switch up: Press switch down:	 Value increases, seat rises at front. Value decreases, seat lowers at front.	23 ⇒ 8.0

[1] Observe Preparation for test, see 22.

Electrical Test Program – Function Test, Recalling Actual Values with HHT

⇒		Test scope	Test connection	Activation	Nominal value	Possible cause/Remedy [1]
25.0	ESA R	**Right front ESA motor group (with memory), front raise/lower motor (M28m3)** (Hall sensor)		Right front door ESA switch group (with memory), fore/aft switch (S92/2s1) Press switch up: Press switch down:	 Value increases, seat rises at front. Value decreases, seat lowers at front.	23 ⇒ 5.0
26.0	ESA R	**Right front ESA motor group (with memory), head restraint raise/lower motor (M28m4)** (Hall sensor)		Left front door ESA switch group (with memory), raise/lower switch (S92/2s4) Press switch up: Press switch down:	 Value increases, head restraint rises. Value decreases, head restraint lowers.	Wiring, 23 ⇒ 14.0

[1] Observe Preparation for test, see 22.

Electrical Test Program – Function Test, Recalling Actual Values with HHT

⇒		Test scope	Test connection	Activation	Nominal value	Possible cause/Remedy [1]
27.0	ESA R	**Right front ESA motor group (with memory), backrest fore/aft motor (M28m5)** (Hall sensor)		Right front door ESA switch group (with memory), backrest fore/aft switch (S92/2s5) Press switch forward: Press switch aft:	 Value increases backrest moves forward. Value decreases backrest moves backward.	Wiring, 23 ⇒ 11.0
28.0	DCM 1 DCM 2	**Illuminate ESA switch group (S91/2, S92/2)** (Activation)		Ignition: **ON** Adjust instrument lamps to full intensity. HHT button: Press F2	 Switch group illumination: ON	Wiring, S91/2, S92/2, Front driver-side door control module (N69/1), Front passenger-side door control module (N69/2).

[1] Observe Preparation for test, see 22.

Electrical Test Program – Function Test, Recalling Actual Values with HHT

⇒		Test scope	Test connection	Activation	Nominal value	Possible cause/Remedy [1]
29.0	ESA R	**Right front seatback release microswitch (S92/3)** (Model 208 up to 6/98 only)		Seatback: Unlocked: Locked:	 ON OFF	23 ⇒ 19.0 Right front ESA control module (N32/2).
		Left front seatback release microswitch (S91/3) or left front hibernation microswitch (S91/1s2) (Model 208 as of 06/98 only)		Seatback: Unlocked and tilted only 20 degrees forward: Tilted completely forward and locked:	 ON OFF	23 ⇒ 20.0 Right front ESA control module (N32/2).
30.0	ESA R	**Right front seat backrest inclination microswitch (S92/1)** (Model 208)		Seatback moved: Forward: Backward:	 ON OFF	23 ⇒ 21.0 Right front ESA control module (N32/2).
31.0	DCM 2	**Right front door ESA switch group (with memory), fore/aft switch (S92/2s1)**		S92/2s1 pressed forward: S92/2s1 pressed backward:	FORE AFT	23 ⇒ 1.0

[1] Observe Preparation for test, see 22.

Electrical Test Program – Function Test, Recalling Actual Values with HHT

⇒		Test scope	Test connection	Activation	Nominal value	Possible cause/Remedy [1]
32.0	DCM 2	**Right front door ESA switch group (with memory), front raise lower switch (S92/2s3)**		S92/2s3 pressed up: S92/2s1 pressed down:	RAISE LOWER	23 ⇒ 4.0
33.0	DCM 2	**Right front door ESA switch group (with memory), rear raise lower switch (S92/2s2)**		S92/2s2 pressed up: S92/2s2 pressed down:	RAISE LOWER	23 ⇒ 7.0
34.0	DCM 2	**Right front door ESA switch group (with memory), backrest fore/aft switch (S92/2s5)**		S92/2s5 pressed forward: S92/2s5 pressed aft:	FORE AFT	23 ⇒ 10.0
35.0	DCM 2	**Right front door ESA switch group (with memory), head restraint raise/lower (S92/2s4)**		S92/2s4 pressed up: S92/2s4 pressed down:	RAISE LOWER	23 ⇒ 13.0
36.0	DCM 2	**Right front door ESA switch group (with memory), memory button 1 switch (S92/2s6)**		**Button 1: Rest** position Press button:	NOT ACTIVATED ACTIVATED	23 ⇒ 17.0

[1] Observe Preparation for test, see 22.

Electrical Test Program – Function Test, Recalling Actual Values with HHT

⇒		Test scope	Test connection	Activation	Nominal value	Possible cause/Remedy [1]
37.0	DCM 2	**Right front door ESA switch group (with memory), memory button 2 switch (S92/2s7)**		**Button 2: Rest** position Press button:	NOT ACTIVATED ACTIVATED	23 ⇒ 17.0
38.0	DCM 2	**Right front door ESA switch group (with memory), memory button 3 switch (S92/2s8)**		**Button 3: Rest** position Press button:	NOT ACTIVATED ACTIVATED	23 ⇒ 17.0
39.0	DCM 2	**Right front door ESA switch group (with memory), memory store button (S92/2s9)**		**Green button: Rest** position Press button:	NOT ACTIVATED ACTIVATED	23 ⇒ 17.0

[1] Observe Preparation for test, see 22.

Diagnosis – Complaint Related Diagnostic Chart

⚠ CAUTION!

Injury hazard from pinching and crushing, in extreme cases extremities can even be severed when caught in the mechanism.
Do not allow any body parts to be in the general area of the moving components.

Preparation for Test:

1. Review 12, 20, 21, 31

Survey of Recallable Test Functions

Complaint/Problem	Possible cause	Test step/Remedy [1]
Complete left seat adjustment does not function.	Voltage supply for left front ESA control module (N32/1) (with memory) Voltage supply for left front ESA switch group (S91/2) (with memory)	D.M., Body and Accessories, Vol. 2, section 7.1, 23 NS 23 ⇒ 18.0
Complete right seat adjustment does not function.	Voltage supply for right front ESA control module (N32/2) (with memory) Voltage supply for right front ESA switch group (S92/2) (with memory)	D.M., Body and Accessories, Vol. 2, section 7.1, 23 NS 23 ⇒ 18.0
Left seat fore/aft adjustment does not function.	Fore/aft switch (S91/2s1) Fore/aft motor (M27m1)	23 ⇒ 1.0 23 ⇒ 2.0
Right seat fore/aft adjustment does not function.	Fore/aft switch (S92/2s1) Fore/aft motor (M28m1)	23 ⇒ 1.0 23 ⇒ 2.0
Left power seat front raise/lower adjustment does not function.	Front raise/lower switch (S91/2s3) Front raise/lower motor (M27m3)	23 ⇒ 4.0 23 ⇒ 5.0

[1] Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart

Survey of Recallable Test Functions

Complaint/Problem	Possible cause	Test step/Remedy [1]
Right power seat front raise/lower adjustment does not function.	Front raise/lower switch (S92/2s3) Front raise/lower motor (M28m3)	23 ⇒ 4.0 23 ⇒ 5.0
Left power seat rear raise/lower adjustment does not function.	Rear raise/lower switch (S91/2s2) Rear raise/lower motor (M27m2)	23 ⇒ 7.0 23 ⇒ 8.0
Right power seat rear raise/lower adjustment does not function.	Rear raise/lower switch (S92/2s2) Rear raise/lower motor (M28m2)	23 ⇒ 7.0 23 ⇒ 8.0
Left seat backrest fore/aft adjustment does not function.	Backrest fore/aft switch (S91/2s5) Backrest fore/aft motor (M27m5)	23 ⇒ 10.0 23 ⇒ 11.0
Right seat backrest fore/aft adjustment does not function.	Backrest fore/aft switch (S92/2s5) Backrest fore/aft motor (M28m5)	23 ⇒ 10.0 23 ⇒ 11.0
Left seat head restraint raise/lower adjustment raise/lower does not function.	Head restraint raise/lower switch (S91/2s4) Head restraint raise/lower motor (M27m4)	23 ⇒ 13.0 23 ⇒ 14.0
Right seat head restraint raise/lower adjustment raise/lower does not function.	Head restraint raise/lower switch (S92/2s4) Head restraint raise/lower motor (M28m4)	23 ⇒ 13.0 23 ⇒ 14.0

[1] Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart

Survey of Recallable Test Functions

Complaint/Problem	Possible cause	Test step/Remedy [1]
Left or right switch illumination does not function.	Left or right front door ESA switch group (S91/2 or S92/2) (with memory) illumination	23 ⇒ 18.0
Left seat position (memory) does not function.	Left front door ESA switch group (S91/2) (with memory) CAN L/CAN H dataline Left front ESA control module with memory (N32/1)	23 ⇒ 17.0. D.M., Body and Accessories, Vol. 2, section 7.1, 23 NS
Right seat position (memory) does not function.	Right front door ESA switch group (S92/2) (with memory) CAN L/CAN H dataline Right front ESA control module with memory (N32/2)	23 ⇒ 17.0. D.M., Body and Accessories, Vol. 2, section 7.1, 23 NS
Seat adjustment does not function with left or right front door open and **without** ignition key: **ON**	Left or right front door switches (S17/3, S17/4) CAN L/CAN H dataline PSE control module (A37)	D.M., Body and Accessories, Vol. 1, section 3.4, 23 PSE. D.M., Body and Accessories, Vol. 2, section 7.1, 23 NS. D.M., Body and Accessories, Vol. 1, section 3.4, 23 PSE.
Left front power seat fore/aft adjustment, power seat rear raise/lower and fore/aft adjustment operate opposite of normal function.	Programming of left front ESA control module (N32/1) Version coding Steering column up/down switch (S91/2s11) Steering column in/out switch (S91/2s12)	31 ⇒ Seat adjustment motor vendor “Brose“, “Hammerstein" programmed in error into N32/1, left hand driver/right hand drive programmed in error. 31 Check version coding. D.M., Body and Accessories, Volume 3, section 12.6b, 23 ESL.

[1] Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart

Survey of Recallable Test Functions

Complaint/Problem	Possible cause	Test step/Remedy [1]
Left seat "easy entry" feature does not function with ignition switch in position **"2"**. (Model 208 only)	Vehicle speed signal (VSS)	CAN H/L, Left front axle VSS (L6/1), Traction system control module (N47).
Left seat "easy entry" feature does not function. (Model 208 only)	Head restraint adjustment Left door switch (S17/3) Left front seatback release microswitch (S91/3) (Model 208 up to 6/98 only) Left front seatback release microswitch (S91/3) with additional left front hibernation microswitch (S91/1s2) (Model 208 as of 6/98 only) Left front seatback inclination microswitch (S91/1) Left front ESA control module (with memory) (N32/1) Head restraint raise lower motor (M27m4) Fore/aft motor (M27m1)	Fore/aft adjustment to front stop and head restraint to bottom stop. D.M., Body and Accessories, Vol. 1, section 3.4, 23 PSE 23 ⇒ 19.0 23 ⇒ 20.0 23 ⇒ 21.0 23 ⇒ 16.0 23 ⇒ 14.0 23 ⇒ 2.0

[1] Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart

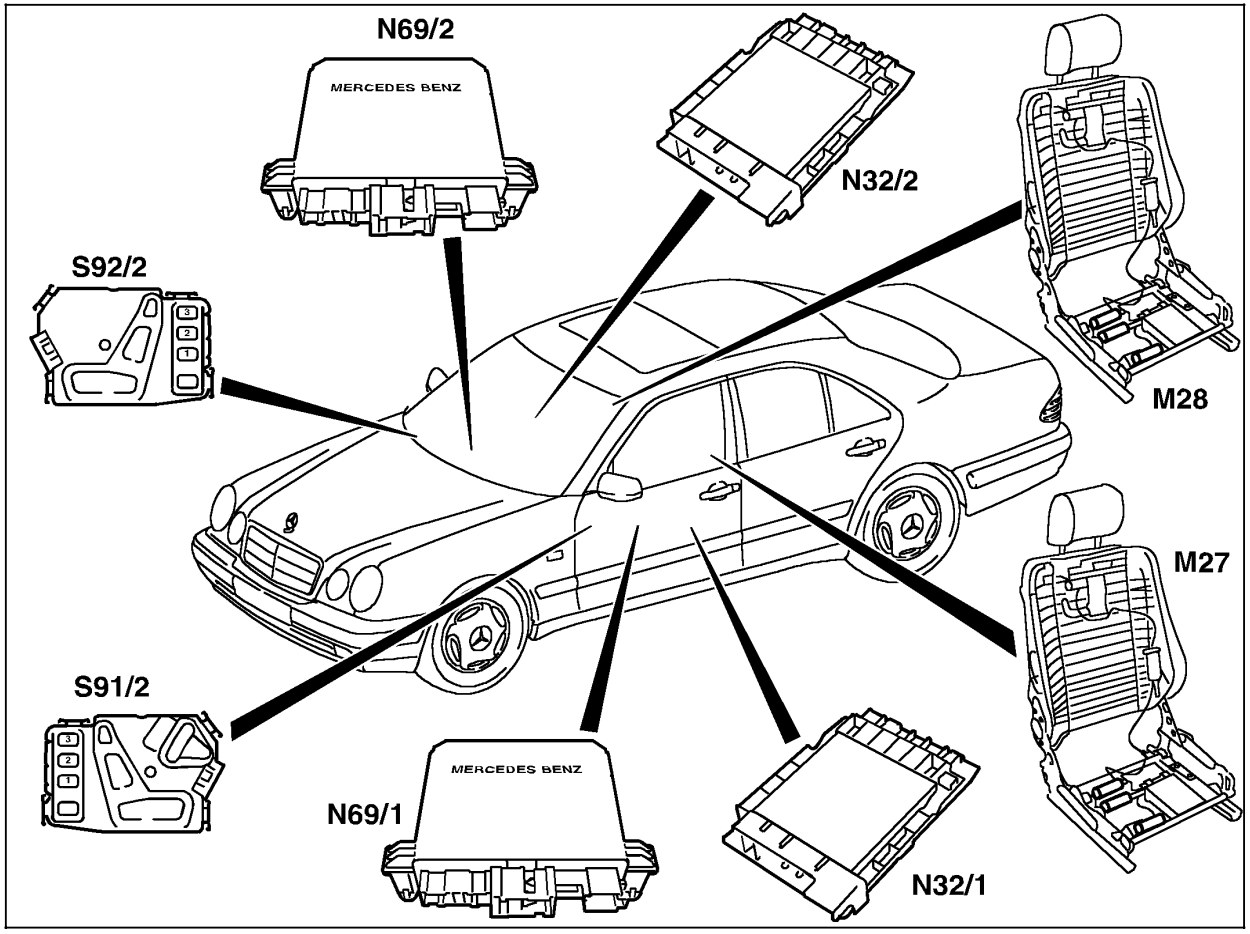
Survey of Recallable Test Functions

Complaint/Problem	Possible cause	Test step/Remedy [1]
Right seat "easy entry" feature does not function. (Model 208 only)	Head restraint adjustment Right door switch (S17/4) Right front seatback release microswitch (S92/3) (Model 208 up to 6/98 only) Right front seatback release microswitch (S92/3) with additional left front hibernation microswitch (S92/1s2) (Model 208 as of 6/98 only) Left front seatback inclination microswitch (S92/1) Left front ESA control module (with memory) (N32/1) Head restraint raise lower motor (M27m4) Fore/aft motor (M27m1)	Fore/aft adjustment to front stop and head restraint to bottom stop. D.M., Body and Accessories, Vol. 1, section 3.4, 23 PSE 23 ⇒ 19.0 23 ⇒ 20.0 23 ⇒ 21.0 23 ⇒ 16.0 23 ⇒ 14.0 23 ⇒ 2.0
Right seat "easy entry" feature does not function with ignition switch in position **"2".** (Model 208 only)	Vehicle speed signal (VSS)	CAN H/L, Left front axle VSS (L6/1) Traction system control module (N47).

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Component Locations (Seat Adjustment with Memory)

Location of Components
(Shown on Model 210)



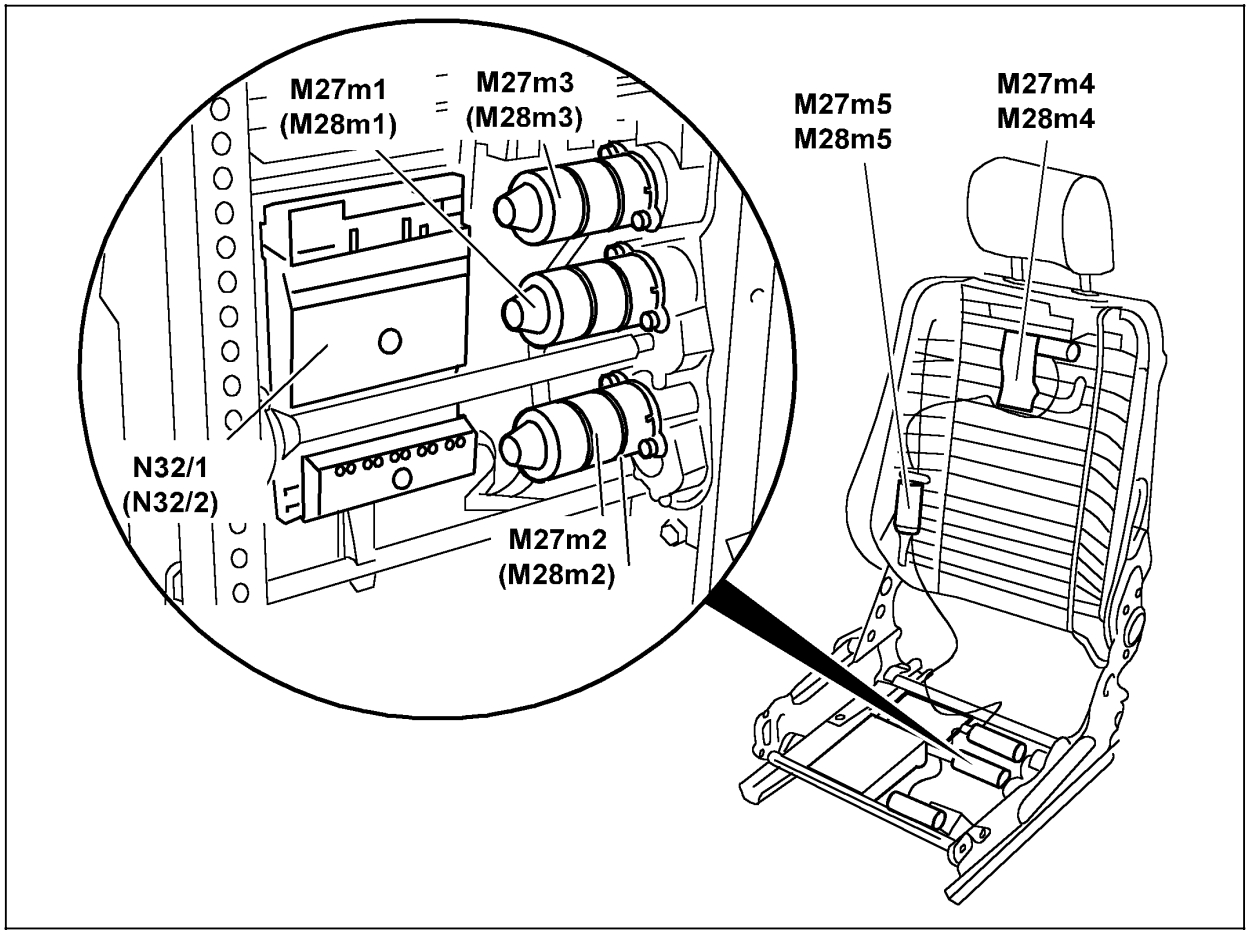
P91.29-0270-06

Figure 1

M27	Left front ESA motor group (with memory)
M28	Right front ESA motor group (with memory)
N69/1	Front driver-side door control module
N69/2	Front passenger-side door control module
N32/1	Left front ESA control module (with memory)
N32/2	Right front ESA control module (with memory)
S91/2	Left front door ESA switch group (with memory)
S92/2	Right front door ESA switch group (with memory)

Electrical Test Program – Component Locations (Seat Adjustment with Memory)

Left Front Seat
(Shown on Model 210)



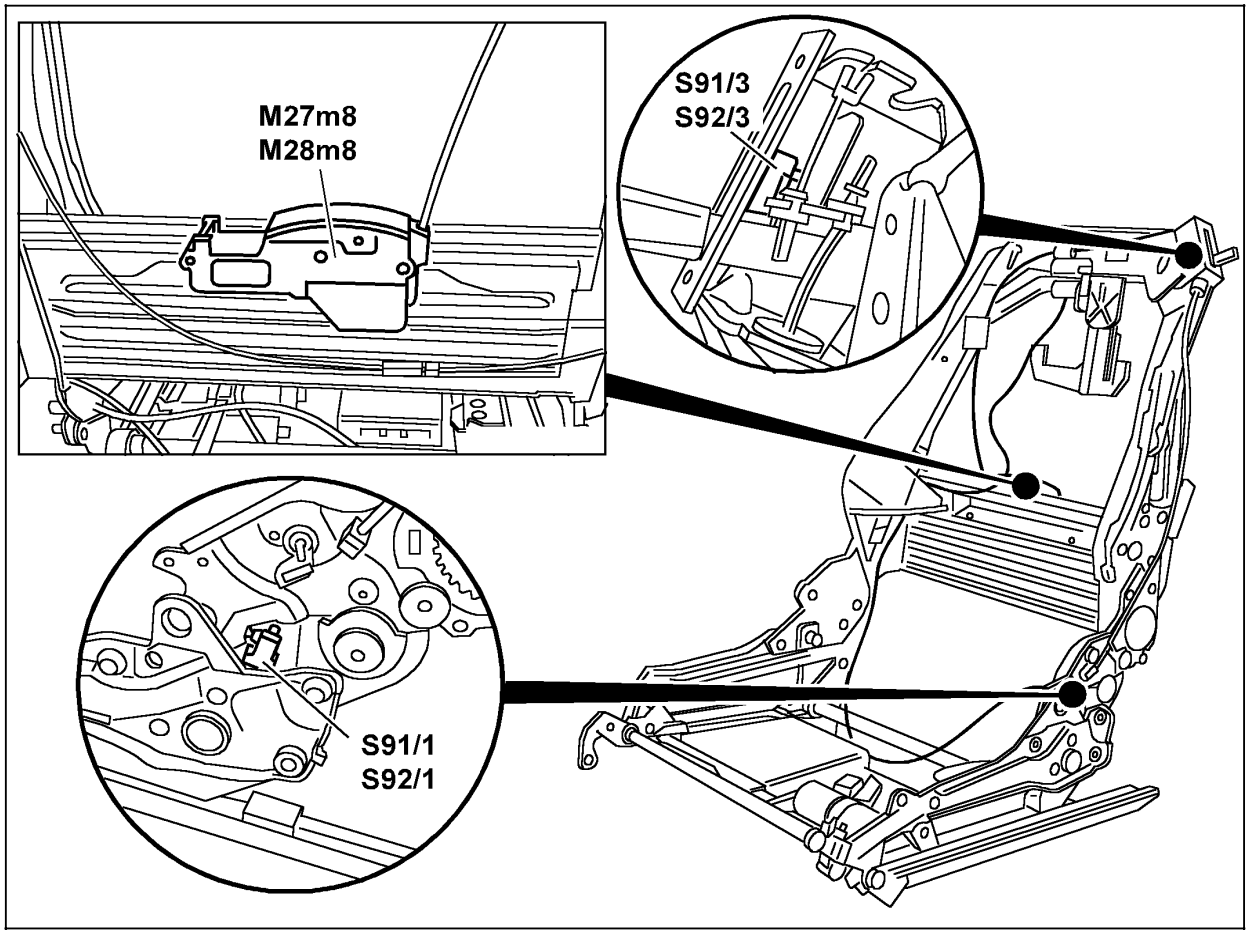
P91.29-0264-06

Figure 2

M27m1	Fore/aft motor
M28m1	Fore/aft motor
M27m2	Rear raise/lower motor
M28m2	Rear raise/lower motor
M27m3	Front seat height
M28m3	Front raise/lower motor
M27m4	Head restraint raise/lower
M28m4	Head restraint raise/lower motor
M27m5	Backrest fore/aft motor
M28m5	Backrest fore/aft motor
N32/1	Left front ESA control module
N32/2	Right front ESA control module

Electrical Test Program – Component Locations (Seat Adjustment with Memory)

Model 208 only



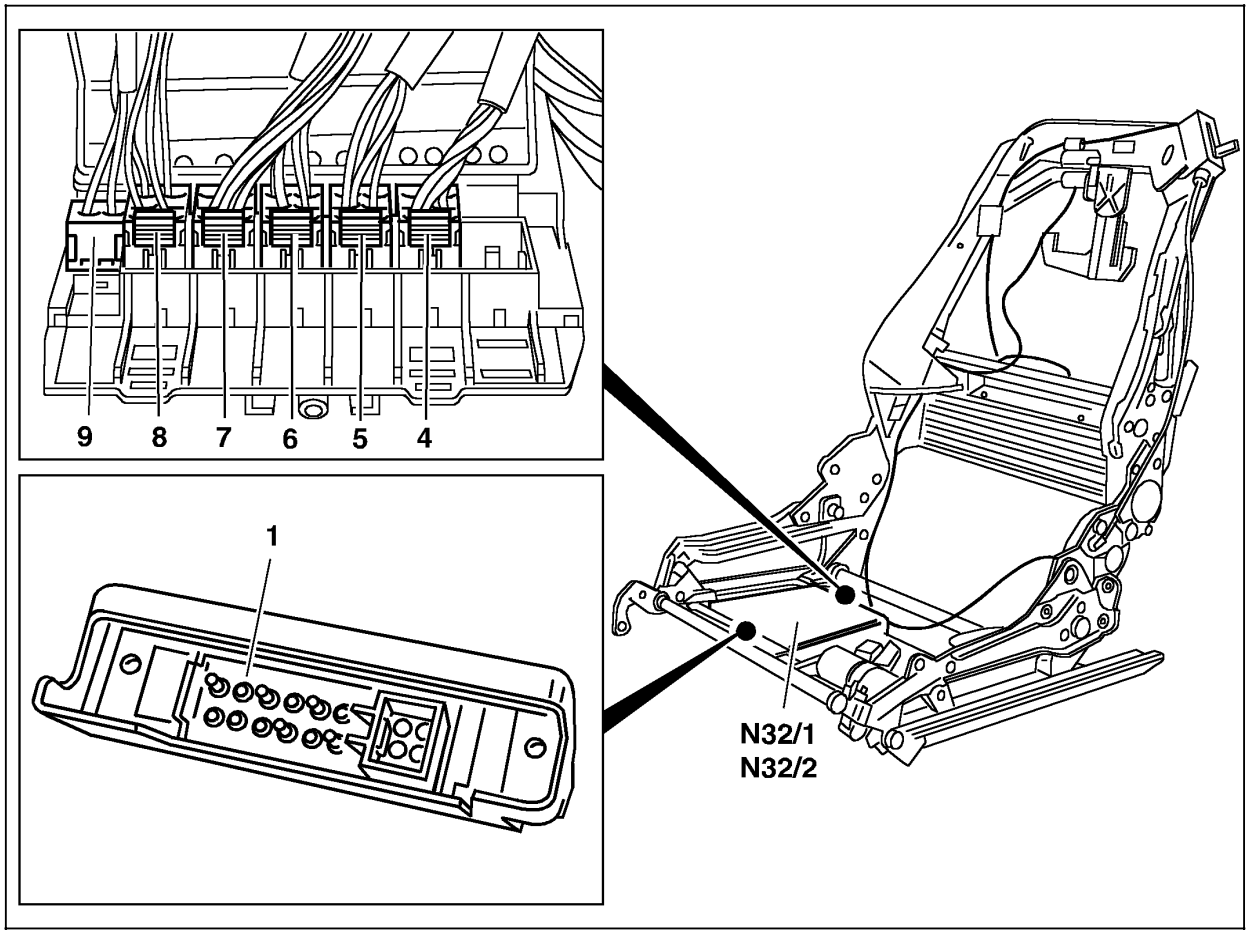
P91.29-0259-06

Figure 3

M27m8	Left front ESA motor group (with memory), backrest unlocking
M28m8	Right front ESA motor group (with memory), backrest unlocking
S91/1	Left front seatback inclination microswitch
S92/1	Right front seatback inclination microswitch
S91/3	Left front seatback release microswitch
S92/3	Right front seatback release microswitch

Electrical Test Program – Component Locations (Seat Adjustment with Memory)

Location of connectors on left/right front ESA control module (N32/1, N32/2)



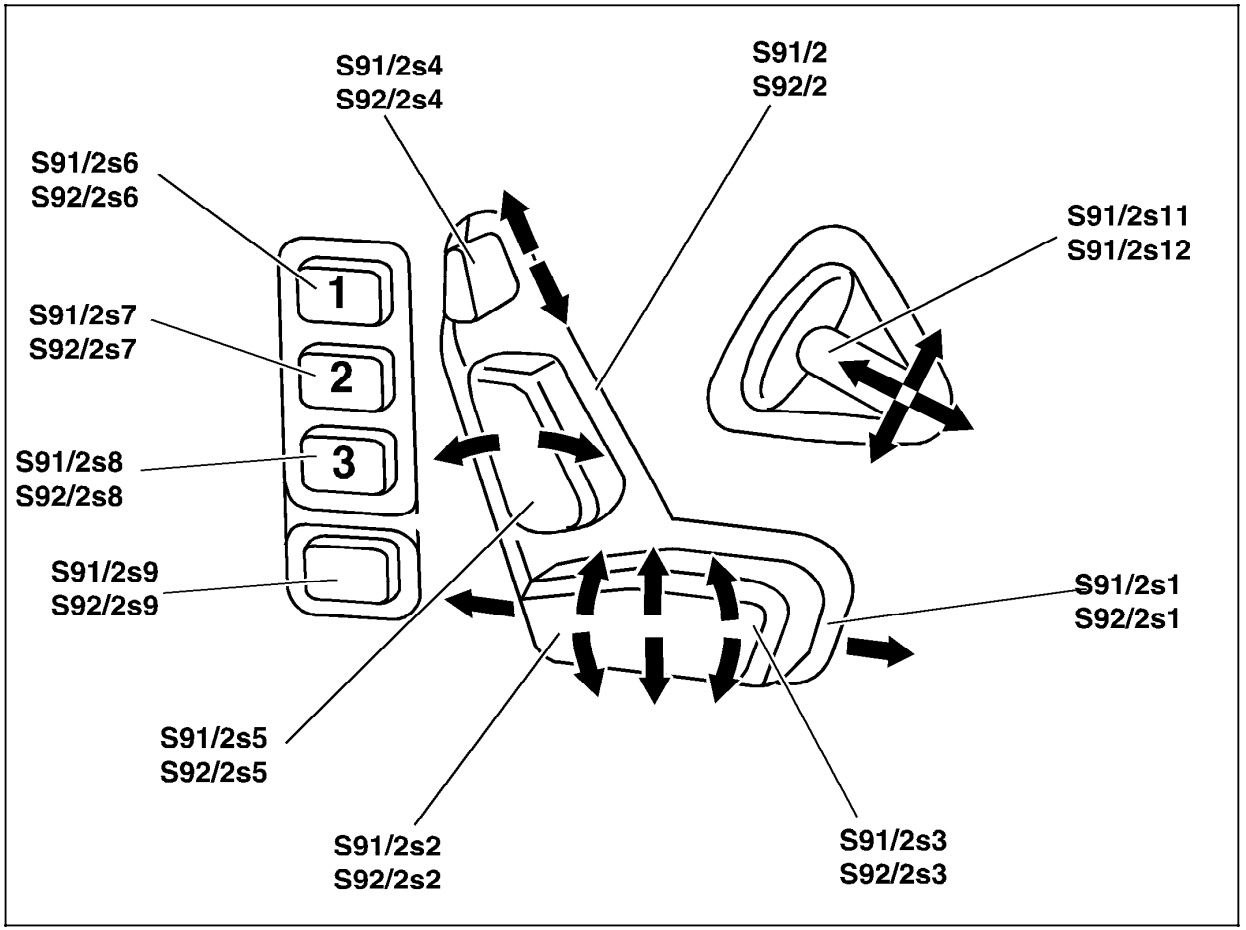
P91.29-0263-06

Figure 4

1	Left/right front door ESA switch group (S91/2, S92/2) connector
4	Left/right rear raise/lower motor (M27m2, M28m2) connector
5	Left/right rear fore/aft motor (M27m1, M28m1) connector
6	Left/right front raise/lower motor (M27m3, M28m3) connector
7	Left/right backrest fore/aft motor (M27m5, M28m5) and left/right head restraint raise/lower motor (M27m4, M28m4) connector
8	Left/right seatback release microswitch (S91/3, S92/3) and left/right hibernation microswitch (S91/1s2, S92/1s2) (as of 6/98) connector
9	Left/right inclination microswitch (S91/1s1, S92/1s1) connector (Model 208 only)
N32/1	Left front ESA control module (with memory)
N32/2	Right front ESA control module (with memory)

Electrical Test Program – Component Locations (Seat Adjustment with Memory)

ESA Switches



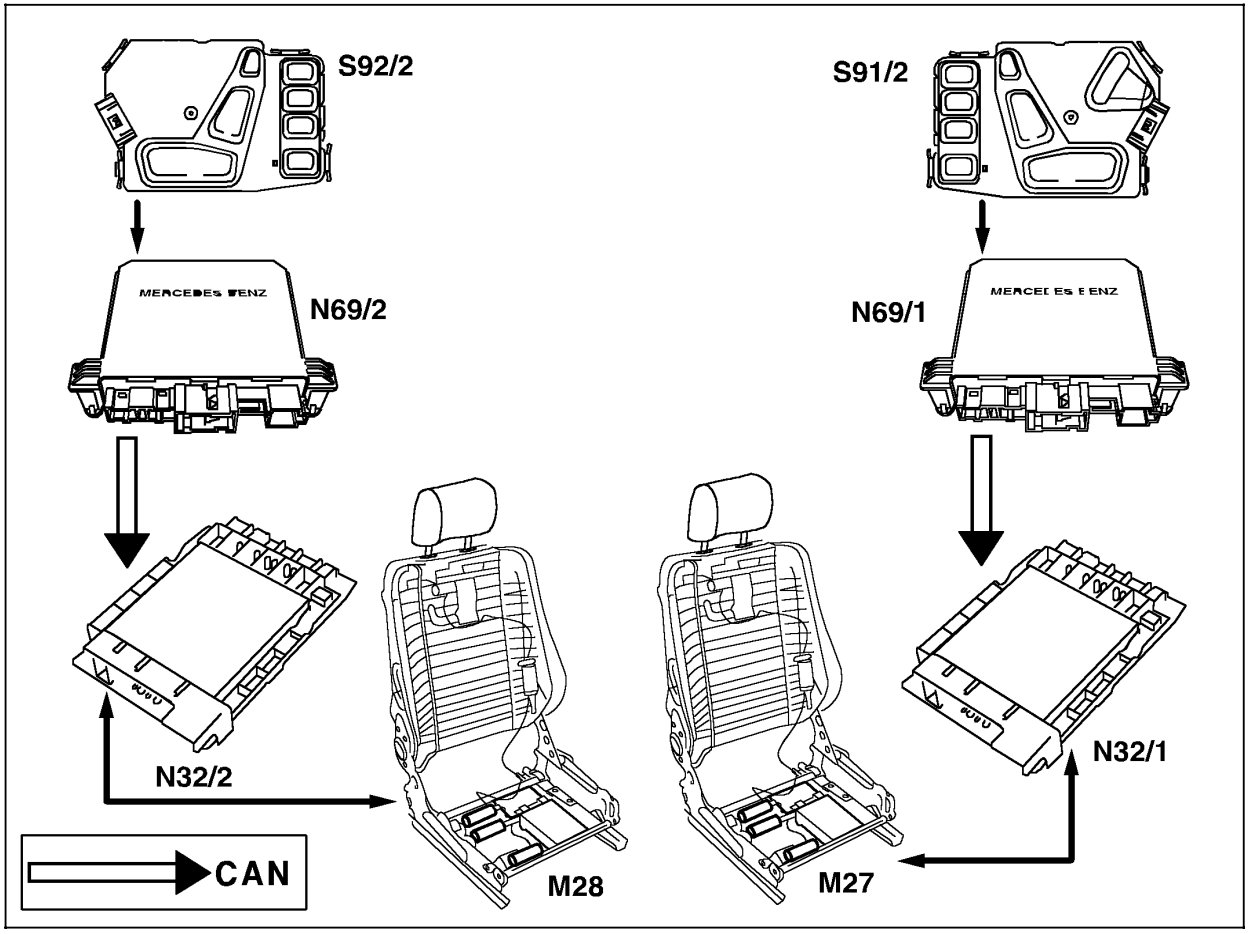
P91.29-0265-06

Figure 5

S91/2	Left front door ESA switch group (with memory)
S92/2	Right front door ESA switch group (with memory)
S91/2s1	Fore/aft switch
S92/2s1	Fore/aft switch
S91/2s2	Rear raise/lower switch
S92/2s2	Rear raise/lower switch
S91/2s3	Front raise/lower switch
S92/2s3	Front raise/lower switch
S91/2s4	Head restraint raise/lower switch
S92/2s4	Head restraint raise/lower switch
S91/2s5	Backrest fore/aft switch
S92/2s5	Backrest fore/aft switch
S91/2s6	Memory button 1 switch
S92/2s6	Memory button 1 switch
S91/2s7	Memory buton 2 switch
S92/2s7	Memory buton 2 switch
S91/2s8	Memory button 3 switch
S92/2s8	Memory button 3 switch
S91/2s9	Memory store button
S92/2s9	Memory store button
S91/2s11	Steering column up/down switch (Model 210 only)
S91/2s12	Steering column in/out switch (Model 210 only)

Electrical Test Program – Connection of Components

Model 210



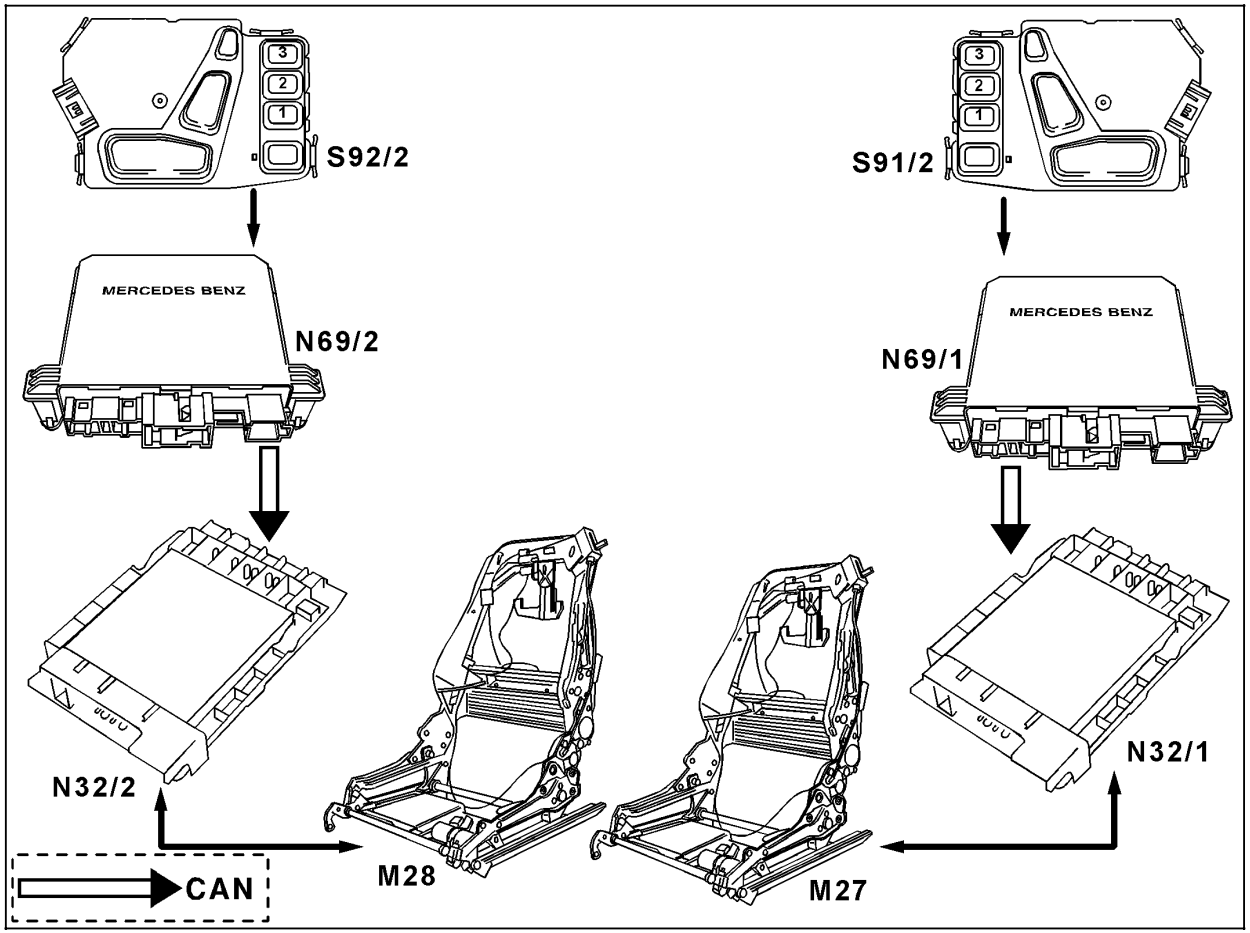
P91.29-0261-06

Figure 1

CAN	Control-Area-Network
M27	Left front ESA motor group (with memory)
M28	Right front ESA motor group (with memory)
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
S91/2	Left front door ESA switch group (with memory)
S92/2	Right front door ESA switch group (with memory)

Electrical Test Program – Connection of Components

Model 208



P91.29-0268-06

Figure 2

CAN	Control-Area-Network
M27	Left front ESA motor group (with memory)
M28	Right front ESA motor group (with memory)
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
S91/2	Left front door ESA switch group (with memory)
S92/2	Right front door ESA switch group (with memory)

Electrical Test Program – Preparation for Test (Seat Adjustment with Memory)

⚠ CAUTION!

Injury hazard from pinching and crushing, in extreme cases extremities can even be severed when caught in the mechanism.
Do not allow any body parts to be in the general area of the moving components.

Preparation for Test:

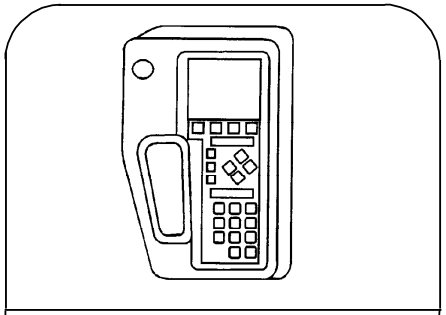
1. Review section 0, as well as 12, 20, 21, 31,
2. Battery voltage 11 – 14 V,
2. Check fuses - OK,
3. Prior to each connection or disconnection of connectors at the combination control module (N10-1), the battery ground cable must be disconnected (otherwise fault codes will be erroneously stored in DTC memory),
4. Ignition **ON,** or applicable door opened,
5. Voltage supply for control modules and CAN-data wiring OK (refer to D.M., Body and Accessories, Vol. 1, section 7.1 23),
6. Version coding correct (refer to 31).

Electrical wiring diagrams:

Electrical Troubleshooting Manual, Models 202/208; Volume 2, group 91,
Electrical Troubleshooting Manual, Model 210; Volume 2, group 91

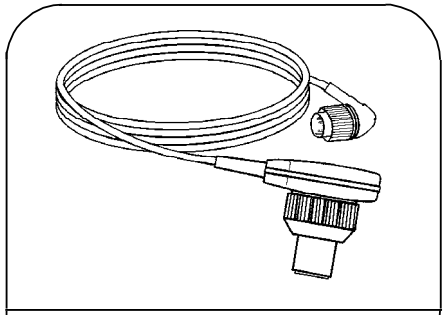
Electrical Test Program – Preparation for Test (Seat Adjustment with Memory)

Special Tools



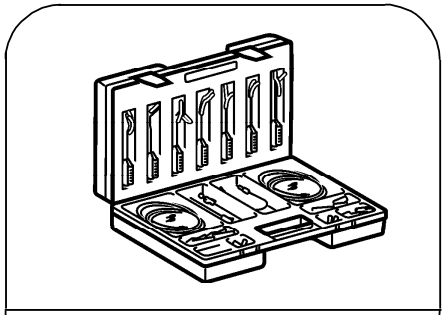
965 589 00 01 00

Hand-Held-Tester



965 589 00 40 00

Test cable



201 589 00 99 00

Electrical connecting set

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

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0		**Fore/aft switch group (S91/2s1, S92/2s1) with memory** Resistance	N69/1 N69/2 5 (5) — Ω — 3 (5)	Disconnect connector (5) from N69/1 or N69/2. S91/2s1 or S92/2s1: Pressed forward S91/2s1 or S92/2s1: Pressed aft	 approx. 43 Ω approx. 16 Ω	Wiring, S91/2 or S92/2

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
2.0		**Fore/aft motor (M27m1 or M28m1)** Voltage supply	N32/1 N32/2 2 (5) – V + – 1 (5)	Connector 1 on N32/1, N32/2 connected. Backrest to vertical position. Connector 5 disconnected from N32/1, N32/2	< 1 V	Wiring, N32/1, N32/2
				Fore/aft switch (S91/2s1, S92/2s1) pressed forward.	11 – 14 V for approx. 1 sec.	
				Fore/aft switch (S91/2s1, S92/2s1) pressed aft.	–11 to –14 V for approx. 1 sec.	
		Hall-sensor Voltage supply	N32/1 N32/2 5 (5) – V + – 6 (5)		11 – 14 V	N32/1, N32/2
		Hall-sensor	N32/1 N32/2 5 (5) – V + – 6 (5)	Connector 5 connected to N32/1, N32/2. Take reading at socket with connector 5 connected.	7.7 – 8.8 V or 11.3 – 12.7 V	Wiring, M27m1 or M28m1

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
3.0		**Fore/aft motor (M27m1 or M28m1)**	N32/1 N32/2 1 — (5) — 2 (1) 2 — (5) — 11 (1)	**Disconnect** connectors **1 and 5** from N32/1 or N32/2. ⚠ **CAUTION!** **Injury hazard due to crushing!** Bridge sockets 1 and 2 with fused jumper wire 124 589 37 63 00	Motor (M27m1, M28m1) runs.	Wiring, M27m1 or M28m1
4.0		**Front raise/lower switch (S91/2s3, S92/2s3)** Resistance	N69/1 N69/2 7 — (5) — (Ω) — 5 (5)	Disconnect connector (5) from N69/1, N69/2. S91/2s3 or S92/2s3: Press raise S91/2s3 or S92/2s3: Press lower	approx. 43 Ω approx.16 Ω	Wiring, S91/2 or S92/2

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
5.0		**Front raise/lower motor (M27m3)** Voltage supply	N32/1 N32/2 2 (6) – V – 1 (6)	Connector 1 on N32/1, N32/2 connected. Connector 6 disconnected from N32/1, N32/2	 < 1 V	Wiring, N32/1, N32/2
				Raise/lower switch (S91/2s3, S92/2s3) press raise	11 – 14 V for approx. 1 sec.	
				Raise/lower switch (S91/2s3, S92/2s3) press lower	–11 to –14 V for approx. 1 sec.	
		Hall-sensor Voltage supply	N32/1 N32/2 5 (6) – V – 6 (6)		11 – 14 V	N32/1, N32/2
		Hall-sensor	N32/1 N32/2 5 (6) – V – 6 (6)	Connector 6 connected to N32/1, N32/2. Take reading at socket with connector 6 connected.	7.7 – 8.8 V or 11.3 – 12.7 V	Wiring, M27m3 or M28m3

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
6.0		**Front raise/lower motor (M27m3 or M28m3)**	N32/1 N32/2 3 — (1) — (6) — 1 11 — (1) — (6) — 2	**Disconnect** connectors **1 and 6** from N32/1 or N32/2 ⚠ **CAUTION!** **Injury hazard due to crushing!** Bridge sockets 3 and 1 with fused jumper wire 124 589 37 63 00	Motor (M27m3, M28m3) runs.	Wiring, M27m3, M28m3
7.0		**Rear raise/lower switch (S91/2s2, S92/2s2)** Resistance	N69/1 N69/2 3 — (5) — (5) — 5	Disconnect connector (5) from N69/1, N69/2 S91/2s2 or S92/2s2: Press raise S91/2s2 or S92/2s2: Press lower	 approx. 169 Ω approx. 75 Ω	Wiring, S91/2 or S92/2

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
8.0		**Raise/lower motor (M27m2 or M28m2)** Voltage supply	N32/1 N32/2 2 (4) — V — 1 (4)	Connector 1 on N32/1, N32/2 connected. Connector 4 disconnected from N32/1, N32/2	< 1 V	Wiring, N32/1, N32/2
				Raise/lower switch (S91/2s3, S92/2s3) pressed to raise.	11 – 14 V for approx. 1 sec.	
				Raise/lower switch (S91/2s3, S92/2s3) pressed to lower.	–11 to – 14 V for approx. 1 sec.	
		Hall-sensor Voltage supply	N32/1 N32/2 5 (4) — V — 6 (4)		11 – 14 V	N32/1, N32/2
		Hall-sensor	N32/1 N32/2 5 (4) — V — 6 (4)	Connector 4 connected to N32/1, N32/2. Take reading at socket with connector 4 connected.	7.7 – 8.8 V or 11.3 – 12.7 V	Wiring, M27m2, M28m2

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
9.0		**Front raise/lower motor (M27m2 or M28m2)**	N32/1 N32/2 1 — (4) — 3 (1) 2 — (4) — 11 (1)	**Disconnect** connectors **1 and 4** from N32/1 or N32/2 ⚠ **CAUTION!** **Injury hazard due to crushing!** Bridge sockets 3 and 1 with fused jumper wire 124 589 37 63 00	Motor (M27m2, M28m2) runs.	Wiring, M27m2 or M28m2
10.0		**Backrest/fore (S91/2s5, S92/2s5)** Resistance	N69/1 N69/2 6 — (5) — 5 (5)	Disconnect connector (5) from N69/1, N69/2 S91/2s5 or S92/2s5: Pressed foreward S91/2s5 or S92/2s5: Pressed aft	approx. 43 Ω approx. 16 Ω	Wiring, S91/2 or S92/2

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
11.0		**Fore/aft motor (M27m5 or M28m5)** Voltage supply	N32/1 N32/2 2 (7) – V + 1 (7)	Connector 1 on N32/1, N32/2 connected. Connector 7 disconnected from N32/1, N32/2.	< 1 V	Wiring, N32/1, N32/2
				Fore/aft switch (S91/2s5, S92/2s5) pressed forward.	11 – 14 V for approx. 1 sec.	
				Fore/aft switch (S91/2s5, S92/2s5) pressed aft.	– 11 to –14 V for approx. 1 sec.	
		Hall-sensor Voltage supply	N32/1 N32/2 5 (7) – V + 6 (7)		11 – 14 V	N32/1, N32/2
		Hall-sensor	N32/1 N32/2 5 (7) – V + 6 (7)	Connector 7 connected to N32/1, N32/2. Take reading at socket with connector 7 connected.	7.7 – 8.8 V or 11.3 – 12.7 V	Wiring, M27m5 or M28m5

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
12.0		**Backrest fore/aft motor (M27m5 or M28m5)**	N32/1 N32/2 4 (7) — 3 (1) 2 (7) — 11 (1)	**Disconnect** connectors **1 and 7** from N32/1 or N32/2. Backrest to verical position. ⚠ **CAUTION!** **Injury hazard due to crushing!** Bridge sockets 4 and 3 with fused jumper wire 124 589 37 63 00	Motor (M27m5, M28m5) runs.	Wiring, M27m5 or M28m5
13.0		**Front raise/lower switch (S91/2s4, S92/2s4)** Resistance	N69/1 N69/2 5 (5) — 7 (5)	Disconnect connector (5) from N69/1, N69/2. S91/2s4 or S92/2s4: Pressed raise S91/2s4 or S92/2s4: Pressed lower	 approx. 170 Ω approx.75 Ω	Wiring, S91/2 or S92/2

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
14.0		**Head restraint raise/lower motor (M27m4 or M28m4)** Voltage supply	N32/1 N32/2 1 (7) — V — 4 (7)	Connector 1 on N32/1, N32/2 connected. Connector (7) disconnected from N32/1, N32/2.	< 1 V	Wiring, S91/2, S92/2, N32/1, N32/2
				Raise/lower switch (S91/2s4, S92/2s4) press to raise.	– 11 to – 14 V for approx. 1 sec.	
				Raise/lower switch (S91/2s4, S92/2s4) press to lower.	11 – 14 V for approx. 1 sec.	
		Hall-sensor Voltage supply	N32/1 N32/2 5 (7) — V — 3 (7)		11 – 14 V	N32/1, N32/2
		Hall-sensor	N32/1 N32/2 2 (7) — V — 3 (7)	Connector 7 connected to N32/1, N32/2. Take reading at socket with connector 7 connected.	7.7 – 8.8 V or 11.3 – 12.7 V	Wiring, M27m4 or M28m4

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
15.0		**Head restraint raise/lower motor (M27m4 or M28m4)**	N32/1 N32/2 1 (7) — 3 (1) 4 (7) — 11 (1)	**Disconnect** connector (**1 and 7**) from N32/1 or N32/2. ⚠ **CAUTION!** **Injury hazard due to crushing!** Bridge sockets 1 and 3 with fused jumper wire 124 589 37 63 00	Motor (M27m4, M28m4) runs.	Wiring, M27m4 or M28m4
16.0		**Backrest unlocking (M27m8 or M28m8) (Motor) (Model 208 only)**	N32/1 N32/2 5 (8) — 1 (8)	Ignition: **OFF**. Backrest locked in upright position, Take reading at connector S91/3: Activated S91/3: Not activated	 11 – 14 V for approx. 4 secs. < 1V	Wiring, ⇒ 19.0 M27m8 or M28m8

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
17.0		**Left front door ESA switch group (S91/2, S92/2)** Resistance		Disconnect connector (5) from N69/1, N69/2.		Wiring, S91/2 or S92/2
			N69/1 N69/2 3 — (-Ω+) — 5	**Button 1:** Rest position Press button:	 > 20K Ω approx. 330 Ω	
			N69/1 N69/2 7 — (-Ω+) — 5	**Button 2:** Rest position Press button:	 > 20K Ω approx. 330 Ω	
			N69/1 N69/2 6 — (-Ω+) — 5	**Button 3:** Rest position Press button:	 > 20K Ω approx. 169 Ω	
			N69/1 N69/2 6 — (-Ω+) — 5	**Green button:** Rest position Press button:	 > 20K Ω approx. 330 Ω	

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
18.0		**Left/right front door ESA switch group with memory (S91/2, S92/2)** Voltage supply	N69/1 N69/2 5 (5) — V — 1 (5)	Parking lights: **ON**	9 – 13 V	N69/1, N69/2
19.0		**Left front seatback release microswitch (S91/3, S92/3)** (Model 208 up to 6/98 only)	N32/1 N32/2 2 (8) — Ω — 6 (8)	**Disconnect** connector **1** from N32/1, N32/2 Backrest: Locked Unlocked	 > 20 K Ω < 1 K Ω	Wiring, S91/3, S92/3
20.0		**Left/right front seatback release microswitch (S91/3, S92/3) with left/right front hibernation microswitch (S91/1s2, S92/1s2)** **Resistance test of switching circuit** (Model 208 as of 06/98 only)	N32/1 N32/2 2 (8) — Ω — 6 (8)	Ignition: **OFF** **Disconnect** connector **1** from N32/1, N32/2 Backrest: Vertical (locked) Pull on unlock lever of seatback, seatback remains in vertical position.	 > 20 K Ω < 1 K Ω	Wiring, S91/3, S92/3 If values are OK; ⇒ 20.1

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
20.1		**Left/right front seatback release microswitch (S91/3, S92/3) with left/right front hibernation microswitch (S91/1s2, S92/1s2) Resistance test of switching circuit**	N69/1 N69/2 2 (8) — V — 6 (8)	Ignition: **OFF** Tilt backrest forward approx. 20 degrees.	< 1 Ω	S91/1s2, S92/1s2
21.0		**Left/right front seatback inclination microswitch (S91/1, S92/1)** (Model 208 only)	N32/1 N32/2 1 (9) — Ω — 2 (9)	**Disconnect** connector **1** from N32/1, N32/2 Backrest: Locked (vertical): Tilted forward:	 > 20 K Ω < 1 K Ω	Wiring, S91/1, S92/1

Version Coding: ESA with Memory

Version coding must be undertaken when new left/right ESA control module(s)(N32/1, N32/2) are connected to battery current for the first time.

Model 210 Version Coding

- Seat adjustment motors AEG (Hammerstein) with head restraint preset
- Seat adjustment motors AEG (Hammerstein) without head restraint preset
- Seat adjustment motors Bosch (Brose) with head restraint preset
- Seat adjustment motors Bosch (Brose) without head restraint preset
- Steering coulmn adjustment active/inactive

Model 208 Version Coding

- Seat adjustment motors AEG (Hammerstein) with head restraint preset
- Seat adjustment motors AEG (Hammerstein) without head restraint preset

Version coding must be performed when new front driver-side/passenger side door control module(s) (N69/1, N69/2) are connected to battery current for the first time.

Version Coding Models 208, 210:

Electrical Seat Adjustment (ESA):	YES/NO
Country version (for N69/1):	Rest of the world USA J

The left/right front ESA control module (with memory) (N32/1, N32/2) and the Front driver-side/passenger-side door control module (N69/1, N69/2) may be coded numerous times as necessary.