

3.3 Pneumatic System Equipment (PSE)

Contents

3.3 Orthopedic Seat Backrest (PSE/OSB)

Model 210

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Diagnosis – Function Test (Orthopedic Seat Backrest)

A. Multi-contour backrest

Preparation for Test:

1. Check fuses F1–14, F1–22, F4–3, F4–5 ok,
2. Battery voltage 11 – 14 V.
3. Ignition: **ON**

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy ¹⁾
⇒ 1.0 Changing backrest contour in X-direction (intensity of lower and upper air cushion).	Turn pressure adjuster for upper or lower air cushion slowly from minimum to maximum at least 5 times.	Backrest must change shape noticeably in lumbar support area.	Backrest does not change shape and pump motor in PSE control module (A37) does not run . 23 PSE ⇒ 1.0– 8.0, 2.1 23 PSE ⇒ 1.0– 3.0, Combination control module (N10-1). PSE control module (A37). Backrest does not change shape even though pump motor in PSE control module (A37/5) runs . 32 ⇒ 1.0– 2.0, 33 PSE ⇒ 3.0

¹⁾ Observe Preparation for Test, see 22.

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Diagnosis – Function Test (Orthopedic Seat Backrest)

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy ¹⁾
⇒ 2.0 Changing backrest contour side bolster.	Use side bolster rocker switch to change pressure from minimum to maximum 5 times.	Backrest must change shape noticeably in lumbar support area.	Backrest does not change shape and pump motor in PSE control module (A37) does not run . 23 PSE ⇒ 1.0– 8.0, 2.1 23 PSE ⇒ 1.0– 3.0, Combination control module (N10-1). PSE control module (A37). Backrest does not change shape even though pump motor in PSE control module (A37/5) runs . 32 ⇒ 3.0, 33 PSE ⇒ 3.0
⇒ 3.0 Changing seat bottom cushion length.	Turn pressure adjuster for seat bottom cushion from minimum to maximum 5 times.	Seat cushion length must change noticeably.	Backrest does not change shape and pump motor in PSE control module (A37) does not run . 23 PSE ⇒ 1.0– 8.0, 2.0 23 PSE ⇒ 1.0– 3.0, N10-1, A37 Backrest does not change shape even though pump motor in PSE control module (A37/5) runs . 32 ⇒ 4.0, 33 PSE ⇒ 3.0

¹⁾ Observe Preparation for Test, see 22.

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Electrical Test Program – Component Locations (Orthopedic Seat Backrest)

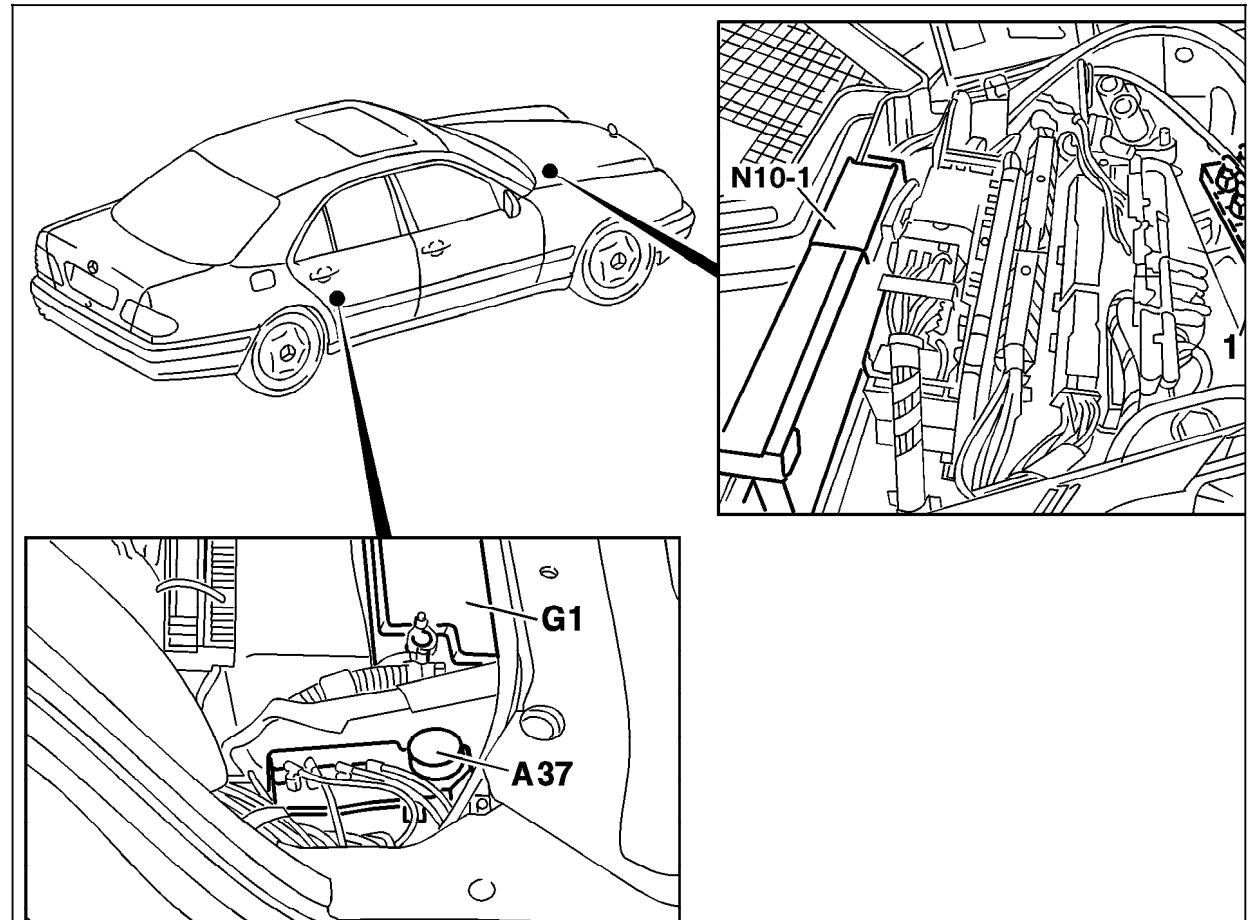


Figure 1

A37 PSE control module, combined function

G1 Battery

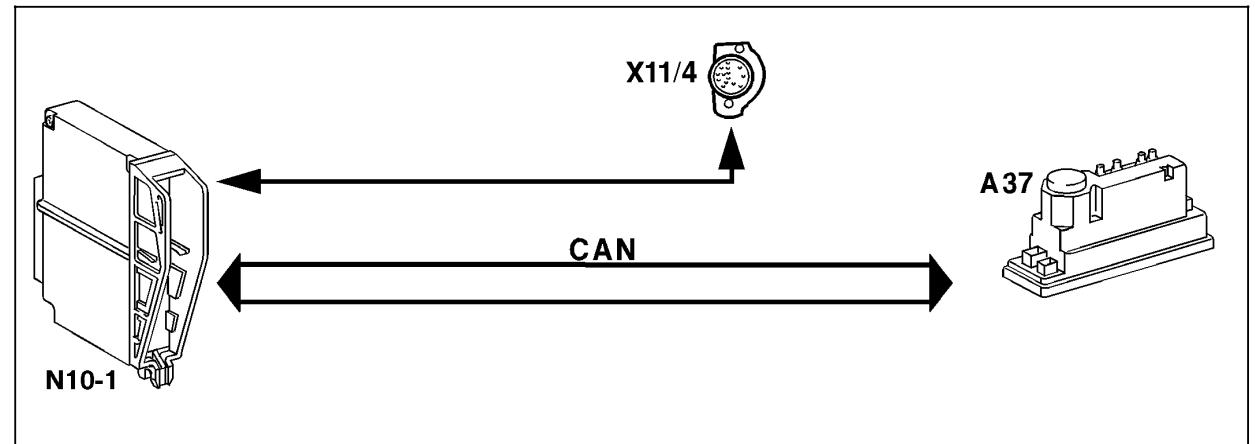
N10-1 Combination control module

U80.20-0224-06

Electrical Test Program – Connection of Components (Orthopedic Seat Backrest)

Figure 1

A37 PSE control module, combined function
CAN Control-Area-Network
N10-1 Combination control module
X11/4 Data link connector (DTC readout)



U80.20-0235-04

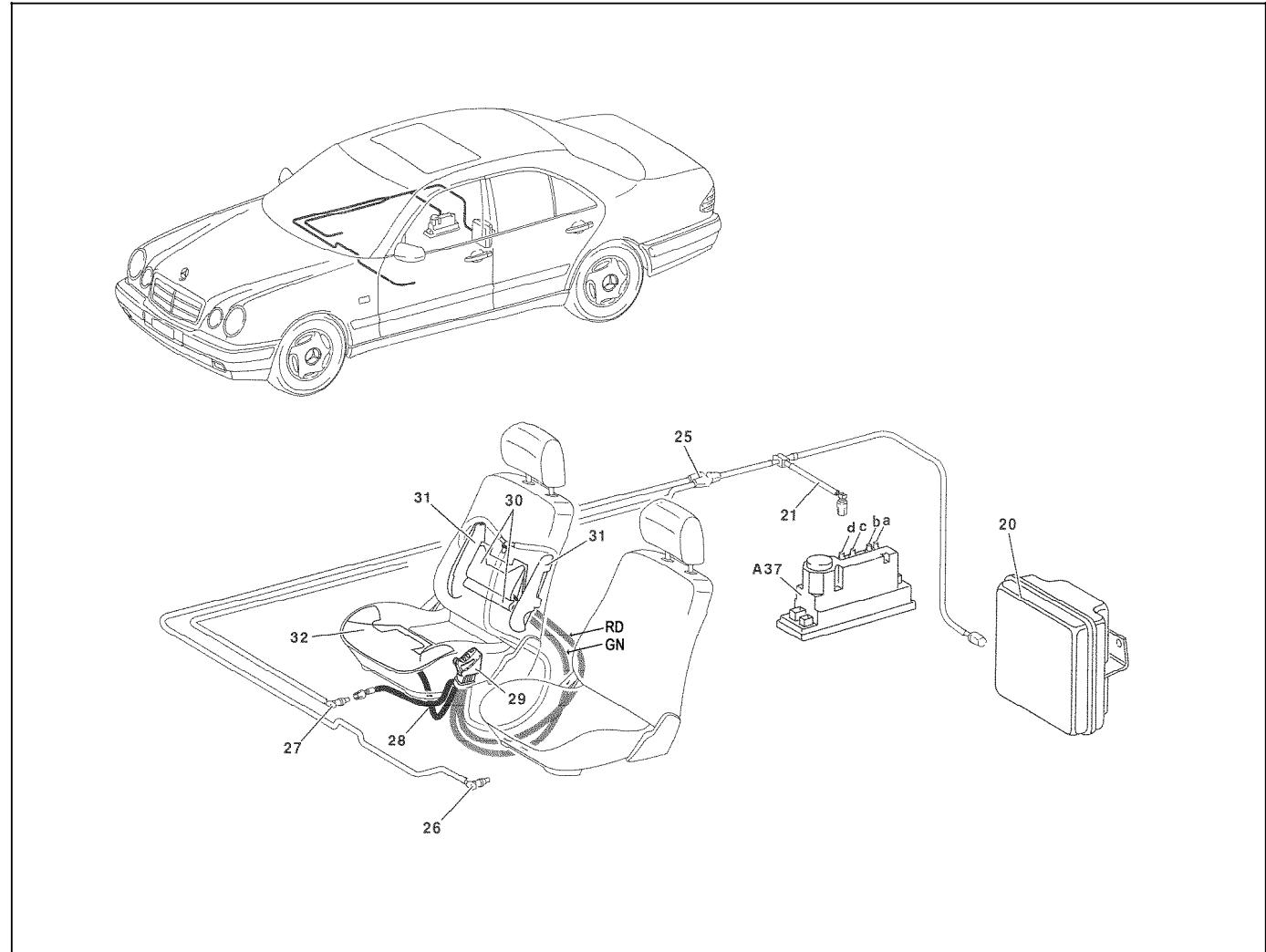
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Pneumatic Test Program – Component Locations (OSB)

Figure 1

- A37 PSE control module, combined functions
- a Pneumatic connection, OSB
- b Pneumatic connection, MVA
- c Pneumatic connection CL, RTR
- d Pneumatic connection, RHR
- 20 OSB reservoir
- 21 OSB pneumatic hose (color code: gray)
- 25 Pneumatic distributor
- 26 Pneumatic line, OSB, left front seat
- 27 Pneumatic line, OSB, right front seat
- 28 Pneumatic hose set, OSB right front seat
(left front seat is mirror image)
- 29 OSB control valve, right front seat
(left front seat is mirror image)
- 30 OSB center insert
(left front seat is mirror image)
- 31 OSB side bolster insert
(left front seat is mirror image)
- 32 OSB seat bottom insert
(left front seat is mirror image)
- RD Red
- GN Green



P80-5270-06x

3.3 Pneumatic System Equipment (PSE)

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Pneumatic Test Program – Test (Orthopedic Seat Backrest)

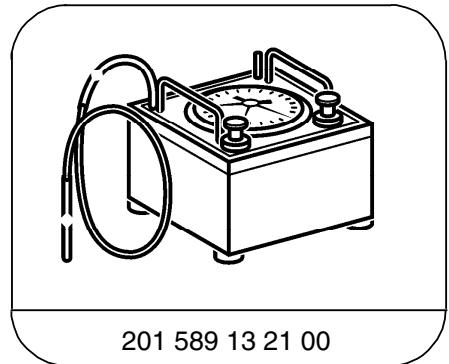
Preliminary work:

PSE control module voltage supply 23 **PSE** ⇒ 1.0, 2.0
PSE Control Module Test 32 **PSE**

Data (mbar)

Test Procedure	Permissible deviation
Allowable system leakage at 600 mbar pressure in 1 minute.	30 mbar

Special Tools



Tester

Pneumatic Test Program – Test (OSB)

A. Entire system

Preparation for Test:

1. Provide access to PSE control module (A37) and disconnect **grey** OSB pneumatic line with socket from PSE control module.
2. Connect tester to disconnected pneumatic line using connector 202 805 03 44.

Parts Required for Test:

1	Connector	202 805 03 44
2	Pneumatic hose, 50 mm long	007 997 61 82
1	Pneumatic line, 1 m long	000 158 14 35

Note:

The connections on the PSE control module and pneumatic multiple connector are marked with their German acronyms. In other words:

ZV (German) = **CL** (English),

SRU (German) = **MVA** (English),

OSL (German) = **OSB** (English).

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0	Complete multi-contour backrest system Lower OSB center insert	Yellow connector on tester.	Set pressure adjuster for lower OSB center insert to maximum. Set pressure adjuster for upper OSB center insert and seat cushion length to minimum. Set side bolster rocker switch to minimum. Apply 600 mbar pressure in each of the 3 height settings.	Pressure loss 30 mbar in 1 minute.	⇒ 5.0–9.0

Pneumatic Test Program – Test (OSB)

A. Entire system

2.0	Complete multi-contour backrest system Upper OSB center insert	Yellow connector on tester.	Set pressure adjuster for upper insert to maximum. Set pressure adjuster for lower OSB center insert and seat cushion length to minimum. Set side bolster rocker switch to minimum. Apply 600 mbar pressure in each of the 3 height settings.	Pressure loss 30 mbar in 1 minute.	⇒ 5.0–9.0
3.0	Complete multi-contour backrest system Side bolster	Yellow connector on tester.	Set side bolster rocker switch to maximum. Set pressure adjuster for lower and upper OSB inserts and seat lengthen to minimum. Apply 600 mbar pressure in each of the 3 height settings.	Pressure loss 30 mbar in 1 minute.	⇒ 5.0–9.0

Pneumatic Test Program – Test (OSB)

A. Entire system

4.0	Complete multi-contour backrest system Seat cushion length	Yellow connector on tester.	Set pressure adjuster for seat cushion lengthen to maximum. Set pressure adjuster for lower and upper OSB center insert to minimum. Set side bolster rocker switch to minimum. Apply 600 mbar pressure in each of the 3 height settings.	Pressure loss 30 mbar in 1 minute.	⇒ 5.0–9.0
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B. Line with pressure reservoir/line with control valve**Preparation for Test:**

1. Connect tester to the **grey** OSB pneumatic line which leads to either the pressure reservoir below the rear seat cushion or to the control valve, using connector 202 805 03 44.

Notes:

- When testing the pneumatic lines with the pressure reservoir, cap the pneumatic lines which lead to the control valves.
- When testing the pneumatic lines with control valves, disconnect the pneumatic line at pressure reservoir and cap using connector 124 805 02 44.

The disconnected pneumatic lines are to be reconnected to the distributor with connector 007 997 61 82.

Parts Required for Test:

1	Connector, 50 mm long	007 997 61 82
1	Connector	202 805 03 44
1	Cap	000 987 11 45
2	Connector	124 805 02 44

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
5.0	Line and pressure reservoir	Yellow connector on tester.	Apply 600 mbar pressure to line and pressure reservoir.	Pressure drop 5 mbar in 1 minute.	32 ⇒ 8.0, Pressure reservoir leaks. Replace reservoir.
6.0	Line and control valve	Yellow connector on tester.	Set pressure adjusters as well as rocker switch at control valve to minimum. Apply 600 mbar pressure to line and control valve.	Pressure drop 5 mbar in 1 minute.	32 ⇒ 7.0–8.0

Pneumatic Test Program – Test (OSB)**C. Control valve****Preparation for Test:**

1. Connect tester to separation connection underneath seat.

Parts Required for Test:

1	connector	202 805 03 44
2	Rubber hose, 50 mm long	007 997 61 82
1	Pneumatic line, 1 m long	000 158 14 35

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
7.0	OSB control valve pressurized in each of the 3 height positions	Yellow connector on tester.	Set pressure adjusters and rocker switches to minimum. Apply 600 mbar pressure to pressure regulator.	Pressure drop 5 mbar in 1 minute.	Control valve or pneumatic line to control valve leaks. Replace.

Pneumatic Test Program – Test (OSB)**D. Lines****Preparation for Test:**

1. Connect tester to one end of pneumatic line and plug other end with cap, part no. 000 987 11 45.

Parts Required for Test:

1	Cap	000 987 11 45
1	Rubber hose, 50 mm long	007 997 61 82
1	Connector	202 805 03 44
1	Connector	124 805 02 44

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
8.0	Leakage while pressurized	Yellow connector on tester.	Apply 600 mbar pressure to lines.	Pressure drop 0 mbar in 1 minute.	Pneumatic line with connectors leak. Replace.

Pneumatic Test Program – Test (OSB)**E. Air cushion****Preparation for Test:**

1. Provide access to connector between control valve and pneumatic lines.

Parts Required for Test:

- | | | |
|---|--------------------------|---------------|
| 1 | Rubber hose, 50 mm long | 007 997 61 82 |
| 1 | Pneumatic line, 1 m long | 000 158 14 35 |

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
9.0	Air cushion and pneumatic line leakage in side bolster or seat cushion	Yellow connector on tester.	Apply 200 mbar pressure individually to each line in the pneumatic harness.	Pressure drop 5 mbar in 1 minute.	Air cushion and pneumatic line in side bolster or seat cushion leak. Replace.