3.5 Orthopedic Seat Backrest (PSE/OSB)
Models 129, 140 as of M.Y. 1998

Activation of the Pneumatic System Equipment (PSE):
Working pressure of the PSE for the orthopedic seat backrest (OSB) is controlled entirely by the pressure switch in the PSE control module, once it has received the ignition ON signal.

Diagnosis – Function Test (Orthopedic Seat Backrest)

A. Multi-contour backrest

Preparation for Test:

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

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 minmum 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**. PSE version coding incorrect, PSE (A37). Backrest does not change shape even though pump motor in PSE control module (A37/5) **runs**. 32 PSE/OSB ⇒ 1.0, 32 PSE/OSB ⇒ 2.0, 32 PSE ⇒ 9.0

[1] Observe Preparation for Test, see 22.

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**. PSE version coding incorrect, PSE (A37). Backrest does not change shape even though pump motor in PSE control module (A37/5) **runs**. 32 PSE/OSB ⇒ 3.0, 32 PSE ⇒ 9.0
⇒ 3.0 Changing seat bottom cushion length. **Model 129 only**	Turn pressure adjuster for seat bottom cushion from minmum to maximum 5 times.	Seat cushion length must change noticeably.	Seat bottom cushion does not change and pump motor in PSE control module (A37) **does not run**. PSE version coding incorrect, PSE (A37). Seat bottom cushion does not change even though pump motor in PSE control module (A37/5) **runs**. 32 PSE/OSB ⇒ 4.0, 32 PSE ⇒ 9.0

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Component Locations (Orthopedic Seat Backrest)

Model 129

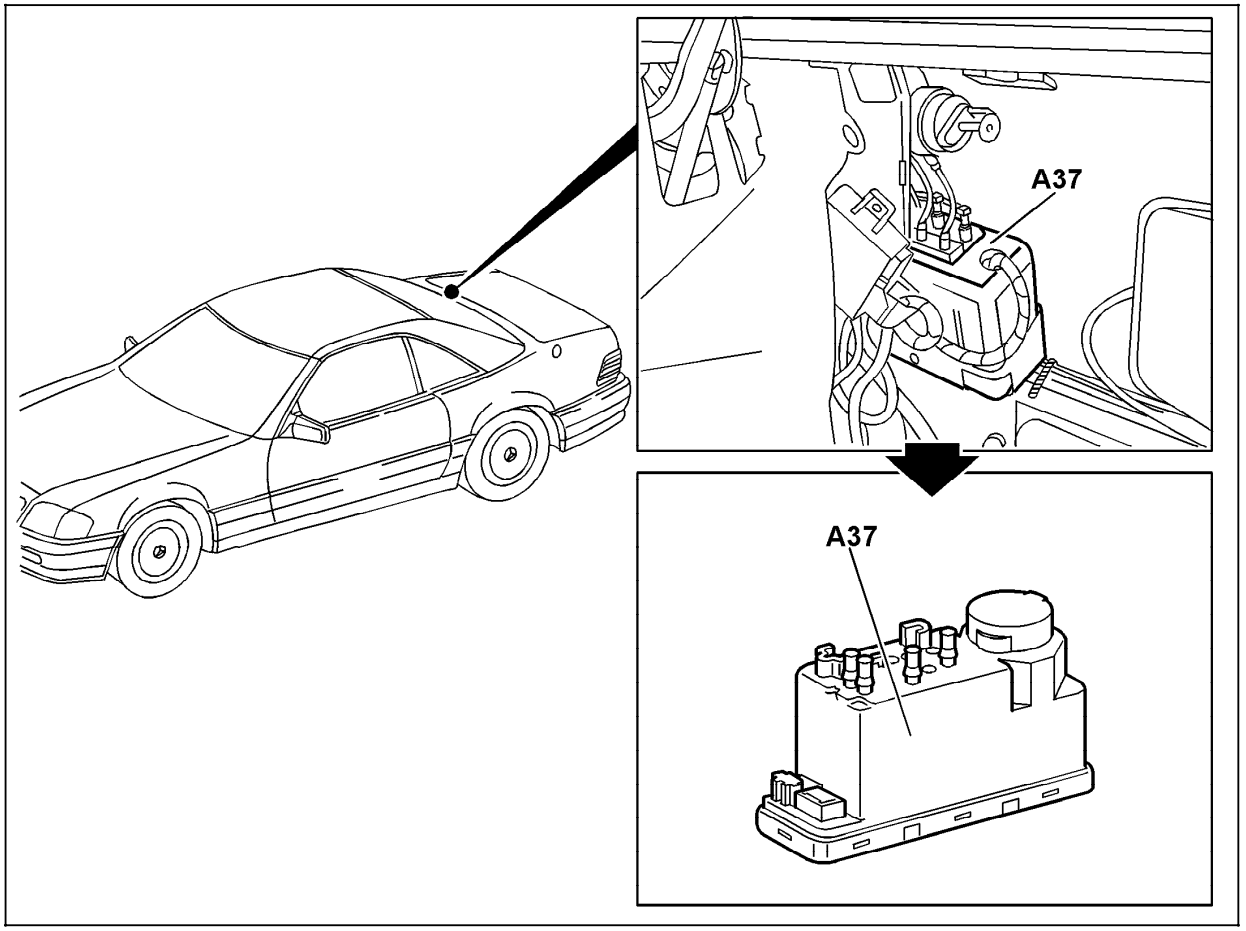

Figure 1

A37 PSE control module, combined function

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Electrical Test Program – Component Locations (Orthopedic Seat Backrest)

Model 140 sedan shown

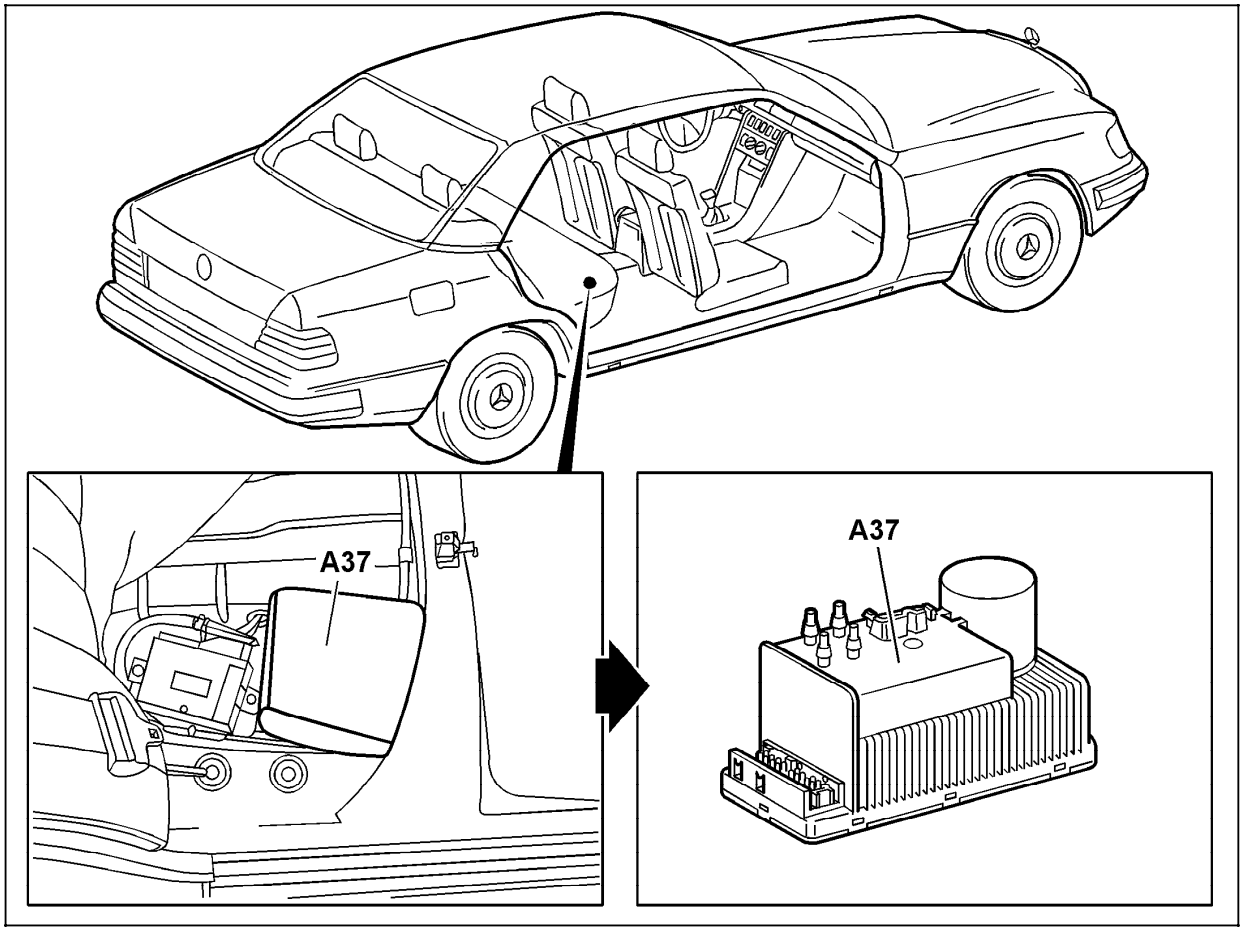

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Figure 1

A37 PSE control module, combined function

Pneumatic Test Program – Component Locations (OSB)

Model 129

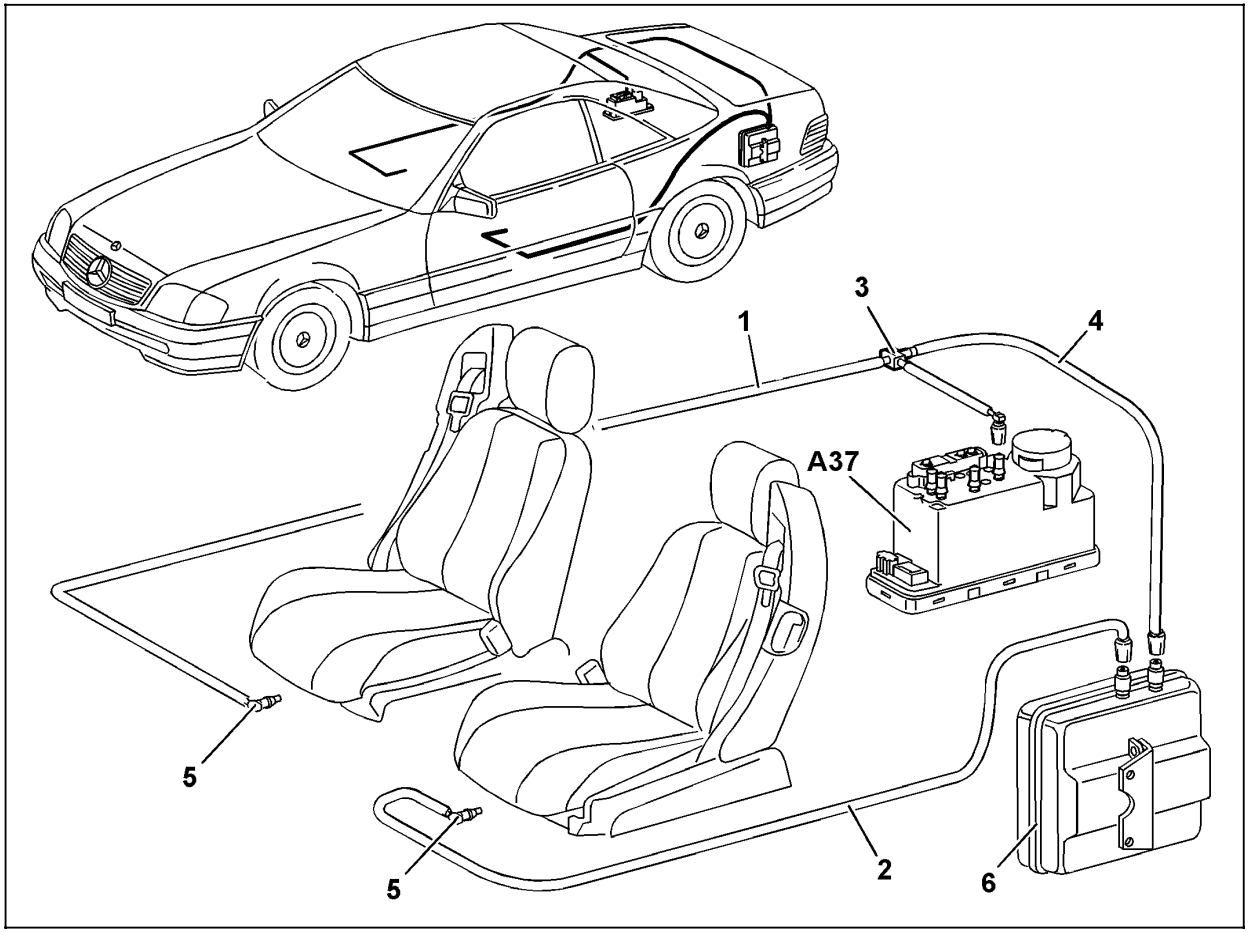

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Figure 1

A37	PSE control module, combined functions
1	Pneumatic line, OSB, passenger-side
2	Pneumatic line, OSB, driver's side
3	Pneumatic line, T-connector, OSB
4	Pneumatic line, vacuum reservoir
5	Pneumatic connector, seat
6	Vacuum reservoir

Pneumatic Test Program – Component Locations (OSB)

Model 140

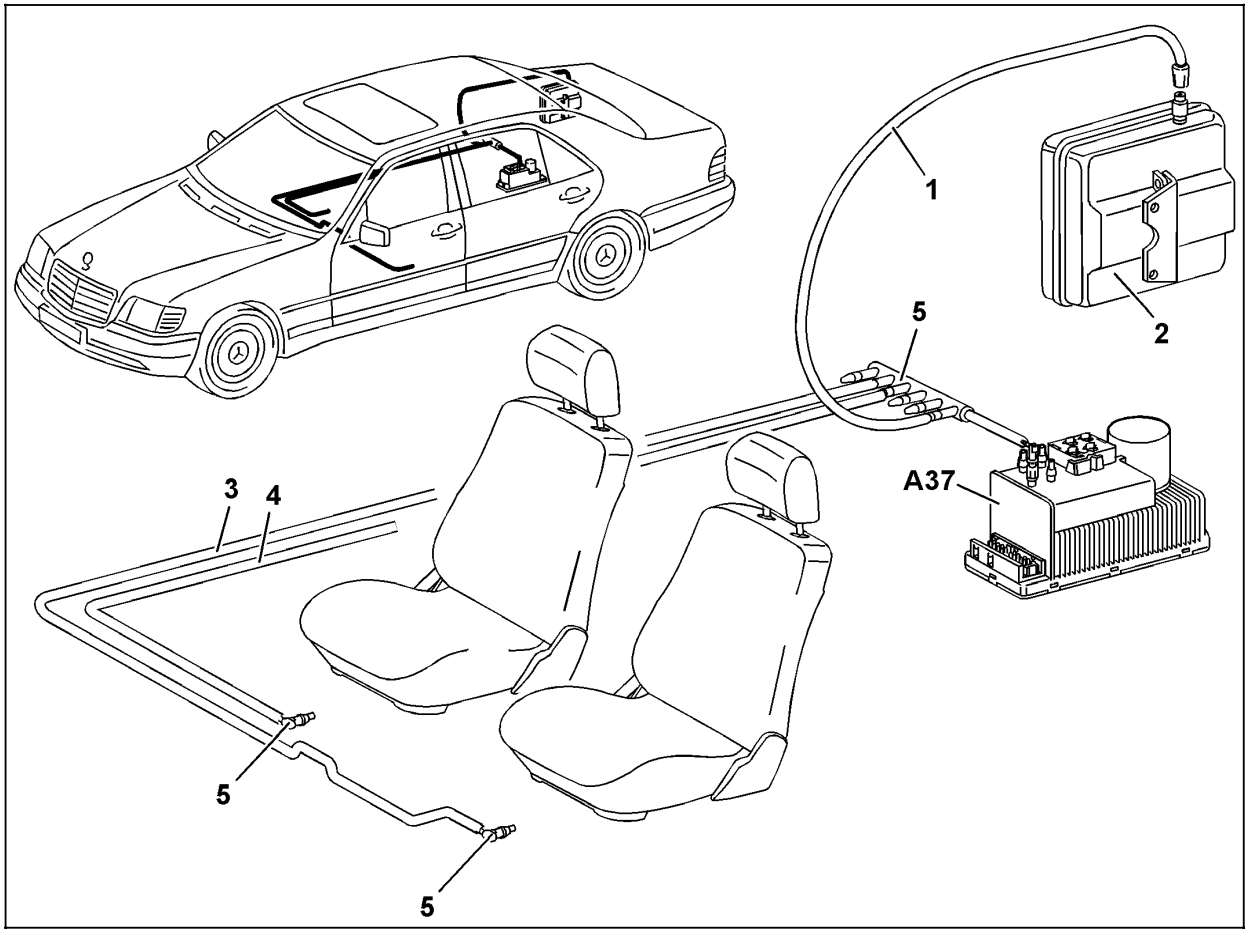

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Figure 1

A37	PSE control module, combined functions
1	Pneumatic line, vacuum reservoir
2	Vacuum reservoir
3	Pneumatic line, OSB, driver's seat
4	Pneumatic line, OSB, passenger-side seat
5	Pneumatic connector, seat

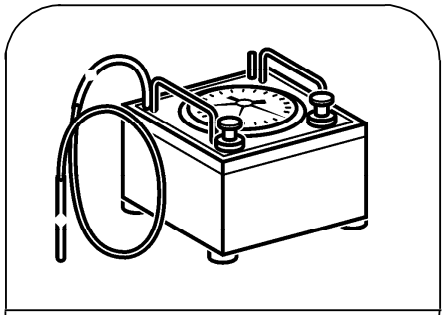
Pneumatic Test Program – Test (Orthopedic Seat Backrest)

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



201 589 13 21 00

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.	32 PSE/OSB ⇒ 5.0, 32 PSE/OSB ⇒ 6.0, 32 PSE/OSB ⇒ 7.0, 32 PSE/OSB ⇒ 8.0, 32 PSE/OSB ⇒ 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.	32 PSE/OSB ⇒ 5.0, 32 PSE/OSB ⇒ 6.0, 32 PSE/OSB ⇒ 7.0, 32 PSE/OSB ⇒ 8.0, 32 PSE/OSB ⇒ 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.	32 PSE/OSB ⇒ 5.0, 32 PSE/OSB ⇒ 6.0, 32 PSE/OSB ⇒ 7.0, 32 PSE/OSB ⇒ 8.0, 32 PSE/OSB ⇒ 9.0

Pneumatic Test Program – Test (OSB)

A. Entire system

4.0	**Complete multi-contour backrest system** Seat cushion length (models 129, 202, 208, 210 only)	**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.	32 PSE/OSB ⇒ 5.0, 32 PSE/OSB ⇒ 6.0, 32 PSE/OSB ⇒ 7.0, 32 PSE/OSB ⇒ 8.0, 32 PSE/OSB ⇒ 9.0

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 reservior, cap the pneumatic lines which lead to the control valves.
- When testing the pneumatic lines with control valves, disconnect the pneumatic line at pressure reservior 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.	Pressure reservoir leaks, Replace reservoir, 32 PSE/OSB ⇒ 8.0
6.0	**Line and control valve**	**Yellow** connector on tester.	Set pressure adjusters as well as rocker switch at control valve to mimmum. Apply 600 mbar pressure to line and control valve.	Pressure drop 5 mbar in 1 minute.	32 PSE/OSB ⇒ 7.0, 32 PSE/OSB ⇒ 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, Multi-contour seat 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 pneumatic 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 pneumatic 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.