

3.5 Pneumatic System Equipment (PSE)

Contents

3.5 Retractable Rear Head Restraints (PSE/RHR) Model 140 as of M.Y. 1998

	Page
Diagnosis	
Function Test	11/1
Electrical Test Program	
Component Locations	20/1
Preparation for Test refer to	22 PSE
Test	23/1
Pneumatic Test Program	
Component Locations	31/1
Test	32/1

Diagnosis – Function Test (Retractable Rear Head Restraint)

Preparation for Test:

1. Retractable rear head restraints extended up.
2. Ignition: **ON**
3. Battery voltage 11 – 14 V.
4. Check fuses ok.
5. Voltage to control modules and CAN data lines ok.

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy ¹⁾
⇒ 1.0 Retract rear head restraints.	Press RHR unlocking switch (S52).	Both retractable rear head restraints retract.	<p>Retractable rear head restraints do not retract and pump motor in PSE control module (A37) does not run. PSE version coding incorrect, PSE (A37).</p> <p>Retractable rear head restraints do not retract even though pump motor in PSE control module (A37) runs. Mechanical fault in RHR, 23 PSE/RHR ⇒ 1.0, 32 PSE/RHR ⇒ 1.0, 32 PSE ⇒ 10.0</p>

¹⁾ Observe Preparation for Test, see 22.

Electrical Test Program – Component Locations (RHR)

Model 140

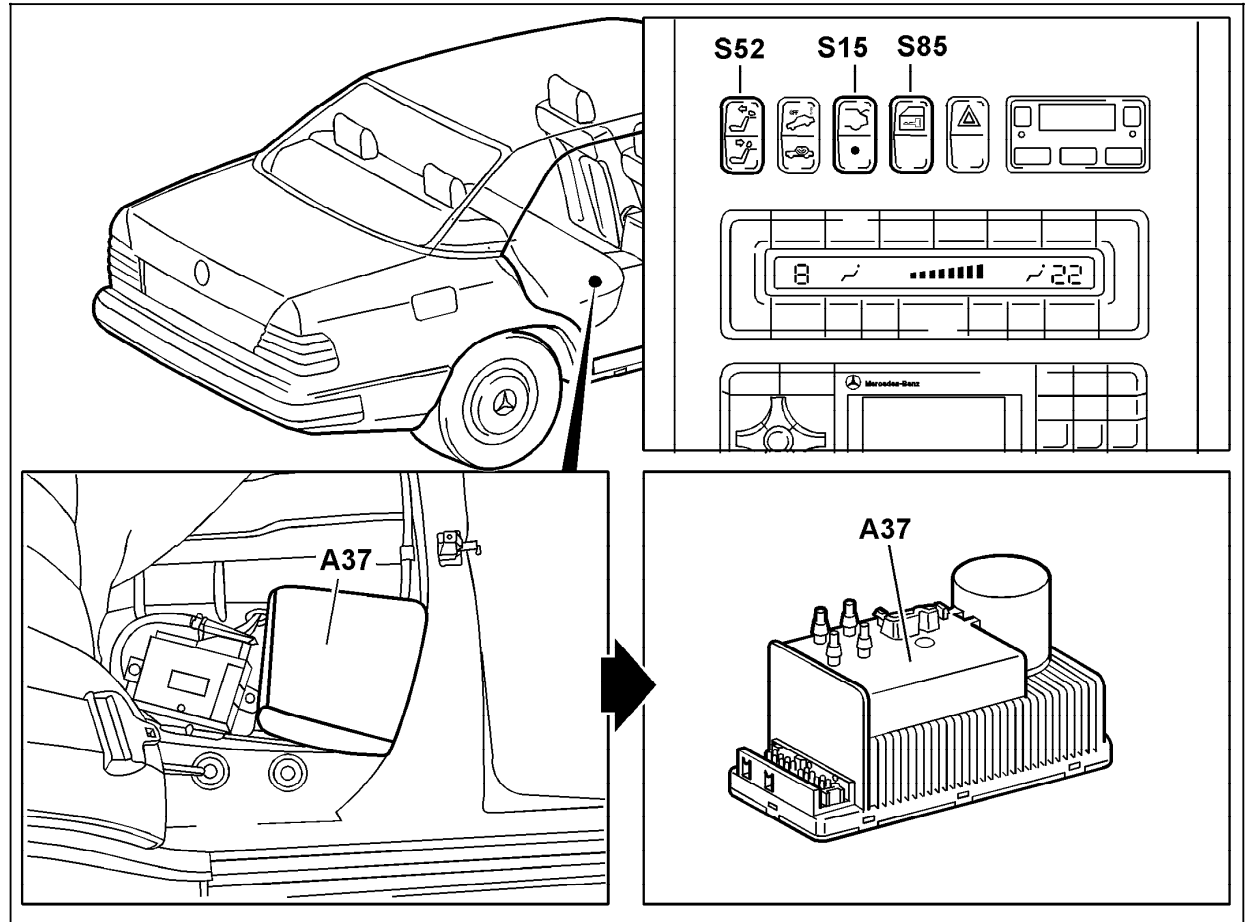


Figure 1

- A37 PSE control module, combined functions
- S52 RHR release switch

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Electrical Test Program - Preparation for Test

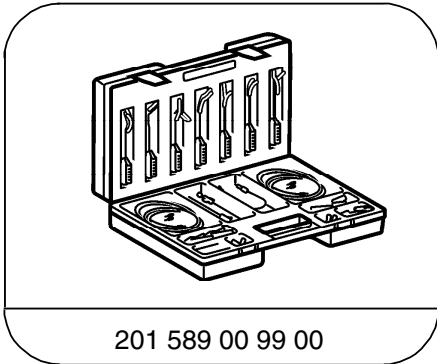
Preparation for Test:

1. Insert module specific module into HHT
2. Battery voltage 11 – 14 V,
3. Fuses ok,
5. Connect socket box with test cable according to connection diagram, see 22, Figures 1, 2 and 3 accordingly, for model being tested.
6. Review section 0, 11, 12, 20, 21, 22, 31, 32.

Electrical Wiring Diagrams:

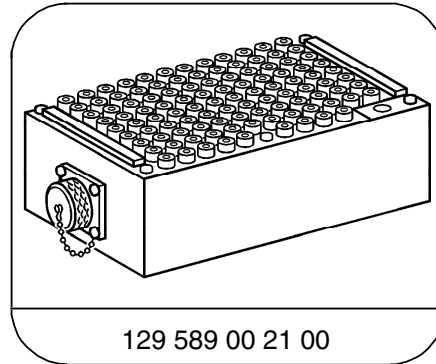
See Electric Troubleshooting Manual, Model 129, Volume 2, group 80,
Model 140, Volume 2, group 80,
Model 170, Volume 2, group 80

Special Tools



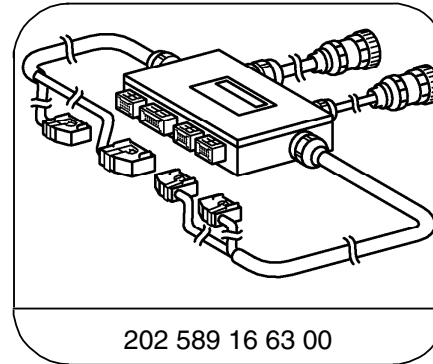
201 589 00 99 00

Electrical connecting set



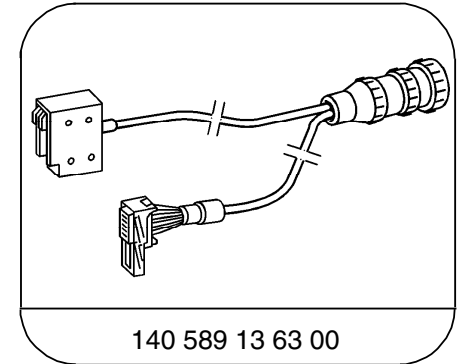
129 589 00 21 00

126-pin socket box



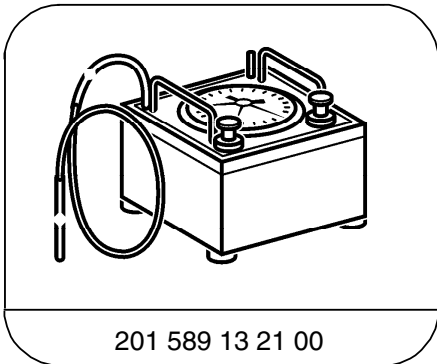
202 589 16 63 00

Test cable (82-pin)



140 589 13 63 00

21-pin test cable



201 589 13 21 00

Tester

3.5 Pneumatic System Equipment (PSE)

Models 129, 140, 170 as of M.Y. 1998

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 - Preparation for Test

Connection Diagram - Socket Box Model 129

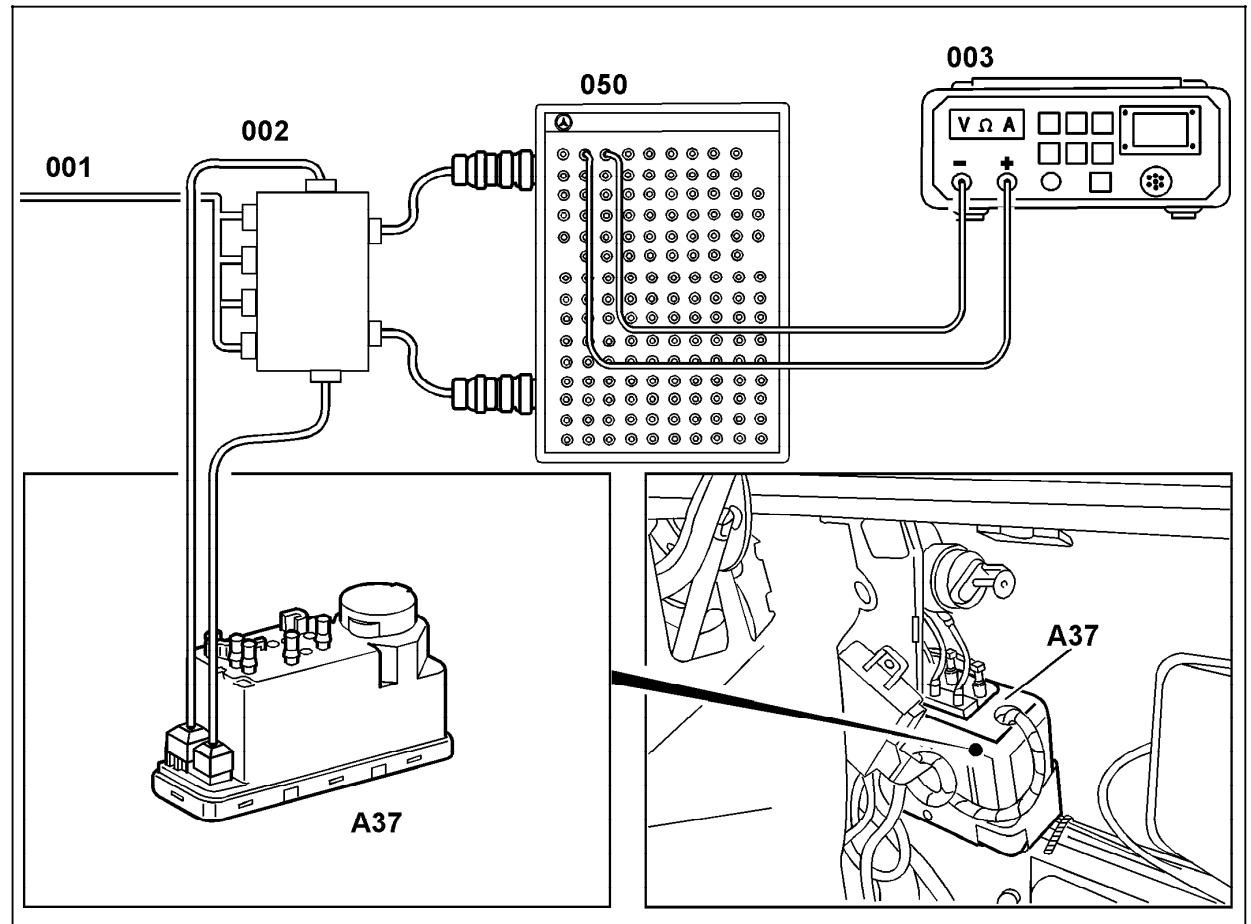


Figure 1

- 001 PSE control module connector
- 002 Test cable (202 589 16 63 00)
- 003 Multimeter
- 050 Socket box (35-pole)
- A37 PSE control module, combined functions

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Electrical Test Program - Preparation for Test

Connection Diagram - Socket Box Model 140

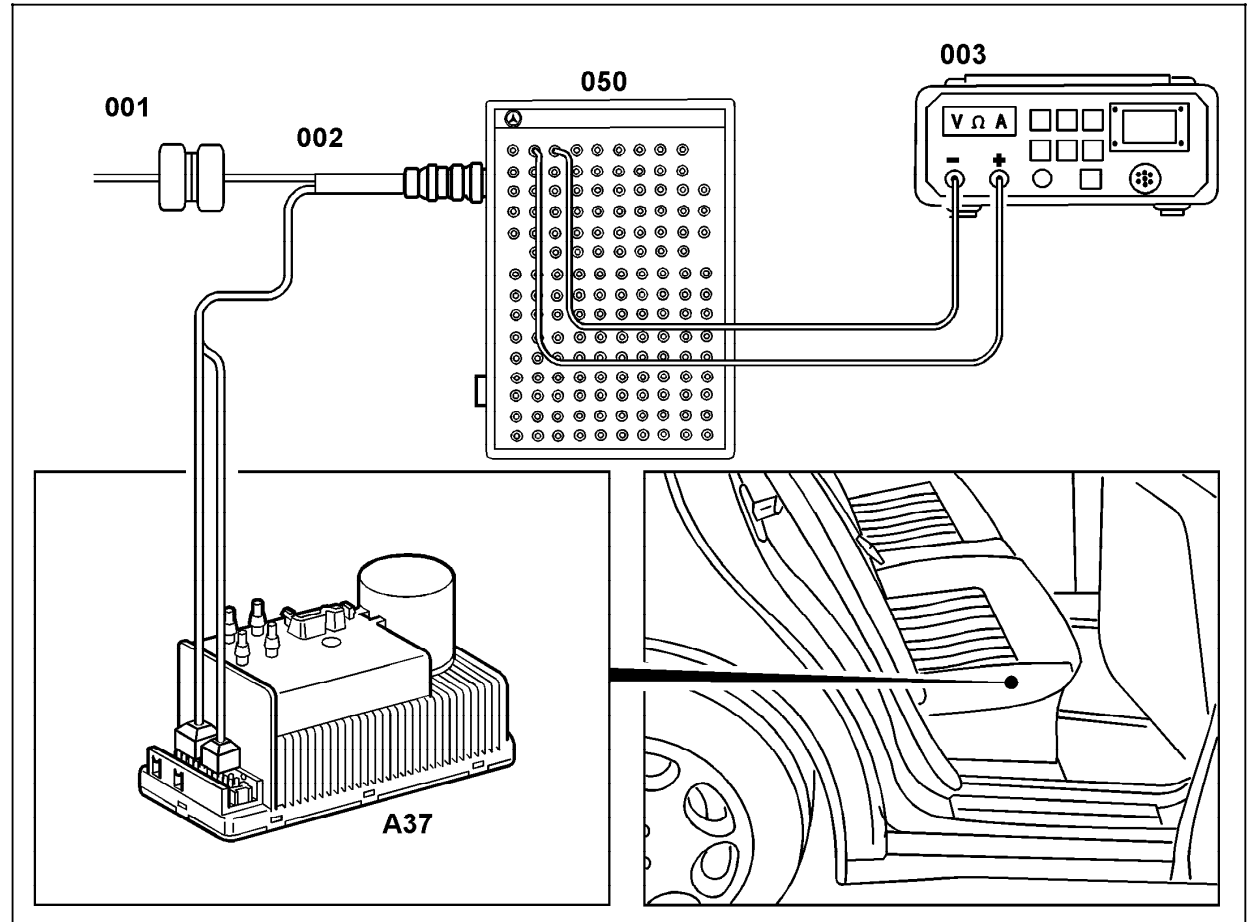


Figure 2

- 001 PSE control module connector
- 002 Test cable (140 589 13 63 00)
- 003 Multimeter
- 050 Socket box (35-pole)
- A37 PSE control module, combined functions

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Electrical Test Program - Preparation for Test

Connection Diagram - Socket Box
Model 170

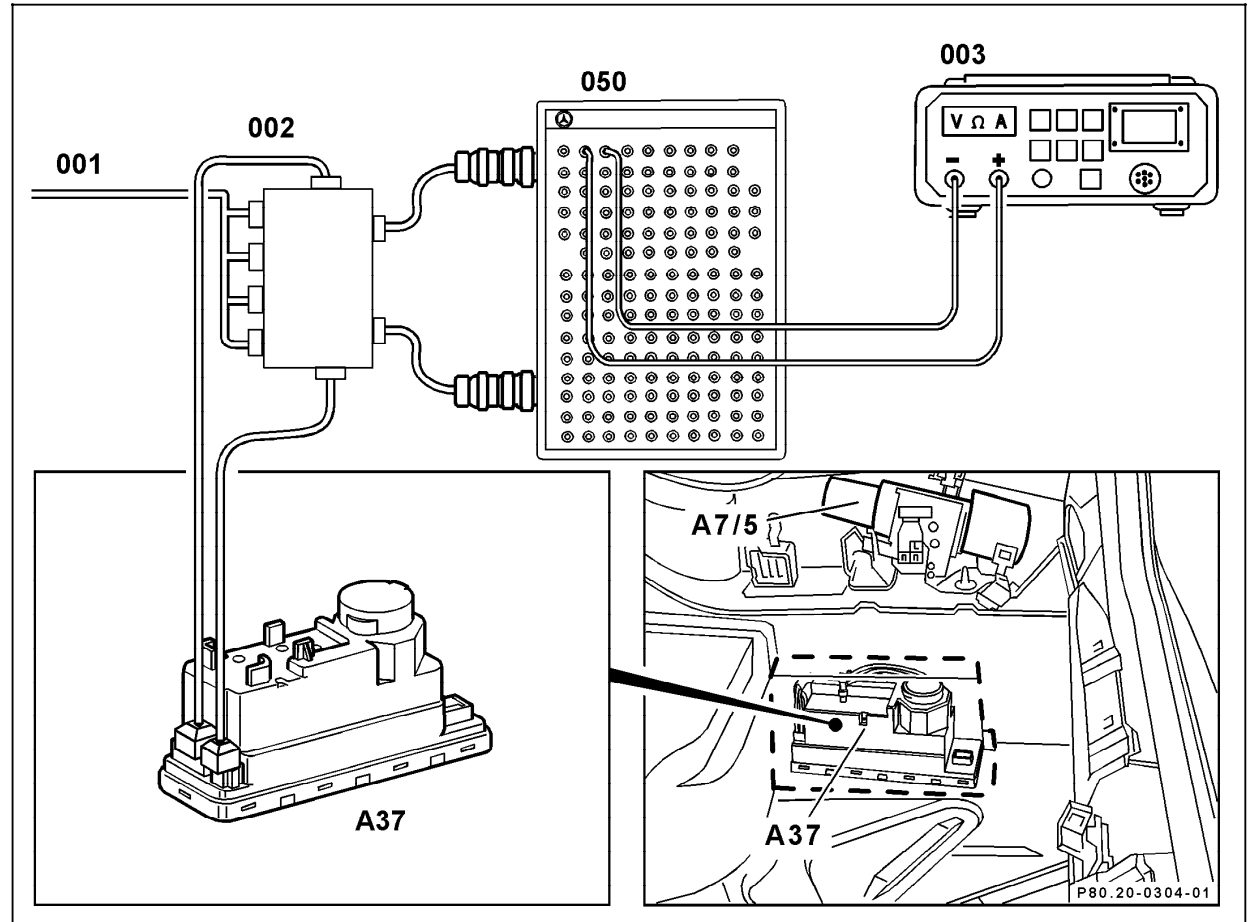


Figure 3

- 001 PSE control module connector
- 002 Test cable (202 589 16 63 00)
- 003 Multimeter
- 050 Socket box (35-pole)
- A37 PSE control module, combined functions

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Electrical Test Program - Preparation for Test

Connections - PSE control module

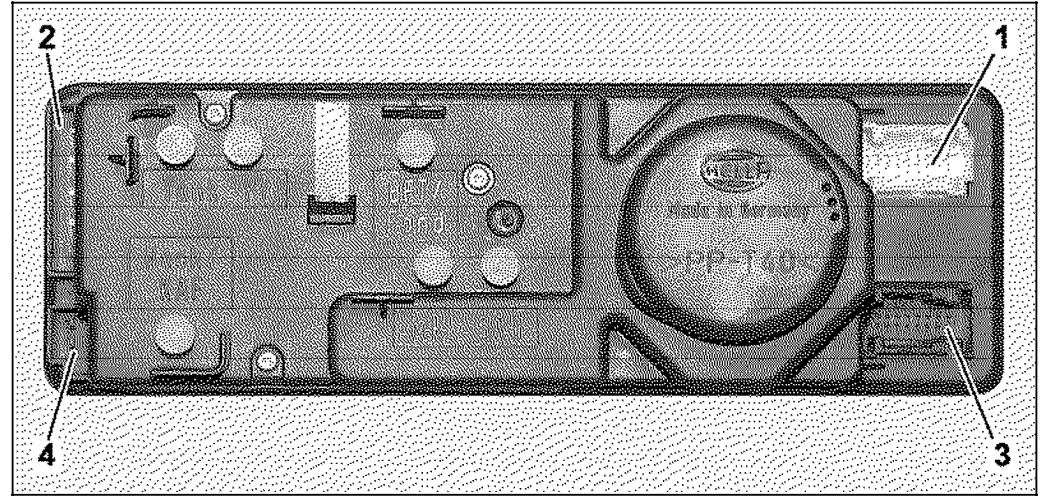

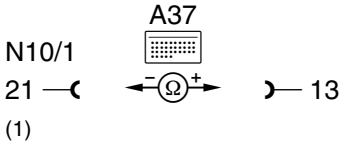



Figure 4

- 1 Connector 1 (control line PSE)
- 2 Connector 2 (voltage supply PSE)
- 3 Connector 3 (control line ATA)
- 4 Connector 4 (load connections ATA)

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Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0		RHR unlocking circuit		Rear head restraints extended. Ignition: ON RHR unlocking switch (S52): Press switch:	Rear head restraints retract.	Wiring, (A37), ⇒ 1.1, 23 PSE/CL ⇒ 8.0, 32 PSE/RHR ⇒ 1.0, 32 PSE ⇒ 8.0
1.1		RHR release switch (S52)		Disconnect A37 from  S52: Rest position Hold pressed	>20 kΩ < 40 Ω	Wiring, S52

Pneumatic Test Program – Component Locations (RHR)

Model 140 sedan shown

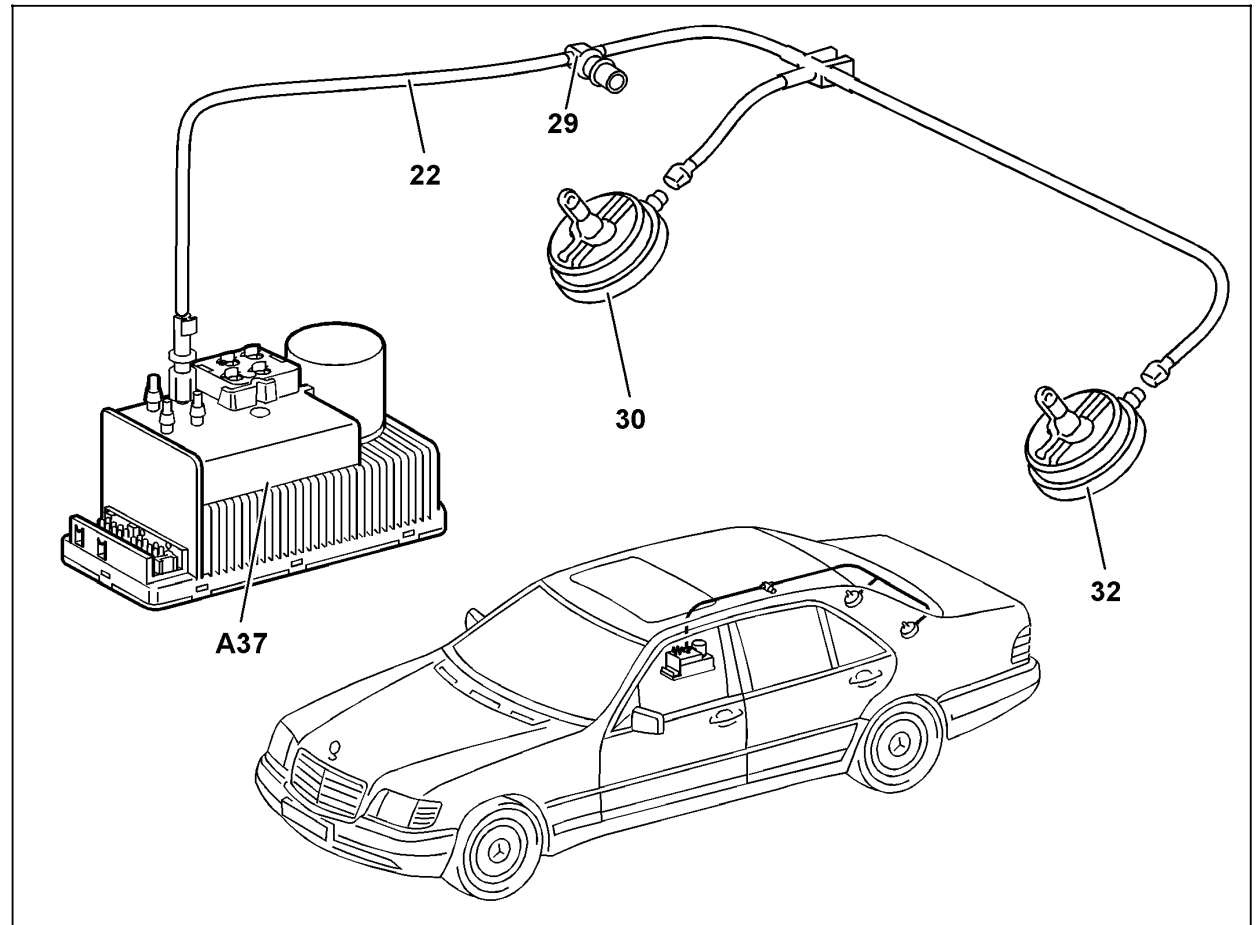


Figure 1

- A37 PSE control module, combined functions
- 22 Pneumatic line, RTR/RHR in rear
- 29 T-connector in pneumatic line, RTR/RHR in rear
- 30 Pneumatic actuator RHR, right side
- 32 Pneumatic actuator RHR, left side

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Pneumatic Test Program – Test (RHR)

Preliminary work:

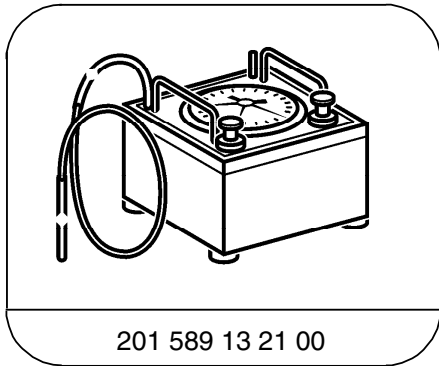
PSE control module voltage supply 23 PSE ⇒ 1.0, 2.0
 PSE Control Module Test 32 PSE

Data (mbar)

Test procedure	Permissible deviation
Allowable system leakage of 300 mbar vacuum in 1 minute.	30 mbar
Allowable leakage of actuators with line at 300 mbar vacuum in 1 minute.	25 mbar

Vacuum distribution block used with gasoline models only

Special Tools



201 589 13 21 00

Tester

Pneumatic Test Program – Test (RHR)

A. Entire System

Preparation for Test:

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



If an actuator does not operate correctly and no leakage is found, check the respective lines for kinks or blockages.

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

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 system evacuated	Black connector on tester to connector	Apply 300 mbar vacuum to entire system.	Vacuum loss 30 mbar in 1 minute.	32 PSE/RHR ⇒ 2.0, 32 PSE/RHR ⇒ 3.0

1) Vacuum distributor block on gasoline models only.

Pneumatic Test Program – Test (RHR)

B. Actuators

Preparation for Test:

1. Remove RHR actuators.
2. Connect tester to pneumatic connection of actuator.

Parts Required for Test:

- | | | |
|---|-------------------------|---------------|
| 2 | Rubber hose, 50 mm long | 007 997 61 82 |
| 1 | Pneumatic line, 1m long | 000 158 14 35 |
| 1 | Socket | 202 800 02 53 |

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
2.0	Actuator hold vacuum	Black connector on tester.	Apply 300 mbar vacuum to actuator.	Vacuum loss 25 mbar in 1 minute.	Actuator leaks. Replace.

Pneumatic Test Program – Test (RHR)

C. Lines

Preparation for Test:

1. Connect tester to one end of pneumatic line and plug other end with cap, part no. 124 805 02 44.

Parts Required for Test:

- | | | |
|---|-----------------------|---------------|
| 1 | Connector | 202 805 03 44 |
| 3 | Cap | 124 805 02 44 |
| 1 | Connector, 50 mm long | 007 997 61 82 |

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
3.0	Vacuum leakage	Black connector on tester.	Apply 300 mbar vacuum to pneumatic line.	Vacuum loss 0 mbar in 1 minute.	Pneumatic line leaks. Repair/Replace.