3.3 Central locking (PSE/CL)
Models 170, 210

The central locking system is activated by either the IR transmitter or the mechanical key from outside the vehicle.

Activation of the Pneumatic System Equipment (PSE):
The control wire from the IR DAS control module (N54/1) and interior switch (S6/1s2) (CL) is connected to the combination control module (N10-1 or N10-3).
From the combination control module activation signals are sent via the two CAN data lines to the PSE control module (A37).

Diagnosis – Function Test (Central Locking)

Preparation for Test:

1. IR transmitter for central locking (CL) ok,
2. Fuses for PSE system and PSE control module ok,
3. Battery voltage 11 to 14 V.
4. Vehicle unlocked.
5. All doors and trunk lid closed.

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy [1]
⇒ 1.0 Locking vehicle by pointing IR transmitter at the RCL receiver (interior rearview mirror) (A26/7) or RCL receiver (roof frame) (A26/9).	Locking vehicle using IR transmitter.	All doors, trunk lid and filler flap lock in 3 sec.	Vehicle does not lock 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, 4.5 11 ⇒ 1.0, 4.7 11 ⇒ 1.0, Combination control module (N10-1 or N10-3). Vehicle does not lock even though pump motor in PSE control module (A37) **runs**. 32 ⇒ 2.0, 23 PSE ⇒ 1.0

[1] Observe Preparation for Test, see 22.

Diagnosis – Function Test (Central Locking)

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy [1]
⇒ 2.0 Unlock vehicle by pointing IR transmitter at the RCL receiver (interior rearview mirror) (A26/7) or RCL receiver (roof frame) (A26/9).	Unlocking vehicle using IR transmitter.	All doors, trunk lid and filler flap unlock in 3 sec.	Vehicle does not unlock 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, 4.5 11 ⇒ 2.0, 4.7 11 ⇒ 2.0, Combination control module (N10-1 or N10-3). Vehicle does not unlock even though pump motor in PSE control module (A37) **runs**. 32 ⇒ 1.0, 33 PSE ⇒ 2.0
⇒ 3.0 Locking vehicle via interior CL switch	Front doors closed. Vehicle unlocked via IR transmitter. Press interior CL switch in direction lock.	All doors, trunk lid and filler flap lock in 3 sec.	Vehicle does not lock and pump motor in PSE control module (A37) **does not run**. Pneumatic lines, 23 ⇒ 1.0 Vehicle does not lock even though pump motor in PSE control module (A37) **runs**. 32 ⇒ 2.0, 33 PSE ⇒ 1.0

[1] Observe Preparation for Test, see 22.

Diagnosis – Function Test (Central Locking)

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy [1]
⇒ 4.0 Unlock vehicle via interior CL switch	Front doors closed. Press interior CL switch in direction unlock.	All doors, trunk lid and filler flap unlock in 3 sec.	Vehicle does not unlock and pump motor in PSE control module (A37) **does not run**. Pneumatic lines, 23 ⇒ 1.0 Vehicle does not unlock even though pump motor in PSE control module (A37) **runs**. 32 ⇒ 1.0, 33 PSE ⇒ 2.0
⇒ 5.0 Unlocking vehicle by opening one of the front doors.	Vehicle is locked via interior CL switch. Opening front door via door handle in interior door panel.	All doors, trunk lid and filler flap unlock in 3 sec.	Vehicle does not unlock and pump motor in PSE control module (A37) **does not run**. 23 ⇒ 2.0, 3.0 Vehicle does not lock even though pump motor in PSE control module (A37) **runs**. 32 ⇒ 1.0, 33 PSE ⇒ 2.0

[1] Observe Preparation for Test, see 22.

Diagnosis – Function Test (Central Locking)

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy [1]
⇒ 6.0 Unlock vehicle via left front door lock switch (S86/1) or trunk lid lock switch (S88/2).	Turn key in lock to the right.	All doors, trunk lid and filler flap unlock in 3 sec.	Vehicle does not unlock and pump motor in PSE control module (A37) **does not run**. Pneumatic lines, 4.5 23 ⇒ 32.0–33.0, 4.7 23 ⇒ 11.0–12.0, 23 PSE ⇒ 1.0–8.0, 2.1 23 ⇒ 1.0–3.0, IR DAS control module (N54/1), Combination control module (N10-1 or N10-3), PSE control module (A37). Vehicle does not unlock even though pump motor in PSE control module (A37) **runs**. 32 ⇒ 1.0, 33 PSE ⇒ 2.0

[1] Observe Preparation for Test, see 22.

Diagnosis – Function Test (Central Locking)

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy [1]
⇒ 7.0 Locking vehicle via left front door lock switch (S86/1) or trunk lid lock switch (S88/2).	Turn key in lock to the left.	All doors, trunk lid and filler flap lock in 3 sec.	Vehicle does not lock and pump motor in PSE control module (A37) **does not run**. Pneumatic lines, 4.5 23 ⇒ 32.0–33.0, 4.7 23 ⇒ 11.0–12.0, 23 PSE ⇒ 1.0–8.0, 2.1 23 ⇒ 1.0–3.0, IR DAS control module (N54/1), Combination control module (N10-1 or N10-3), PSE control module (A37). Vehicle does not unlock even though pump motor in PSE control module (A37) **runs**. 32 ⇒ 2.0, 33 PSE ⇒ 1.0

[1] Observe Preparation for Test, see 22.

Electrical Test Program – Component Locations (CL)

Model 170

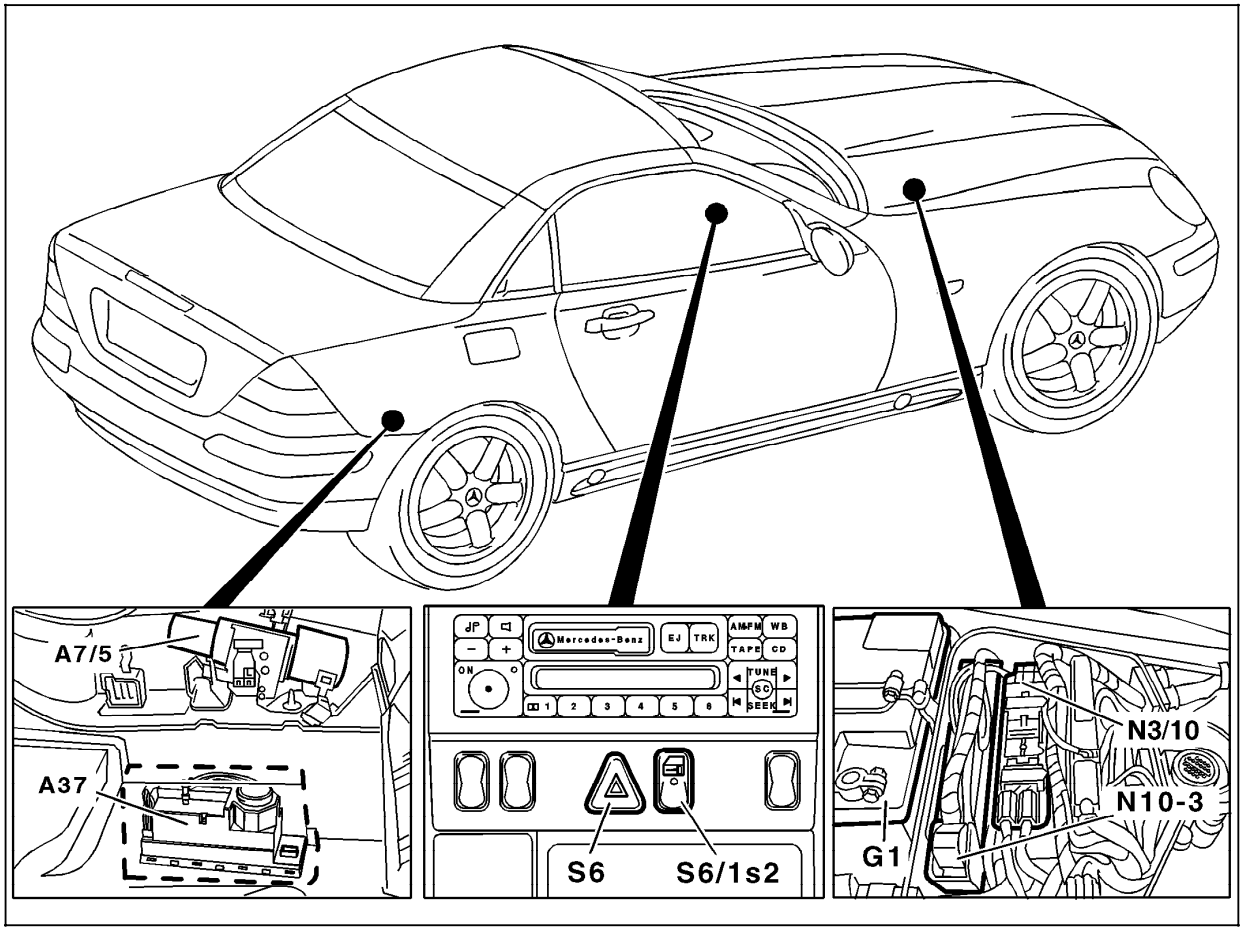


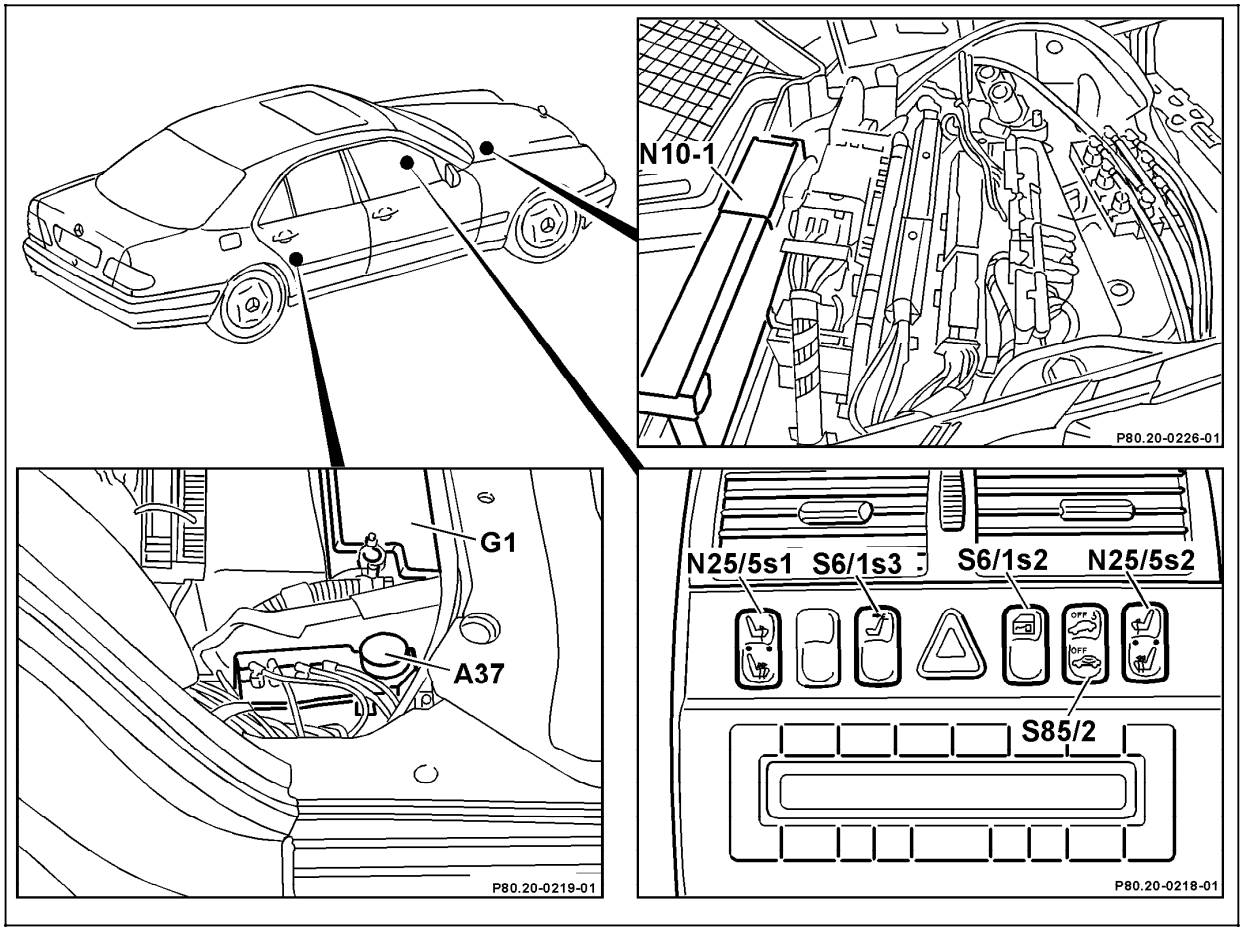
Figure 1

A7/5	Retractable hardtop hydraulic unit
A37	PSE control module
G1	Battery
N3/10	Engine control module (ME-SFI)
N10-3	Combination control module
S6	Hazard flasher switch
S6/1s2	Interior switch (CL)

U80.20-0313-06

Electrical Test Program – Component Locations (CL)

Model 210



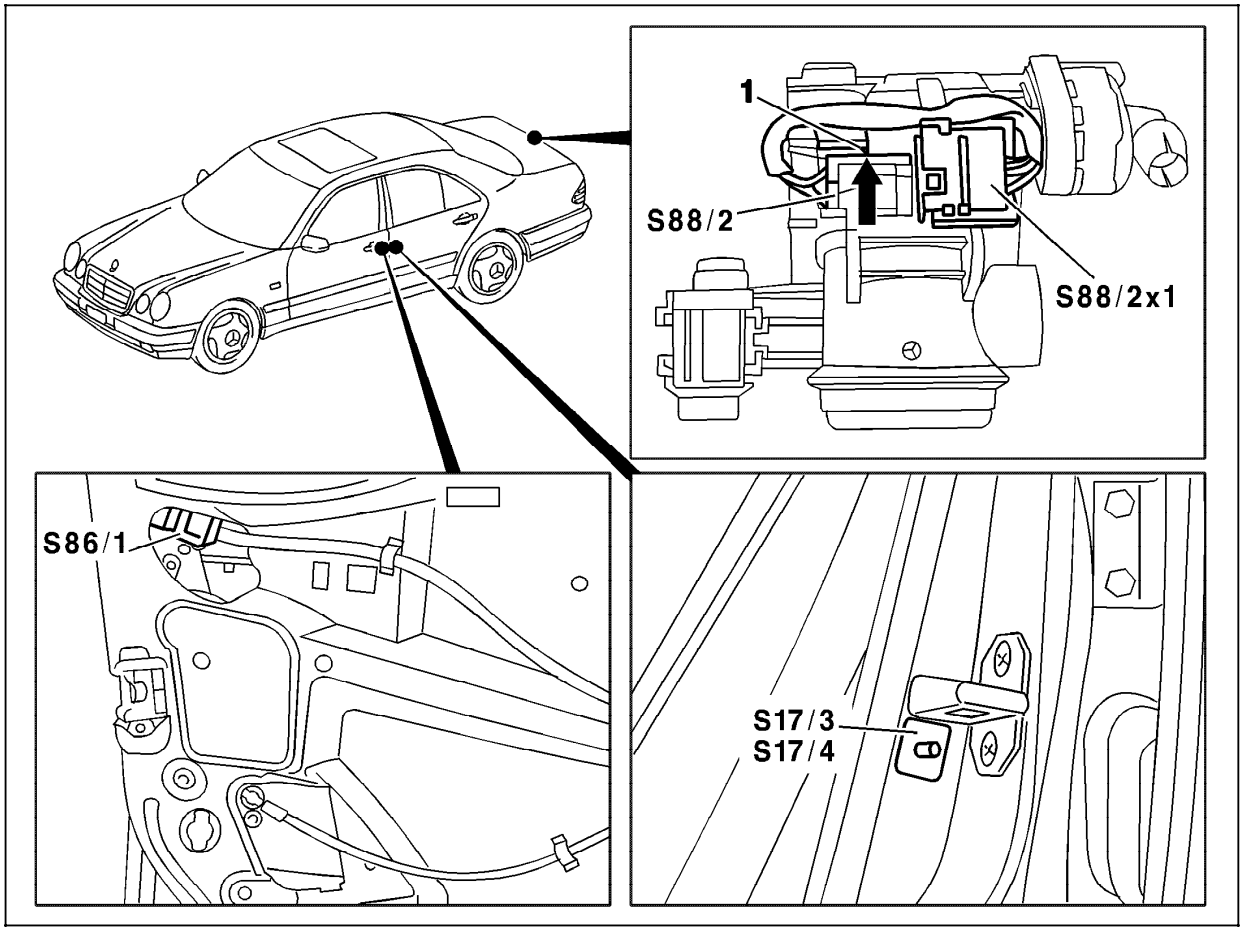
P80.20-0314-06

Figure 2

A37	PSE control module
G1	Battery
N10-1	Combination control module
N25/5s1	Left front HS switch
N25/5s2	Right front HS switch
S6/1s2	Interior switch (CL)
S6/1s3	RHR unlocking switch
S85/2	ATA status /towing protection/IR switch

Electrical Test Program – Component Locations (CL)

Model 210



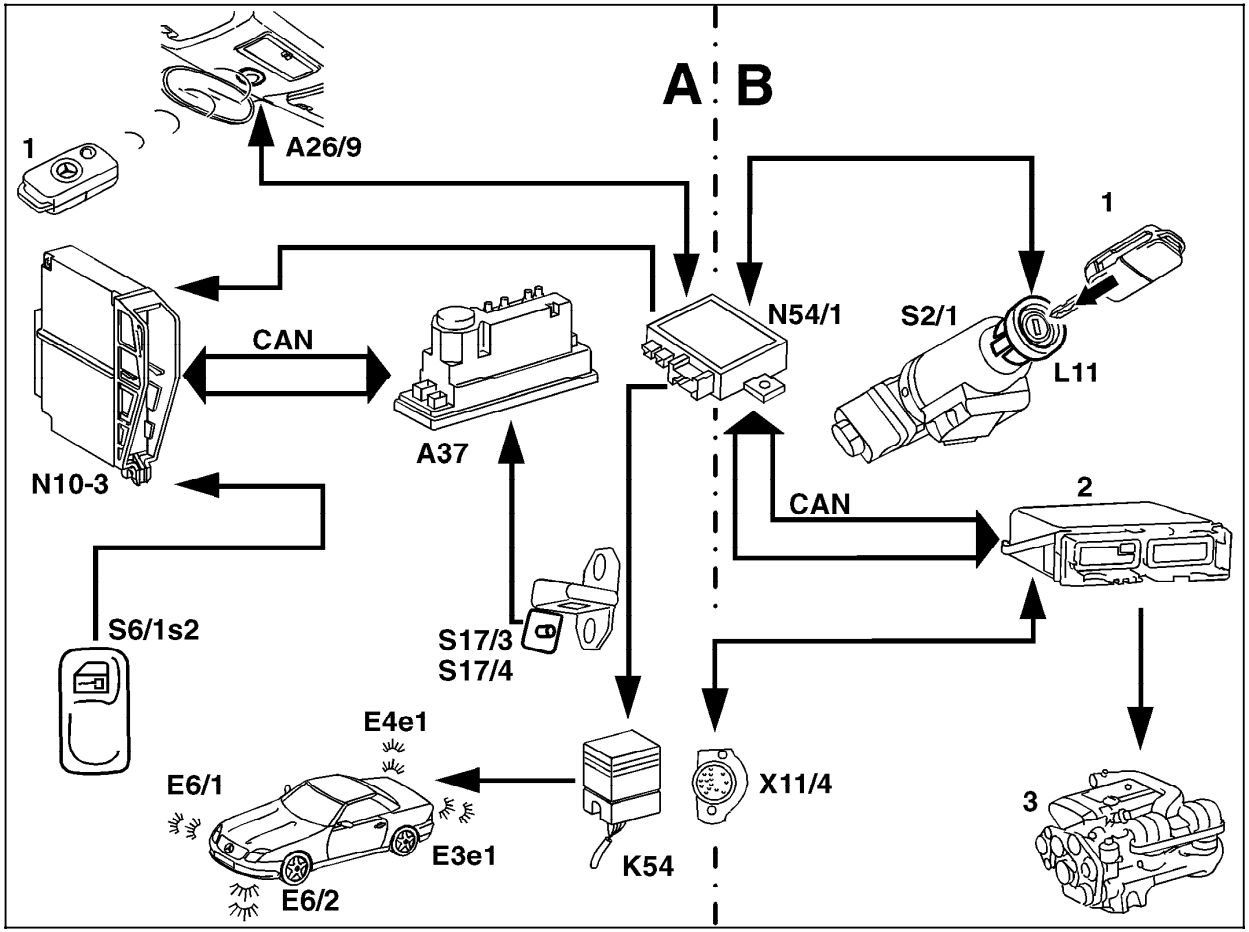
U80.20-0229-06

Figure 3

S17/3 Left front door switch
S17/4 Right front door switch
S86/1 Left front door lock switch
S88/2 Trunk lid lock switch

Electrical Test Program – Connection of Components (CL)

Model 170



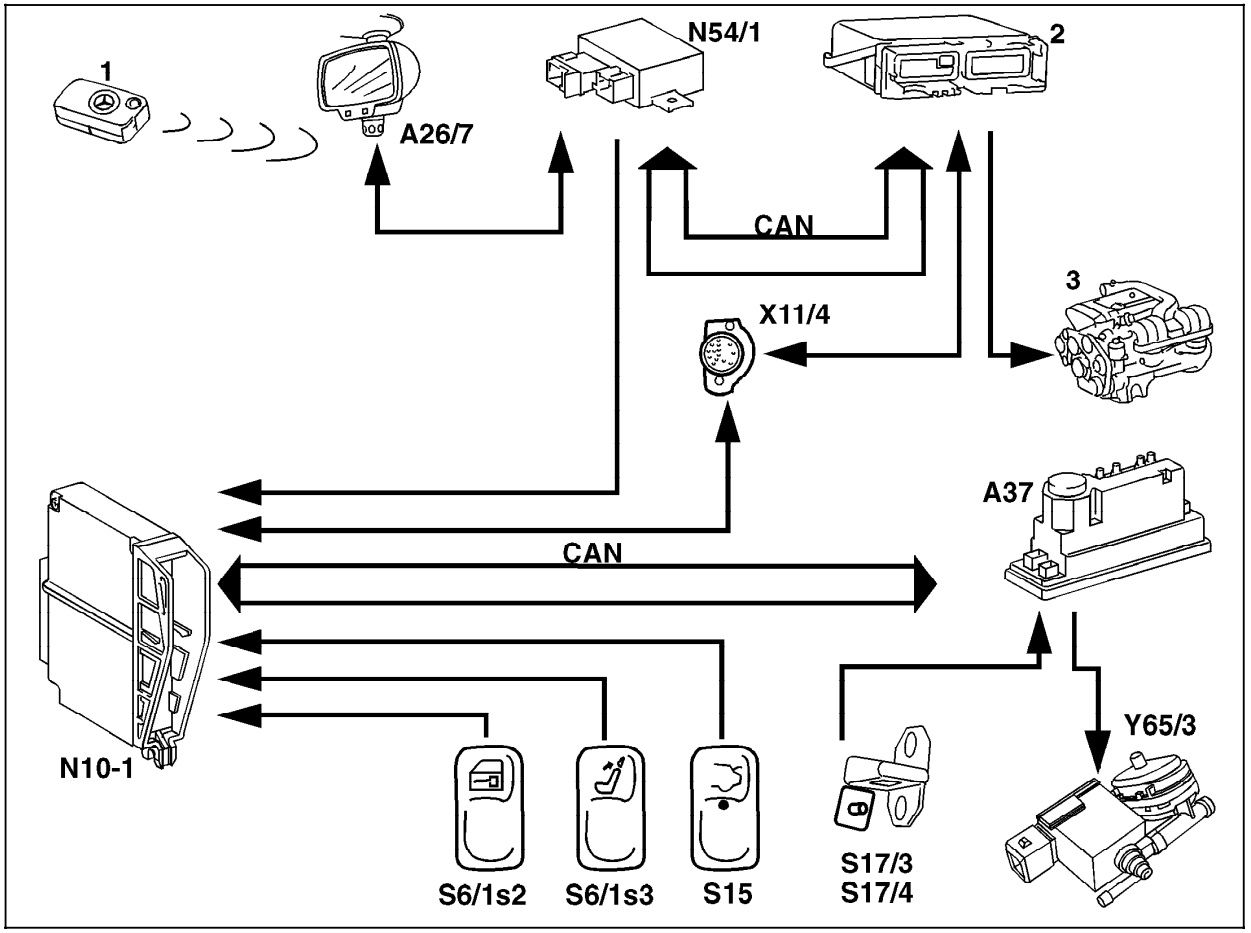
P80.20-0308-06

Figure 1

A	IR transmitter for CL
B	DAS 2 (Activation of motor electronics via transponder)
A26/9	RCL receiver (roof frame)
A37	PSE control module, combined functions
CAN	Control-Area-Network
E3e1	Turn signal lamp
E4e1	Turn signal lamp
E6/1	Left turn signal lamp
E6/2	Right turn signal lamp
K54	Locking cofirmation relay module
L11	Coil for transponder
N10-3	Combination control module
N54/1	IR DAS control module
S2/1	Ignition/starter switch
S6/1s2	Interior switch (CL)
S17/3	Left front door switch
S17/4	Right front door switch
X11/4	Data link connector (DTC readout)
1	IR transmitter with transponder
2	Engine control module
3	Engine

Electrical Test Program – Connection of Components (CL)

Model 210 up to 05/96



U80.20-0309-06

Figure 2

A26/7	RCL receiver (interior rearview mirror)
A37	PSE control module, combined functions
CAN	Control-Area-Network
N10-1	Combination control module
N54/1	IR DAS control module
S6/1s2	Interior switch (CL)
S6/1s3	RHR unlocking switch
S15	Remote trunk lid switch (CL)
S17/3	Left front door switch
S17/4	Right front door switch
X11/4	Data link connector (DTC readout)
Y65/3	RTR control valve (CL)
1	IR transmitter with transponder
2	Engine control module
3	Engine

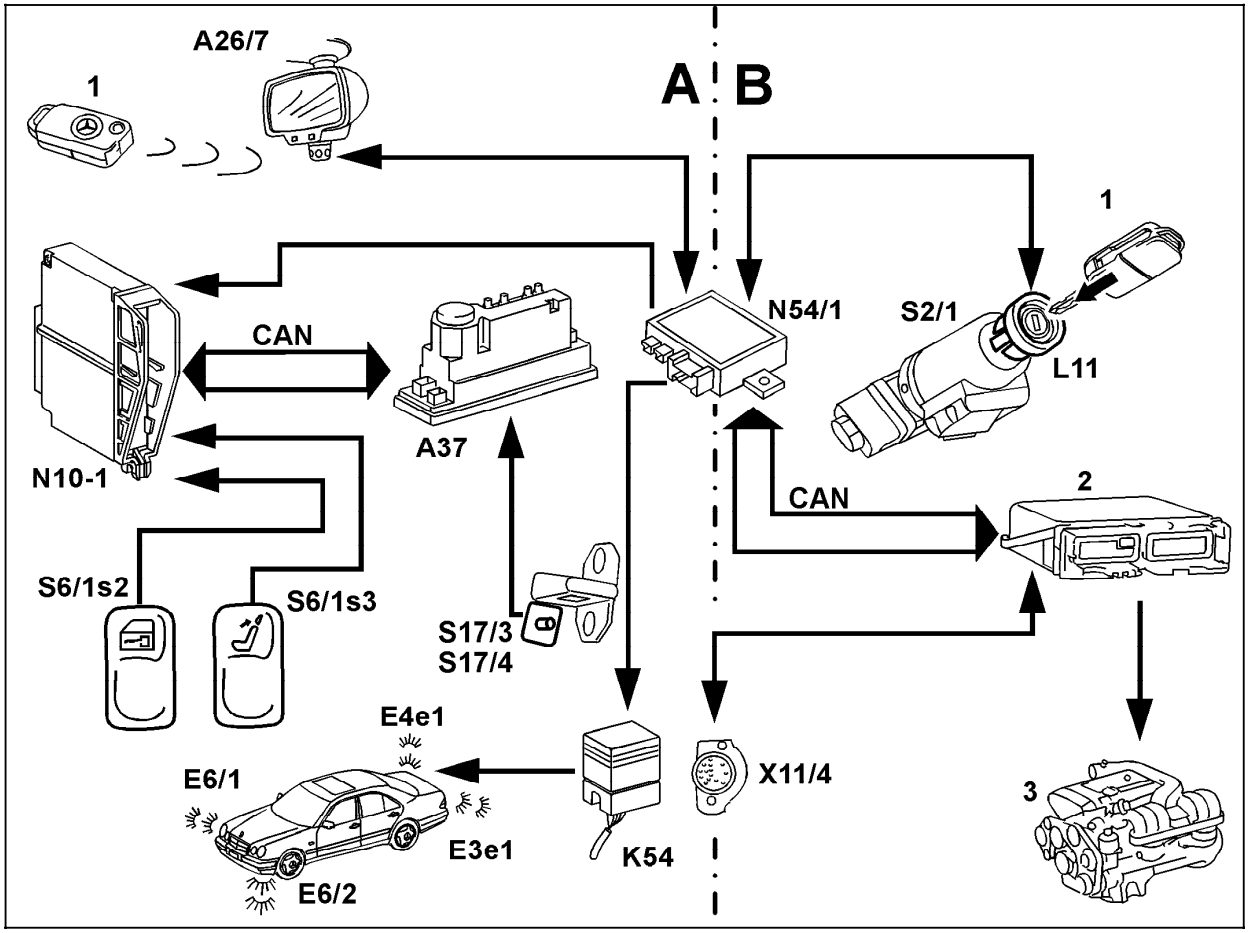
Electrical Test Program – Connection of Components (CL)

Model 210 as of 06/96

Figure 3

A IR transmitter for CL
B DAS 2 (Activation of motor electronics via transponder)

A26/7	RCL receiver (interior rearview mirror)
A37	PSE control module, combined functions
CAN	Control-Area-Network
E3e1	Turn signal lamp
E4e1	Turn signal lamp
E6/1	Left turn signal lamp
E6/2	Right turn signal lamp
K54	Locking cofirmation relay module
L11	Coil for transponder
N10-1	Combination control module
N54/1	IR DAS control module
S2/1	Ignition/starter switch
S6/1s2	Interior switch (CL)
S6/1s3	RHR unlocking switch
S15	Remote trunk lid switch (CL)
S17/3	Left front door switch
S17/4	Right front door switch
X11/4	Data link connector (DTC readout)
Y65/3	RTR control valve (CL)
1	IR transmitter with transponder
2	Engine control module
3	Engine



P80.20-0310-06

Electrical Test Program - Preparation for Test

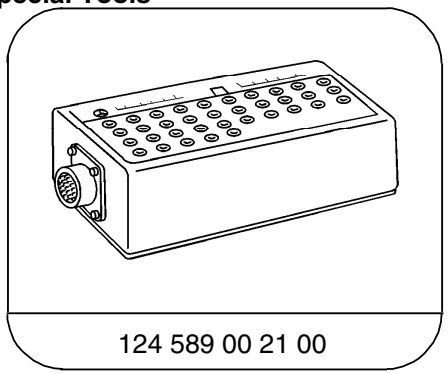
Preparation for Test:

1. Fuses for PSE system and PSE control module ok,
2. Battery voltage 11 – 14 V,
3. Provide acess to PSE control module (A37),
4. Provide access to combination control module (N10-1 or N10-3),
5. Connect socket box with test cable according to connection diagram, see 22, Figure 1 – 3.

Electrical Wiring Diagrams:

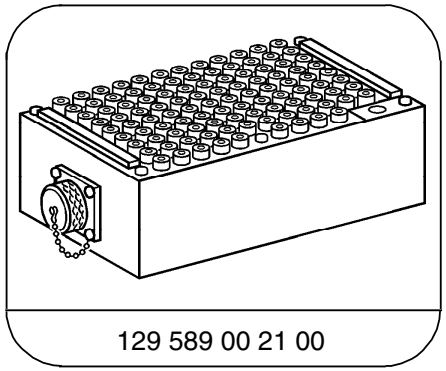
See Electric Troubleshooting Manual, Model 170, (please see future ETM), Model 210, Volume 2, group 80

Special Tools



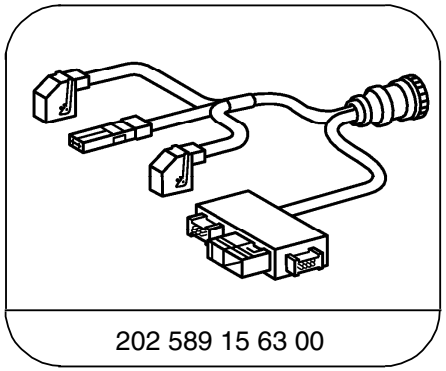
124 589 00 21 00

35-pin socket box



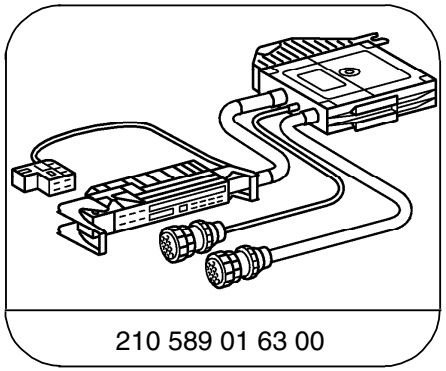
129 589 00 21 00

126-pin socket box



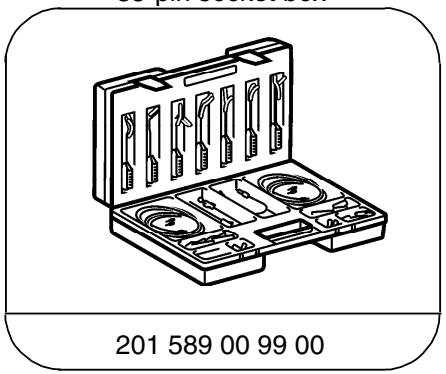
202 589 15 63 00

18-pin and 12-pin CAN test cable



210 589 01 63 00

78-pin test cable



201 589 00 99 00

Electrical connecting set

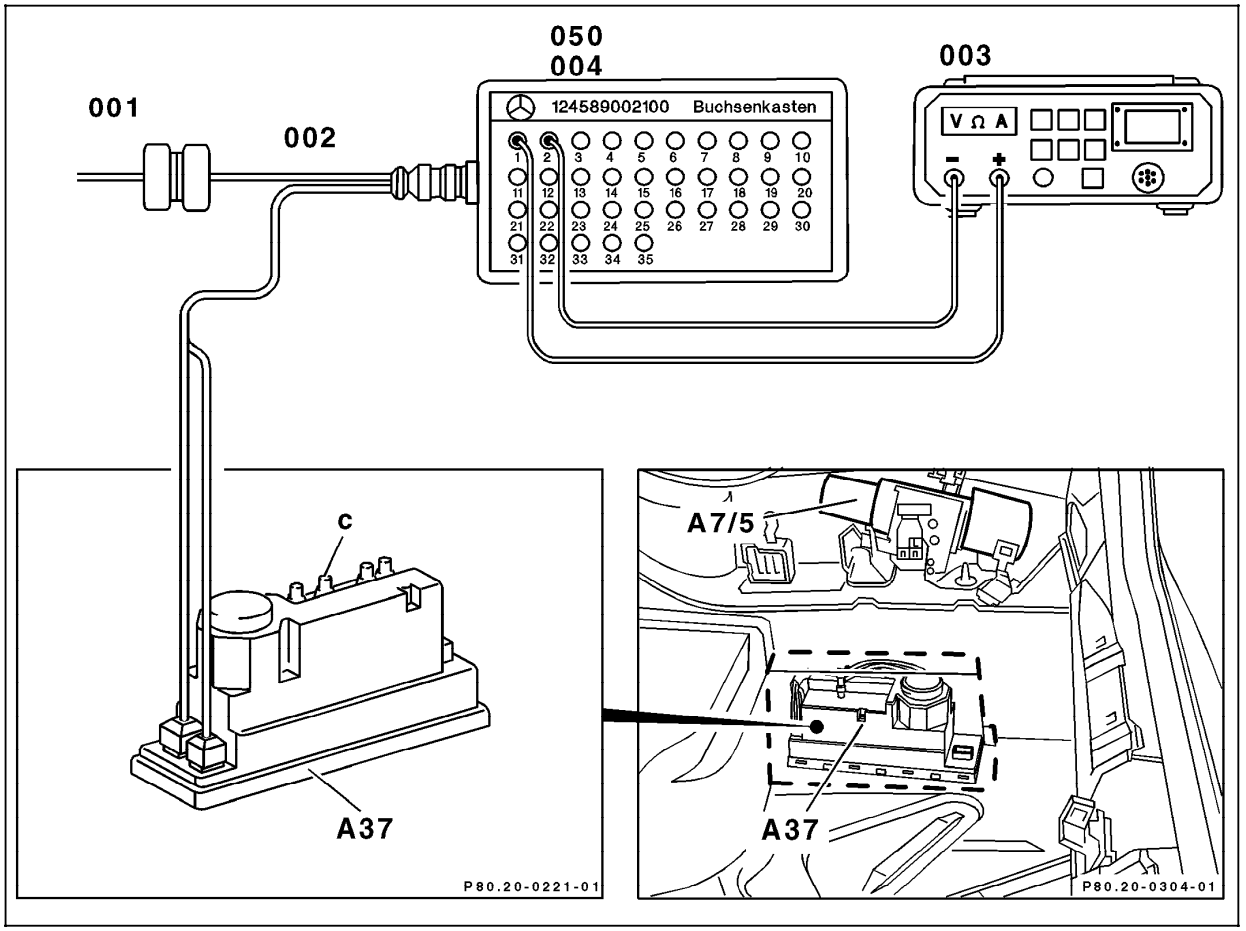
Conventional tools, test equipment

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

1) Available through the MBUSA Standard Equipment Program.

Electrical Test Program - Preparation for Test

Connection Diagram - Socket Box
Model 170



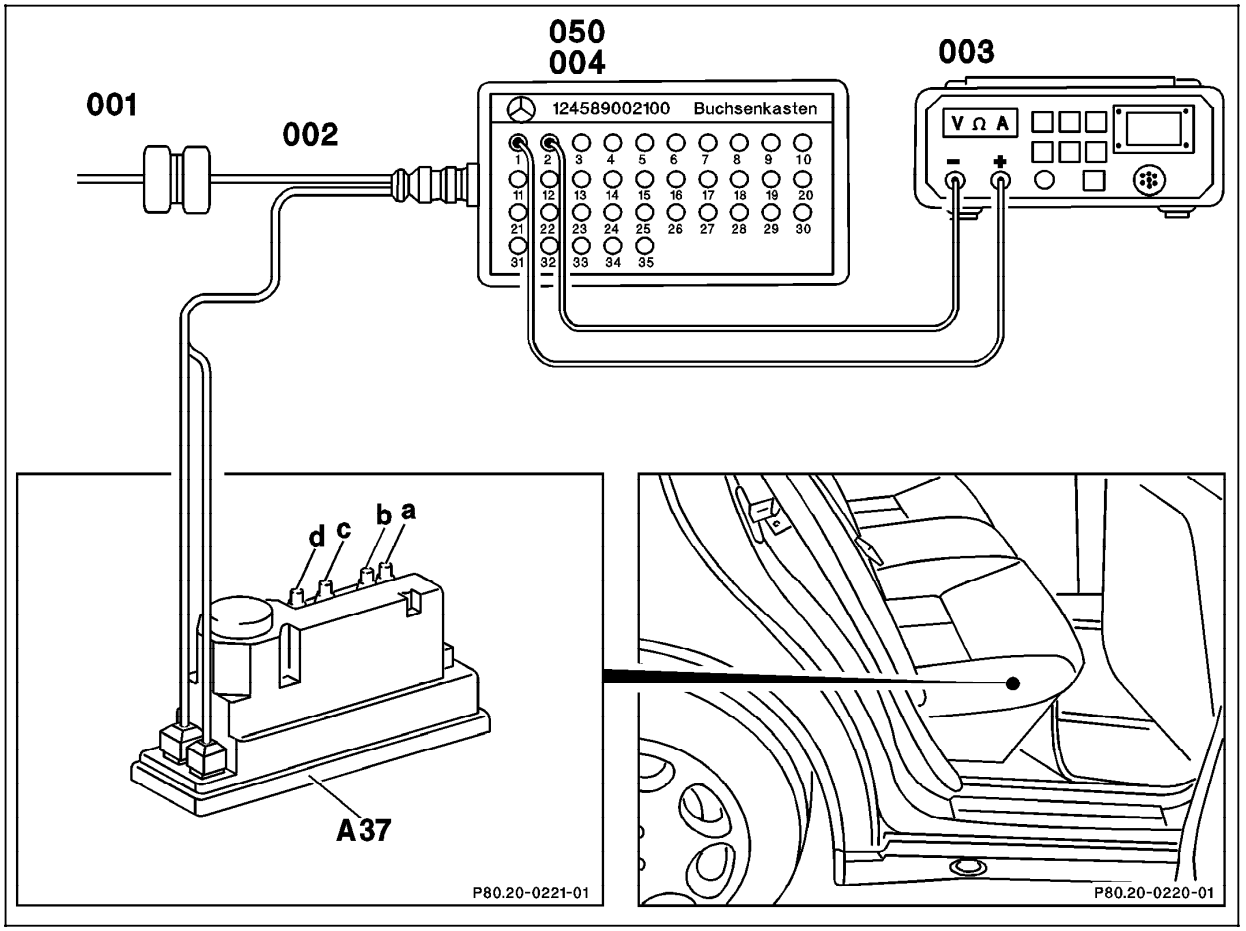
P80.20-0311-06

Figure 1

A37	PSE control module, combined functions
001	PSE control module connector
002	Test cable
003	Multimeter
004/050	Socket box (35-pole)

Electrical Test Program - Preparation for Test

Connection Diagram - Socket Box
Model 210
(sedan shown)



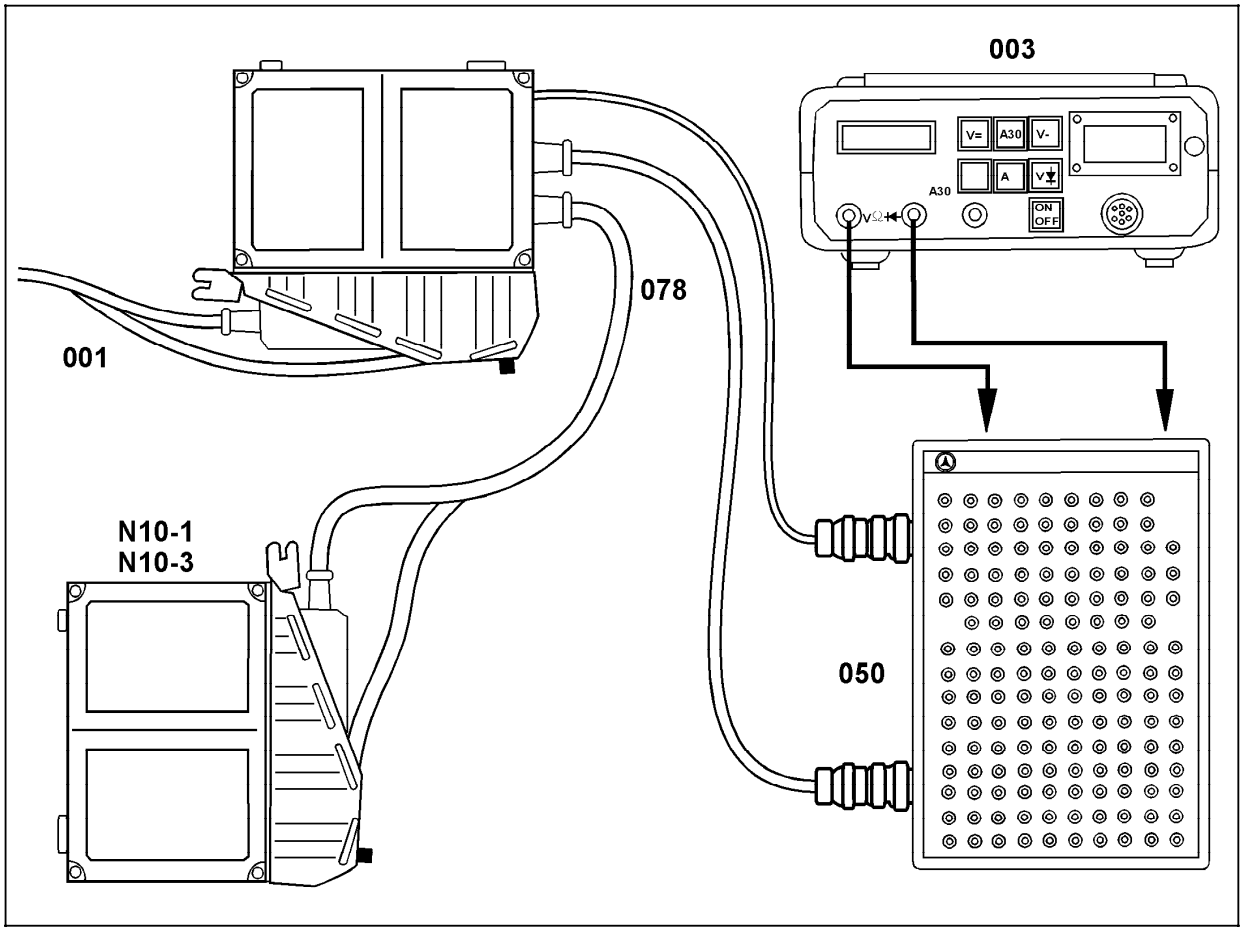
P80.20-0213-06

Figure 2

A37	PSE control module, combined functions
001	PSE control module connector
002	Test cable
003	Multimeter
004/050	Socket box (35-pole)

Electrical Test Program - Preparation for Test

Connection Diagram - Socket Box



P82.40-0214-06

Figure 3

N10-1	Combination control module (model 210)
N10-3	Combination control module (model 170)
001	PSE control module connector
002	Test cable
003	Multimeter
050	Socket box (35-pole)

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0	B1117	**Interior switch (S6/1s2) (CL)**		Left and right front doors are closed, vehicle is unlocked via IR transmitter. S6/1s2: **Rest position**		
				Press to lock	Central locking locks vehicle	Wiring, ⇒ 1.1, 23 PSE ⇒ 1.0–8.0, 2.1 23 ⇒ 1.0–3.0, 32 ⇒ 2.0, combination control module (N10-1or N10-3). PSE control module (A37).
				Press to unlock	Central locking unlocks vehicle.	Wiring, ⇒ 1.1, 23 PSE ⇒ 1.0–8.0, 2.1 23 ⇒ 1.0–3.0, 32 ⇒ 1.0, N10-1 or N10-3, A37

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.1		S6/1s2		Disconnect combination control module (N10-1 or N10-3) from ⌨.		Wiring, S6/1s2, S6/1s3
				S6/1s2:		
				Rest position	>20 kΩ	
			N10-1 N10-3 ⌨ A37 ⌨ 49 —(◄–Ω+►)— 3 (C) (2)	**Press and hold to lock**	approx. 200 Ω	
				S6/1s2:		
				Rest position	>20 kΩ	
			N10-1 N10-3 ⌨ A37 ⌨ 49 —(◄–Ω+►)— 3 (C) (2)	**Press and hold to unlock**	< 1 Ω	

Electrical Test Program – Test

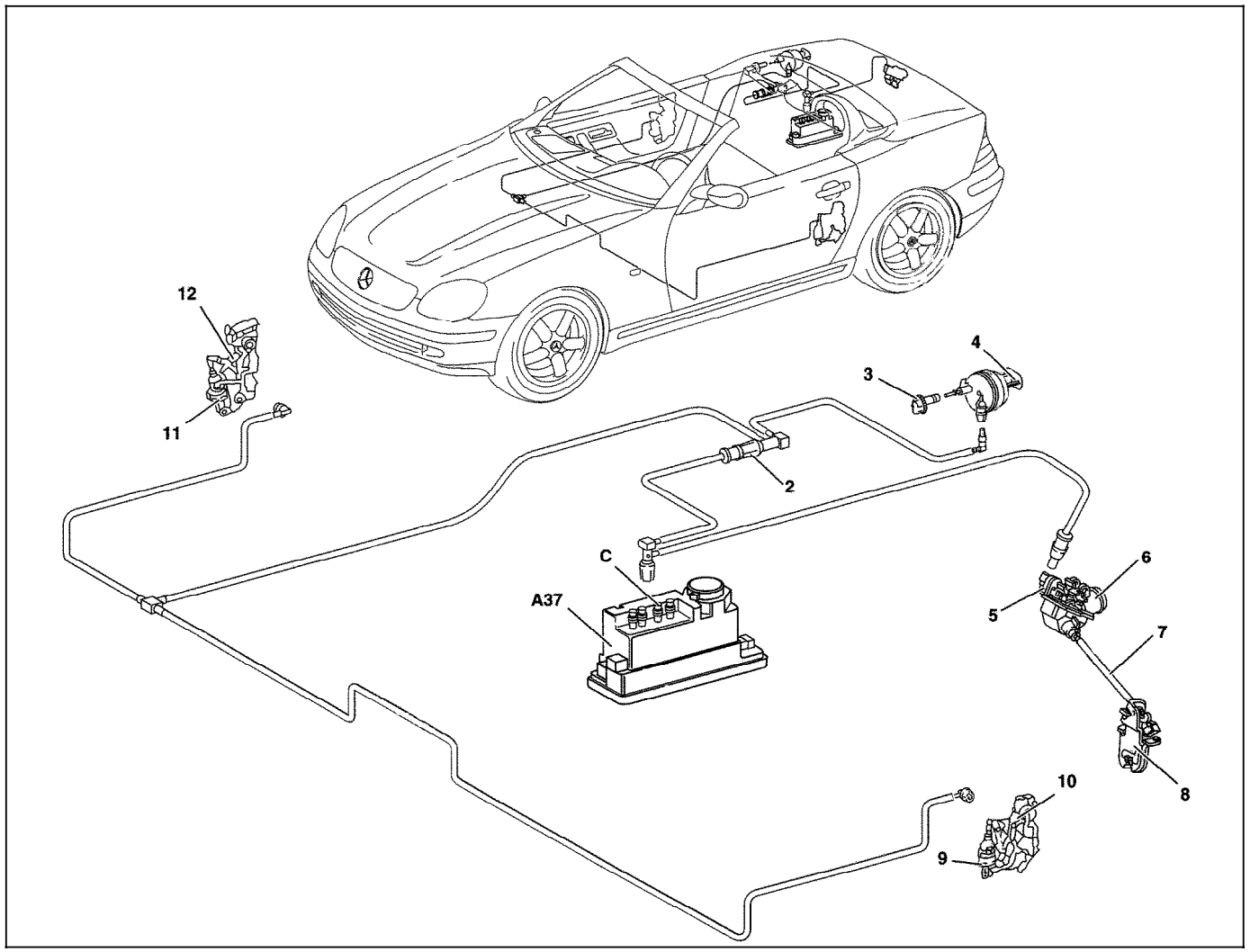
⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
2.0		**Left front door switch (S17/3) circuit**		Vehicle unlocked via IR transmitter. Left and right front doors closed. Lock vehicle via interior switch (S6/1s2) (CL). Open driver door.	 CL unlocks vehicle.	Wiring, ⇒ 2.1, 23 PSE ⇒ 1.0–8.0, 32 ⇒ 2.0, 32 PSE ⇒ 2.0
2.1		S17/3	A37 3 — (2) — A37 — 1	Disconnect A37 from . Left front door closed. Left front door open.	 < 1 V 11 – 14 V	Wiring, S17/3

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
3.0		**Right front door switch (S17/4) circuit**		Vehicle unlocked via IR transmitter. Left and right front doors closed. Lock vehicle via interior switch (S6/1s2) (CL). Open driver door	 CL unlocks vehicle.	Wiring, ⇒ 3.1, 23 PSE ⇒ 1.0–8.0, 32 ⇒ 2.0, 32 PSE ⇒ 2.0
3.1		S17/4	A37 4 — (2) — A37 — 1	Disconnect A37 from . Right front door closed. Right front door open.	 < 1 V 11 – 14 V	Wiring, S17/4.

Pneumatic Test Program – Component Locations (CL)

Model 170



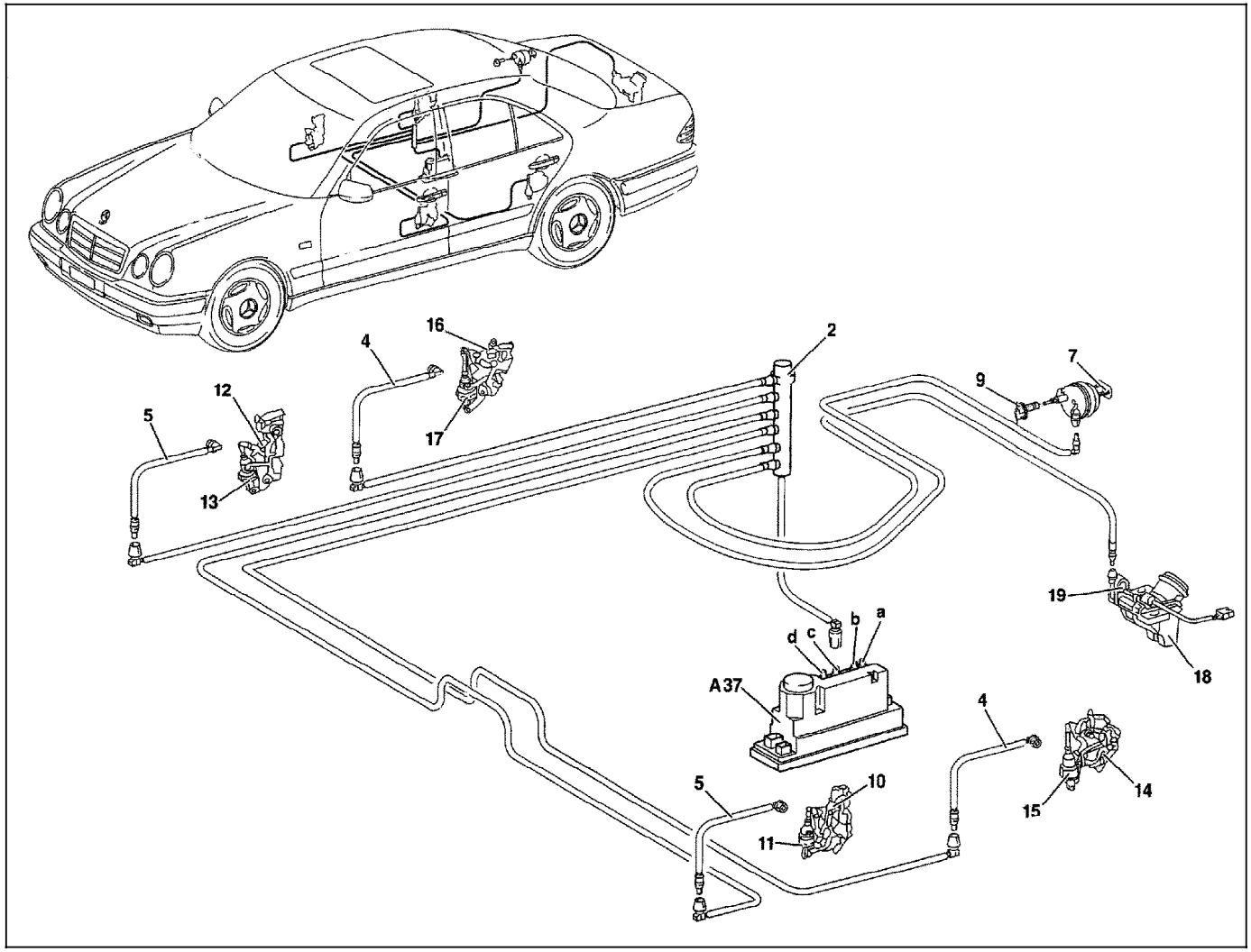
P80.20-0315-06x

Figure 1

A37	PSE control module, combined function
c	Pneumatic connection, CL
2	Pneumatic distributor, CL, frame floor
3	Pneumatic line, fuel tank filler flap sleeve
4	Pneumatic line, fuel tank filler flap actuator
5	Pneumatic line, trunk lid CL actuator
6	Locking cylinder housing
7	Linkage
8	Trunk lid lock
9	Left front door CL actuator
10	Left front door lock
11	Right front door CL actuator
12	Right front door lock

Pneumatic Test Program – Component Locations (CL)

Model 210



P80-5269-06x

Figure 2

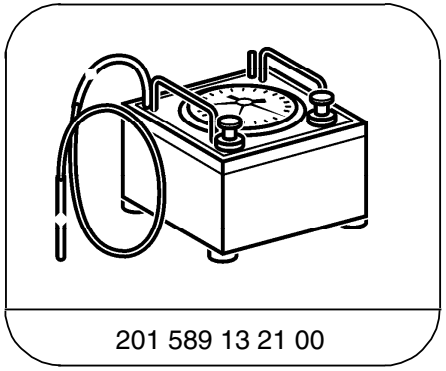
A37	PSE control module, combined function
a	Pneumatic connection, OSB
b	Pneumatic connection, MVA
c	Pneumatic connection, CL/RTR
d	Pneumatic connection, RHR
2	Pneumatic distributor, CL
4	Pneumatic line, left and right rear doors
5	Pneumatic line, left and right front doors
7	Fuel tank filler flap actuator
9	Fuel tank filler flap sleeve
10	Left front door lock
11	Left front door CL actuator
12	Right front door lock
13	Right front door CL actuator
14	Left rear door lock
15	Left rear door CL actuator
16	Right rear door lock
17	Right rear door CL actuator
18	Trunk lid lock
19	Trunk lid CL actuator

Pneumatic Test Program – Test (CL)

Data (mbar)

Test procedure	Permissible deviation
Allowable system leakage at 600 mbar pressure or 300 mbar vacuum in 1 minute.	30 mbar
Allowable leakage of actuators with lines at 600 mbar pressure or 300 mbar vacuum in 1 minute.	25 mbar

Special Tools



201 589 13 21 00

Tester

Pneumatic Test Program – Test (CL)

A. Entire system

Preparation for Test:

1. Provide access to PSE control module (A37) and disconnect **yellow** pneumatic line with socket from PSE control module.
2. Connect tester to disconnected pneumatic line using with connector 129 805 03 44.

i

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	Connection 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 pressurized**	**Yellow** connector on tester.	Apply 600 mbar pressure to entire system.	Pressure loss 30 mbar in 1 minute.	⇒ 3.0 32 PSE/RTR ⇒ 1.0 [1)]
2.0	**Complete system evacuated**	**Black** connector on tester.	Apply 300 mbar vacuum to entire system.	Vacuum loss 30 mbar in 1 minute.	⇒ 4.0

[1)] Vehicle with RTR

Pneumatic Test Program – Test (CL)

B. Individual lines with actuators

Preparation for Test:

1. Disconnect pneumatic line leading to the non-operating pneumatic actuator at the pneumatic distributor. Letters on the distributor indicate to which of the CL actuators the pneumatic line leads.

A → Left front door
B → Right front door
C → Left rear door
D → Right rear door
E → Fuel tank filler flap
F → Trunk lid

i

1. If an actuator does not operate correctly and no leakage is found, check the respective lines for kinks or blockages.
2. Disconnected pneumatic lines are to be reconnected to the distributor with connector 007 997 61 82.

Parts Required for Test:

1 Pneumatic hose, 50 mm long 007 997 61 82

Parts Required for Repair:

1 Pneumatic hose, (as needed) 007 997 61 82

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
3.0	**Line and actuator pressurized**	**Yellow** connector on tester.	Apply 600 mbar pressure to line and actuator.	Pressure drop 25 mbar in 1 minute.	⇒ 5.0, ⇒ 7.0
4.0	**Line and actuator evacuated**	**Black** connector on tester.	Apply 300 mbar vacuum to line and actuator.	Vacuum loss 25 mbar in 1 minute.	⇒ 6.0, ⇒ 8.0

Pneumatic Test Program – Test (CL)

C. Actuators

Preparation for Test:

1. Remove nonfunctioning actuator.
2. Connect vacuum/pressure tester to pneumatic connection of actuator.

Parts Required for Test:

1	Pneumatic line	129 800 95 15
1	Pneumatic line, 1 m long	000 158 14 35
1	Pneumatic hose, 50 mm long	007 997 61 62
1	Connector	202 805 03 44

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
5.0	**Actuator holds pressure**	**Yellow** connector on tester.	Apply 600 mbar pressure to actuator.	Pressure drop 25 mbar in 1 minute.	Actuator leaks. Replace actuator.
6.0	**Actuator holds vacuum**	**Black** connector on tester.	Apply 300 mbar vacuum to actuator.	Vacuum loss 25 mbar in 1 minute.	Actuator leaks. Replace actuator.

Pneumatic Test Program – Test (CL)

D. Lines

Preparation for Test:

1. Connect tester to one end of pneumatic line and plug other end with cap 000 987 29 45.

Parts Required for Test:

1	Cap	000 987 11 45
1	Pneumatic hose, 50 mm long	007 997 61 82

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
7.0	**Line holds pressure**	**Yellow** connector on tester.	Apply 600 mbar pressure to lines.	Pressure drop 0 mbar in 1 minute.	Pneumatic line leaks, repair/replace line.
8.0	**Line holds vacuum**	**Black** connector on tester.	Apply 300 mbar vacuum to lines.	Vacuum loss 0 mbar in 1 minute.	Pneumatic line leaks, repair/replace line.