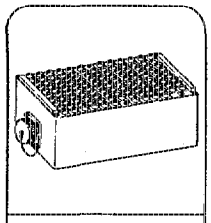
Conditions for test

- Connect bridges 1 ↔ 11 and 10 ↔ 34 to socket box for the complete ASR test program.
- For all test steps with ignition: **ON**, LED ⊟ must come on, i.e. battery voltage in order.
- Only take note of ABS and ASR warning lamps and ASR function indicator lamp for test work in which these lamps are listed in the nominal value section.
- Perform test steps 39 and 40 in sequence.
- Correct fluid level in brake fluid reservoir after test step 40 (accumulator full).
- The vehicle must not be driven with the ABS adapter connected.

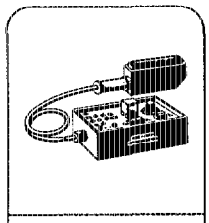
Note

For electrical wiring diagrams and position of the plug connections, refer to "Electrical wiring diagrams - passenger cars - volume 2 or volume 4" and "Electrical wiring diagrams model 129 volume 1".

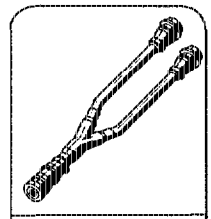
Special tools



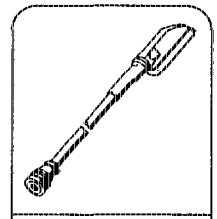
129 589 00 21 00
54



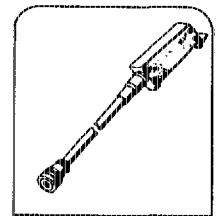
126 589 09 21 00
42



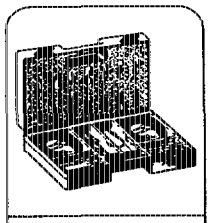
645 589 00 63 00
42 54



645 589 01 63 00
42 54

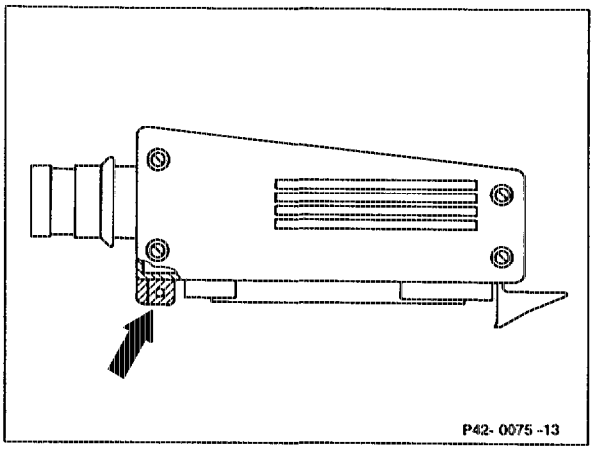


645 589 02 63 00
42 54



201 589 00 99 00
15 54

Note
The lug (arrow) must be sawn off on test cable 645 589 02 63 00.



Commercially available tool or testers

Designation	e.g. Company, order no.
Multimeter	Sun, DMM-5

Clarification of symbols

 Socket box

 Multimeter

 Voltage measurement (volts, direct current).

 Voltage measurement (volts, alternating current)

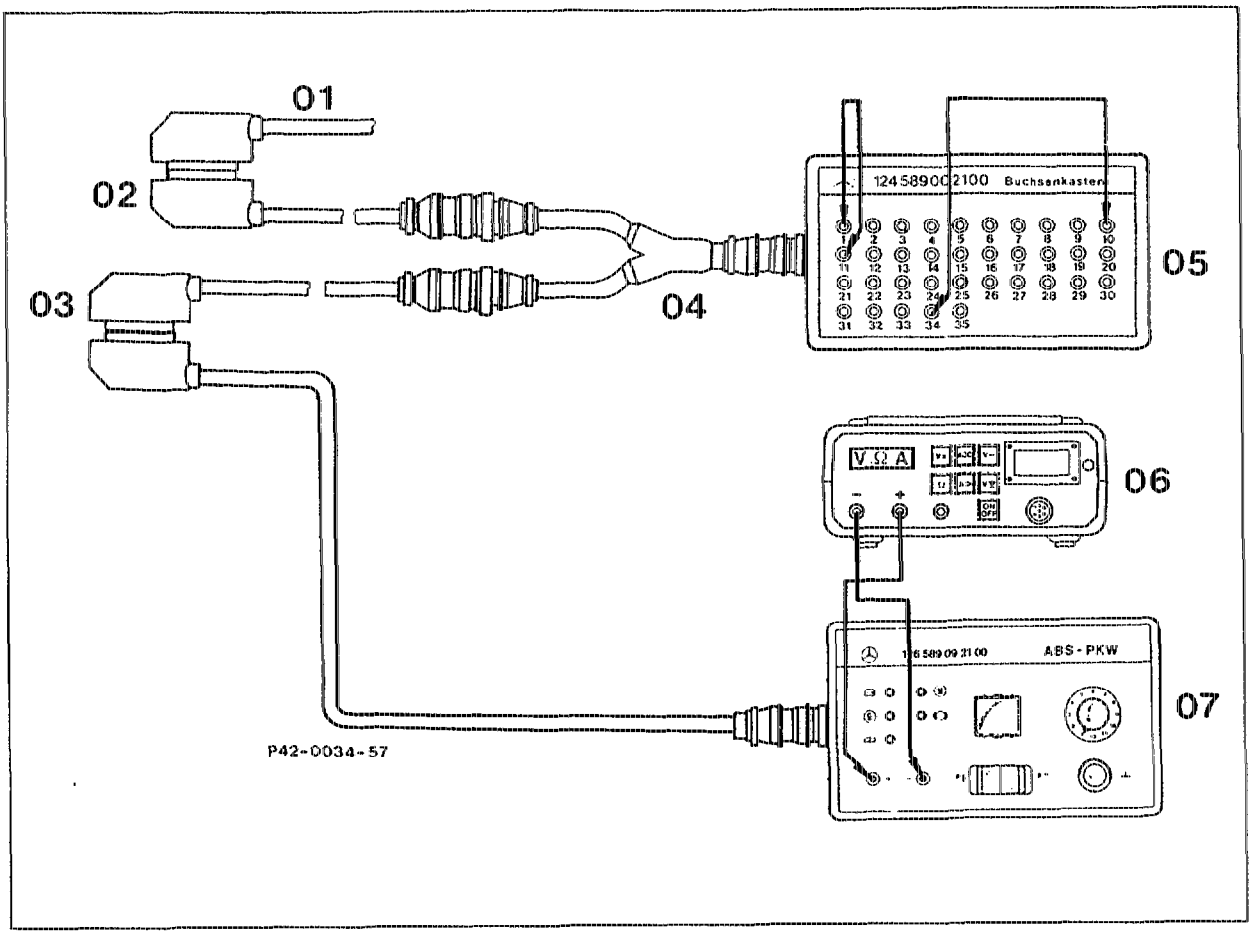
 Resistance measurement (ohm)

 Bridge

 Socket

 Pin

Connect tester:

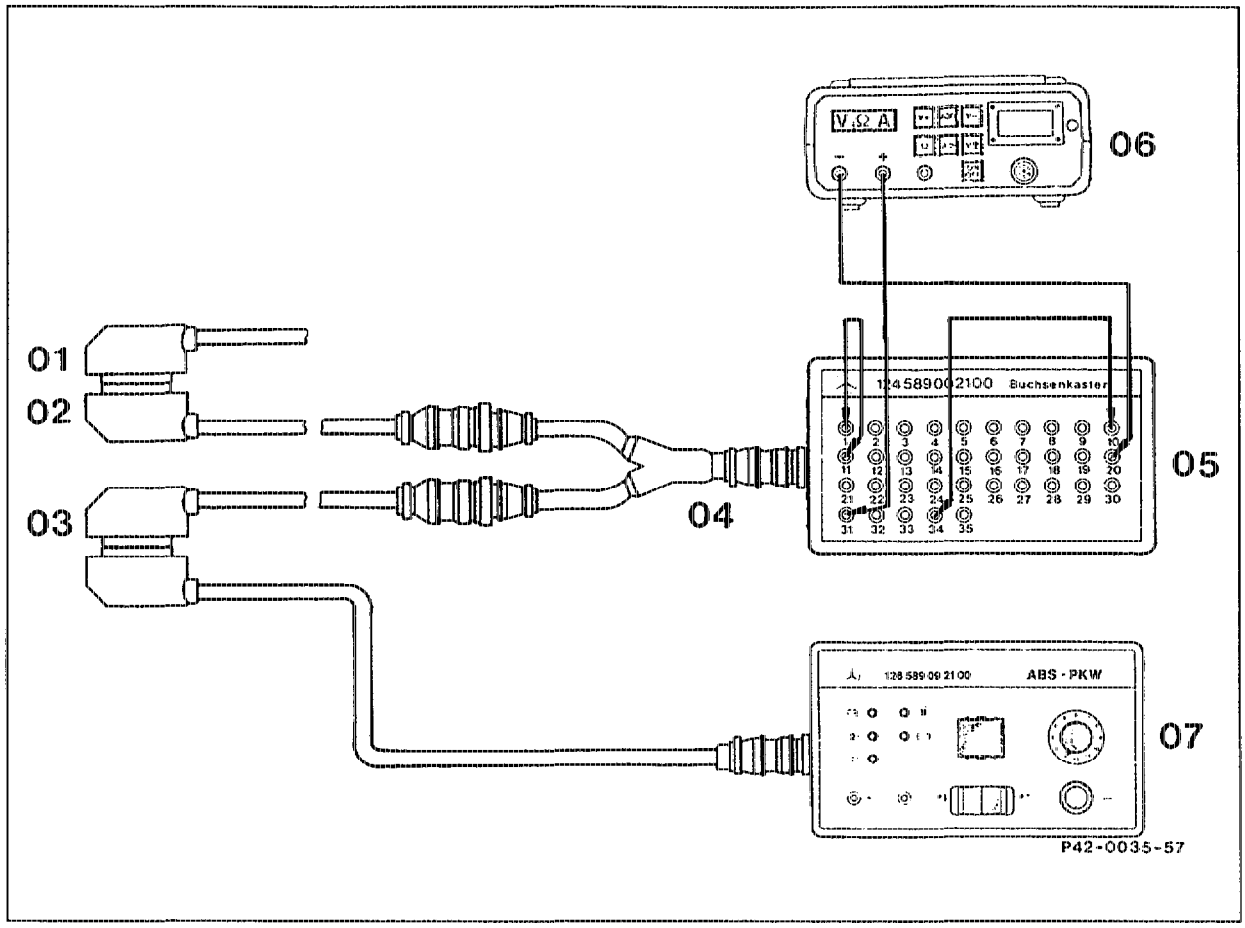


Multimeter to ABS adapter
Socket box with bridges 1 ↔ 11 and 10 ↔ 34

01	Vehicle harness (ASR control unit)		05	Socket box	129 589 00 21 00
02	Test cable	645 589 02 63 00	06	Multimeter	
03	Test cable	645 589 01 63 00	07	ABS adapter	126 589 09 21 00
04	Test cable	645 589 00 63 00			

⚠
With the ignition switched off, disconnect connector to ASR control unit (N30/1).

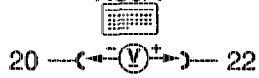
Connect tester:



Multimeter to socket box (example: test step 8)

01	Vehicle harness (ASR control unit)		05	Socket box	129 589 00 21 00
02	Test cable	645 589 02 63 00	06	Multimeter	
03	Test cable	645 589 01 63 00	07	ABS adapter	126 589 09 21 00
04	Test cable	645 589 00 63 00			

Test step/ adapter position	Test step/ scope of test	Test connection	Operation/ requirement	Nominal value	Possible cause/ remedy
1/ 1	Overvoltage protection relay (K1/1 or K1/2)	–	Ignition: **OFF**	LED: All: **OFF**	Replace overvoltage protection relay (K1/1 or K1/2).
2/ 1	Solenoid valve relay (A7/3k1)	–	Ignition: **OFF**	LED: All: **OFF**	Replace solenoid valve relay (A7/3k1).
3/ 1	Overvoltage protection relay (K1/1 or K1/2)	to ABS adapter Button:	Ignition: **ON**	11–14 V LED: **ON** **ON** ABS warning lamp: **ON** ASR warning lamp: **ON**	Battery state of charge not in order. Connection cables interrupted. Replace overvoltage protection relay fuse. Replace overvoltage protection relay (K1/1)(K1/2). Plug connection makes poor contact. Replace solenoid valve relay (A7/3k1), plug connection makes poor contact, replace ABS warning lamp (A1e17), replace ASR warning lamp (A1e22).
4/ 1	ASR function indicator lamp (A1e21)	–	Ignition: **ON**	ASR function indicator lamp: **ON**	Replace ASR function indicator lamp (A1e21).

Test step/ adapter position	Scope of test	Measuring equipment/test connection	Operation/ requirement	Nominal value	Possible cause/ remedy
5/ 1	Alternator terminal 61	–	Engine: allow to run briefly	LED: Ⓢ **OFF**	Alternator defective. Connection cables interrupted. Terminal block (X4/10) makes poor contact.
6/ 1	Stop lamp switch (S9/1)	–	Ignition: **ON** Brake pedal: Operate	LED: ○: **ON**	Connection cables interrupted. Plug connection X30/1 (B1, B2) makes poor contact. Replace stop lamp switch (S9/1).
7/ 2	Solenoid valve relay (A7/3k1)	–	Ignition: **ON**	LED: **ON** Ⓢ **ON** **ON** ABS warning lamp: **OFF** ASR warning lamp: **OFF**	Replace solenoid valve relay (A7/3k1). Connection cables interrupted.
8/ 2	Cable 31	N30/1  20 — 31	Ignition: **ON**	11–14 V	Connection cables interrupted, end sleeve at terminal 30 (Z7/1) (solder connector in wiring harness) makes poor contact.
9/ 2	Cable 22	N30/1  20 — 22	Ignition: **ON**	11–14 V	Connection cables interrupted, end sleeve (solder connector in wiring harness) makes poor contact.

Test step/ adapter position	Scope of test	Measuring equipment/test connection	Operation/ requirement	Nominal value	Possible cause/ remedy
10/ 3	Diode L1 in solenoid valve relay (A7/3k1)	to ABS adapter Button: V	Ignition: **ON**	0.4–1.5 V LED: **ON** **ON**	Replace solenoid valve relay (A7/3k1).
11/ 3	Diode L2 in solenoid valve relay (A7/3k1)	N30/1 20 — V — 17	Ignition: **ON**	0.4–2 V	Replace solenoid valve relay (A7/3k1).
12/ 4	Internal resistance of left front axle speed sensor (L6/1)	to ABS adapter Button: Ω	Ignition: **ON**	0.85–2.3 kΩ	Replace wheel speed sensor (L6/1). Connection cables interrupted, plug connection makes poor contact.
13/ 4	Insulation resistance of left front axle speed sensor (L6/1)	to ABS adapter Button: Ω	Ignition: **ON** Press button: ⊥	>20 kΩ	Replace wheel speed sensor (L6/1), plug connection makes poor contact.
14/ 5	Internal resistance of right front axle speed sensor (L6/2)	to ABS adapter Button: Ω	Ignition: **ON**	0.85–2.3 kΩ	Replace wheel speed sensor (L6/2). Connection cables interrupted, plug connection makes poor contact.
15/ 5	Insulation resistance of right front axle speed sensor (L6/2)	to ABS adapter Button: Ω	Ignition: **ON** Press button: ⊥	>20 kΩ	Replace wheel speed sensor (L6/1), plug connection makes poor contact.

Test step/ adapter position	Scope of test	Measuring equipment/test connection	Operation/ requirement	Nominal value	Possible cause/ remedy
16/ 6	Internal resistance of left rear axle speed sensor (L6/3)	to ABS adapter Button: Ω	Ignition: **ON**	0.6–1.6 kΩ	Replace wheel speed sensor (L6/3). Connection cables interrupted. Plug connection makes poor contact.
17/ 6	Insulation resistance of left rear axle speed sensor (L6/3)	to ABS adapter Button: Ω	Ignition: **ON** Press button: ⊥	>20 kΩ	Replace wheel speed sensor (L6/3), plug connection makes poor contact.
18/ 7	Internal resistance of right rear axle speed sensor (L6/4)	to ABS adapter Button: Ω	Ignition: **ON**	0.6–1.6 kΩ	Replace wheel speed sensor (L6/4), cables interrupted, plug connection makes poor contact.
19/ 7	Insulation resistance of right rear axle speed sensor (L6/4)	to ABS adapter Button: Ω	Ignition: **ON** Press button: ⊥	>20 kΩ	Replace wheel speed sensor (L6/4). Plug connection makes poor contact.
20/ 8	Internal resistance of left front solenoid valve (A7/3y1)	to ABS adapter Button: Ω	Ignition: **OFF** Press button: ⊥	4–12 Ω	Connection cables interrupted, plug connection on ASR hydraulic unit (A7/3) makes poor contact. Replace ASR hydraulic unit (A7/3).

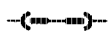
Test step/ adapter position	Scope of test	Measuring equipment/test connection	Operation/ requirement	Nominal value	Possible cause/ remedy
21/ 9	Internal resistance of right front solenoid valve (A7/3y2)	to ABS adapter Button: Ω	Ignition: **OFF** Press button: ⊥	4–12 Ω	Cable interrupted, plug connection on ASR hydraulic unit (A7/3) makes poor contact. Replace hydraulic unit (A7/3).
22/ 10	Internal resistance of left rear solenoid valve (A7/3y3)	to ABS adapter Button: Ω	Ignition: **OFF** Press button: ⊥	4–12 Ω	Cable interrupted. Plug connection on ASR hydraulic unit (A7/3) makes poor contact. Replace hydraulic unit (A7/3).
23/ 11	Internal resistance of right rear solenoid valve (A7/3y4)	to ABS adapter Button: Ω	Ignition: **OFF** Press button: ⊥	4–12 Ω	Cable interrupted. Plug connection on ASR hydraulic unit (A7/3) makes poor contact. Replace hydraulic unit (A7/3).
24/ 4	Interchange ability of left front axle speed sensor (L6/1)	to ABS adapter Button: V	Ignition: **ON** Left front wheel: Turn wheel (approx. 1/s)	≥ 0.1 V~	Replace wheel speed sensor (L6/1), cables interrupted or interchanged, wheel bearing play excessive. Plug connection makes poor contact.
25/ 8	Left front solenoid valve (A7/3y1) pressure holding	remains connected	Ignition: **ON** Left front wheel: Turn wheel (approx. 1/s) Press switch: p = Operate brake pedal	LED: **ON** **ON** **ON** **ON** Wheel must be able to turn	Cables interchanged, brake lines to hydraulic unit interchanged. Replace ASR hydraulic unit (A7/3).

Test step/ adapter position	Scope of test	Measuring equipment/test connection	Operation/ requirement	Nominal value	Possible cause/ remedy
26/ 8	Left front solenoid valve (A7/3y1) Pressure reduction	 remains connected	Ignition: **ON** Operate brake pedal Press switch: **p** ↓ Left front wheel: Turn wheel (approx. 1/s)	LED: **ON** **ON** **ON** **ON** **ON** Wheel must be able to turn	Replace return pump/charge pump relay (A7/3k2), replace ASR hydraulic unit (A7/3).
27/ 5	Interchange-ability of right front axle speed sensor (L6/2)	 to ABS adapter Button: 	Ignition: **ON** Right front wheel: Turn wheel (approx. 1/s)	≥0.1 V~	Replace wheel speed sensor (L6/2), cables interrupted or interchanged, wheel bearing play excessive, plug connection makes poor contact.
28/ 9	Right front solenoid valve (A7/3y2) pressure holding	 remains connected	Ignition: **ON** Right front wheel: Turn wheel (approx. 1/s) Press switch: **p** = Operate brake pedal	LED: **ON** **ON** **ON** **ON** Wheel must be able to turn	Cables interchanged, brake lines to hydraulic unit interchanged, replace ASR hydraulic unit (A7/3).

Test step/ adapter position	Scope of test	Measuring equipment/test connection	Operation/ requirement	Nominal value	Possible cause/ remedy
29/ 9	Right front solenoid valve (A7/3y2) pressure reduction	remains connected	Ignition: **ON** Operate brake pedal Press switch: **p** ↓ Right front wheel: Turn wheel (approx. 1/s)	LED: **ON** **ON** **ON** **ON** **ON** Wheel must be able to turn	Replace return pump/charge pump relay (A7/3k2), replace ASR hydraulic unit (A7/3).
30/ 6	Interchange-ability of left rear axle speed sensor (L6/3)	to ABS adapter Button:	Ignition: **ON** Selector lever position "N" Left rear wheel: Turn wheel (approx. 1/s)	≥ 0.1 V~	Replace wheel speed sensor (L6/3), cables interrupted or interchanged, plug connection makes poor contact.
31/ 10	Left rear solenoid valve (A7/3y3) pressure holding	remains connected	Ignition: **ON** Left rear wheel: Turn wheel (approx. 1/s) Press switch: **p** = Operate brake pedal	LED: **ON** **ON** **ON** **ON** Wheel must be able to turn	Cables interchanged, brake lines to hydraulic unit interchanged, replace ASR hydraulic unit (A7/3).

Test step/ adapter position	Scope of test	Measuring equipment/test connection	Operation/ requirement	Nominal value	Possible cause/ remedy
32/ 10	Left rear solenoid valve (A7/3y3) pressure reduction	remains connected	Ignition: **ON** Operate brake pedal: Press switch p ↓ Left rear wheel: Turn wheel (approx. 1/s)	LED: **ON** **ON** **ON** **ON** **ON** Wheel must be able to turn	Replace return pump/charge pump relay (A7/3k2), replace ASR hydraulic unit (A7/3).
33/ 7	Interchange-ability of right rear axle speed sensor (L6/4)	to ABS adapter Button	Ignition: **ON** Right rear wheel: Turn wheel (approx. 1/s)	≥ 0.1 V~	Replace wheel speed sensor (L6/4), cables interrupted or interchanged, plug connection makes poor contact.
34/ 11	Right rear solenoid valve (A7/3y4) pressure holding	remains connected	Ignition: **ON** Right rear wheel: Turn wheel (approx. 1/s) Press switch: p = Operate brake pedal	LED: **ON** **ON** **ON** **ON** **ON** Wheel must be able to turn	Cables interchanged, brake lines to hydraulic unit interchanged. Replace ASR hydraulic unit (A7/3).

Test step/ adapter position	Scope of test	Measuring equipment/test connection	Operation/ requirement	Nominal value	Possible cause/ remedy
35/ 11	Right rear solenoid valve (A7/3y4) pressure reduction	remains connected	Ignition: **ON** Operate brake pedal Press switch: p ↓ Right rear wheel: Turn wheel (approx. 1/s)	LED: **ON** **ON** **ON** **ON** **ON** Wheel must be able to turn	Cables interchanged, brake lines to hydraulic unit interchanged. Replace ASR hydraulic unit (A7/3).
36/ –	Change-over solenoid valve (A7/3y5)	N30/1 32 — Ω — 30	Ignition: **OFF**	2–4 Ω	Cable interrupted, replace ASR hydraulic unit (A7/3).
37/ –	ASR snow chain switch with indicator lamp (S76)	N30/1 20 — — — 3	Ignition: **ON**	Indicator lamp comes on	Replace ASR snow chain switch with indicator lamp (S76), cables interrupted.
38/ –	ASR snow chain switch with indicator lamp (S76)	N30/1 20 — V — 5	Ignition: **ON** Operate switch	**ON:** 0 V **OFF:** 11–14 V	Replace ASR snow chain switch with indicator lamp (S76), cables interrupted.

Test step/ adapter position	Scope of test	Measuring equipment/test connection	Operation/ requirement	Nominal value	Possible cause/ remedy
39/ 2	Pressure switch (A7/3s1)	N30/1 20  8	Ignition: **ON** Briefly open bleed connection "SP" on hydraulic unit (A7/3) in accordance with the Working Instructions for max. 2 s	0 V (accumulator full) 11–14 V (signal for pressurizing process)	Defective ASR hydraulic unit (A7/3).
40/ 8	ASR pressurizing pump (M15), return pump/ charge pump (A7/3m1)	 remains connected N30/1 33  34 Bridge for max. 60 s	Ignition: **ON** Press switch: p ↓ (max. 60 seconds)	11–14 V up to 0 V pumps run audibly (charging time approx. 40 seconds until accumulator is full)	Replace ASR pressurizing pump (M15), connection cables interrupted, replace ASR hydraulic unit (A7/3), also refer to "ASR hydraulics test program" (Section F).