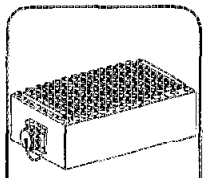
Conditions for test

- 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 malfunction* 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*".

Special Tools



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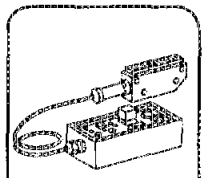

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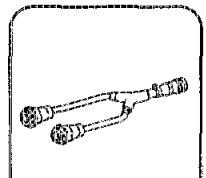
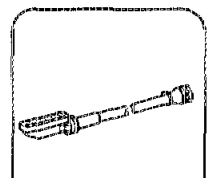


645 589 00 63 00



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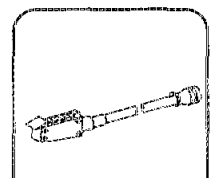

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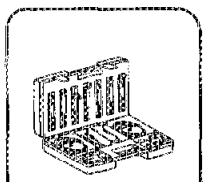
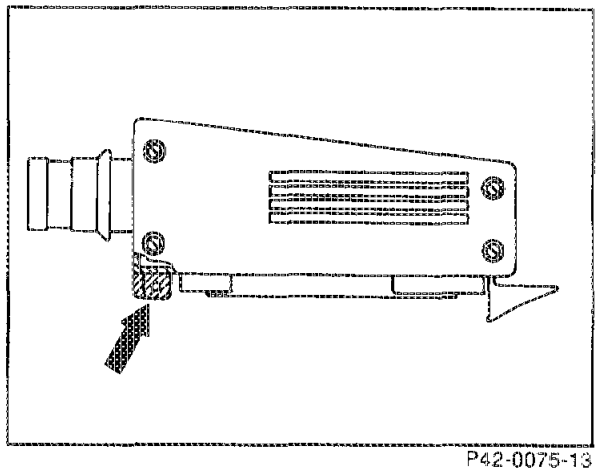


201 589 00 99 00

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



P42-0075-13

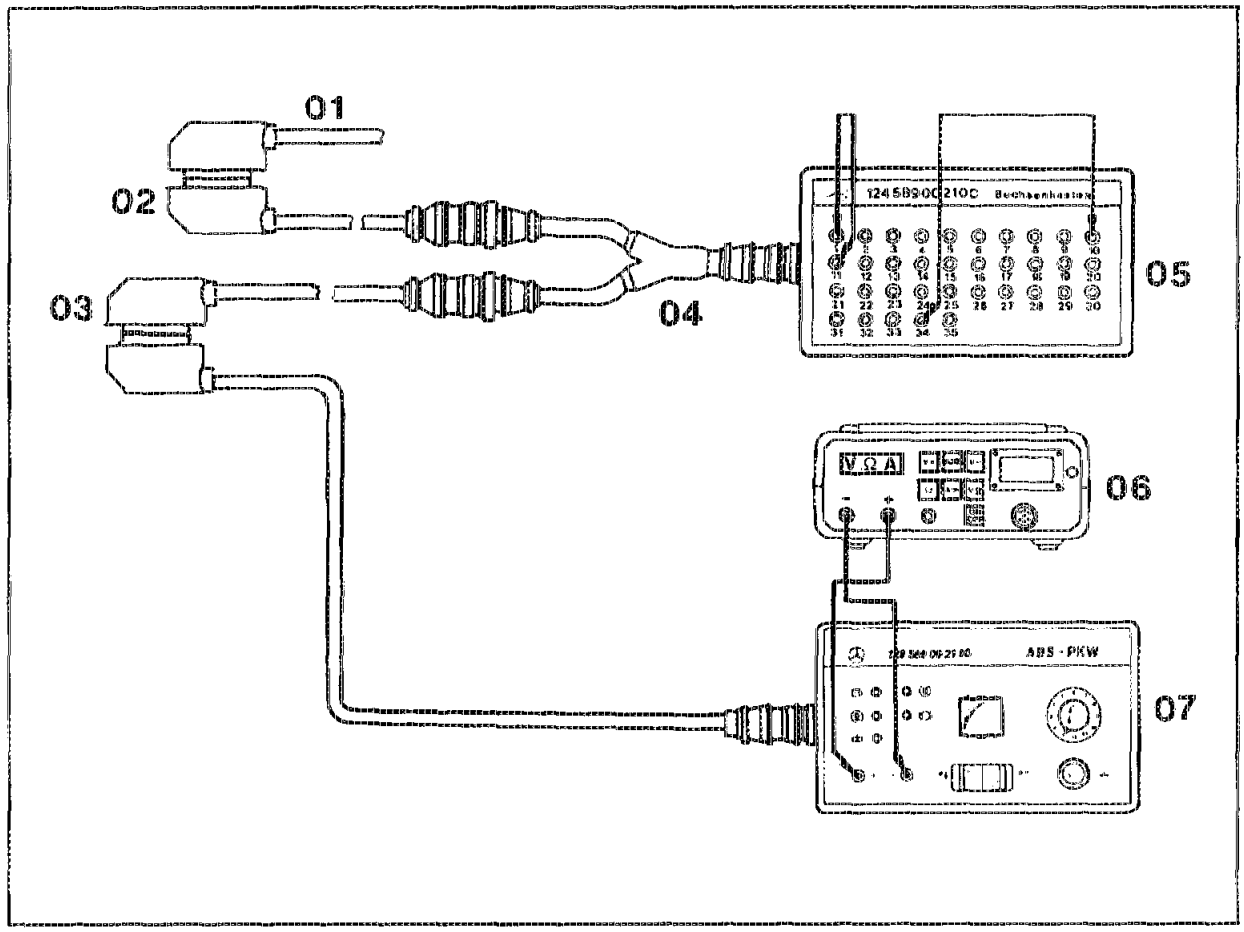
Commercially available tool or testers

Multimeter	Fluke models 23, 83, 85, 87

Clarification of symbols

- Socket box
- Multimeter
- Voltage measurement (volts, direct current).
- Voltage measurement (volts, alternating current)
- resistance measurement (ohm)
- Bridge
- Socket
- Pin

Connect tester:



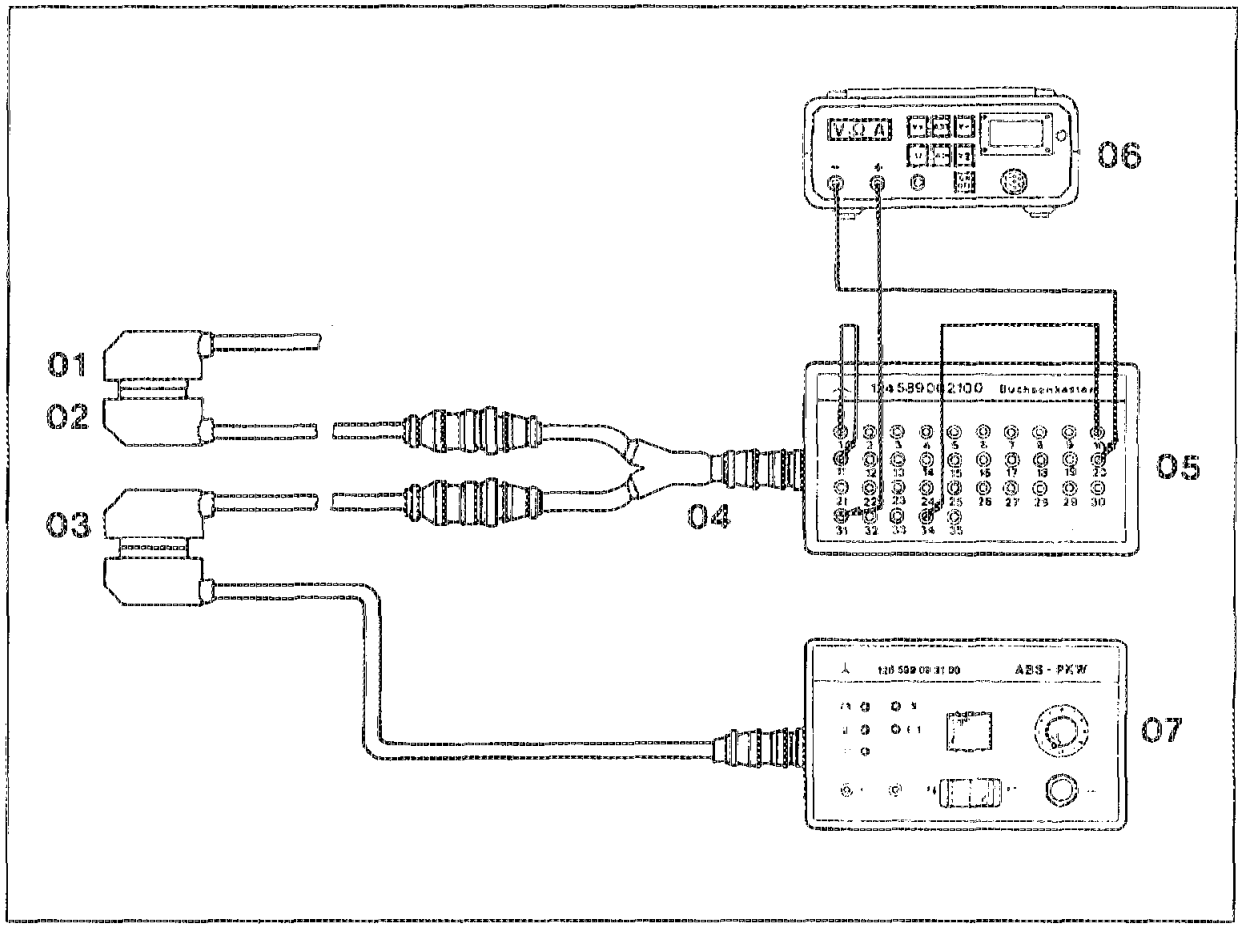
P42-0034-57

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

01	Vehicle harness (ABS/ASR control module)		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			

⚠ **CAUTION!!**
With the ignition switched off, disconnect connector to ABS/ASR control module (N30/1).

Connect tester:



P42-0035-57

Multimeter to socket box (example: test step 8)

01	Vehicle harness (ABS/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/ Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1/ 1	Overvoltage protection relay module(K1/1 or K1/2)	–	Ignition: **OFF**	LED: All: **OFF**	Replace overvoltage protection relay module (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 module (K1/1 or K1/2)	 to ABS adapter Button: 	Ignition: **ON**	11–14 V LED:  : **ON** : **ON**	Battery state of charge not in order. Connection cables interrupted. Replace overvoltage protection relay module fuse. Replace overvoltage protection relay module (K1/1)(K1/2). Plug connection makes poor contact.
				ABS warning lamp: **ON** ASR warning lamp: **ON**	Replace solenoid valve relay (A7/3k1), plug connection makes poor contact, replace ABS malfunction lamp (A1e17), replace ASR malfunction 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	Test scope	Measuring equipment/test connection	Test condition	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 malfunction lamp: **OFF** ASR malfunction 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	Test scope	Measuring equipment/test connection	Test condition	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**	0.4–1.5 V	Replace solenoid valve relay (A7/3k1).
12/ 4	Internal resistance of left front axle VSS sensor (L6/1)	to ABS adapter Button: Ω	Ignition: **ON**	0.85–2.3 kΩ	Replace VSS sensor (L6/1). Connection cables interrupted, plug connection makes poor contact.
13/ 4	Insulation resistance of left front axle VSS sensor (L6/1)	to ABS adapter Button: Ω	Ignition: **ON** Press button: ⊥	>20 kΩ	Replace VSS sensor (L6/1), plug connection makes poor contact.
14/ 5	Internal resistance of right front axle VSS sensor (L6/2)	to ABS adapter Button: Ω	Ignition: **ON**	0.85–2.3 kΩ	Replace VSS sensor (L6/2). Connection cables interrupted, plug connection makes poor contact.
15/ 5	Insulation resistance of right front axle VSS sensor (L6/2)	to ABS adapter Button: Ω	Ignition: **ON** Press button: ⊥	>20 kΩ	Replace VSS sensor (L6/1), plug connection makes poor contact.

Test step/ adapter position	Test scope	Measuring equipment/test connection	Test condition	Nominal value	Possible cause/Remedy
16/ 6	Internal resistance of left rear axle VSS sensor (L6/3)	to ABS adapter Button: Ω	Ignition: **ON**	0.6–1.6 kΩ	Replace VSS sensor (L6/3). Connection cables interrupted. Plug connection makes poor contact.
17/ 6	Insulation resistance of left rear axle VSS sensor (L6/3)	to ABS adapter Button: Ω	Ignition: **ON** Press button: ⊥	>20 kΩ	Replace VSS sensor (L6/3), plug connection makes poor contact.
18/ 7	Internal resistance of right rear axle VSS sensor (L6/4)	to ABS adapter Button: Ω	Ignition: **ON**	0.6–1.6 kΩ	Replace VSS sensor (L6/4), cables interrupted, plug connection makes poor contact.
19/ 7	Insulation resistance of right rear axle VSS sensor (L6/4)	to ABS adapter Button: Ω	Ignition: **ON** Press button: ⊥	>20 kΩ	Replace VSS 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: ⊥	4–6 Ω	Connection cables interrupted, plug connection on ABS/ASR hydraulic unit (A7/3) makes poor contact. Replace ABS/ASR hydraulic unit (A7/3).

Test step/ adapter position	Test scope	Measuring equipment/test connection	Test condition	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: ⊥	4–6 Ω	Cable interrupted, plug connection on ABS/ASR hydraulic unit (A7/3) makes poor contact. Replace ABS/ASR hydraulic unit (A7/3).
22/ 10	Internal resistance of left rear solenoid valve (A7/3y3)	to ABS adapter Button: Ω	Ignition: **OFF** Press button: ⊥	4–6 Ω	Cable interrupted. Plug connection on ABS/ASR hydraulic unit (A7/3) makes poor contact. Replace ABS/ASR hydraulic unit (A7/3).
23/ 11	Internal resistance of right rear solenoid valve (A7/3y4)	to ABS adapter Button: Ω	Ignition: **OFF** Press button: ⊥	4–6 Ω	Cable interrupted. Plug connection on ABS/ASR hydraulic unit (A7/3) makes poor contact. Replace ABS/ASR hydraulic unit (A7/3).
24/ 4	Interchange ability of left front axle VSS sensor (L6/1)	to ABS adapter Button: V	Ignition: **ON** Left front wheel: Turn wheel (approx. 1/s)	≥0.1 V~	Replace VSS 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 ABS/ASR hydraulic unit (A7/3).

Test step/ adapter position	Test scope	Measuring equipment/test connection	Test condition	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 ↓ Right front wheel: Turn wheel (approx. 1/s)	LED: : **ON** : **ON** : **ON** : **ON** : **ON** Wheel must be able to turn	Replace high pressure/return pump relay (A7/3k2), replace ABS/ASR hydraulic unit (A7/3).
33/ 7	Interchange-ability of right rear axle VSS sensor (L6/4)	to ABS adapter Button	Ignition: **ON** Right rear wheel: Turn wheel (approx. 1/s)	≥0.1 V~	Replace VSS 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** Wheel must be able to turn	Cables interchanged, brake lines to hydraulic unit interchanged. Replace ABS/ASR hydraulic unit (A7/3).

Test step/ adapter position	Test scope	Measuring equipment/test connection	Test condition	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 ABS/ASR hydraulic unit (A7/3).
36/ --	Switchover solenoid valve (A7/3y5)	N30/1 32 — Ω — 30	Ignition: **OFF**	2–4 Ω	Cable interrupted, replace ABS/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	Test scope	Measuring equipment/test connection	Test condition	Nominal value	Possible cause/Remedy
39/ 2	Pressure switch (A7/3s1)	N30/1 20 — V — 8	Ignition: **ON** Briefly open bleed connection "SP" on ABS/ASR 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 ABS/ASR hydraulic unit (A7/3).
40/ 8	ASR charging pump (M15), high pressure/ return 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 charging pump (M15), connection cables interrupted, replace ABS/ASR hydraulic unit (A7/3), also refer to "ASR hydraulics test program" (Section F).