5.3 Model 202 up to 05/94

Diagnosis - Function Test

Test step/Test sequence	Test condition	Nominal value	Possible cause/Remedy [1]
⇒ 1.0 Brake torque control circuit	Lift rear of vehicle so that both rear wheels can be rotated freely. **Secure vehicle** Engine: **Start** Selector lever in transmission range “D”. Apply full throttle using accelerator pedal. ⚠ **CAUTION!** Should ASR not come into effect: Reduce throttle to an idle immediately.	The rear wheels are noticebly braked; simultaneously the return/pressure pump can be audibly heard operating. Engine speed is reduced to appprox. 1000 rpm.	23, 33, Diagnostic Manual, Engines, Vol. 3, section 6.4

[1] Observe Preparation for Test, see 22.

Diagnosis - Diagnostic Trouble Code (DTC) Memory

Preparation for DTC Readout

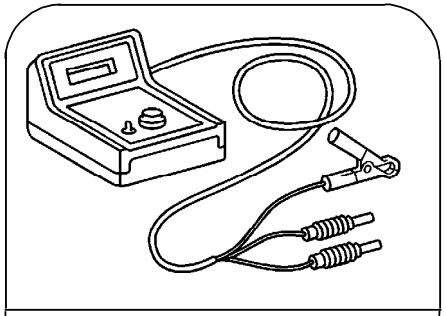
1. Connect impulse counter scan tool or Hand-Held Tester (HHT) to data link connector (X11/4) according to connection diagram (see section 0).

   Note:
   Connect yellow wire from impulse counter scan tool to:

ABS/ASR control module (N30/1):	socket 6
EA/CC/ISC control module (N4/1):	socket 7
Engine control module (N3/4):	socket 4

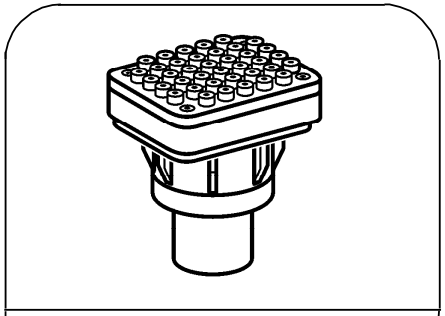
2. Ignition: **ON**
3. Read out DTC memory for control modules (N30/1, N4/1, N4/3).

Special Tools



124 589 19 21 00

Pulse counter



140 589 14 63 00

Adapter

Equipment

Hand-Held Tester (HHT)	See S.I. in groups 58 and 99.

Diagnosis - Diagnostic Trouble Code (DTC) Memory

Diagnostic trouble code (DTC)		Possible cause	Test step/Remedy [1]
1	–	No fault in system	In case of complaint: 23 and 33 (entire test)
2	002	ABS/ASR control module (N30/1)	Replace N30/1.
3	003	Left front axle VSS sensor (L6/1), open circuit	23 ⇒ 13.0
4	004	Right front axle VSS sensor (L6/2), open circuit	23 ⇒ 15.0
5	005	Left rear axle VSS sensor (L6/3), open circuit	23 ⇒ 17.0
6	006	Right rear axle VSS sensor (L6/4), open circuit	23 ⇒ 19.0
7	007	Left front axle VSS sensor (L6/1), implausible	23 ⇒ 13.0
8	008	Right front axle VSS sensor (L6/2), implausible	23 ⇒ 15.0
9	009	Left rear axle VSS sensor (L6/3), implausible	23 ⇒ 17.0
10	010	Right rear axle VSS sensor (L6/4), implausible	23 ⇒ 19.0
11	011	VSS (L6/1, L6/2, L6/3, L6/4), implausible [2]	23 ⇒ 13.0 23 ⇒ 15.0 23 ⇒ 17.0 23 ⇒ 19.0 Visually inspect.

1) Observe Preparation for Test, see 22.

2) Rotor with incorrect tooth count, dirt accumulation on or damaged rotor, incorrect rear axle ratio, wrong wheel or tire size.
If DTC appears only after repair work, it was caused by applying the brakes or driving vehicle on a dynamometer, erase DTC.

Diagnosis - Diagnostic Trouble Code (DTC) Memory

Diagnostic trouble code (DTC)		Possible cause	Test step/Remedy [1]
12	012	ABS/ASR hydraulic unit, solenoid valve relay (A7/3k1)	23 ⇒ 7.0
13	013	ABS/ASR hydraulic unit, left front axle solenoid valve (hold) (A7/3y6)	23 ⇒ 21.0
14	014	ABS/ASR hydraulic unit, left front axle solenoid valve (release) (A7/3y7)	23 ⇒ 22.0
15	015	ABS/ASR hydraulic unit, right front axle solenoid valve (hold) (A7/3y8)	23 ⇒ 23.0
16	016	ABS/ASR hydraulic unit, right front axle solenoid valve (release) (A7/3y9)	23 ⇒ 24.0
17	017	ABS/ASR hydraulic unit, left rear axle solenoid valve (hold) (A7/3y10)	23 ⇒ 25.0
18	018	ABS/ASR hydraulic unit, left rear axle solenoid valve (release) (A7/3y11)	23 ⇒ 26.0
19	019	ABS/ASR hydraulic unit, right rear axle solenoid valve (hold) (A7/3y12)	23 ⇒ 27.0
20	020	ABS/ASR hydraulic unit, right rear axle solenoid valve (release) (A7/3y13)	23 ⇒ 28.0
21	021	ABS/ASR hydraulic unit, switchover/solenoid valve (A7/3y5)	23 ⇒ 29.0
22	022	ABS/ASR hydraulic unit, return solenoid valve (A7/3y14)	23 ⇒ 30.0
23	023	ASR system pressure too low	23 ⇒ 10.0, 33

[1] Observe Preparation for Test, see 22.

Diagnosis - Diagnostic Trouble Code (DTC) Memory

Diagnostic trouble code (DTC)		Possible cause	Test step/Remedy [1]
24	024	ABS/ASR hydraulic unit, cycling module/high-pressure return pump (A7/3n1), ABS/ASR hydraulic unit, high-pressure/return pump (A7/3m1)	23 ⇒ 8.0, 33
25	025	ASR charging pump relay module (K20)	Wiring, 23 ⇒ 31.0, 33
26	026	Brake fluid level too low	23 ⇒ 11.0, Check brake fluid level/ remedy cause.
27	027	Stop lamp switch (S9/1)	23 ⇒ 9.0
28	028	Battery voltage too low	23 ⇒ 1.0
30	030	CAN data bus to EA/CC/ISC control module (N4/1), interrupted	⇒ 32.0, Read out DTC memory for EA/CC/ISC control module (N4/1): see DM, Engines, Vol. 3, section 6.4 11.

[1] Observe Preparation for Test, see 22.

Diagnosis - Diagnostic Trouble Code (DTC) Memory

Diagnostic trouble code (DTC)		Possible cause	Test step/Remedy [1]
31	031	CAN data bus to Engine control module (N4/3), interrupted	⇒ 32.0, Read out DTC memory for engine control module (N3/4): see DM, Engines, Vol. 2, section 1.1, 11.
33	033	CAN data bus, interrupted	⇒ 32.0, Read out DTC memory for EA/CC/ISC control module (N4/1): see DM, Engines, Vol. 3, section 6.4, 11. Read out DTC memory for engine control module (N3/4): see DM, Engines, Vol. 2, section 1.1, 11.

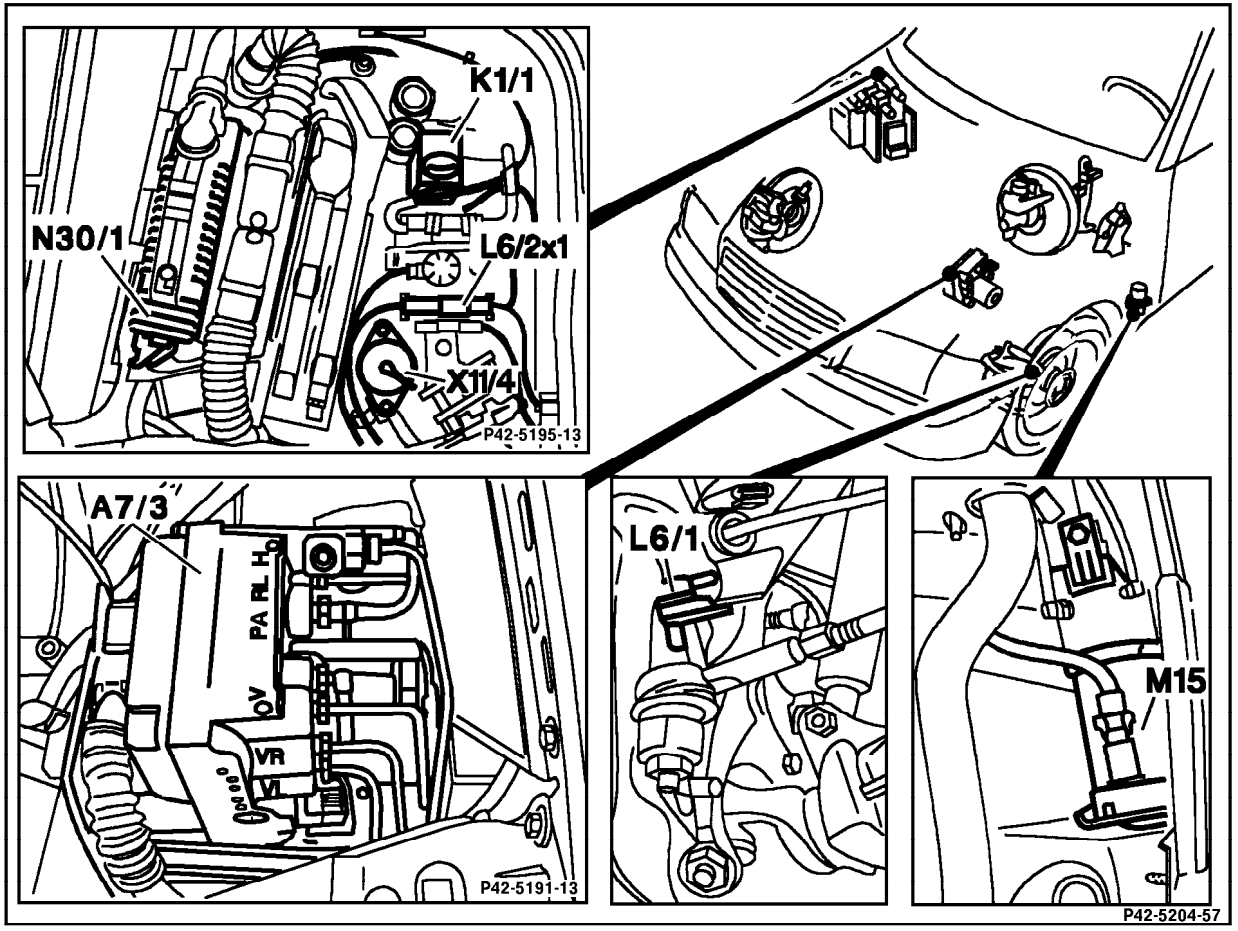
[1] Observe Preparation for Test, see 22.

Diagnosis - Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Remedy/Test step
ASR or ABS malfunction indicator lamp illuminates with engine running.		Read DTC memory: 12, Read DTC memory for base module (N6/1): section 1.1, 11.
ASR or ABS malfunction indicator lamp comes on while driving and will not go out again.		DTC memory, 12.
ASR and ABS malfunction indicator lamps come on while driving and go out again.	Vehicle system voltage < 11 V, too many electrical consumers in use.	Check generator (G2). Read DTC memory: 12.
ABS malfunction indicator lamp does not come on with ignition turned on.		23 ⇒ 2.0
ASR malfunction indicator lamp does not come on with ignition turned on.		23 ⇒ 3.0
ABS malfunction indicator lamp comes on with engine running after using a chassis dynamometer.	Nonplausible rpm signal due to different rpm at front and rear axles.	Read DTC memory: 12, Erase DTC memory.

Electrical Test Program - Component Locations

Electrical Components on Front Axle and in Engine Compartment



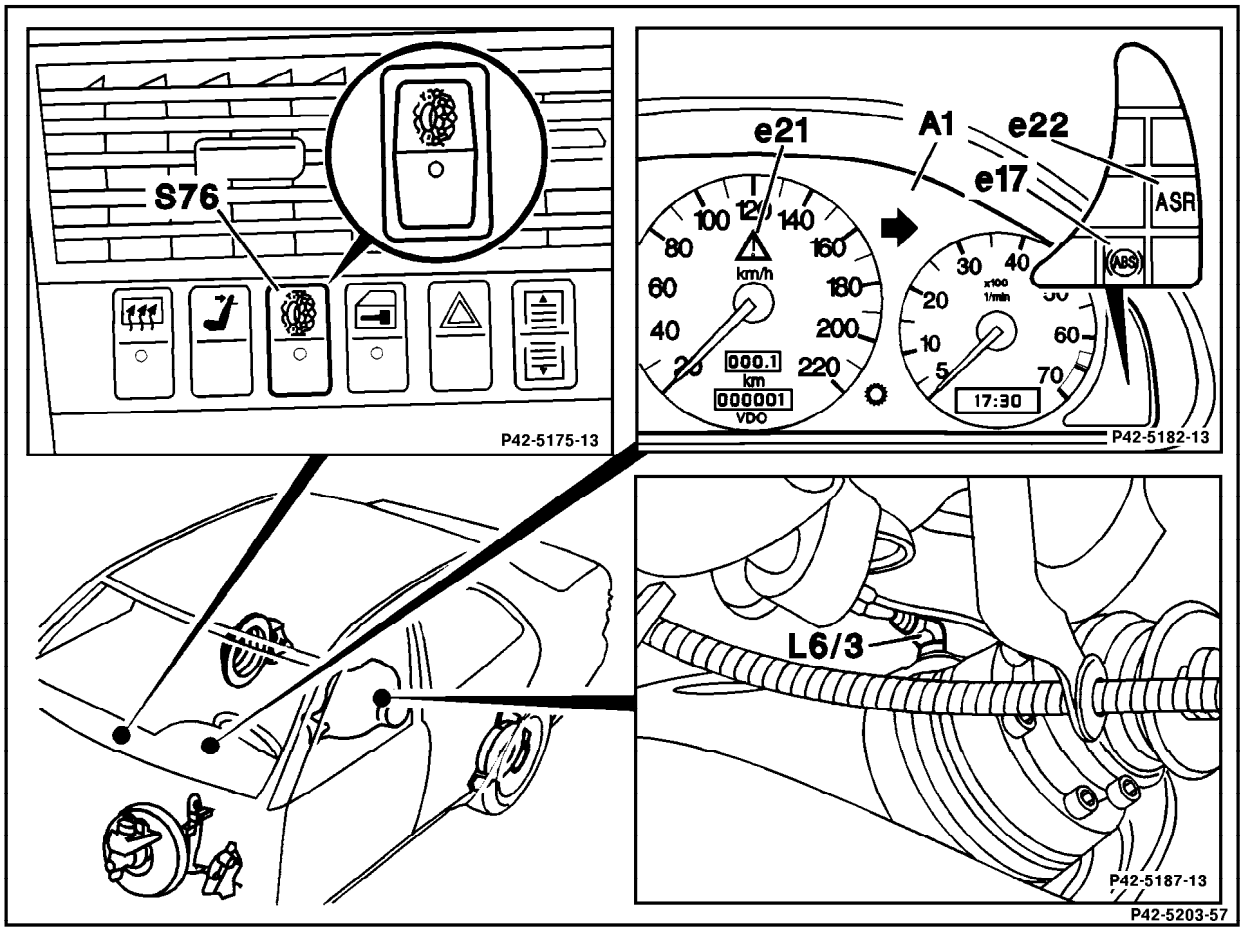
P42-5204-57

Figure 1

A7/3	ABS/ASR hydraulic unit
L6/1	Left front axle VSS sensor
L6/2	Right front axle VSS sensor
M15	ASR charging pump
N30/1	ABS/ASR control module
X11/4	Data link connector (DTC readout)

Electrical Test Program - Component Locations

Electrical Components on Rear Axle and in Passenger Compartment



P42-5203-57

Figure 2

A1	Instrument cluster
A1e17	ABS MIL
A1e21	ASR warning lamp
A1e22	ASR MIL
L6/3	Left rear axle VSS sensor
L6/4	Right rear axle VSS sensor
S76	ASR snow chain switch (with indicator)

Electrical Test Program - Preparation for Test

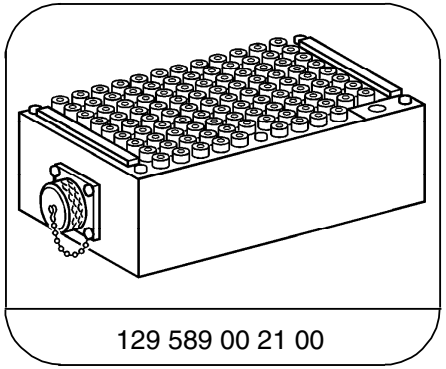
Preliminary work:
Diagnosis - Diagnostic Trouble Code (DTC) Memory 12

1. Ignition: **OFF**
2. Provide access to ABS/ASR control module (N30/1).
3. Connect socket box with test cable as per connection diagram (Figure 1).

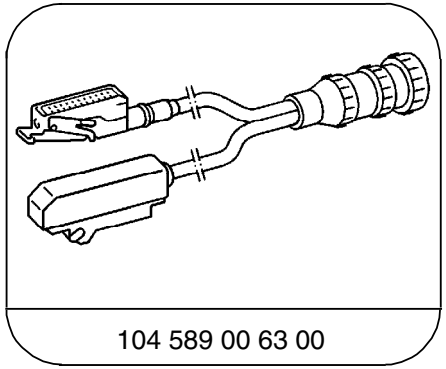
⚠ CAUTION!
Carefully remove the locking tabs on the test cable connectors (arrows, Figure 2).

Electrical Wiring Diagrams:
Electrical Troubleshooting Manual, Model 202, ASR, Group 42.

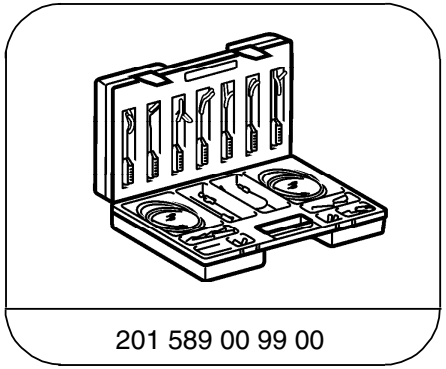
Special Tools



129 589 00 21 00
126-pin socket box



104 589 00 63 00
Test cable



201 589 00 99 00
Electrical connecting set

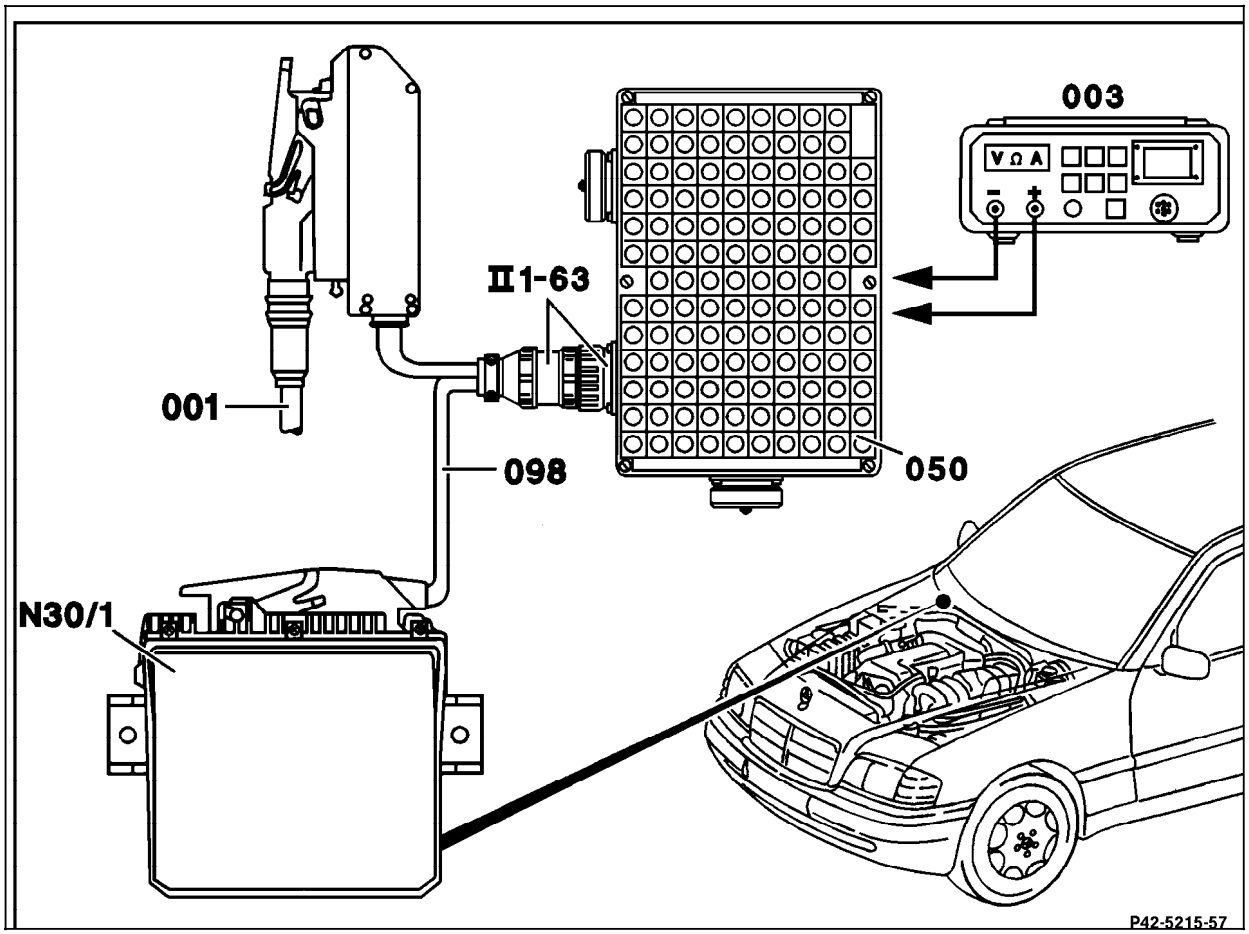
Equipment

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



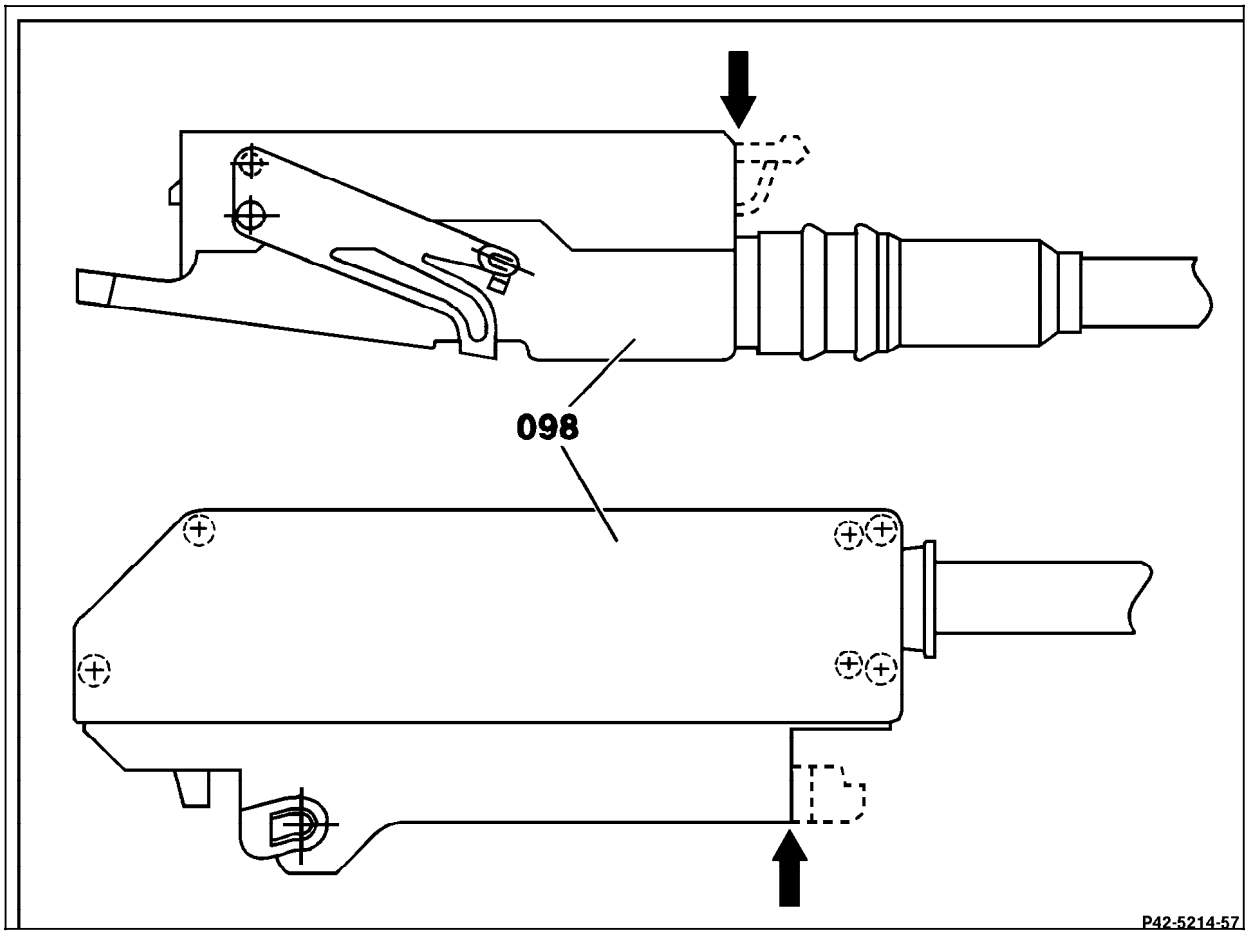
P42-5215-57

Figure 1

001	ABS/ASR control module connector
003	Multimeter
050	Socket box (126-pole)
098	Test cable
N30/1	ABS/ASR control module

Electrical Test Program - Preparation for Test

Test Cable Modification



P42-5214-57

Figure 2
098 Test cable

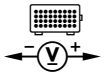
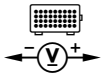
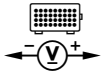
Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 1.0 28	**ABS/ASR control module (N30/1)** Voltage supply Circuit 87	N30/1 3 — V — 1 16 — V — 1	Ignition: **ON**	11 – 14 V	⇒ 1.1
⇒ 1.1	Voltage supply from overvoltage protection relay module (K1)	N30/1 W16/4 — V — 1	Ignition: **ON**	11 – 14 V	Fuse at K1, Wiring, K1, ⇒ 1.2
⇒ 1.2	Ground wire	N30/1 W16/4 — Ω — 3 W16/4 — Ω — 16	Ignition: **OFF**	< 1 Ω	Wiring, Ground, right component compartment (W16/4).
⇒ 2.0	**ABS MIL (A1e17)**	N30/1 3 — V — 24	Ignition: **ON** Engine: **at Idle**	< 2 V A1e17: **ON** 10 – 14 V A1e17: **OFF**	A1e17, ⇒ 2.1 12, Wiring, N30/1.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 2.1	Diode in ABS/ASR hydraulic unit, solenoid valve relay (A7/3k1)	—	Ignition: **OFF** Disconnect N30/1. Ignition: **ON** Engine: **at Idle**	 A1e17: **ON** A1e17: **ON**	Wiring, A7/3k1.
⇒ 3.0	**ASR MIL (A1e22)**	N30/1  3 — 12	Ignition: **ON** Engine: **at Idle**	< 2 V A1e22: **ON** 10 – 14 V A1e22: **OFF**	A1e22, ⇒ 3.1 12, Wiring, N30/1.
⇒ 3.1	Diode in solenoid valve relay (A7/3k1)	—	Ignition: **OFF** Disconnect N30/1. Ignition: **ON** Engine: **at Idle**	 A1e22: **ON** A1e22: **ON**	Wiring, A7/3k1.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 4.0	**ASR warning lamp (A1e21)**	N30/2  10 — 1	Ignition: **ON** Engine: **at Idle**	10 – 14 V A1e21: **ON** < 2 V A1e21: **OFF**	Wiring, A1e21. Wiring.
⇒ 5.0	**Diagnosis output**	N30/1  3 — 30	Ignition: **ON**	10 – 14 V	Wiring, N30/1.
⇒ 6.0	**Circuit 61 voltage**	N30/1  3 — 38	Ignition: **ON** Engine: **at Idle**	< 1 V 11 – 14 V	Wiring, Generator (G2).

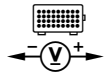
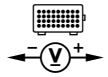
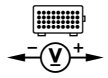
Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 7.0 12	**ABS/ASR hydraulic unit, solenoid valve relay (A7/3k1)** Voltage supply	N30/1 8 — (V) — 20	Ignition: **ON**	11 – 14 V	12, ⇒ 7.1, Wiring.
	Monitor	N30/1 3 — (V) — 5		11 – 14 V	⇒ 7.2, Wiring.
⇒ 7.1	Coil resistance	N30/1 8 — (Ω) — 20	Ignition: **OFF** Disconnect N30/1.	40 – 80 Ω	Wiring, A7/3k1.
⇒ 7.2	Working contact	N30/1 W14 — (Ω) — 17	Ignition: **OFF** Disconnect N30/1.	< 15 Ω	Wiring, A7/3k1.

Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 8.0 24	**ABS/ASR hydraulic unit, cycling module/high pressure return pump relay (A7/3n1)** Voltage supply	N30/1 3 — V — 20	Ignition: **ON** Disconnect N30/1.	 11 – 14 V	Wiring, A7/3n1.
⇒ 9.0 27	**Stop lamp switch (S9/1)** N.O. contact	N30/1 3 — V — 29	Ignition: **ON** Brake pedal not depressed. Depress brake pedal.	 < 1 V 11 – 14 V	Wiring, F1/1-12, K1, S9/1.
	N.C. contact	N30/1 3 — V — 26	Brake pedal not depressed. Depress brake pedal.	11 – 14 V < 1 V	

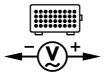
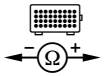
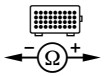
Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 10.0	**Parking brake switch (S12)**	N30/1  3 — 28	Ignition: **ON** Set parking brake. Engine: **at Idle** Release parking brake	 A1e7: **ON** < 1 V A1e7: **OFF** 11 – 14 V	Wiring, A1e7.
⇒ 11.0 26	**ASR brake fluid level switch (S11/2)**	N30/1  3 — 27	Ignition: **ON** Brake fluid reservoir: Full Empty	 < 3 V 11 – 14 V	Wiring, S11/2.
⇒ 12.0	**ASR snow chain switch (S76)**	N30/1  3 — 6	Engine: **at Idle** Press and hold switch S76 in **ON** position Press and hold switch S76 in **OFF** position	 < 1 V S76 indicator: **ON** 11 – 14 V S76 indicator: **OFF**	Wiring, S76, N30/1.

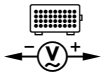
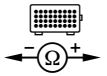
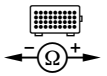
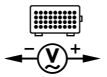
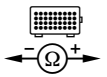
Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 13.0	**Left front axle VSS sensor (L6/1)**	N30/1 48 — (V~) — 49	Raise front of vehicle. Ignition: **ON** Rotate left front wheel.	> 0.1 V ~	⇒ 13.1
⇒ 13.1	Internal resistance	N30/1 48 — (Ω) — 49	Ignition: **OFF** Disconnect N30/1.	0.8 – 3.7 kΩ	Wiring, L6/1, ⇒ 13.2
⇒ 13.2	Insulation resistance	N30/1 3 — (Ω) — 49	Ignition: **OFF** Disconnect N30/1.	> 20 kΩ	Wiring.
⇒ 14.0	**Left front axle VSS sensor (L6/1) output**	N30/1 3 — (V~) — 18	Raise front of vehicle. Ignition: **ON** Rotate left front wheel.	> 3 V ~	Wiring, ⇒ 14.1, N30/1.
⇒ 14.1	Load with control modules connected.	N30/1 3 — (Ω) — 18	Ignition: **OFF** Disconnect N30/1.	> 5 kΩ	Wiring, Control modules (A1, N4/1, N22) connected. ⇒ 13.0

Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 15.0 4 8 11	**Right front axle VSS sensor (L6/2)**	N30/1  46 — 47	Raise front of vehicle. Ignition: **ON** Rotate right front wheel.	> 0.1 V ~	⇒ 15.1, ⇒ 15.2.
⇒ 15.1	Internal resistance	N30/1  46 — 47	Ignition: **OFF** Disconnect N30/1.	0.8 – 3.7 k Ω	Wiring, L6/2.
⇒ 15.2	Insulation resistance	N30/1  3 — 47	Ignition: **OFF** Disconnect N30/1.	> 20 kΩ	Wiring.
⇒ 16.0	***Not for U.S.A vehicles***				

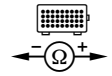
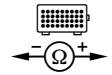
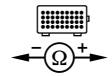
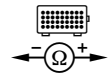
Electrical Test Program - Test

Test step / DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 17.0 DTC 51	**Left rear axle VSS sensor (L6/3)**	N30/1  44 — 45	Raise rear of vehicle. Ignition: **ON** Rotate left rear wheel.	> 0.1 V ~	⇒ 17.1, ⇒ 17.2.
⇒ 17.1	Internal resistance	N30/1  44 — 45	Ignition: **OFF** Disconnect N30/1.	0.6 – 3.2 kΩ	Wiring, L6/3.
⇒ 17.2	Insulation resistance	N30/1  3 — 45	Ignition: **OFF** Disconnect N30/1.	> 20 kΩ	Wiring.
⇒ 18.0	**Left rear axle VSS sensor (L6/3) output**	N30/1  3 — 2	Raise rear of vehicle. Ignition: **ON** Rotate left rear wheel.	> 3 V ~	Wiring, ⇒ 18.1, N30/1.
⇒ 18.1	Load with control modules connected	N30/1  3 — 2	Ignition: **OFF** Disconnect N30/1.	> 5 kΩ	Wiring, Control modules (N3/4, N4/1) connected. ⇒ 17.0.

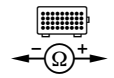
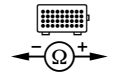
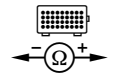
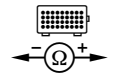
Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 19.0 6 10 11	**Right rear axle VSS sensor (L6/4)**	N30/1 42 — (V~) — 43	Raise rear of vehicle. Ignition: **ON** Rotate right rear wheel.	 > 0.1 V ~	⇒ 19.1, ⇒ 19.2.
⇒ 19.1	Internal resistance	N30/1 42 — (Ω) — 43	Ignition: **OFF** Disconnect N30/1.	 0.6 – 3.2 k Ω	Wiring, L6/4.
⇒ 19.2	Insulation resistance	N30/1 3 — (Ω) — 43	Ignition: **OFF** Disconnect N30/1.	 > 20 k Ω	Wiring.
⇒ 20.0	***Not for U.S.A vehicles***				

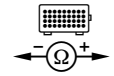
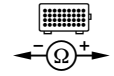
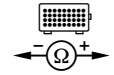
Electrical Test Program - Test

Test step / DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 21.0 13	**ABS/ASR hydraulic unit, left front axle solenoid valve (A7/3y6) (hold)** Internal resistance	N30/1  3 — 17	Ignition: **OFF** Disconnect N30/1.	5.4 – 12.6 Ω	Wiring, ABS/ASR hydraulic unit (A7/3).
⇒ 22.0 14	**ABS/ASR hydraulic unit, left front axle solenoid valve (A7/3y7) (release)** Internal resistance	N30/1  3 — 54	Ignition: **OFF** Disconnect N30/1.	2.8 – 6.6 Ω	Wiring, A7/3.
⇒ 23.0 15	**ABS/ASR hydraulic unit, right front axle solenoid valve (A7/3y8) (hold)** Internal resistance	N30/1  3 — 22	Ignition: **OFF** Disconnect N30/1.	5.4 – 12.6 Ω	Wiring, A7/3.
⇒ 24.0 16	**ABS/ASR hydraulic unit, right front axle solenoid valve (A7/3y9) (release)** Internal resistance	N30/1  3 — 41	Ignition: **OFF** Disconnect N30/1.	2.8 – 6.6 Ω	Wiring, A7/3.

Electrical Test Program - Test

Test step / DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 25.0 17	**ABS/ASR hydraulic unit, left rear axle solenoid valve (A7/3y10) (hold)** Internal resistance	N30/1  3 — 4	Ignition: **OFF** Disconnect N30/1.	5.4 – 12.6 Ω	Wiring, A7/3.
⇒ 26.0 18	**ABS/ASR hydraulic unit, left rear axle solenoid valve (A7/3y11) (release)** Internal resistance	N30/1  3 — 40	Ignition: **OFF** Disconnect N30/1.	2.8 – 6.6 Ω	Wiring, A7/3.
⇒ 27.0 19	**ABS/ASR hydraulic unit, right rear axle solenoid valve (A7/3y12) (hold)** Internal resistance	N30/1  3 — 36	Ignition: **OFF** Disconnect N30/1.	5.4 – 12.6 Ω	Wiring, A7/3.
⇒ 28.0 20	**ABS/ASR hydraulic unit, right rear axle solenoid valve (A7/3y13) (release)** Internal resistance	N30/1  3 — 37	Ignition: **OFF** Disconnect N30/1.	2.8 – 6.6 Ω	Wiring, A7/3.

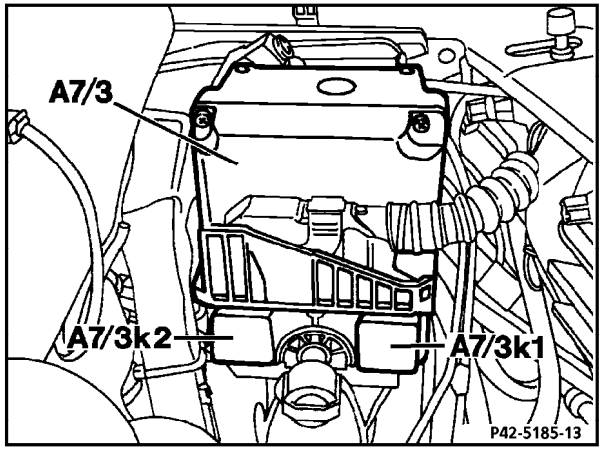
Electrical Test Program - Test

Test step / DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 29.0 21	**ABS/ASR hydraulic unit, switchover/solenoid valve (A7/3y5)** Internal resistance	N30/1  3 — 23	Ignition: **OFF** Disconnect N30/1.	5.4 – 12.6 Ω	Wiring, A7/3.
⇒ 30.0 22	**ABS/ASR hydraulic unit, return solenoid valve (A7/3y14)** Internal resistance	N30/1  3 — 34	Ignition: **OFF** Disconnect N30/1.	5.4 – 12.6 Ω	Wiring, A7/3.
⇒ 31.0 25	**ASR charging pump relay module (K20)** Coil resistance	N30/1  9 — 1	Ignition: **OFF** Disconnect N30/1.	40 – 80 Ω	Wiring, K20.
⇒ 32.0 30 31 33	**CAN data bus**	N30/1 53 — 51	Ignition: **OFF** Disconnect connector from N30/1. Test with ohmmeter directly on connector.	55 – 65 Ω.	Data line, ⇒ 32.1

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 32.1	CAN element in engine control module (N3/4) Resistance	N3/4 L ◄–Ω+► H	Disconnect connector 1 from N3/4. Test directly on control module.	115 – 125 Ω.	N3/4, ⇒ 32.2
⇒ 32.2	CAN element in EA/CC/ISC control module (N4/1) Resistance	N4/1 20 ◄–Ω+► 21	Disconnect connector 1 from N4/1. Test directly on control module.	115 – 125 Ω.	N4/1.

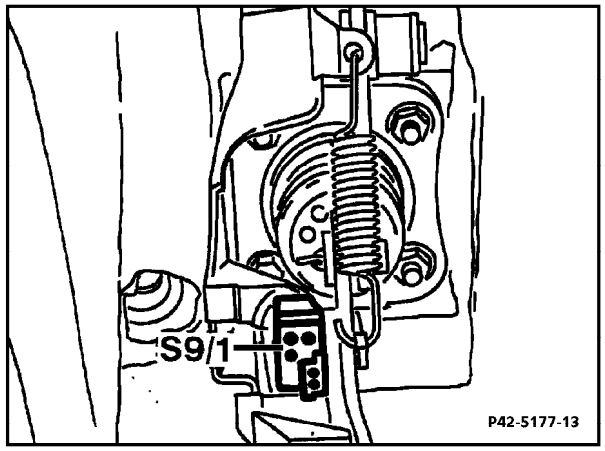
Electrical Test Program - Test



P42-5185-13

Figure 1

A7/3k1	Solenoid valve relay
A7/3k2	High-pressure/return pump relay



P42-5177-13

Figure 2

S9/1	Stop lamp switch (4-pole)

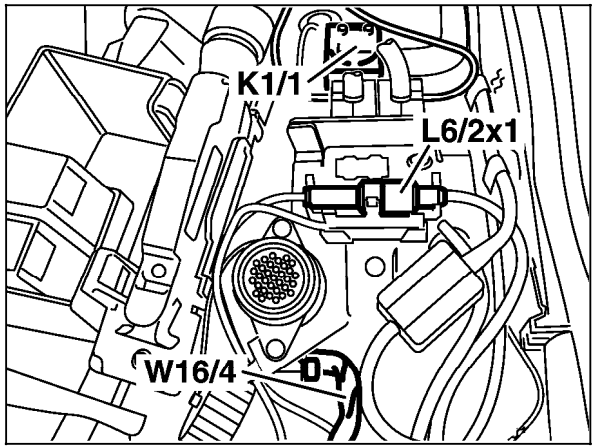
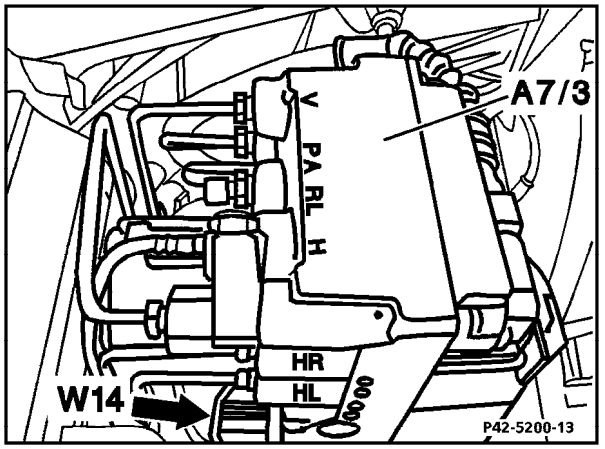


Figure 3

W16/4	Ground (output ground - component compartment - right)

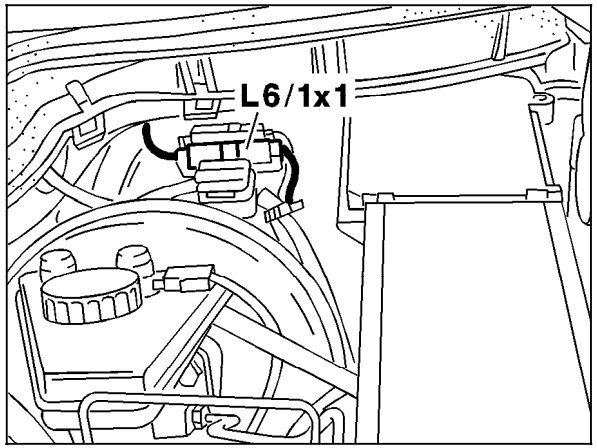
Electrical Test Program - Test



P42-5200-13

Figure 4

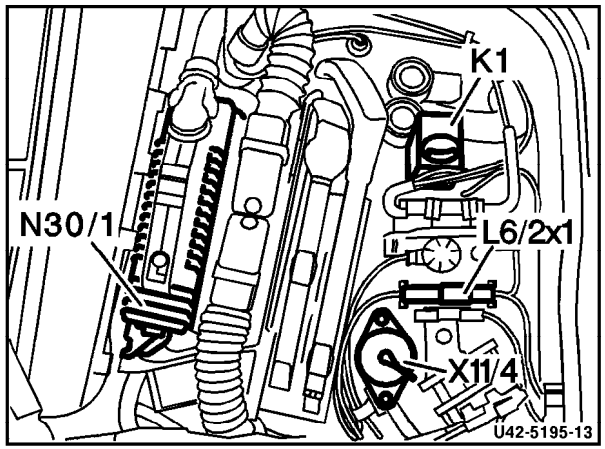
W14 Ground ABS hydraulic unit bracket)



P42-5179-13

Figure 5

L6/1x1 Left front axle VSS sensor connector

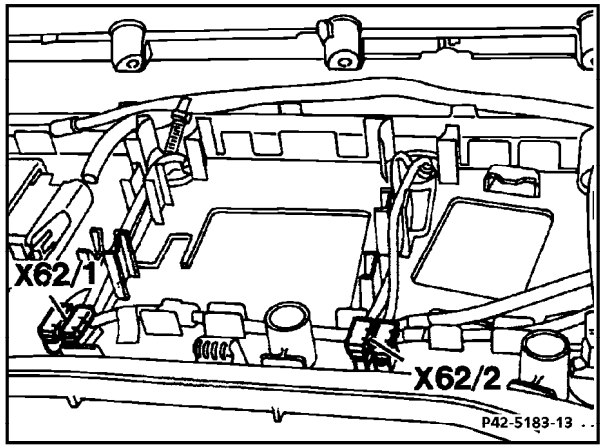


U42-5195-13

Figure 6

L6/2x1 Right front axle vehicle speed sensor harness connector
K1 Overvoltage protection relay module
N30/1 ABS/ASR control module

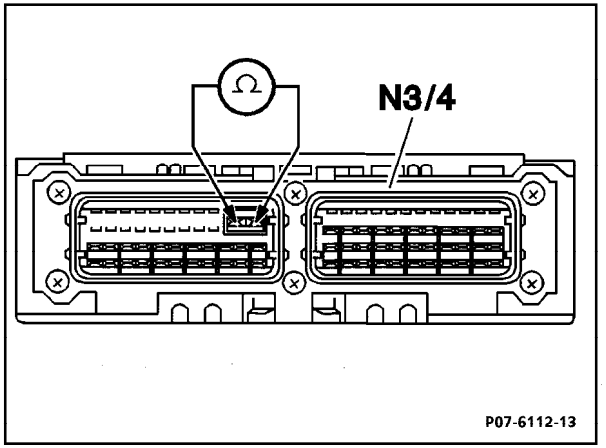
Electrical Test Program - Test



P42-5183-13

Figure 7

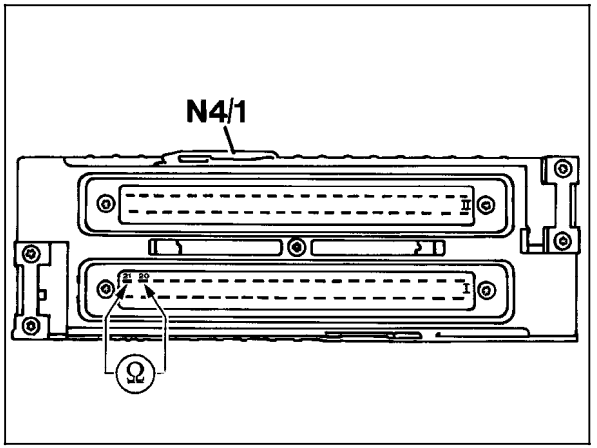
X62/1	Left rear axle VSS sensor/brake pad wear sensor connector
X62/2	Right rear axle VSS sensor/brake pad wear sensor connector



P07-6112-13

Figure 8

N3/4	Engine control module (HFM-SFI)



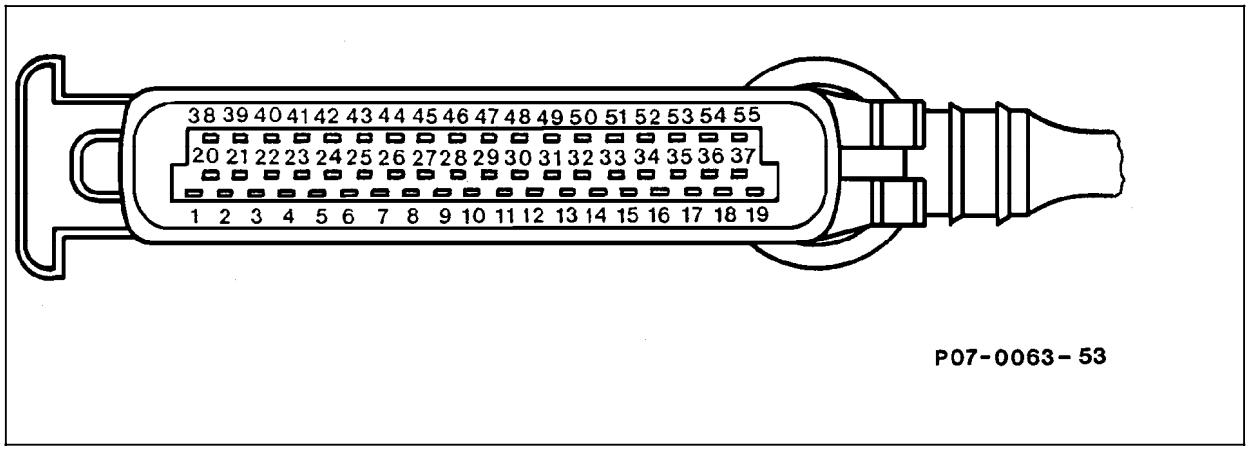
P07-6009-13

Figure 9

N4/1	EA/CC/ISC control module

Electrical Test Program - Test

ABS/ASR control module (N30/1) layout connector



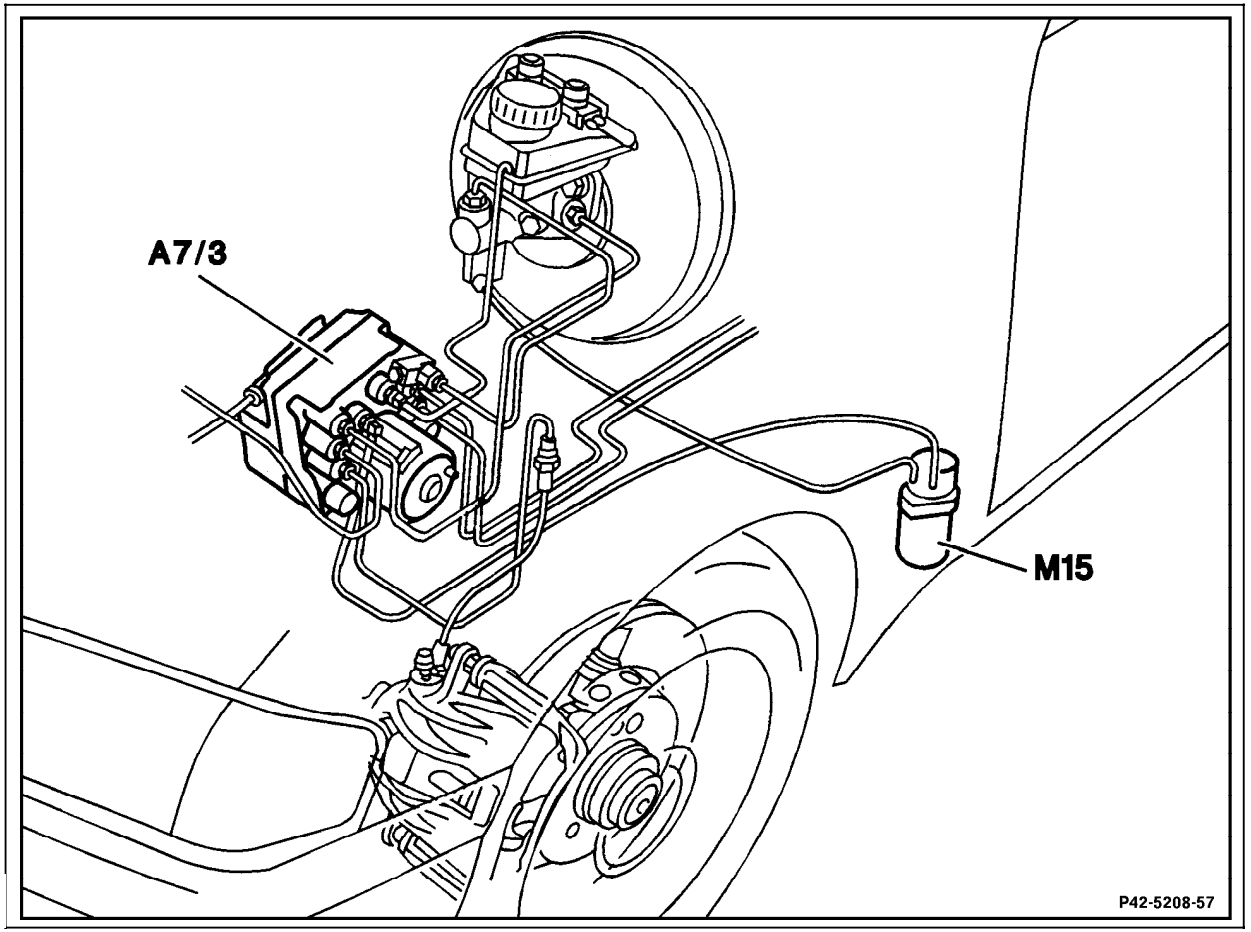
P07-0063-53

Figure 1

1	Circuit 87 voltage supply
2	Left rear axle VSS sensor (L6/3) output
3	Ground, right component compartment (W16/4)
4	ABS/ASR hydraulic unit, left rear axle solenoid valve (A7/3y10) (–)
5	ABS/ASR hydraulic unit, cycling module/high pressure return pump (A7/3n1), monitor
6	ASR snow chain switch (S76)
7	Not used
8	ABS/ASR hydraulic unit, solenoid valve relay (A7/3k1), control
9	ASR charging pump relay module (K20), control
10	ASR warning lamp (A1e21)
11	Not used
12	ASR MIL (A1e22)
13	ASR charging pump (M15)
14	ABS/ASR hydraulic unit, cycling module/high pressure return pump (A7/3n1), monitor
15	Not used
16	Ground, right component compartment (W16/4)
17	ABS/ASR hydraulic unit, left front axle solenoid valve (A7/3y6) (–)
18	Left front axle VSS sensor (L6/1) output
19	Not used
20	ABS/ASR hydraulic unit, cycling module/high pressure return pump (A7/3n1) and ABS/ASR hydraulic unit, solenoid valve relay (A7/3k1), voltage supply
21	Not used
22	ABS/ASR hydraulic unit, right front axle solenoid valve (A7/3y8) (–)
23	ABS/ASR hydraulic unit, switchover/solenoid valve (A7/3y5) (–)
24	ABS MIL (A1e17)
25	Not used
26	Stop lamp switch (S9/1), N.C. contact
27	ASR brake fluid level switch (S11/2)
28	Parking brake switch (S12)
29	Stop lamp switch (S9/1), N.O. contact
30	Diagnosis output
31-32	Not used
33	ASR snow chain switch (S76), function indicator lamp
34	ABS/ASR hydraulic unit, return solenoid valve (A7/3y14) (–)
35	Not used
36	ABS/ASR hydraulic unit, right rear axle solenoid valve (A7/3y12) (–)
37	ABS/ASR hydraulic unit, right rear axle solenoid valve (A7/3y13) (–)
38	Circuit 61 voltage
39	Not used
40	ABS/ASR hydraulic unit, left rear axle solenoid valve (A7/3y11) (–)
41	ABS/ASR hydraulic unit, righ front axle solenoid valve (A7/3y9) (–)
42	Right rear axle VSS sensor (L6/4) (–)
43	Right rear axle VSS sensor (L6/4) (+)
44	Left rear axle VSS sensor (L6/3) (–)
45	Left rear axle VSS sensor (L6/3) (+)
46	Right front axle VSS sensor (L6/2) (–)
47	Right front axle VSS sensor (L6/2) (+)
48	Left front axle VSS sensor (L6/1) (–)
49	Left front axle VSS sensor (L6/1) (+)
50	Not used
51	CAN-data line (H) (+)
52	Not used
53	CAN-data line (L) (–)
54	ABS/ASR hydraulic unit, left front axle solenoid valve (A7/3y7) (–)
55	Not used

Hydraulic Test Program - Component Locations

Hydraulic Components Locations



P42-5208-57

Figure 1

A7/3	ABS/ASR hydraulic unit
M15	ASR charging pump

Hydraulic Test Program - Preparation for Test

Preparation for Test

1. Ignition: **OFF**

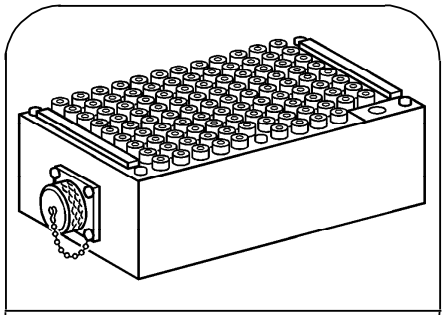
⚠ **CAUTION!**

Brake fluid level must be > “Min”.

Never use a pressure tester for hydraulic systems instead of a pressure tester for brake fluid systems. Mineral oil mixing with brake fluid will result in brake failure.

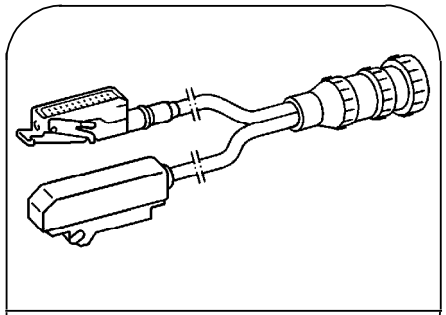
2. Disconnect the hydraulic line “PA” from the hydraulic unit (A7/3) and connect pressure tester to the disconnected line (Figure 1).
3. Disconnect connector from ABS/ASR control module (N30/1).
4. Connect socket box with test cable (098) as per connection diagram (Figure 2).
5. Upon completion of the test procedure, first bleed off ASR hydaulics (see SMS, Repair Instructions, Job no. 42-0010), then assure proper brake fluid level in the brake fluid reservoir.

Special Tools



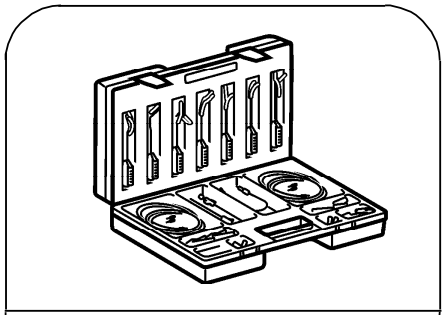
129 589 00 21 00

126-pin socket box



104 589 00 63 00

Test cable



201 589 00 99 00

Electrical connecting set

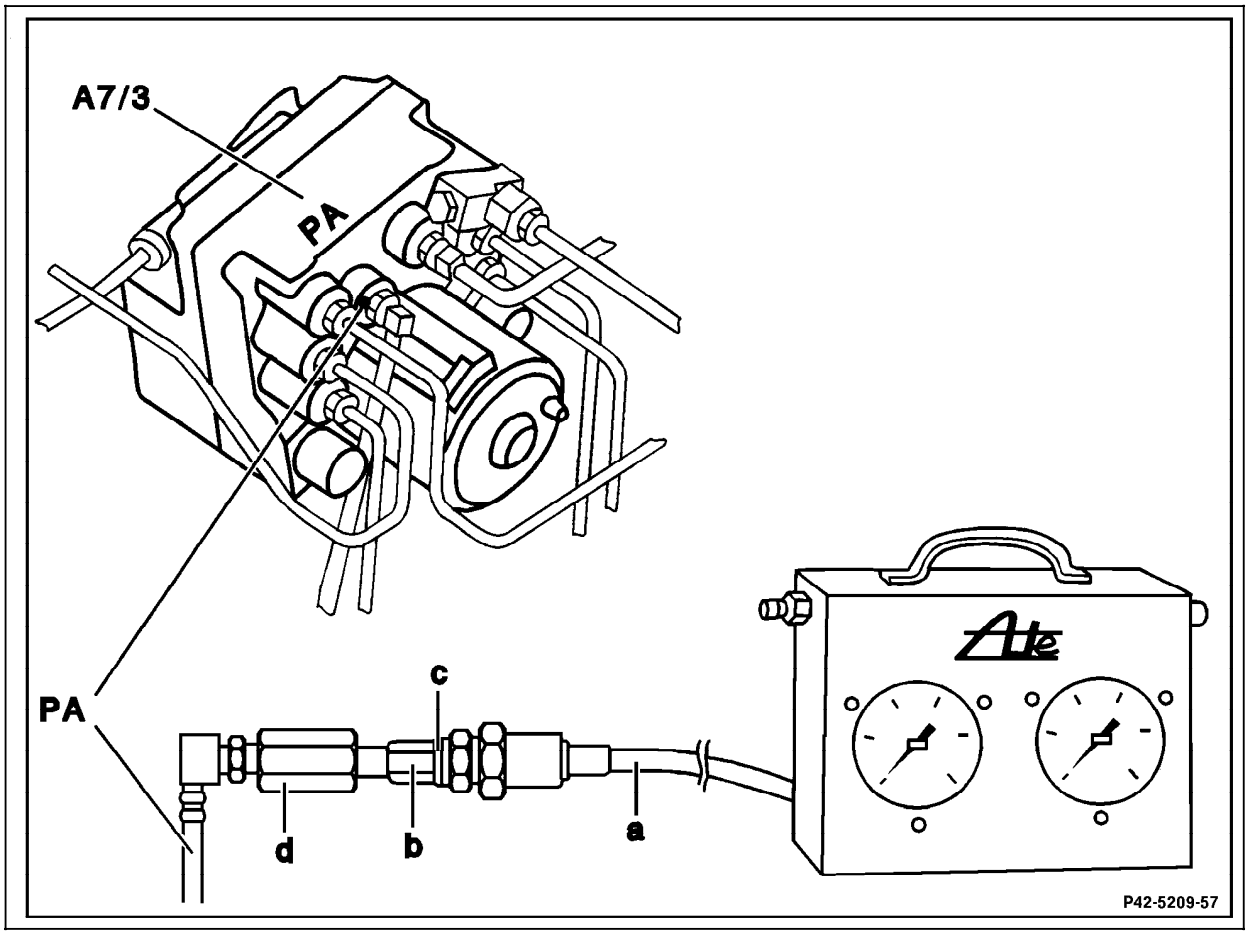
Equipment

Brake bleeder [1]	Ammco model 7301 with adaptor no. 7309
Connector M12x1	MB part no. 123 327 00 88

[1] Available through the MBUSA Standard Equipment Program.

Hydraulic Test Program - Preparation for Test

Connection Diagram - Pressure Test Tool to Hydraulic Line "PA"



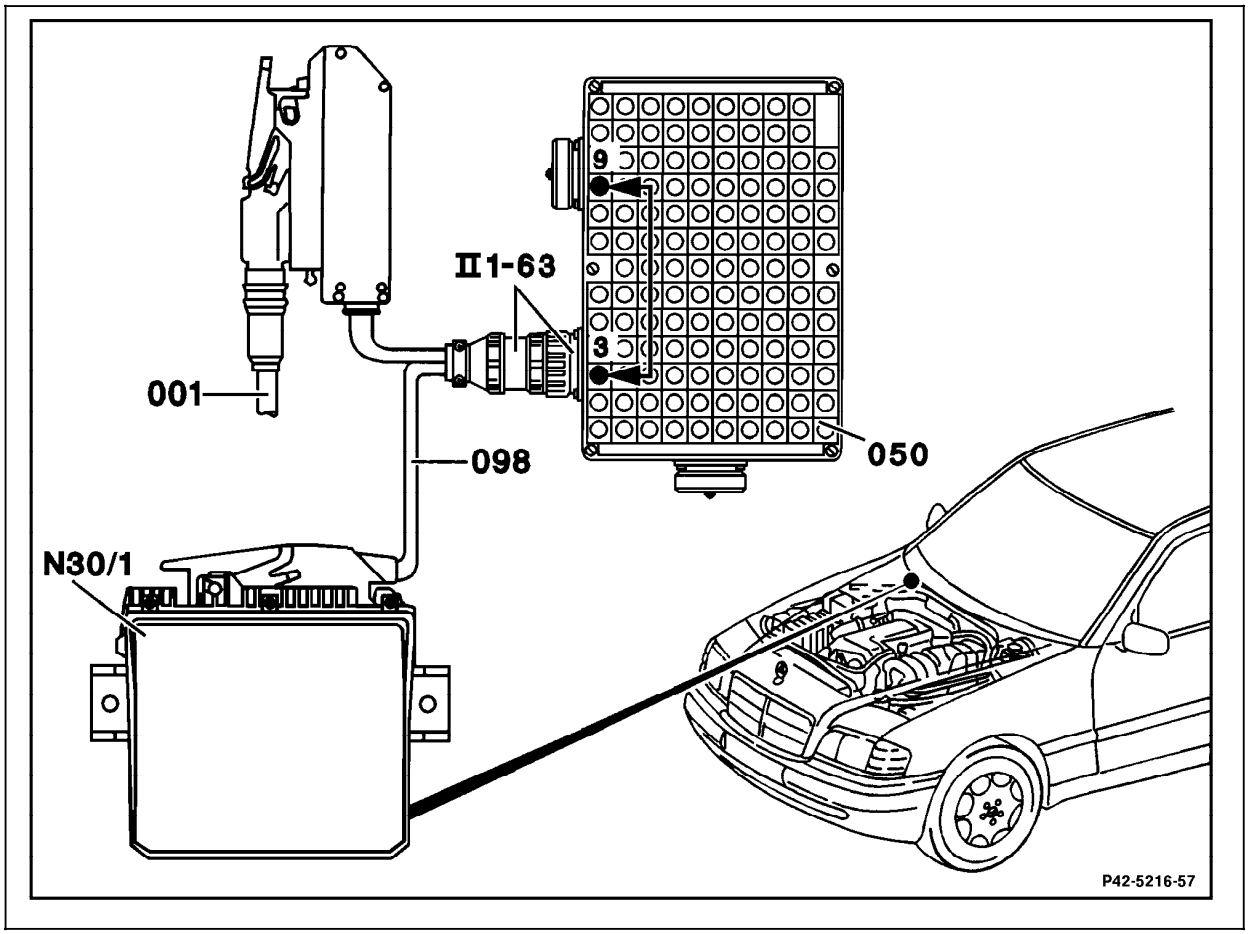
P42-5209-57

Figure 1

A7/3	ABS/ASR hydraulic unit
PA	Hydraulic line
a	Hose line
b	Connector
c	Sealing ring
d	Connection piece

Hydraulic Test Program - Preparation for Test

Connection Diagram - Socket Box

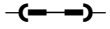


P42-5216-57

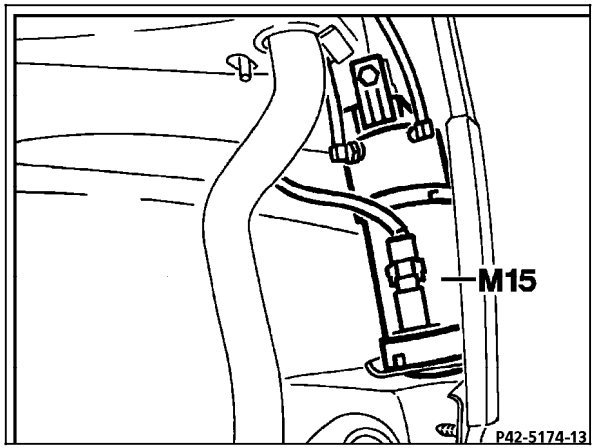
Figure 2

001	ABS/ASR control module connector
003	Multimeter
050	Socket box (126-pole)
098	Test cable
N30/1	ABS/ASR control module

Hydraulic Test Program - Test

Test step	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 1.0	**ASR charging pump (M15)** with ASR charging pump relay module (K20)	20 bar at hydraulic line “PA”.  3  9	Ignition: **ON** (Maximum 60 seconds)	7 – 15 bar	Wiring, Hydraulic line connections leaking, K20, M15.

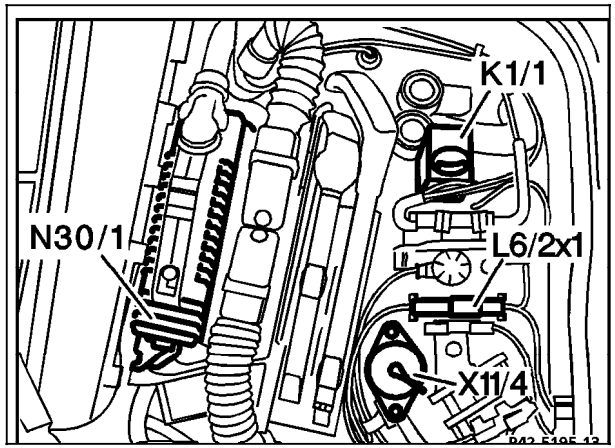
Hydraulic Test Program - Test



P42-5174-13

Figure 1

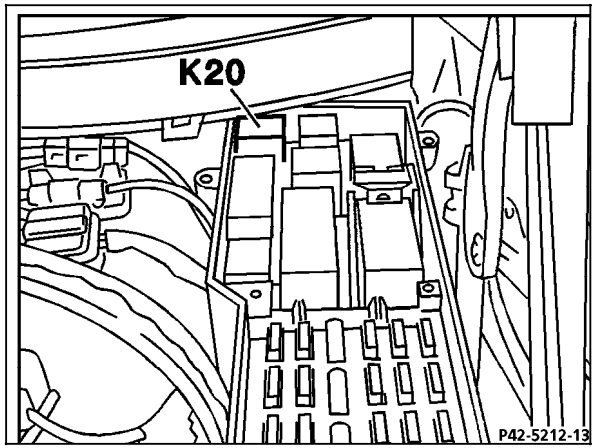
M15 ASR charging pump



P42-5195-13

Figure 2

N30/1 ABS/ASR control module



P42-5212-13

Figure 3

K20 ASR charging pump relay module