

1.12 Model 202 (as of 09/95)

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Diagnosis – Technical Changes

Version start dates/Changes/Innovations

World wide Manuf. code	Model	LL ¹⁾ RL ¹⁾	Manuf. plant	As of chassis number	Up to chassis number	As of production date	Up to production date	Type and reason for change	Reference/Remarks
WDB	202					09/95		Instrument cluster with interface to the traction system control module (N47)	

¹⁾ LL: Left hand steering
RL: Right hand steering

Diagnosis – Function Test

Bulb test

- Turn the ignition key to position “2”. All malfunction indicator/warning lamps must illuminate.
- Start engine. At > 480 engine RPM, all indicator/warning lamps are to extinguish, indicating that all systems monitored are O.K.
- Independent of engine operation, the following lamps must go out:
After 4 seconds, the SRS MIL will extinguish.
After 6 seconds, the safety belt warning lamp will extinguish.

CAUTION!

Should the malfunction indicator/warning lamps remain illuminated and/or come on while driving, it will be necessary to check the corresponding system with the Diagnostic Manual and/or the monitored fluid level as necessary.

Warning buzzer

- Exterior illumination and service brake warning
- Ignition key in ignition lock warning
- safety belt warning for 6 seconds
(the warning tone will cease, if safety belt buckle is latched).

Indicator instruments

The indicator instruments must reflect the actual operating conditions.

Photo transistor

Point a flash light at the photo transistor (23, Figure 2), at the same time the illumination of the LCD display (outside temperature display, trip odometer, odometer and electronic clock) must brighten noticeably.

Diagnosis – Diagnostic Trouble Code (DTC) Memory

Note regarding HHT:

The Instrument Cluster (IC) is tested via the HHT, the following functions are available:

1. Control module version
2. Diagnostic Trouble Code (DTC) Memory
3. Actual values
4. Activation
5. Version Coding

By pressing the continue button on the HHT, additional information can be recalled for each test step.

Note regarding version coding:

The following is available in the HHT during version coding:

- 1.) Read out of version code and transfer to a new spare part instrument cluster.
- 2.) Read out/change of version code:
 1. Motor Version
 2. Country Version (miles/kilometer)
 3. Optional equipment (ETS/ASR V)

Note:

Prior to the replacement of a defective instrument cluster, readout and store the version code in the HHT. After installing the instrument cluster, input the previously stored values back into the instrument cluster.

If the readout of stored version codes not possible, the input must be performed manually (by using the menu in the HHT).

The following version codes are to be determined:

1. Motor Version
2. Country Version (miles/kilometer)
3. Optional equipment (ETS/ASR V)

Diagnosis – Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾
Entire instrument cluster (A1) not functioning.	Power supply, Instrument cluster (A1)	23 ⇒ 1.0
Warning lamps/Indicator lamps are not functioning.	Power supply, Instrument cluster (A1)	23 ⇒ 1.0
Communication between HHT and instrument cluster not possible.	Wiring, Instrument cluster (A1)	23 ⇒ 1.0 23 ⇒ 2.0
Indicator lamps for ABS, ETS/ASR, brake pad wear, brake fluid/parking brake do not go out after engine is started.	Instrument cluster (A1) Traction system control module (N47)	23 ⇒ 3.0
Low ECL indicator lamp (A1e11) is illuminated or does not function.	ECL switch (S41) Instrument cluster (A1)	23 ⇒ 4.0
Low windshield washer fluid level indicator lamp (A1e13) is illuminated or does not function.	Windshield washer fluid level switch (S42) Instrument cluster (A1)	23 ⇒ 5.0
SRS MIL (A1e15) does not function.	Bulb, Power supply, SRS control module (N2/2)	23 ⇒ 6.0

¹⁾ Observe Preparation for Test, see 22.

Electrical Test Program – Component Locations

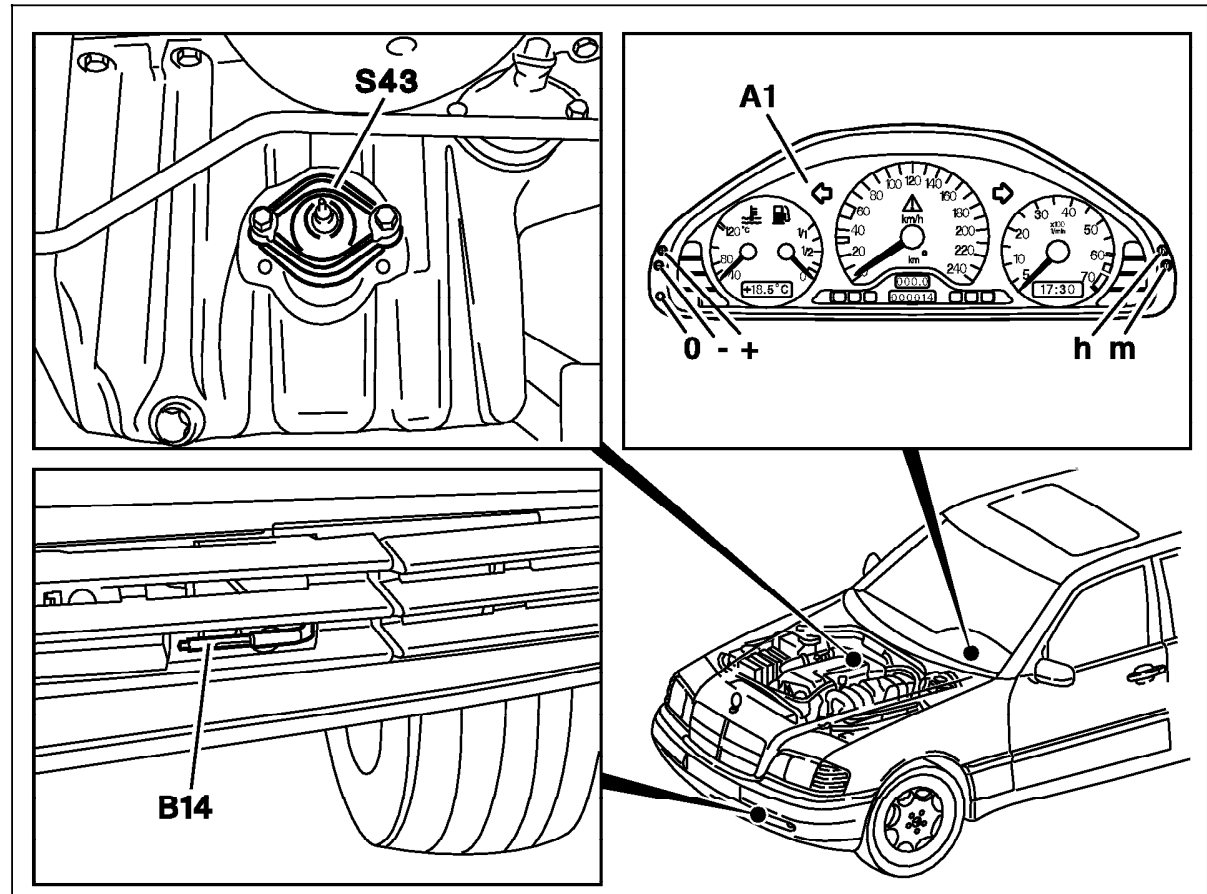


Figure 1

- A1 Instrument cluster
- B14 Outside temperature indicator temperature sensor
- S43 Oil level switch

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Electrical Test Program – Component Locations

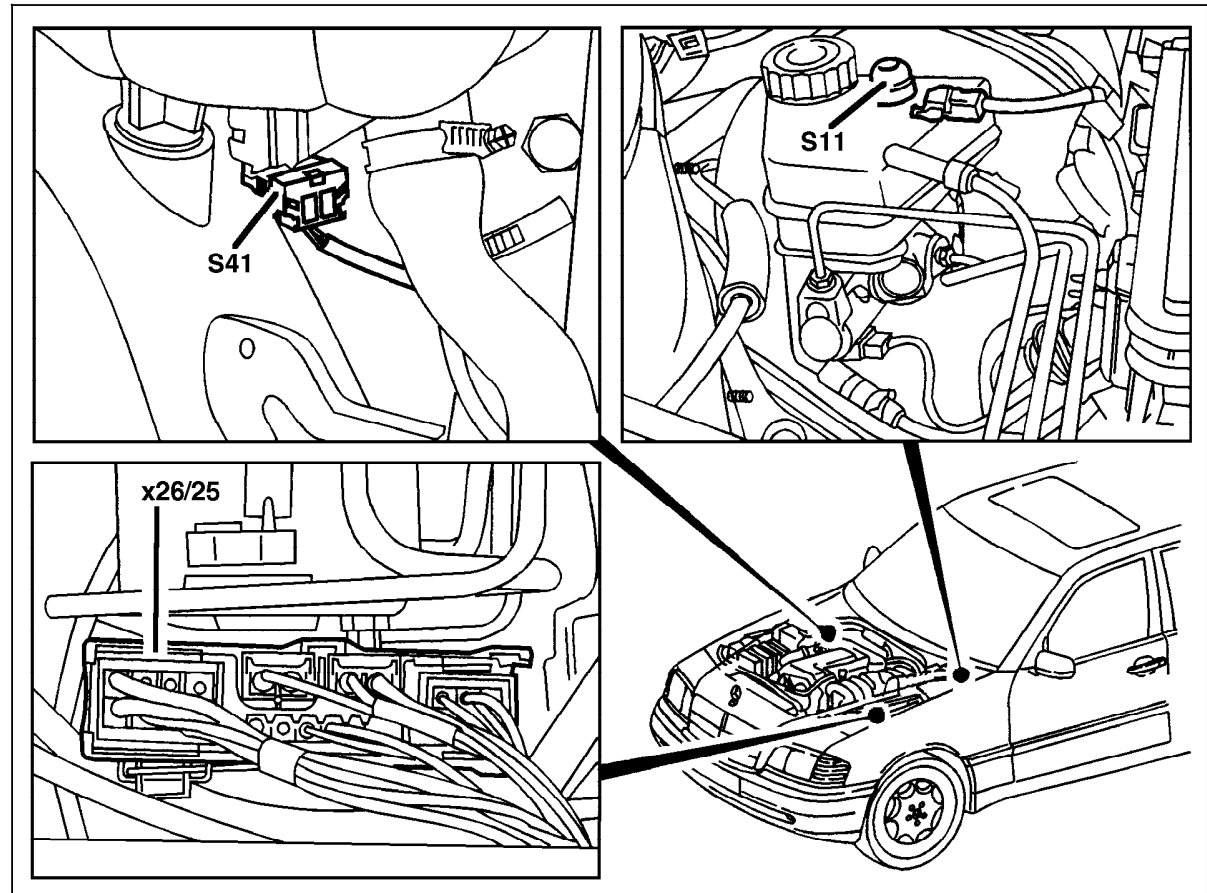


Figure 2

- S11 Brake fluid level switch
- S41 ECL switch
- X26/25 Engine/chassis connector (24-pole)

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Electrical Test Program – Component Locations

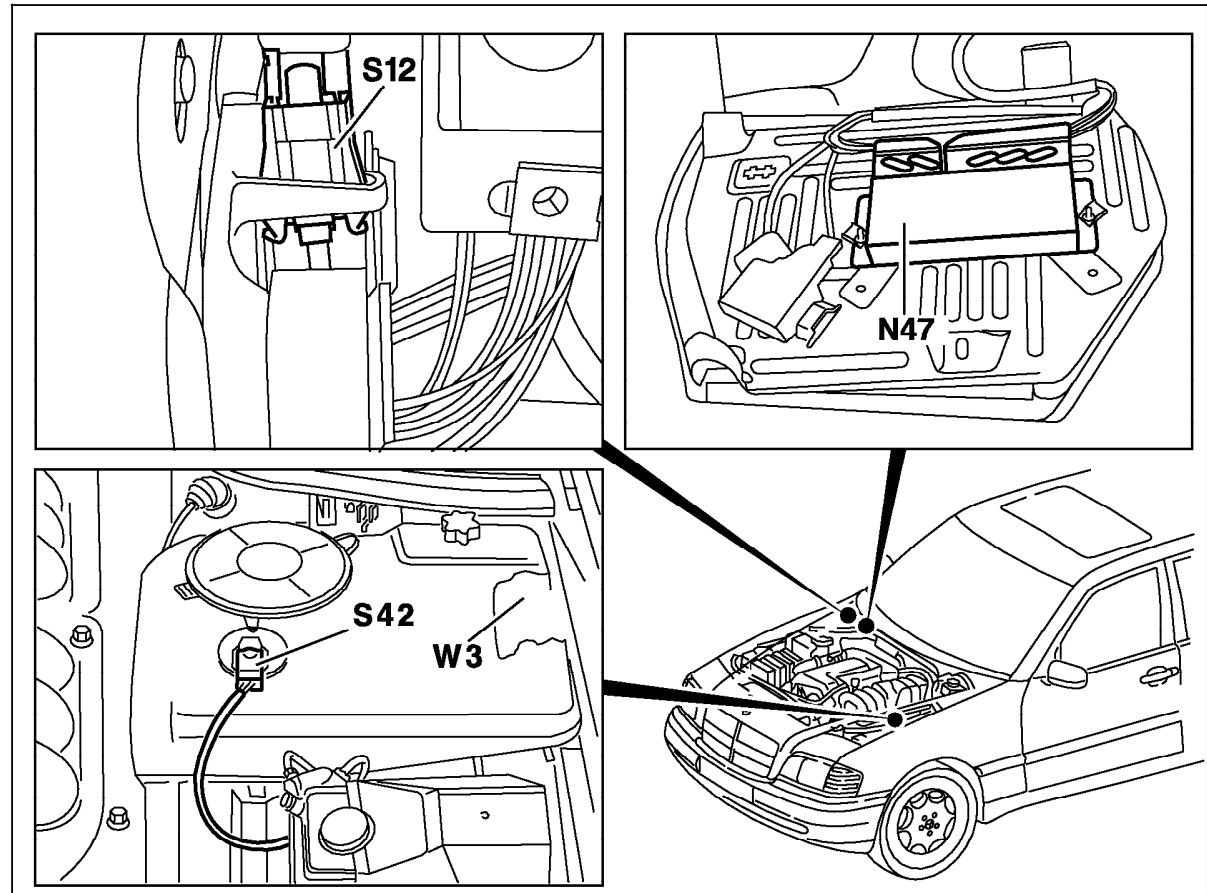


Figure 3

- N47 Traction system control module
- S12 Parking brake switch
- S42 Windshield washer fluid level switch

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Electrical Test Program – Component Locations

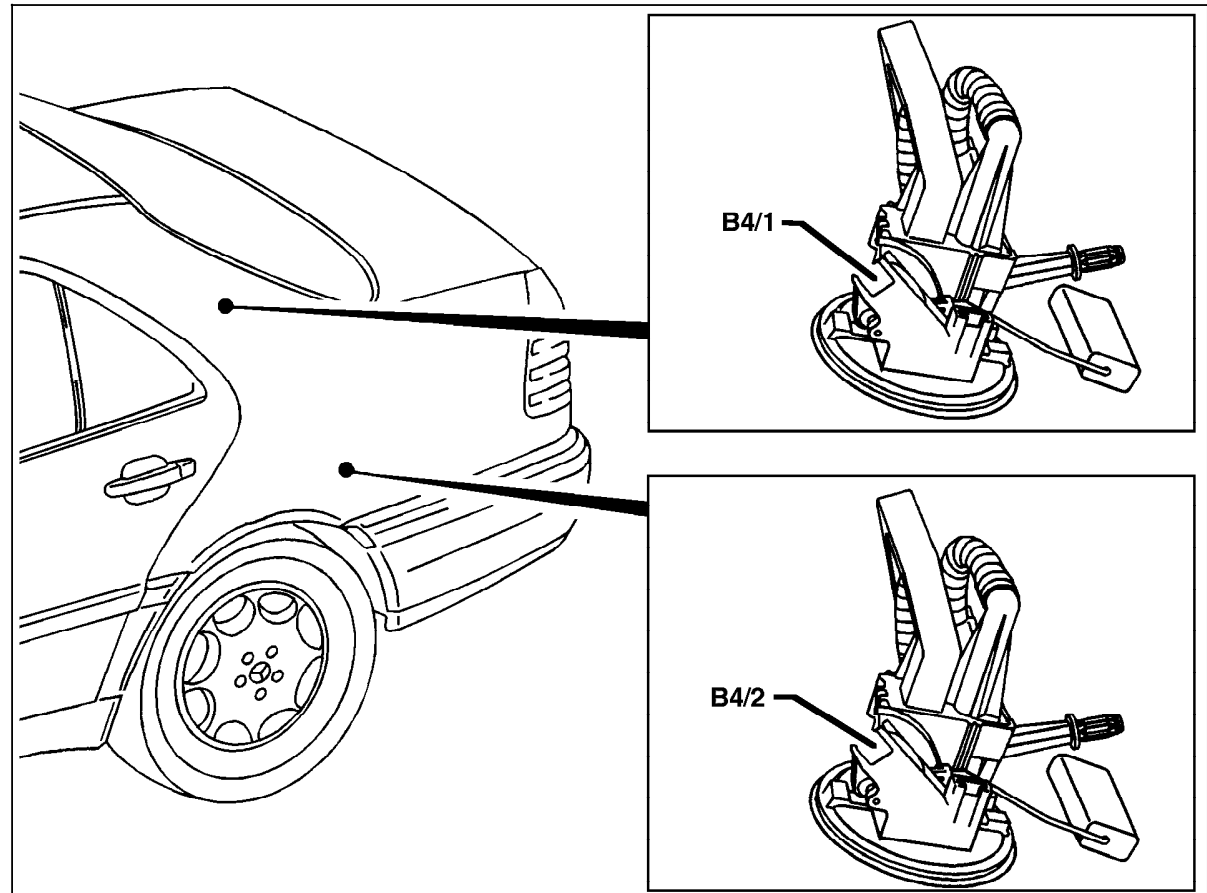


Figure 4

- B4/1 Left fuel level sensor
- B4/2 Right fuel level sensor

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Electrical Test Program – Component Locations

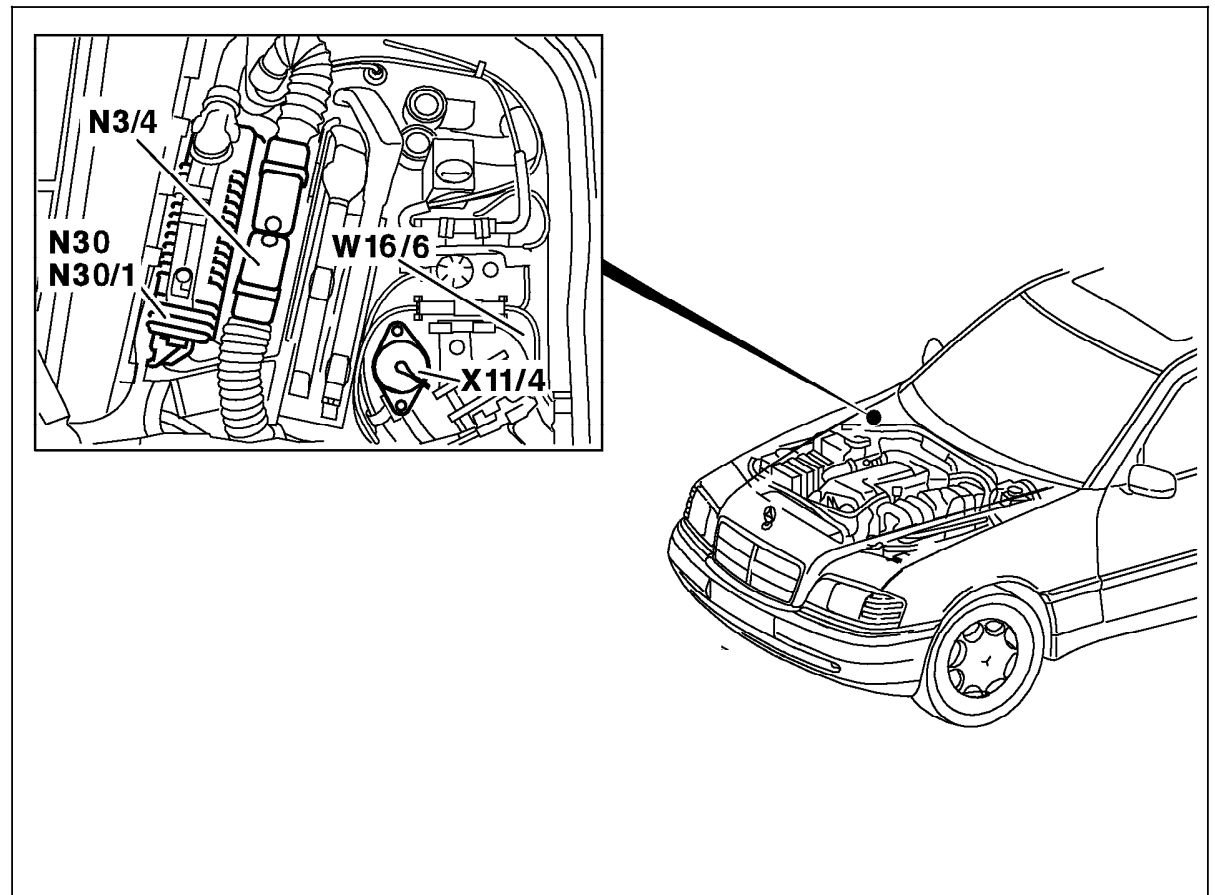


Figure 5

- N3/4 Engine control module (HFM-SFI)
- W16/6 Ground (component compartment)
- X11/4 Data line connector (DTC)

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Electrical Test Program – Preparation for Test

1. Battery voltage 11 – 14 V.
2. Check fuses.
3. Systems and fluid levels in order.

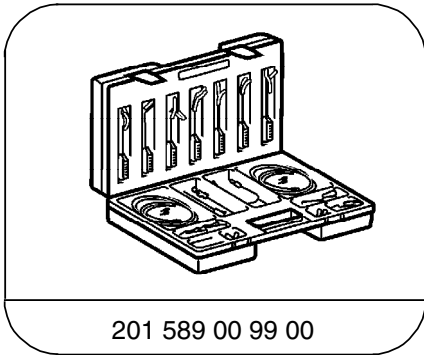
Electrical wiring diagrams:

See Electric Troubleshooting Manual, Model 202, group 54

Note:

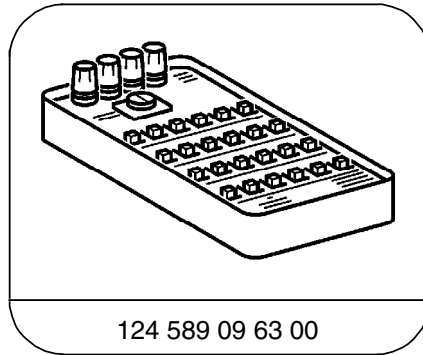
To prevent damage to the control modules referred to in 23, the connectors on the control modules must only be removed or installed with the ignition **OFF**.

Special Tools



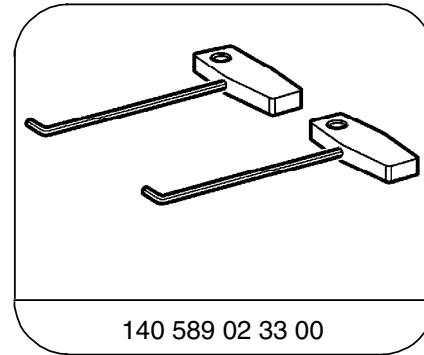
201 589 00 99 00

Electrical connecting set



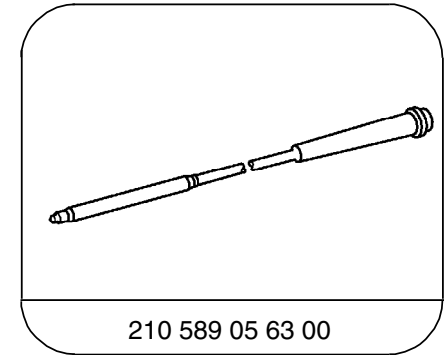
124 589 09 63 00

Ohm decade



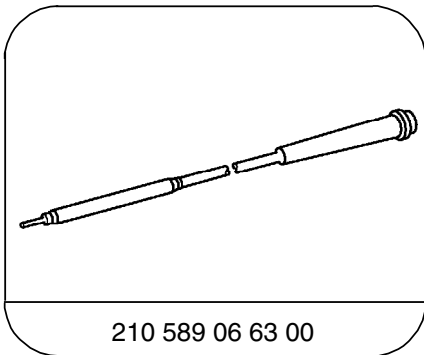
140 589 02 33 00

Extraction hook



210 589 05 63 00

Adapter cable



210 589 06 63 00

Adapter cable

Electrical Test Program – Preparation for Test

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 – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0	Instrument cluster (A1) Voltage supply Circuit 30		Ignition: OFF Remove A1 Disconnect connector 1 (30-pole)	11 – 14 V	Fuse 4 in fuse and relay box (F1), Wiring, ⇒ 1.1
1.1	Voltage supply Circuit 15, fused		Ignition: ON	11 – 14 V	Fuse 7 in fuse and relay box (F1), Wiring, A1
2.0	HHT interface Connection between A1 and data link connector (X11/4)		Ignition: OFF Remove A1, Disconnect connector 1 (30-pole)	5 Ω	Wiring.
3.0	Instrument cluster (A1) Data line from traction system control module (N47) ETS or ASR:		Remove A1, Disconnect connector 1	5 Ω	Wiring, Values OK: N47, D.M., Chassis and Drivetrain, Vol. 3 – 9.1 23

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
4.0	ECL switch (S41)		Ignition: OFF Remove coolant reservoir. Coolant level OK: Coolant level min.	110 Ω 5 Ω	S41
5.0	Windshield washer fluid level switch (S42)		Ignition: OFF Disconnect connector at S42. Washer fluid level OK: washer fluid level min.	174 Ω 5 Ω	S42
6.0	SRS MIL (A1e15) Bulb		Ignition key in position "2".	A1e15 is illuminated and then extinguishes after 4 seconds.	Bulb (A1e15), Wiring, SRS control module (N2/2).

Electrical Test Program – Test

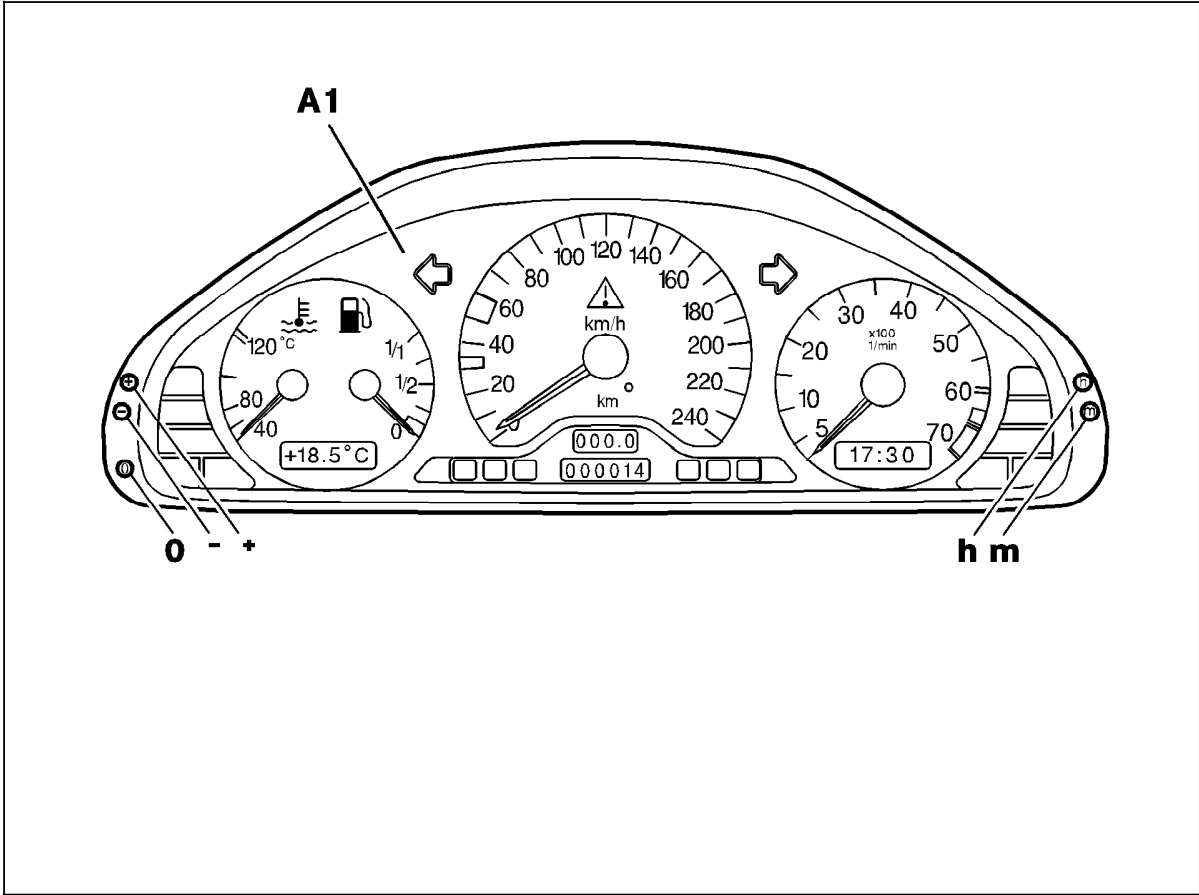
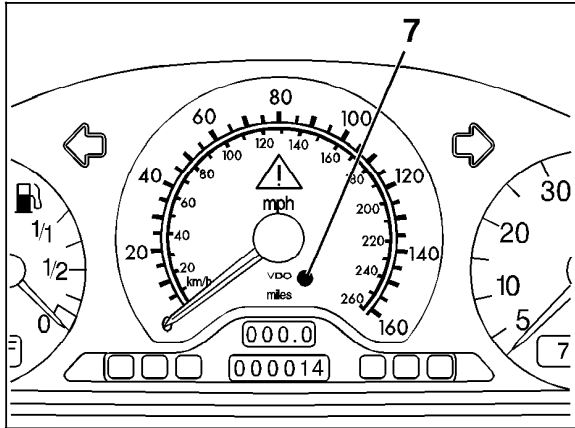


Figure 1

A1 Instrument cluster

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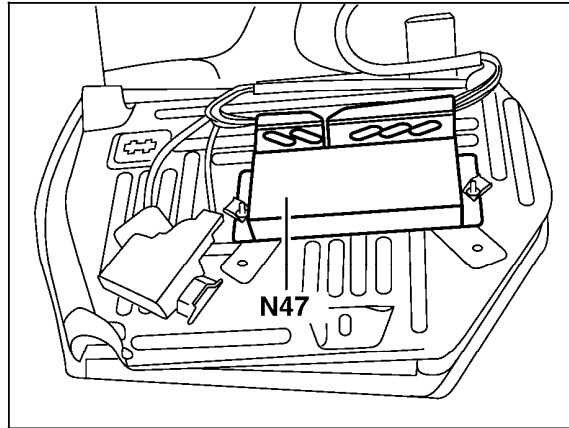
Electrical Test Program – Test



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Figure 2

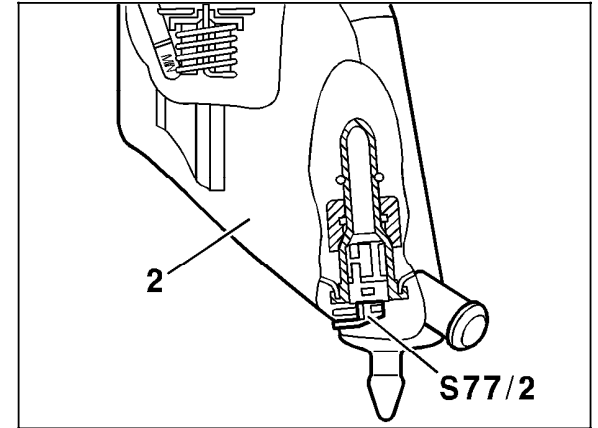
7 Photo transistor



P54.30-0313-13

Figure 3

N47 Traction system control module



P54.30-0274-13

Figure 4

S77/2 Hydraulic fluid level switch
2 Oil reservoir for level control and power steering