

19.2 Model 129 up to 08/95

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Note:

The diagnostics for the manual operation of the roll bar is described in chapter 9 for the convertible top.

Diagnostics Functional test

Testing function

Test step ¹⁾ /scope of test	Test condition	Nominal value	Possible cause/remedy
<p>⇒ 1.0</p> <p>Roll bar system</p>	<p>Turn the left rear axle switch (S83/2) or the right rear axle switch (S83/3) to “Arretiert.”</p> <p>The vehicle must be driven during the test (91-830).</p> <p>Turn S83/2 or S83/3 back to “Function.”</p>	<p>The roll bar deploys upon a rapid application of the brakes from approx. 10 km/h (6 mph).</p>	<p>Read out the malfunction memory 13</p>

1) Observe preparations for testing.

Diagnostics Malfunction memory

Preparation for testing

- Connect impulse counter according to connection diagram, see register 0.

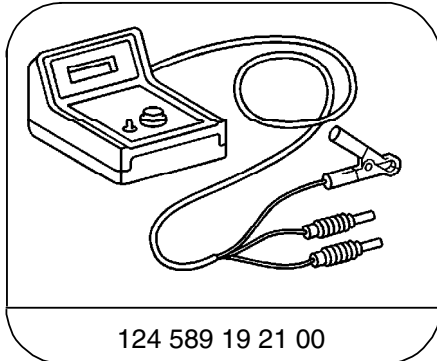
Electrical wiring diagram note:

See "Electrical Troubleshooting Manual, Model 129"

Description:
Model 129

Functional group
06

Special Tools



124 589 19 21 00

Pulse counter

Diagnostics Malfunction memory

Malfunction table, impulse readout, roll bar control unit

Impulse readout	Possible cause	Test step ¹⁾ /remedy
1	No malfunctions stored	
2	Roll bar control unit (N53)	23 ⇒ 2.0
3	Voltage supply	23 ⇒ 3.0
4	Driver seat belt lock relay (K18/2), open circuit, short circuit to terminal 30 and/or 31	23 ⇒ 4.0
5	Passenger seat belt lock relay (K18/3), open circuit, short circuit to terminal 30 and/or 31	23 ⇒ 5.0
6	Roll bar deployment solenoid (Y57/1), open circuit, short circuit to terminal 30 and/or 31	23 ⇒ 6.0
7	Left and/or right rear axle switch, roll bar (S83/2, S83/3), short circuit to terminal 30 and/or 31	23 ⇒ 7.0
8	Roll bar warning lamp (A1e29)	23 ⇒ 8.0
9	SRS warning lamp and/or impulse counter button held too long to erase malfunctions	23 ⇒ 6.0
10 ²⁾	SRS control unit (N2/2)	23 ⇒ 7.0

1) Observe preparations for testing.

2) Impulse display 10 indicates that the airbag deployment drivers in the control unit were activated. This impulse readout cannot be erased.

The control unit must be replaced.

Note:

The belt tensioners are not monitored by the impulse display. Test for deployment (33 ⇒ 1.0 and/or 2.0).

Diagnostics Troubleshooting chart

Complaint	Possible cause	Test step ¹⁾ /remedy
Roll bar warning lamp (A1e29) in instrument cluster does not turn off after engine startup (terminal 61), or remains on during driving.	Locate malfunction by reading out the codes in the malfunction memory (impulse readout).	12 Functional description (91-800)

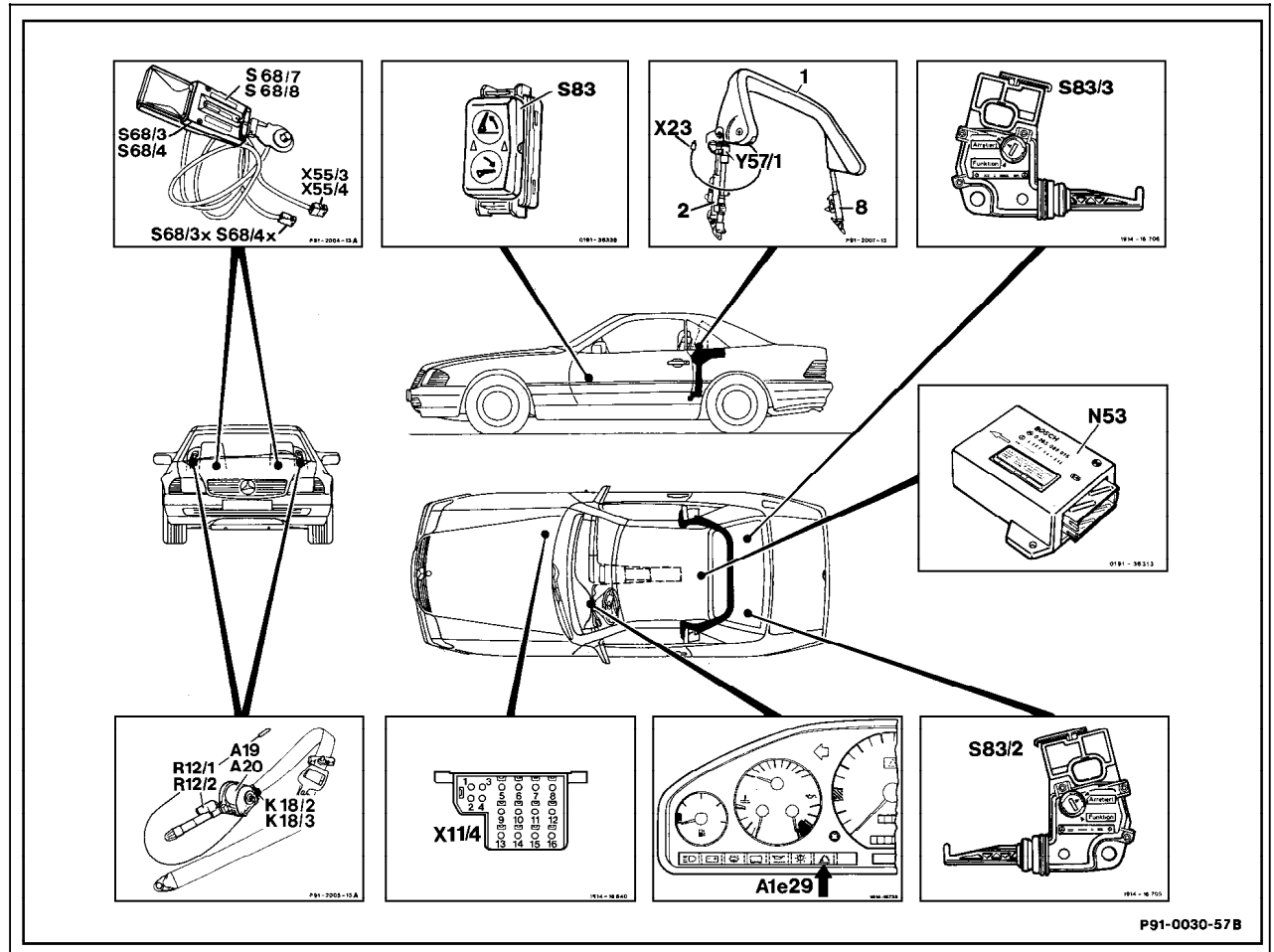
1) Observe preparations for testing.

Electrican test programm

Component locations

Figure 1

- A1e29 Roll bar warning lamp
- A19 Left seat belt unit
- A20 Right seat belt unit
- K18/2 Driver seat belt lock relay
- K18/3 Passenger seat belt lock relay
- N53 Roll bar control unit
- R12/1 Left front emergency tensioning retractor (ETR) squib
- R12/2 Right front emergency tensioning retractor (ETR) squib
- S68/7 Driver seat belt buckle switch (belt latch)
- S68/8 Front passenger seat belt buckle switch (belt latch)
- S83 Roll bar switch (manual operation)
- S83/2 Left rear axle switch, roll bar
- S83/3 Right rear axle switch, roll bar
- X11/4 Test connection for diagnosis (impulse readout 16-pole)
- X23 Connector, roll bar solenoid valve (2-pole)
- X55/3 Contact strip, left seat
- X55/4 Contact strip, right seat
- Y57/1 Roll bar deployment solenoid



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Electrical test program

Preparations for testing

Preparations for testing:

- Battery voltage > 11 volt
- Roll bar warning lamp (A1e29) comes on in instrument cluster.

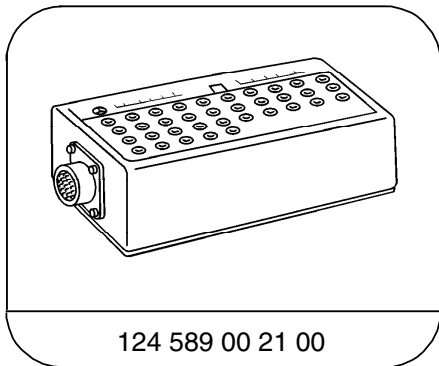
Electrical wiring diagram reference

See "Electric Troubleshooting Manual, Model 129"

Description:
Model 129

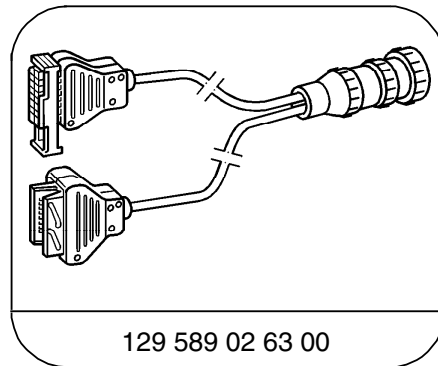
Functional group
06

Special Tools



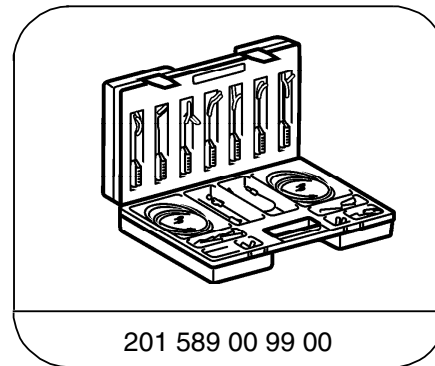
124 589 00 21 00

35-pin socket box



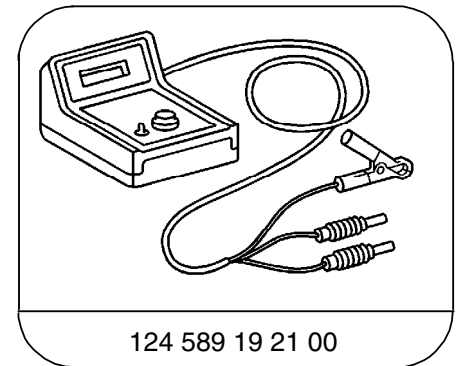
129 589 02 63 00

16-pin test cable



201 589 00 99 00

Electrical connecting set



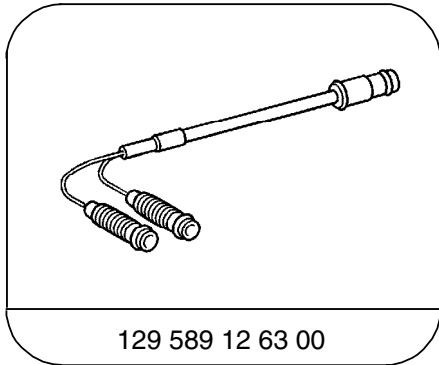
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Pulse counter

Electrical test program

Preparations for testing

Special Tools



Test cable

Equipment

Description	Supplier
Multimeter	Fluke 23 DB Sun, DMM-5

Electrical test program

Preparations for testing

Multimeter and socket box connection diagram

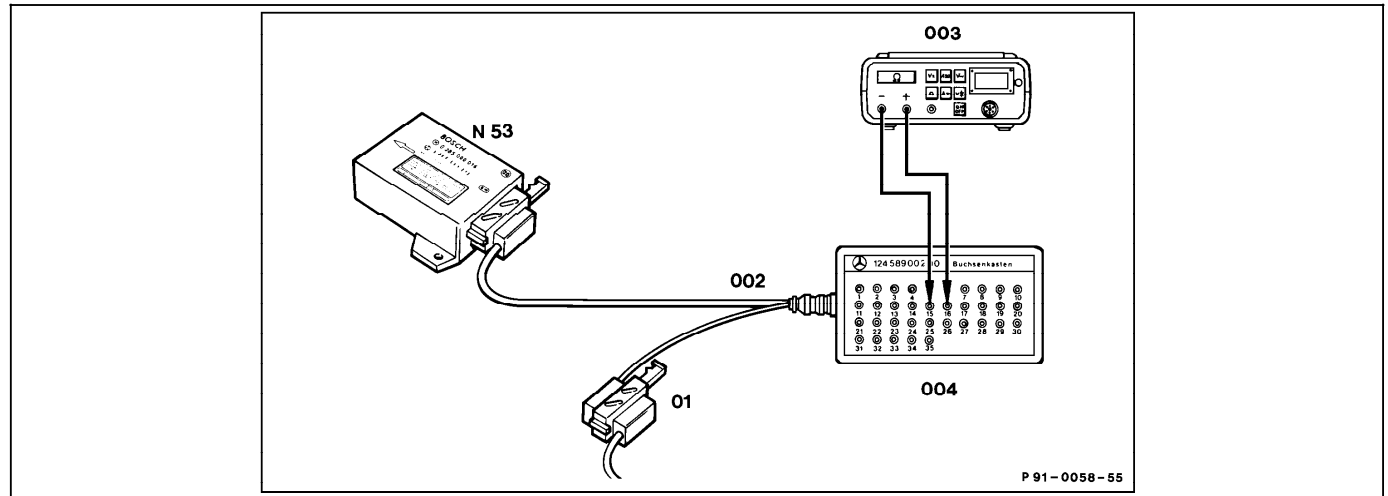
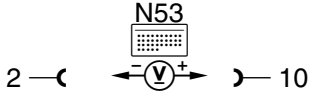
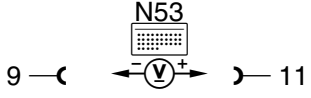


Figure 1

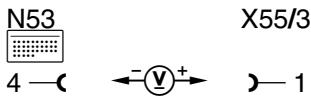
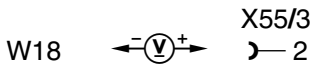
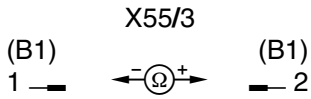
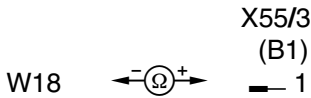
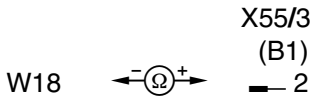
- N53 Roll bar control unit
- 01 Vehicle wiring harness (roll bar control unit)
- 002 Test cable 129 589 02 63 00 16-pole
- 003 Multimeter
- 004 Socket box 124 589 00 21 00

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





Electrical test program Testing

Test step	Scope of test	Test equipment/ test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 1.0 1	Entire system				No malfunctions in memory.
⇒ 2.0 2	Roll bar control unit (N53)		Ignition: ON	Impulse readout 2 erased	Replace N53 , (91-840).
⇒ 3.0 3	Voltage supply Circuit 30		Ignition: OFF Disconnect plug at the roll bar control unit (N53). Connect test cable and socket box according to the connection diagram.	11–14 V	Battery, Fuse 4, circuit 30 (F20-4) defective. Open circuit. Alternator voltage regulator defective.
⇒ 3.1 3	Circuit 15		Ignition: ON	11–14 V	Open circuit, Connector, interior/taillamp harness (8-pole) (X18/3) disconnected. Fuse 8, circuit 15 (F1-8) defective. Ignition/start switch defective.

Electrical test program Testing

Test step Impulse readout	Scope of test	Test equipment/ test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 4.0 4	Driver seat belt lock relay (K18/2) with wiring	<p>N53 </p> <p>W18 </p> <p>(B1) </p>	<p>Ignition: OFF Disconnect plug at the roll bar control unit (N53), connect socket box. Separate left seat contact strip (X55/3).</p>	<p>< 1 Ω</p> <p>> 11 V</p> <p>60–90 Ω</p>	<p>N53, Open circuit,</p> <p>Open circuit Fuse 4, circuit 30 (F20-4) defective.</p> <p>Connector at K18/2 unplugged. Replace driver's seat belt unit (91-502).</p>
⇒ 4.1 4	Isolation from ground	<p>W18 </p>	Separate left seat contact strip (X55/3, B1).	> 20 kΩ	Short to circuit 31
⇒ 4.2 4	Isolation from ground	<p>W18 </p>	Separate left seat contact strip (X55/3, B1).	> 20 kΩ	Short to circuit 31


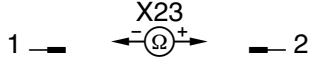
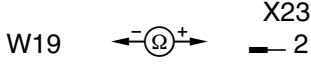
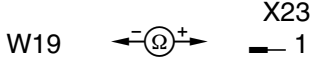
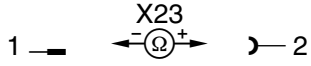
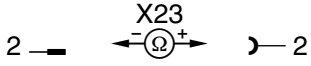
Electrical test program Testing

Test step Impulse readout	Scope of test	Test equipment/ test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 4.3 4	Isolation from ground	X55/3 (B1) 1 —  — 2 (B1)	Ignition: OFF Disconnect battery negative cable and cover pole. Separate left seat contact strip (X55/3, B1).	> 20 kΩ	Short to circuit 15, 30
⇒ 4.4 4	Isolation from ground	X55/3 (B1) 2 —  — 2 (B1)	Ignition: OFF Disconnect battery negative cable and cover pole. Separate left seat contact strip (X55/3, B1).	> 20 kΩ	Short to circuit 15, 30
⇒ 4.5 4	Isolation from ground	W17  — 4  4 —  — 10 	Ignition: OFF Disconnect battery negative cable and cover pole, socket box connected to roll bar control unit (N53) connector	> 20 kΩ > 20 kΩ	Short to circuit 31 Short to circuit 15, 30

Electrical test program Testing

Test step Impulse readout	Scope of test	Test equipment/ test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 5.5 5	Wiring	<p>W17 $\leftarrow \Omega \rightarrow$ \rightarrow 3</p> <p>3 — $\leftarrow \Omega \rightarrow$ \rightarrow 10</p>	Ignition: OFF , Disconnect negative battery cable and cover pole. Socket box connected to roll bar control unit (N53) connector.	> 20 kΩ > 20 kΩ	Short to circuit 31 Short to circuit 15, 30
⇒ 5.6 5	Right seat belt latch and seat belt lock relay (K18/3)		Ignition: OFF Disconnect battery ground cable. Seat belt latched. Seat belt not latched. Loosen seat belt again. Connect the battery ground cable. Seat belt latched.	Seat belt automatic reel is locked Seat belt moves freely Seat belt continues to move freely	Seat belt automatic reel defective, Bowden cable defective. Bowden cable defective and/or not connected at the seat belt latch. Front passenger seat belt lock relay (K18/3) defective and/or open circuit.


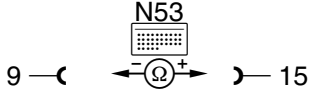
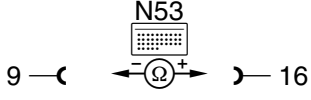
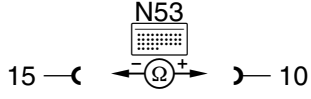
Electrical test program Testing

Test step Impulse readout	Scope of test	Test equipment/ test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 6.0 6	Roll bar deployment solenoid (Y57/1) with wiring		Ignition: OFF Disconnect plug at the roll bar control unit (N53). Connect test cable and socket box according to the connection diagram. Remove fuse 4, circuit 30 (F20/4).	0.5–1.5 Ω	Right deployment and retraction component defective. Connector, roll bar solenoid valve (X23) unplugged. Connector at Y57/1 unplugged. Open circuit, short: open circuit.
			Roll bar solenoid connector, 2-pole (X23), unplugged.	0.5–1.5 Ω	Connector at Y57/1 unplugged. Right deployment and retraction component defective.
⇒ 6.1 6	Insulation resistance		Ignition: OFF Remove fuse 4, terminal 30 (F20/4)	> 20 kΩ	Short to circuit 31
				> 20 kΩ	Short to circuit 31
				> 20 kΩ	Short to circuit 15, 30
⇒ 6.2 6	Insulation resistance		Ignition: OFF Remove fuse 4, terminal 30 (F20/4)	> 20 kΩ	Short to circuit 15, 30



19.2 Roll bar (Crash Deployment)

Model 129

Electrical test program Testing

Test step Impulse readout	Scope of test	Test equipment/ test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 7.0 7	Left rear axle switch, roll bar (S83/2) Right rear axle switch, roll bar (S83/3)		Ignition: OFF Unplug connector at roll bar control unit (N53), remove fuse. Connect test cable and socket box according to connection diagram.	< 1 Ω	> 1 Ω open circuit.or connector rear axle multiple circuit junction (X62/8) (C) unplugged. Connector at S83/2 and/or S83/3 unplugged. S83/2 and/or S83/3 defective (91-860).
⇒ 7.1 7	Isolation from ground			> 20 kΩ	Short to circuit 31, Open circuit. Open circuit to left rear axle roll bar switch (S83/2).
⇒ 7.2 7	Isolation from ground			> 20 kΩ	Short to circuit 31, Open circuit. to right rear axle roll bar switch (S83/3).
⇒ 7.3 7	Circuit isolation		Ignition: OFF Unplug connector at roll bar control unit (N53), remove circuit fuse. Connect test cable and socket box according to connection diagram.	> 20 kΩ	Short to circuit 15, 30, Open circuit to right rear axle roll bar switch (S83/3).

Electrical test program Testing

Test step Impulse readout	Scope of test	Test equipment/ test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 7.4 7	Circuit isolation			> 20 kΩ	Short to circuit 15, 30, Open circuit to left rear axle roll bar switch (S83/2).
⇒ 7.5 7	Left rear axle roll bar switch (S83/2) and right rear axle roll bar switch (S83/3) for function.  The roll bar must deploy.		Connector at roll bar control unit (N53) connected. Turn S83/2 or S83/3 to “Arretiert.” The vehicle must be driven for the test (91-830).	When the brakes are abruptly applied above approx. 10 km/h (6 mph), the roll bar deploys. Warning lamp comes on.	If the roll bar does not deploy, read out the malfunction codes from the malfunction memory. test roll bar switches (S83/2, S83/3) and switch adjustment.
⇒ 8.0 8	Roll bar warning lamp (A1e29)		Ignition: ON	Warning lamp comes on.	Warning lamp connector, interior/taillamp harness (X18/3) unplugged. Open circuit.

Electrical test program Testing

Test step	Scope of test	Test equipment/ test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 8.1 8	Wiring for open circuit		Ignition: OFF Unplug connector at roll bar control unit (N53). Connect test cable and socket box according to the connection diagram.	< 1 Ω	Open circuit
⇒ 8.2 8	Isolation from ground		Socket box connected. Separate connector, interior/taillamp harness 8-pole (X18/3).	> 20 kΩ	Short to circuit 31. Open circuit.
⇒ 8.3 8	Isolation from ground		Ignition: OFF Remove fuse 4 from circuit 30 (F20/4)	> 20 kΩ	Short to circuit 15, 30. Open circuit.

19.2 Roll bar (Crash Deployment)

Model 129

Electrical test program Testing

Test step Impulse readout	Scope of test	Test equipment/ test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 10.1		<p>X55/4 (B2)</p> <p>1 — 2</p>	<p>Separate right seat contact strip (X55/4). Seat belt latched.</p> <p>Seat belt not latched.</p>	<p>< 1 Ω</p> <p>> 20 kΩ</p>	Seat belt latch defective
⇒ 10.2	Wiring for open circuit	<p>N53</p> <p>13 — 3</p> <p>X55/4</p> <p>4</p>	<p>Ignition: OFF</p> <p>Separate connector at roll bar control unit (N53). Separate right seat contact strip (X55/4).</p>	<p>< 1 Ω</p> <p>< 1 Ω</p>	<p>Open circuit</p> <p>Open circuit</p>

Electrical test program

Testing

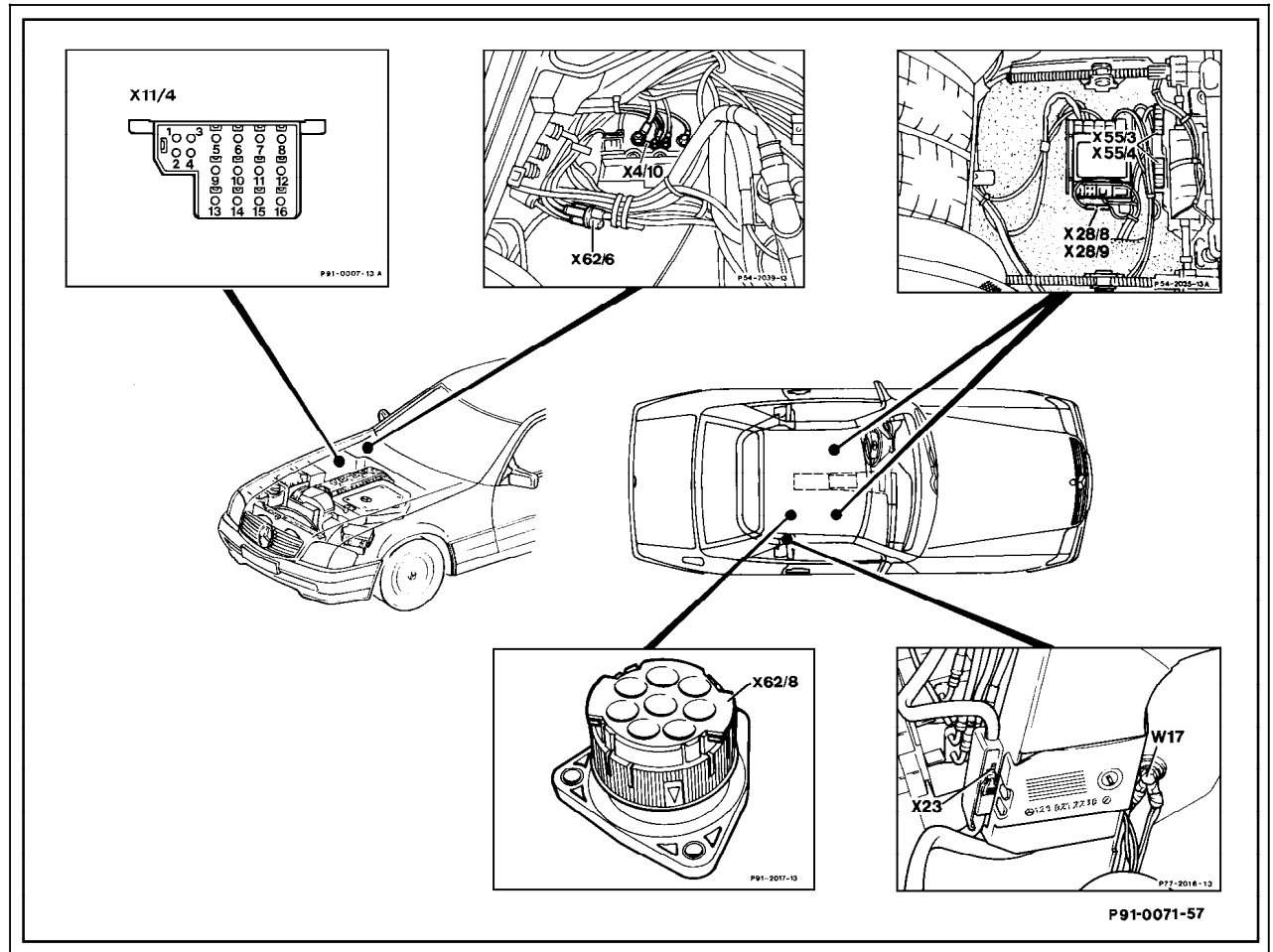


Figure 1

- W17 Ground, right rear seat
- X4/10 Terminal block, circuit 30//30Ü/61e/87L
- X11/4 Test connection for diagnosis (impulse readout, - 6-pole)
- X23 Connector, roll bar solenoid valve 2-pole
- X28/8 Connector, ETR/left seat plug connection (2-pole)
- X28/9 Connector, ETR/right seat plug connection (2-pole)
- X55/3 Left seat contact strip
- X55/4 Right seat contact strip
- X62/8 Connector, rear axle multiple circuit junction

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