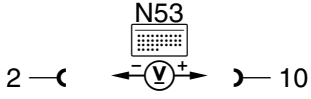
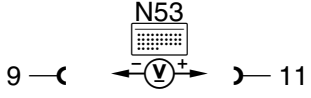


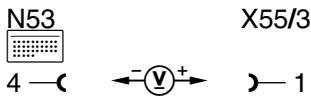
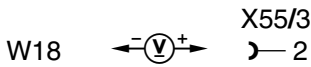
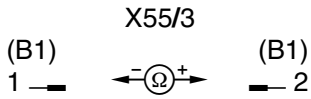
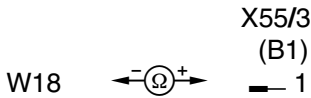
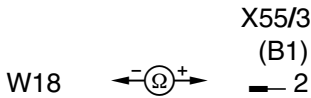
19.2 Roll bar (Crash Deployment)

Model 129







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.

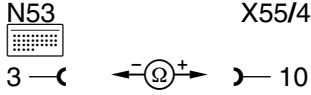
Electrical test program Testing

Test step	Scope of test	Test equipment/ test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 4.0 4 Impulse readout	Driver seat belt lock relay (K18/2) with wiring	<p>N53  4 — 4</p> <p>W18  W18 — 1</p> <p>(B1)  1 — 2</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  W18 — 1</p>	<p>Separate left seat contact strip (X55/3, B1).</p>	> 20 kΩ	Short to circuit 31
⇒ 4.2 4	Isolation from ground	<p>W18  W18 — 2</p>	<p>Separate left seat contact strip (X55/3, B1).</p>	> 20 kΩ	Short to circuit 31

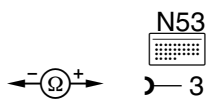
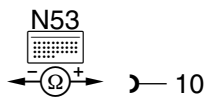
Electrical test program Testing

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  N53 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


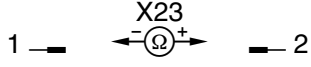
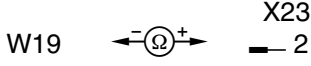
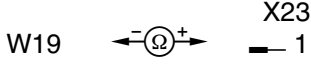
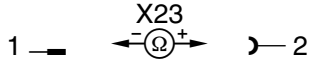
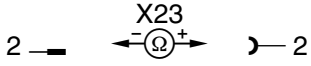
Electrical test program Testing

Test step Impulse readout	Scope of test	Test equipment/ test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 4.6 4	Testing left seat belt latch and seat belt lock relay (K18/2)		Ignition: OFF Disconnect battery ground cable, Seat belts latched. Seat belts not latched. Loosen seat belts again Connect the battery ground cable. Seat belts latched.	Seat belt 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. Driver seat belt lock relay (K18/2) defective and/or open circuit
⇒ 5.0 5	Passenger seat belt lock relay (K18/3) with wiring		Ignition: OFF Disconnect plug at roll bar control unit (N53) Connect socket box. Separate right seat contact strip (X55/4).	< 1 Ω	N53 open circuit.

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 </p> <p> </p>	<p>Ignition: OFF, Disconnect negative battery cable and cover pole. Socket box connected to roll bar control unit (N53) connector.</p>	<p>> 20 kΩ</p> <p>> 20 kΩ</p>	<p>Short to circuit 31</p> <p>Short to circuit 15, 30</p>
⇒ 5.6 5	Right seat belt latch and seat belt lock relay (K18/3)		<p>Ignition: OFF Disconnect battery ground cable. Seat belt latched.</p> <p>Seat belt not latched.</p> <p>Loosen seat belt again. Connect the battery ground cable. Seat belt latched.</p>	<p>Seat belt automatic reel is locked</p> <p>Seat belt moves freely</p> <p>Seat belt continues to move freely</p>	<p>Seat belt automatic reel defective, Bowden cable defective.</p> <p>Bowden cable defective and/or not connected at the seat belt latch.</p> <p>Front passenger seat belt lock relay (K18/3) defective and/or open circuit.</p>


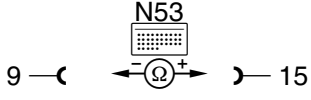
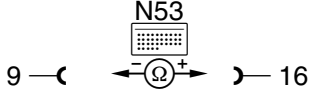
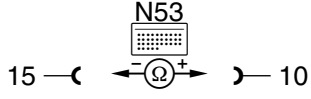
Electrical test program Testing

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	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

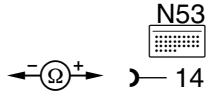
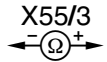
Test step Impulse readout	Scope of test	Test equipment/ test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 7.4 7	Circuit isolation			> 20 kΩ	Short to circuit 15, 30, Open circuit to left rear axle roll bar switch (S83/2).
⇒ 7.5 7	Left rear axle roll bar switch (S83/2) and right rear 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	<p>N53 7 — Ω — 6</p>	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	<p>N53 9 — Ω — 7</p>	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	<p>N53 7 — Ω — 10</p>	Ignition: OFF Remove fuse 4 from circuit 30 (F20/4)	> 20 kΩ	Short to circuit 15, 30. Open circuit.

Electrical test program Testing

Not shown on impulse readout

Test step Impulse readout	Scope of test	Test equipment/ test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 9.0	Driver seat belt buckle switch (belt lock) (S68/7) with wiring	W18  N53 14	Ignition: OFF Separate connector at control unit (N53) Seat belt latched. Seat belt not latched.	< 1 Ω > 20 kΩ	Seat belt latch defective. Open circuit. Short to circuit 31
⇒9.1		1  X55/3 (B2) 2	Separate left seat contact strip (X55/3). Seat belt latched. Seat belt not latched.	< 1 Ω > 20 kΩ	Seat belt latch defective

Electrical test program Testing

Not indicated by impulse readout

Test step Impulse readout	Scope of test	Test equipment/ test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 9.2	Wiring	<p>N53 14 — Ω — 3 X55/3</p> <p>⊥ — Ω — 4 X55/3</p>	Ignition: OFF Separate connector at roll bar control unit (N53). Separate left seat contact strip (X55/3).	< 1 Ω < 1 Ω	Open circuit Open circuit
⇒ 10.0	Front passenger seat belt buckle switch (belt lock) (S68/8) with wiring	<p>W19 — Ω — 13 N53</p>	Ignition: OFF Separate connector at roll bar control unit (N53). Seat belt latched. Seat belt not latched.	 < 1 Ω > 20 kΩ	 Seat belt latch defective. Open circuit. Short to circuit 31

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

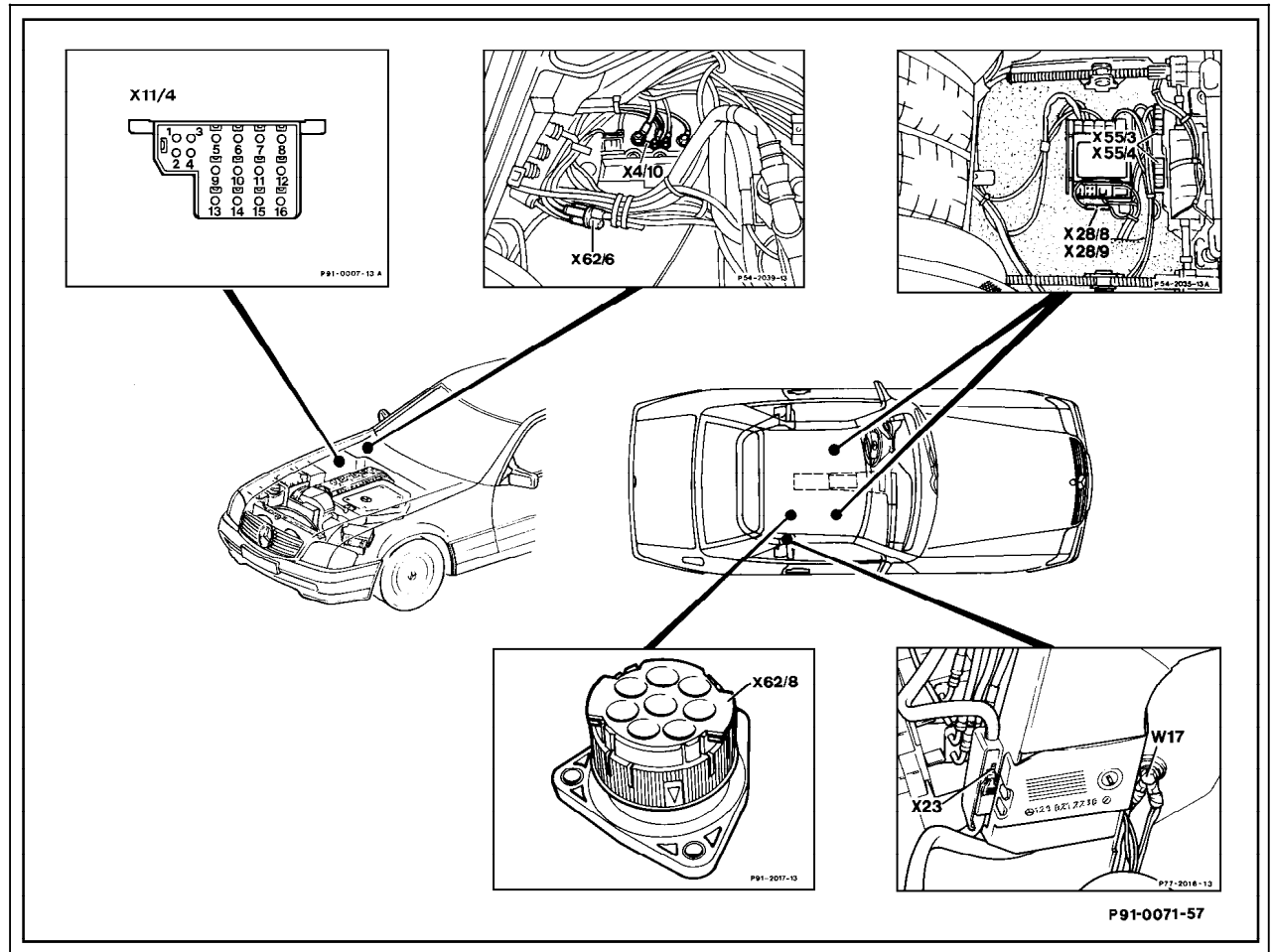


Figure 1

- 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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