

19.3 Model 129 as of 09/95

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The following components have been deleted:

- **RB control module (N53) (crash deployment)**
Functions have been integrated into the power soft top control module (N52).
- **Left/right rear axle switch (S83/2, S83/3) (roll bar)**
These switches have been replaced by an tilt switch (53 °) which is incorporated into the power soft top control module (N52).



- The diagnostics for the convenience feature of the roll bar is described in D. M., Body and Accessories, Volume 2, section 11.2, section 11.3.
- The diagnostic trouble codes (DTC's) can only be read out and erased **using the Hand-Held Tester (HHT)**.
- Crash deployment of the roll bar is not considered a fault.

Diagnosis – Function Test

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy ¹⁾
<p>⇒ 1.0 Roll bar system</p>	<p>Connect HHT as per section 0, using activation menu, activate roll bar.</p> <p>⚠ DANGER! Ensure that no persons are within the deployment radius of the roll bar. Risk of injury.</p>	<p>Roll bar deploys.</p>	<p>Readout DTC memory 14</p>
<p>⇒ 2.0 Seat belt lock switch (S68/13) (child safety)</p>	<p>Sit in front passenger seat, apply seat belt and latch seat belt buckle. Pull out on seat belt Press seat belt lock switch (S68/3) Pull out on seat belt</p>	<p>Seat belt can be extended further. Seat belt can not be extended (locked).</p>	<p>Seat belt buckle latch. Wiring (S68/13).</p>

¹⁾ Observe Preparation for Test, see 22.

Diagnosis – Function Test

Test step/Test scope	Test condition	Nominal value	Possible cause/Remedy ¹⁾
⇒ 3.0 Left Seat belt locking	Ignition: OFF Remove fuse F20–2 and F20–4, apply seat belt. Seat belt buckle is latched. Seat belt buckle is not latched. Release seat belt, install fuses. Seat belt buckle is latched.	Seat belts are locked. Seat belts are free to extend. Seat belts remain free to extend.	Short circuit in circuit 31 Bowden cable defective or seat belt buckle has not been latched properly. Left front seat belt lock relay module (K18/2) defective or wiring interrupted. Seat belt retract mechanism defective.
⇒ 4.0 Right Seat belt locking	Ignition: OFF Remove fuse F20 – 2 and F20 – 4, apply seat belt. Seat belt buckle is latched. Seat belt buckle is not latched. Release seat belt, install fuses. Seat belt buckle is latched.	Seat belts are locked. Seat belts are free to extend. Seat belts remain free to extend.	Short circuit in circuit 31 Bowden cable defective or seat belt buckle has not latched properly. Right front seat belt lock relay module (K18/3) defective or wiring interrupted. Seat belt retract mechanism defective.

1) Observe Preparation for Test, see 22.

Diagnosis – Diagnostic Trouble Code (DTC) Memory

Preliminary work:

Function Test 11

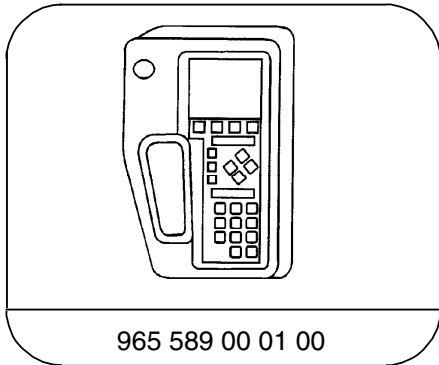
Preparation for Test:

1. Fuses ok,
2. Battery voltage 11 – 14 V,
3. Connect the Hand-Held Tester (HHT) to X11/4, according to diagram, see section 0.



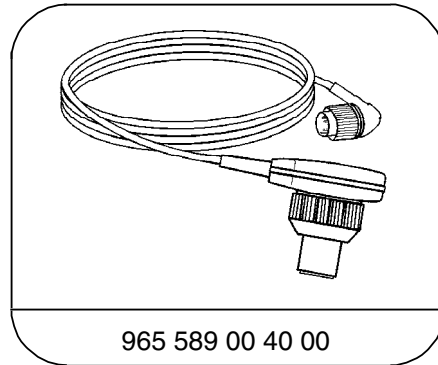
The diagnostic trouble codes (DTC's) can only be read out and erased **using the Hand-Held Tester (HHT)**.

Special Tools



965 589 00 01 00


Hand-Held-Tester



965 589 00 40 00

Test cable

Diagnosis – Diagnostic Trouble Code (DTC) Memory

DTC 	Possible cause	Test step/Remedy ¹⁾
032	Voltage supply	23 ⇒ 1.0
128-138	Power soft top control module (N52)	32 ⇒ 3.0
144	RB deployment solenoid (Y57/1)	23 ⇒ 6.0
145	Left/right front seat belt lock relay module (K18/2, K18/3), short circuit in circuit 30/31	23 ⇒ 4.0, 5.0, 8.0, 9.0, D.M. Body and Accessories, Vol. 3, 11.3
177	Indicator lamp in RB switch (S83) (manual operation)	23 ⇒ 42.0
179	RB MIL (A1e29)	23 ⇒ 7.0

¹⁾ Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾
No. 1 RB MIL (A1e29) in instrument cluster does not go out after starting engine (terminal 61) or illuminates while driving.	Determine and localize fault via DTC memory.	12 Terminal 61 loose.
No. 2 Roll bar will not manually retract after crash deployment	RB switch (S83) (manual operation) pressed less then 5 seconds (RB deployment solenoid [Y57/1] clutch not latched). RB deployment solenoid (Y57/1) defective.	12

1) Observe Preparation for Test, see 22.

Diagnosis - Actual Values

Four displays are possible:

✓, F, 00, OFF.

The actual values are based on:

- RB MIL (A1e29)
- Terminal 61
- Left/right front seat belt lock relay module (K18/2, K18/3)
- RB deployment solenoid (Y57/1)

✓: the measured values are within the nominal values.

F: the measured values are **not** within the nominal values.

00: Seat belt buckle latched.

OFF: Seat belt buckle not latched.

Contrary to DTC memory, actual values are updated continuously, even during diagnosis. This allows intermittent faults to be recognized by moving/shaking components, connectors or wiring harnesses.

Diagnosis – Activation

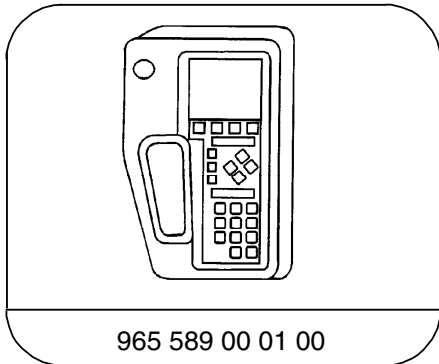
Via the HHT menu programm, the menu: **Activate** is used as function test for deployment of the roll bar (Crash Deployment).

As a result, it is no longer necessary to drive the vehicle, as previously to perform the function test.

DANGER !

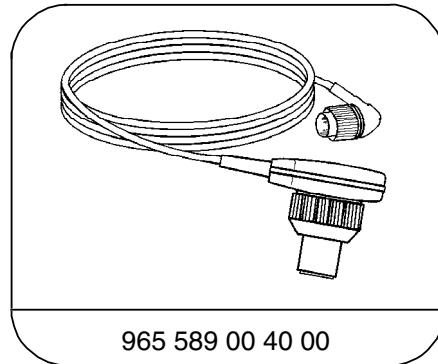
Prior to activation of the roll bar deployment, be certain that no persons are in the vicinity of the deployment radius of the roll bar. Risk of injury.

Special Tools



965 589 00 01 00

Hand-Held-Tester



965 589 00 40 00

Test cable

Electrical Test Program – Component Locations

Wiper System

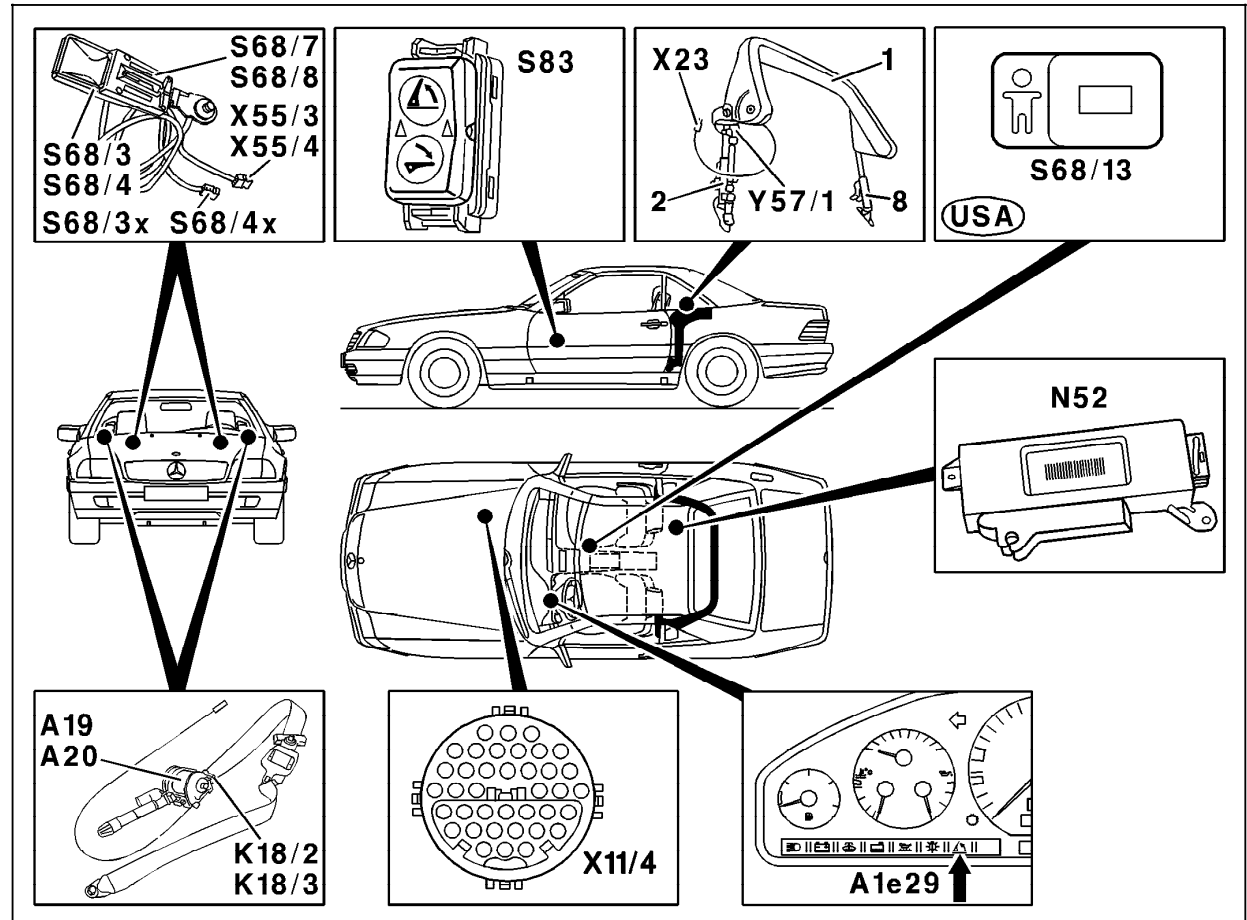


Figure 1

- A1e29 RB MIL
- A19 Left seat belt lock
- A20 Right seat belt lock
- K18/2 Left front seat belt lock relay module
- K18/3 Right front seat belt lock relay module
- N52 Power soft top control module
- R12/1 Left front ETR squib
- R12/2 Right front ETR squib
- S68/7 Left front seat belt buckle/belt lock switch
- S68/8 Right front seat belt buckle/belt lock switch
- S68/13 Seat belt lock switch (child safety lock)
- S83 RB switch (manual operation)
- X11/4 Data link connector (DTC readout)
- X23 RB solenoid valve connector (2-pole)
- X55/3 Left ESA connector block
- X55/4 Right ESA connector block
- Y57/1 RB deployment solenoid

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Electrical Test Program - Preparation for Test

Preparation for Test:

1. Check fuses F1-19, F1-20, F20-1, F20-2, F20-3, F20-4, F20-7, F20-8, F20-9, ok,
2. Battery voltage > 11 V,
3. RB MIL (A1e29) is illuminated in instrument cluster.

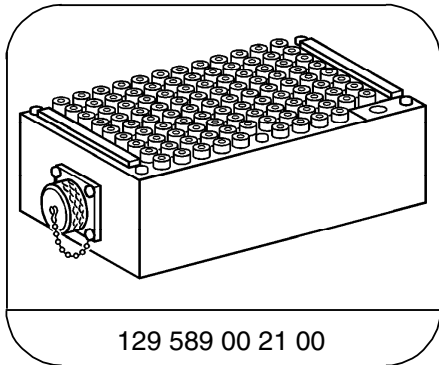
DANGER !

Disconnecting the connector or tilting of the power soft top control module (N52) upon removal, will cause the roll bar to deploy. Be certain to keep persons away from deployment radius of the roll bar. Risk of injury.

Electrical Wiring Diagrams

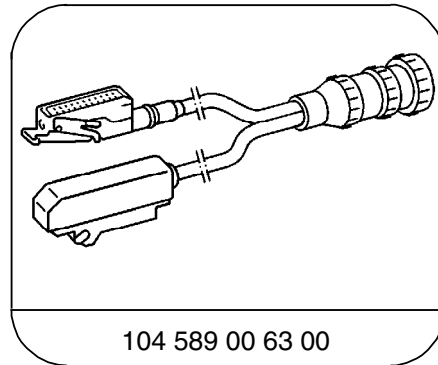
See Electric Troubleshooting Manual, Model 129, Volume 3, group 06

Special Tools



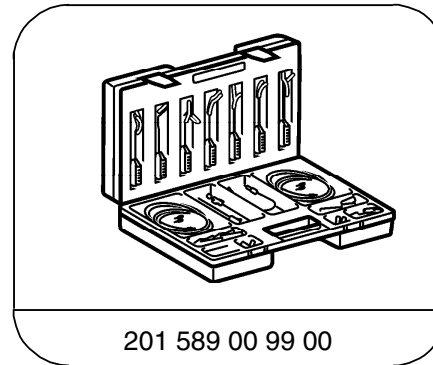
129 589 00 21 00

126-pin socket box



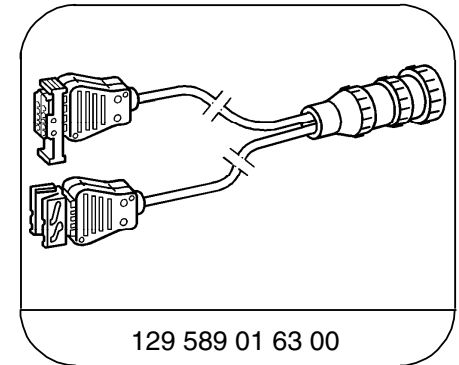
104 589 00 63 00

Test cable



201 589 00 99 00

Electrical connecting set

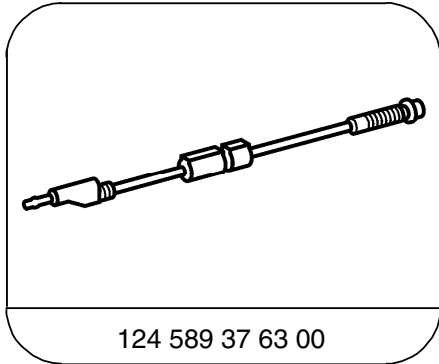


129 589 01 63 00

12-pin test cable

Electrical Test Program - Preparation for Test

Special Tools



124 589 37 63 00

Fused cable

Electrical Test Program - Preparation for Test

- Ignition: OFF
- Disconnect connector X2 from control module
- Connect socket box

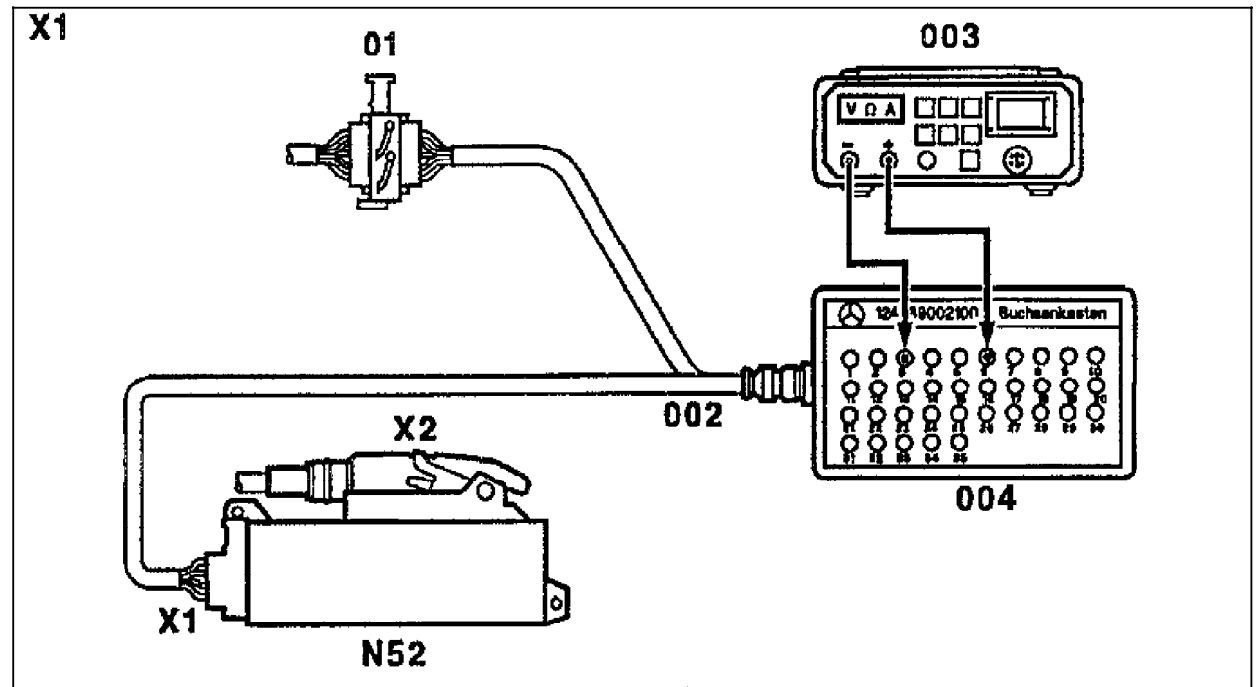
Connection Diagram - Socket Box with connector X1

⚠ DANGER!

Disconnecting the connector or tilting of the power soft top control module (N52) upon removal, will cause the roll bar to deploy. Be certain to keep persons away from deployment radius of the roll bar. Risk of injury.

Figure 1

- 01 Vehicle harness set connector (12-pole)
- 002 Test cable (12-pole), part no. 129 589 01 63 00
- 003 Multimeter
- 004 Socket box
- N52 Power soft top control module



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Electrical Test Program - Preparation for Test

- Ignition: OFF
- Disconnect connector X2 from control module
- Connect socket box

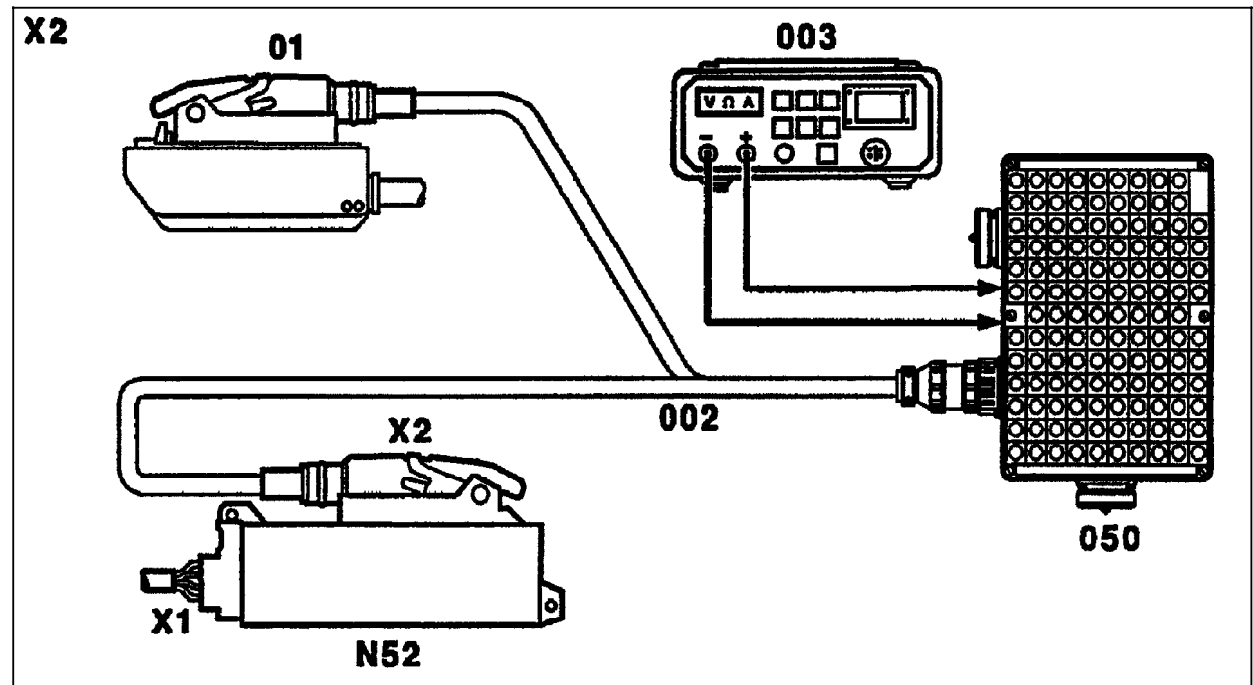
Connection Diagram - Socket Box with connector X2

⚠ DANGER!

Disconnecting the connector or tilting of the power soft top control module (N52) upon removal, will cause the roll bar to deploy. Be certain to keep persons away from deployment radius of the roll bar. Risk of injury.



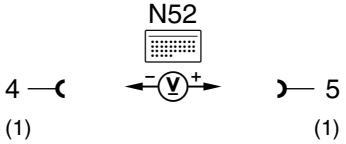
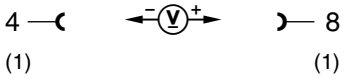
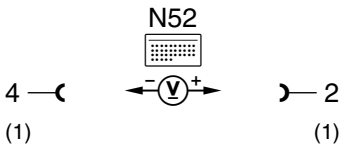
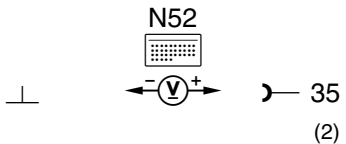

Figure 2

- 01 Vehicle harness set connector (35-pole)
- 002 Test cable (35-pole), part no. 104 589 00 63 00
- 003 Multimeter
- 004 Socket box
- N52 Power soft top control module








P77-5408-55









Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0		Voltage supply Circuit 30	 	Ignition: OFF Connect test cable and socket box, see 22	11 – 14 V	Wiring (interruption or open circuit), Battery, Voltage regulator defective, Generator defective.
1.1		Circuit 15		Ignition: ON	11 – 14 V	Wiring (interruption or open circuit), Interior/taillamp harness connector (X18/3) disconnected, Ignition/starter switch defective.
2.0		Terminal 61		Start engine, connect test cable and socket box, see 22	11 – 14 V	Wiring, Harness connector 30/30ue/61e/87L (X10), Generator.
3.0		Power soft top control module (N52)		Ignition: ON		N52.






Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
4.0	145	Left front seat belt lock relay module (K18/2) with harness	<p>N52 </p> <p>25 —  — 1</p> <p>(2)</p> <p>W18 </p> <p>X55/3</p> <p>(B1) </p> <p>1 — — 2</p>	<p>X55/3</p> <p>Ignition: OFF Disconnect left ESA connector block (X55/3).</p> <p>X55/3</p> <p>(B1)</p>	<p>< 1 Ω</p> <p>> 11 V</p> <p>60 – 90 Ω</p>	<p>Wiring (interruption or open circuit), Fuse 3B circuit 30 (F20–3B) defective.</p> <p>Wiring (interruption or open circuit).</p> <p>Connector disconnected at K18/2, Replace seat belt tensioner (see SMS, Model 129, Job no. 91-502).</p>

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
4.1		Insulation resistance	W18 	X55/3 (B1) Disconnect left ESA connector block (X55/3, B1).	>20 kΩ	Short circuit after circuit 31
4.2		Insulation resistance	X55/3 (B1) 1 	X55/3 (B) Disconnect left ESA connector block (X55/3, B1).	>20 kΩ	Short circuit after circuit 15, 30
4.3		Wiring	N52  47  25 (2) (2)	Socket box connected.	>20 kΩ	Short circuit after circuit 31
			N52  47   (2)		>20 kΩ	Short circuit after circuit 15, 30








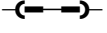
Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
5.0	145	Right front seat belt lock relay module (K18/3)	<p>N52  16 — ◀ —  — ▶ — 1 (2)</p> <p>W19  — ▶ — 2 X55/4</p> <p>(B1) 1 — ■ —  — ■ — 2 (B1)</p>	Ignition: OFF Disconnect connector on power soft top control module (N52). Disconnect right ESA connector block (X55/4).	<p>< 1 Ω</p> <p>> 11 V</p> <p>60–90 Ω</p>	<p>Wiring (interruption or open circuit), Fuse 3B circuit 30 (F20–3B) defective.</p> <p>Wiring (interruption or opencircuit).</p> <p>Connector disconnected at K18/3, Replace seat belt tensioner (see SMS, Model 129, Job no. 91-502).</p>


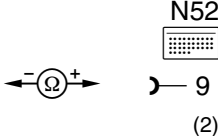
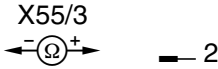
Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
5.1		Insulation resistance	X55/4 (B1) W19	Disconnect right ESA connector block (X55/4, B1).	>20 kΩ	Short circuit after circuit 31
5.2		Insulation resistance	X55/4 (B1) 1	Disconnect right ESA connector block (X55/4, B1).	>20 kΩ	Short circuit after circuit 15, 30
5.3		Wiring	N52 47 (2) (2) N52 47 (2) (2)	Socket box connected	>20 kΩ	Short circuit after circuit 31
6.0	144	RB deployment solenoid (Y57/1) with harness	X23 1	Ignition: OFF CAUTION! Calibrate multimeter prior to measuring ohms Disconnect RB solenoid valve connector (X23) (2-pole).	0.5 – 1.5 Ω	Connector disconnected at Y57/1, Right support and actuation actuator defective.


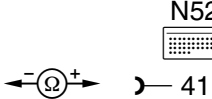
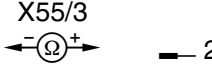
Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
6.1		Insulation resistance	W19  X23 ── 2		>20 kΩ	Short circuit after circuit 31
			W19  X23 ── 1		>20 kΩ	Short circuit after circuit 31
6.2		Insulation resistance	1 ──  X23)— 2		>20 kΩ	Short circuit after circuit 15, 30
			2 ──  X23)— 2		>20 kΩ	Short circuit after circuit 15, 30
7.0	179	RB MIL (A1e29)	 N52  + )— 13 (2)	Ignition: ON	RB MIL illuminates.	RB MIL (A1e29) connector, Interior/taillamp harness connector (X18/3) (1-pole) disconnected, Harness interrupted or open circuit.

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
8.0	145	Left front seat belt buckle/belt lock switch (S68/7) with harness	W18 	Ignition: OFF Disconnect connector at power soft top control module (N52). Seat belt buckle latched. Seat belt buckle not latched.	< 1 Ω >20 kΩ	Wiring (interruption or open circuit), Seat belt buckle defective.
8.1				Disconnect left ESA connector block (X55/3). Seat belt buckle latched. Seat belt buckle not latched.	< 1 Ω >20 kΩ	Seat belt buckle defective.

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
9.0	145	Right front seat belt buckle/belt lock switch (S68/8) with harness		Ignition: OFF Disconnect connector at power soft top control module (N52). Seat belt buckle latched. Seat belt buckle not latched.	< 1 Ω >20 kΩ	Wiring (interrupted or open circuit), Seat belt buckle defective.
9.1				Disconnect left ESA connector block (X55/3). Seat belt buckle latched. Seat belt buckle not latched.	< 1 Ω >20 kΩ	Seat belt buckle defective.