16.2 Model 140 (up to 06/93 production)

Diagnosis - Function Test (driver/passenger-side airbag)

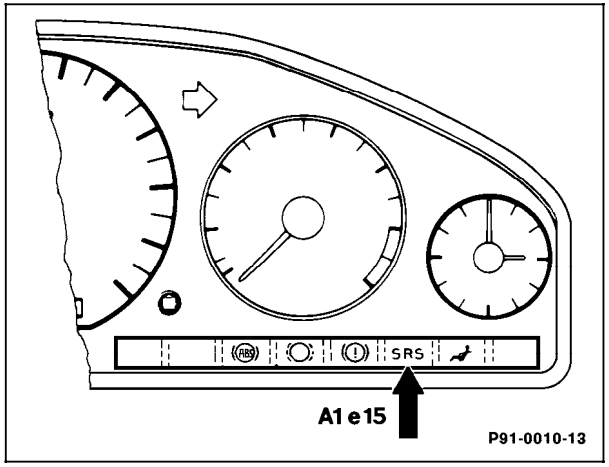


Figure 1 P91-0010-13

A1e15 SRS malfunction indicator lamp

Test step/Test sequence	Test condition	Nominal value	Possible cause/Remedy [1]
⇒ 1.0 **Supplemental Restraint System**	Ignition key in position “1”.	SRS malfunction indicator lamp (A1e15) comes on for approximately 4 seconds.	DTC Memory 12

[1] Observe Preparation for Test, see 22.

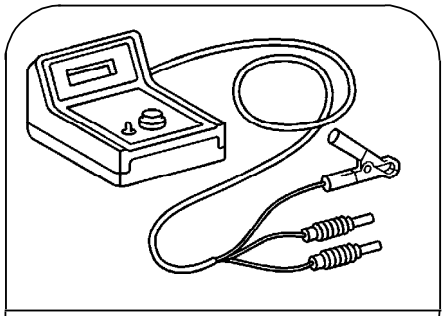
Diagnosis - Diagnostic Trouble Code (DTC) Memory (driver/passenger-side airbag)

Preliminary work:
Diagnosis - Function Test 11

Preparations for DTC readout

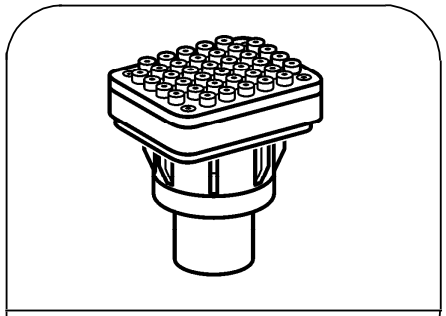
- Fuses F3-15 O.K.
- Connect impulse counter scan tool to data link connector (X11/4) according to connection diagram (see section 0).
  yellow wire to socket 30
- The 12-pole SRS test connection (X11/13) must be connected, for DTC.

Special Tools



124 589 19 21 00

Pulse counter



140 589 14 63 00

Adapter

Diagnosis - Diagnostic Trouble Code (DTC) Memory (driver/passenger-side airbag)

Diagnostic trouble code (DTC)	Possible cause	Test step/Remedy [1]
1	No fault recognized in system	–
2	SRS control module (N2/2)	23 ⇒ 2.0
3	Driver airbag squib (R12/3)	23 ⇒ 3.0, 9.0
4	Front passenger airbag squibs (R12/8)	23 ⇒ 4.0, 10.0
5	Left front seat belt buckle switch (S68/3)	23 ⇒ 5.0
6	Right front seat belt buckle switch (S68/4)	23 ⇒ 6.0
7	Front passenger airbag resistance	23 ⇒ 7.0
8	Voltage supply circuit 15R	23 ⇒ 1.0
9	SRS malfunction indicator lamp (A1e15) or time limit for DTC readout /erasing exceeded	23 ⇒ 8.0
10 [2]	SRS control module (N2/2)	N2/2 (SMS, Job No. 91-622)

[1] Observe Preparation for Test, see 22.

[2] DTC 10 indicates that the airbag deployment stage was activated in the control module. This DTC can not be erased. **The control module must be replaced.**

⚠ **IMPORTANT NOTE!**

Before replacing the SRS control module (N2/2) in cases of DTC 10 without an airbag deployment, reposition airbag harness ground connections to lowest terminal connection.

Note:

The ETR's are not included in the DTC readout, if DTC 3 and/or 4 can not be erased, see ETR Test 32 ⇒ 1.0 and 2.0 [1].

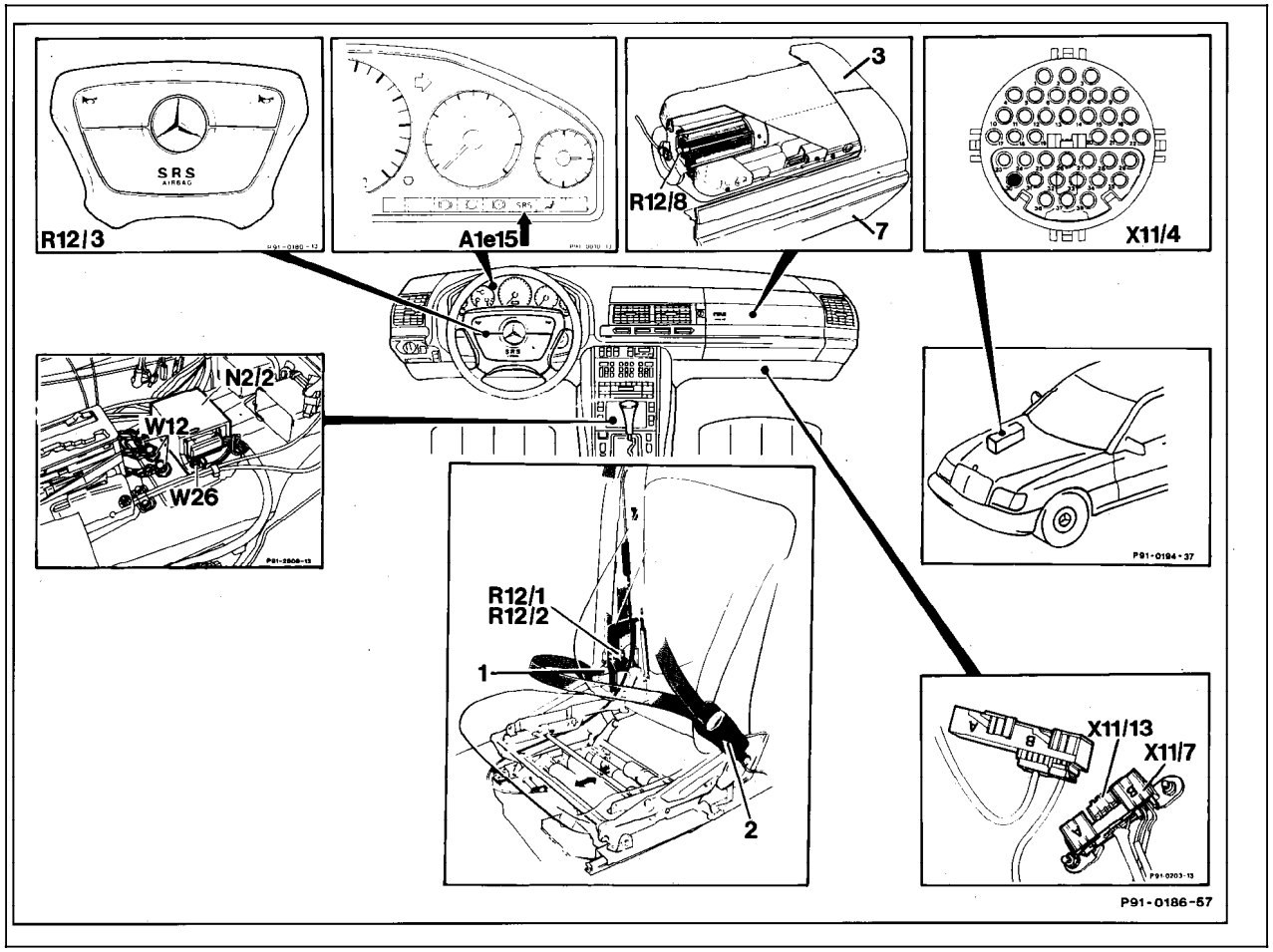
Diagnosis - Complaint Related Diagnostic Chart (driver/passenger-side airbag)

Complaint/Problem	Possible cause	Test step/Remedy [1]	
SRS malfunction indicator lamp (A1e15) does not come on with ignition key in position “1”, does not go out after approximately 4 seconds, flickers or comes on while driving.	–	DTC Memory	12

[1] Observe Preparation for Test, see 22.

Electrical Test Program - Component Locations (driver/passenger-side airbag)

Model 140



P91-0186-57

Figure 1

2	Driver and/or front passenger seat belt buckle switch
A1e15	SRS malfunction indicator lamp
N2/2	SRS control module
R12/1	Left front emergency tensioning retractor squib
R12/2	Right front emergency tensioning retractor squib
R12/3	Driver airbag squib
X11/4	Data link connector (DTC readout)
X11/7	ETR test connection (4-pole)
X11/13	SRS test connection (12-pole)

Electrical Test Program - Preparation for Test (driver/passenger-side airbag)

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

1. Battery voltage 11–14 V.
2. SRS malfunction indicator lamp (A1e15) comes on.
3. Ignition: **OFF**, disconnect and cover battery negative terminal.
4. Disconnect SRS test connection (X11/13).
5. Connect socket box and test cable according to connection diagram (Figure 1).

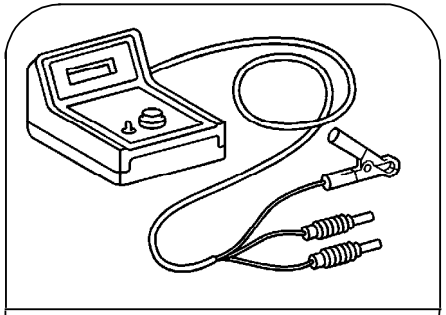
⚠ WARNING!
Do not connect battery charger.

Note concerning Test Connection column in 23:
example
32 ⇒ 1.0 (B.1)
B= connector
1=socket 1

Electrical Wiring Diagrams :
Electrical Troubleshooting Manual, Model 140.

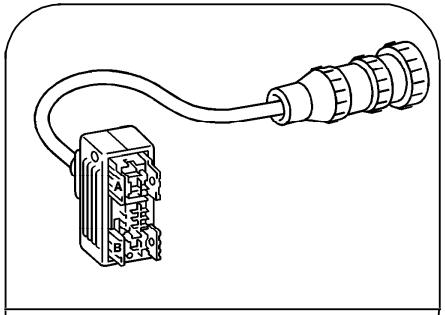
Electrical Test Program - Preparation for Test (driver/passenger-side airbag)

Special Tools



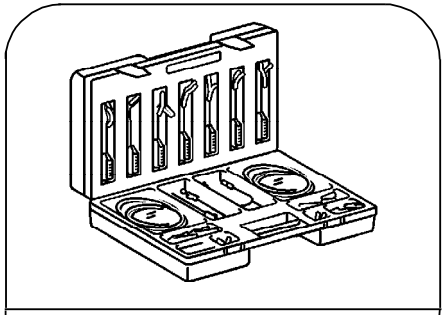
124 589 19 21 00

Pulse counter



140 589 11 63 00

Test cable



201 589 00 99 00

Electrical connecting set

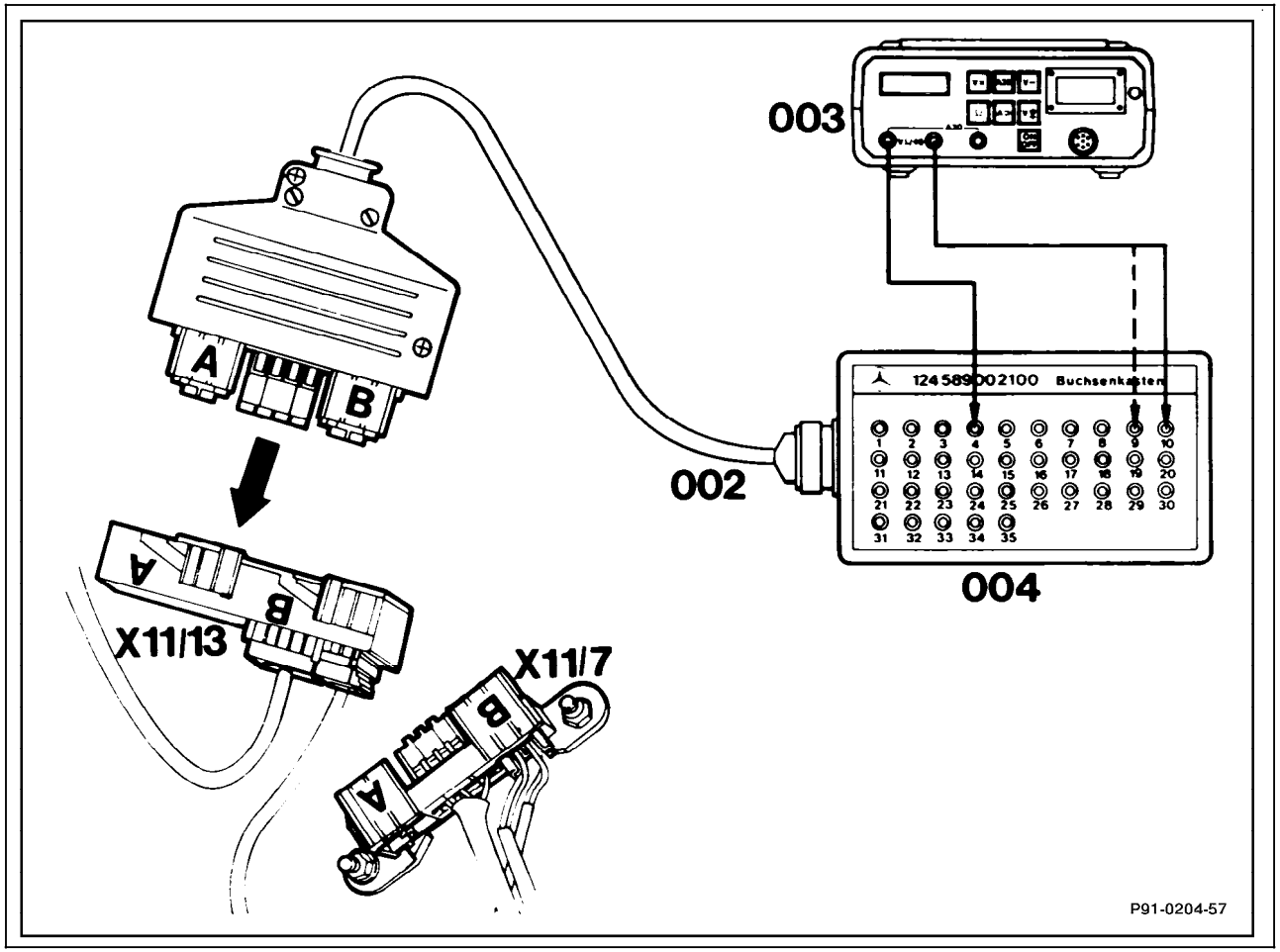
Equipment

Digital multimeter [1]	Fluke models 23, 83, 85, 87

[1] Available through the MBUSA Standard Equipment Program.

Electrical Test Program - Preparation for Test (driver/passenger-side airbag)

Connection Diagram - Socket Box Tester/Digital Multimeter



P91-0204-57

Figure 1

002	Test cable 124 589 35 63 00
003	Digital multimeter
004	Socket box
X11/7	ETR test connection
X11/13	SRS test connection

Electrical Test Program – Test (driver/passenger-side airbag)

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0	8	**Voltage supply** Circuit 15R	X11/13 ⊥ V ❯— 2	Ignition: **OFF** Disconnect and cover battery negative terminal. Disconnect SRS test connection (X11/13). Ignition key in position “1”.	 11 – 14 V	Wiring, Battery voltage, Ignition/starter switch (S2/1).
2.0	2	**SRS control module (N2/2)**		Ignition: **ON** Erase DTC 2	DTC 2 erased.	SRS control module (N2/2), (SMS, Job No. 91-622).
3.0	3	**Driver airbag squib (R12/3)**	X11/13 3 —❮ Ω ❯— 4	Ignition: **OFF** Disconnect and cover battery negative terminal. Disconnect SRS test connection (X11/13). Connect test cable according to connection diagram. Turn steering wheel from full right to full left stop.	 2–5 Ω	Wiring, < 2 Ω short circuit, > 5 Ω open circuit, Driver airbag squib connector (X28/4) not connected. Slip ring or Clock spring contact, Driver airbag (SMS, Job No. 91-660), ⇒ 3.1

Electrical Test Program – Test (driver/passenger-side airbag)

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
3.1	∃	Isolation resistance	X11/13 ⊥ — Ω — 3		> 20 kΩ	Wiring, Short circuit to circuit 31.
			X11/13 3 — Ω — +	Turn ignition key to position “1” and “2”.	> 20 kΩ	Wiring, Short circuit to circuits 15/15R/30, If nominal values are obtained but DTC ∃ can not be erased, 32 ⇒ 1.0, 2.0, 23 ⇒ 9.0
4.0	Ч	**Front passenger airbag squib (R12/8)**	X11/13 5 — Ω — 6	Ignition: **OFF** Disconnect and cover battery negative terminal. Disconnect SRS test connection (X11/13).	2–5 Ω	Wiring, < 2 Ω short circuit, > 5 Ω open circuit, Passenger side airbag (SMS, Job No. 91-680), ⇒ 4.1

Electrical Test Program – Test (driver/passenger-side airbag)

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
4.1	Ч	Isolation resistance	X11/13 ⊥ Ω 5		> 20 kΩ	Wiring, Short circuit to circuit 31.
			X11/13 5 Ω +	Turn ignition key to position “1” and “2”.	> 20 kΩ	Wiring, Short circuit to circuits 15/15R/30, If nominal values are obtained but DTC Ч can not be erased, 32 ⇒ 1.0, 2.0 23 ⇒ 10.0
5.0	Ъ	**Left front seat belt buckle switch (S68/3)**	X55/3 1 (D) Ω 2 (D)	Ignition: **OFF** Disconnect and cover battery negative terminal. Disconnect SRS test connection (X11/13). Disconnect left seat contact strip (X55/3) connector D. Seat belt tongue in buckle: **Not latched** **Latched**	 400 Ω±10 Ω 100 Ω±10 Ω	Wiring, open circuit, Short circuit or shorted to circuit 31, Ground (W26), Seat belt buckle (SMS, Job No. 91-502).

Electrical Test Program – Test (driver/passenger-side airbag)

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
5.1	5		N2/2 12 — (-) Ω (+) — 10	Disconnect connector to control module (N2/2). Connect left seat contact strip (X55/3). Seat belt tongue in buckle: **Not latched** **Latched**	 400 Ω±10 Ω 100 Ω±10 Ω	Wiring, Seat belt buckle.
6.0	6	**Right front seat belt buckle switch (S68/4)**	X55/4 1 (D) — (-) Ω (+) — 2 (D)	Ignition: **OFF** Disconnect and cover battery negative terminal. Disconnect SRS test connection (X11/13). Disconnect right seat contact strip (X55/4) connector D. Seat belt tongue in buckle: **Not latched** **Latched**	 400 Ω±10 Ω 100 Ω±10 Ω	Wiring, open circuit, Short circuit or shorted to circuit 31, Ground (W26), Seat belt buckle (SMS, Job No. 91-502).

Electrical Test Program – Test (driver/passenger-side airbag)

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
6.1	6		N2/2 12 — (-) Ω (+) — 10	Disconnect connector to control module (N2/2). Connect right seat contact strip (X55/4). Seat belt tongue in buckle: **Not latched** **Latched**	 400 Ω±10 Ω 100 Ω±10 Ω	Wiring, Seat belt buckle.
7.0	7	**Front passenger airbag** Resistance	N2/2 12 — (-) Ω (+) — 15	Ignition: **OFF** Disconnect and cover battery negative terminal. Disconnect SRS test connection (X11/13). Disconnect control module (N2/2) connector.	100 Ω±10 Ω	Wiring, Ground (W26), Resistance in connector to control module (N2/2).
8.0	9	**SRS MIL (A1e15)**		Ignition key in position “1”.	SRS MIL (A1e15) comes on and then goes out after approx. 4 seconds.	Wiring, F3-15, SRS MIL (A1e15), Intermittent short circuit to circuit 31 (X11/4 - A1e15), Time limit for DTC readout/erase exceeded.

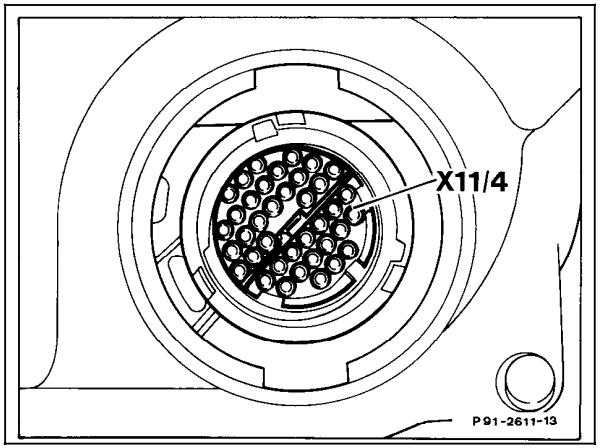
Electrical Test Program – Test (driver/passenger-side airbag)

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
9.0	∃	**Wiring**	X11/3 — N2/2 3 — Ω — 6 4 — Ω — 2 N2/2 2 — Ω — 6	Ignition: **OFF** Disconnect and cover battery negative terminal. Disconnect SRS test connection (X11/13). Disconnect control module (N2/2) connector.	<1 Ω >20 kΩ	Wiring. Short circuit, ⇒ 9.1
9.1	∃	Isolation resistance	X11/3 ⊥ — Ω — 4 ⊥ — Ω — 3 X11/3 4 — Ω — + (battery) 3 — Ω — + (battery)	Turn ignition key to position “1“ and “2“.	<20 k Ω <20 k Ω	Short circuit to 31 Short to circuits 15/15R/30

Electrical Test Program – Test (driver/passenger-side airbag)

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
10.0		**Wiring**	X11/3 — N2/2 5 — Ω — 13 6 — Ω — 2 N2/2 2 — Ω — 13	Ignition: **OFF** Disconnect and cover battery negative terminal. Disconnect SRS test connection (X11/13). Disconnect control module (N2/2) connector.	<1 Ω >20 kΩ	Wiring. Short circuit, ⇒ 10.1
10.1		Isolation resistance	X11/3 ⊥ — Ω — 5 ⊥ — Ω — 6 X11/3 5 — Ω — + 6 — Ω — +		<20 k Ω <20 k Ω	Short circuit to 31 Short to circuits 15/15R/30

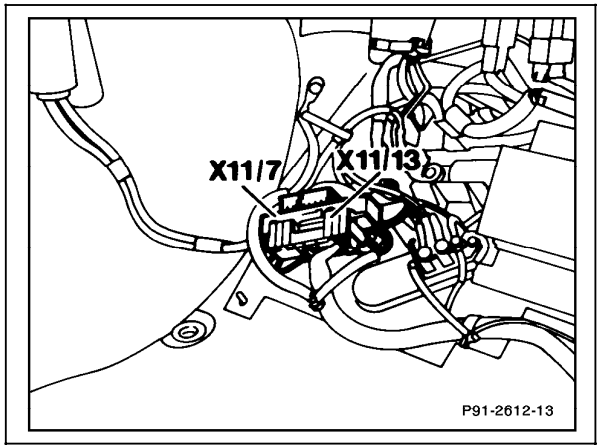
Electrical Test Program – Test (driver/passenger-side airbag)



P91-2611-13

Figure 1

X11/4 Data link connector (38-pole)

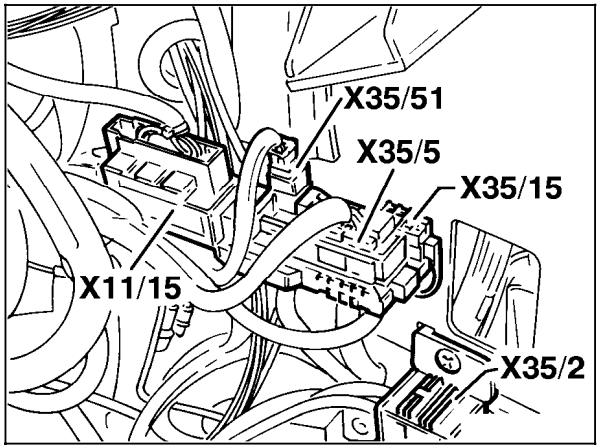


P91-2612-13

Figure 2

X11/7 ETR test connection (4-pole)

X11/13 SRS test connection (12-pole)

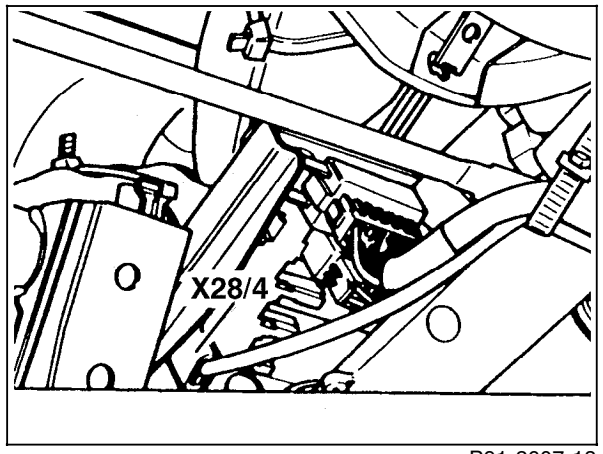


P54-2842-13

Figure 3

X11/15 Diagnostic connector (taillamp harness)

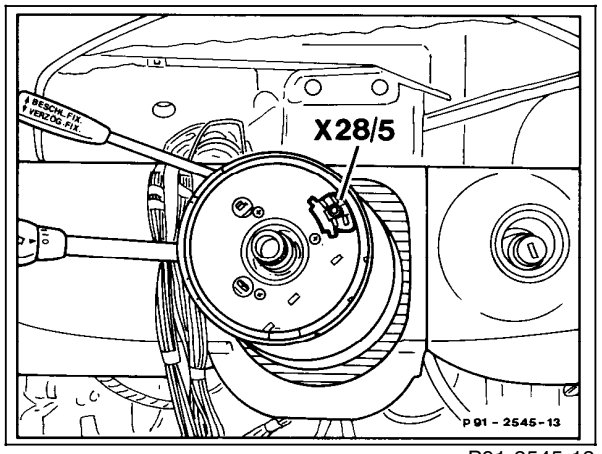
Electrical Test Program – Test (driver/passenger-side airbag)



P91-2607-13

Figure 4

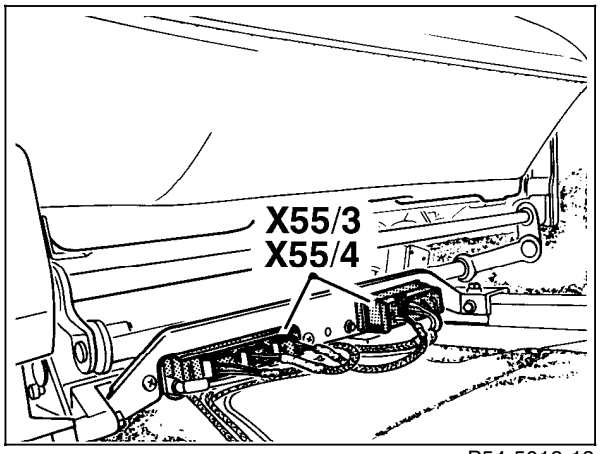
X28/4 Driver airbag squib connector



P91-2545-13

Figure 5

X28/5 Airbag squib slip ring (2-pole)



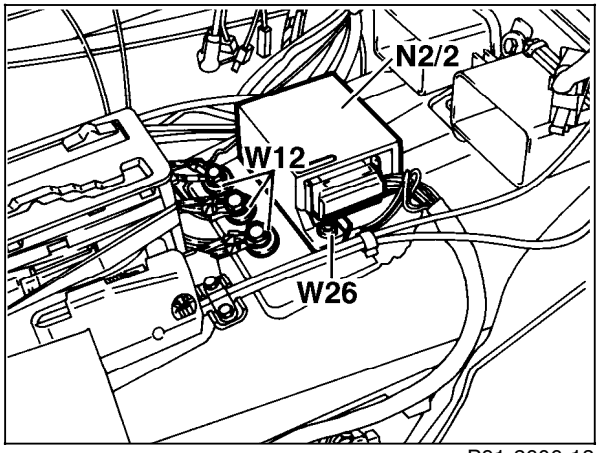
P54-5012-13

Figure 6

X55/3 Left seat contact strip

X55/4 Right seat contact strip

Electrical Test Program – Test (driver/passenger-side airbag)



P91-2606-13

Figure 7

W26 Ground (SRS control module)

N2/2 SRS control module

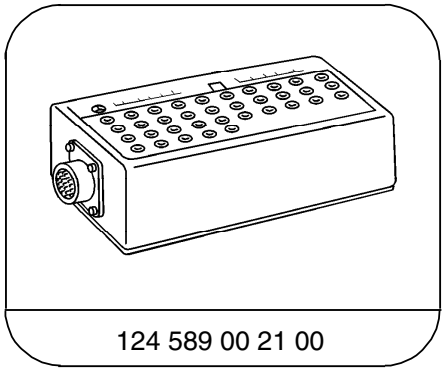
Electrical Test Program - Preparation for Test (ETR's)

Preliminary work:
Diagnosis - Function Test 11

⚠ WARNING!

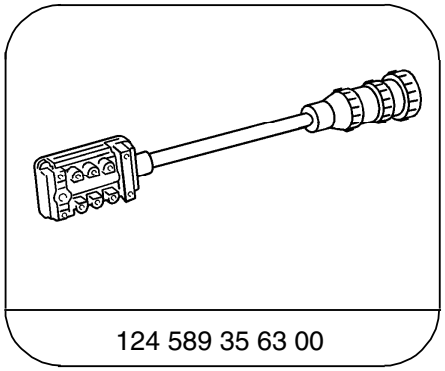
Before disconnecting the SRS test connection (X11/13), disconnect and cover the battery negative terminal.

Special Tools



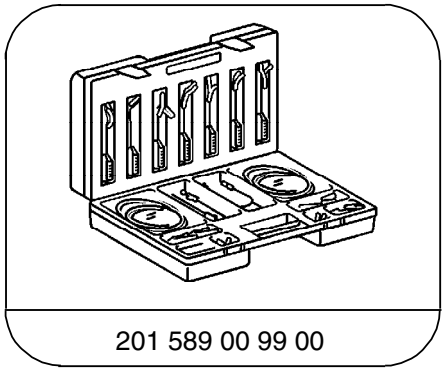
124 589 00 21 00

35-pin socket box



124 589 35 63 00

Test cable



201 589 00 99 00

Electrical connecting set

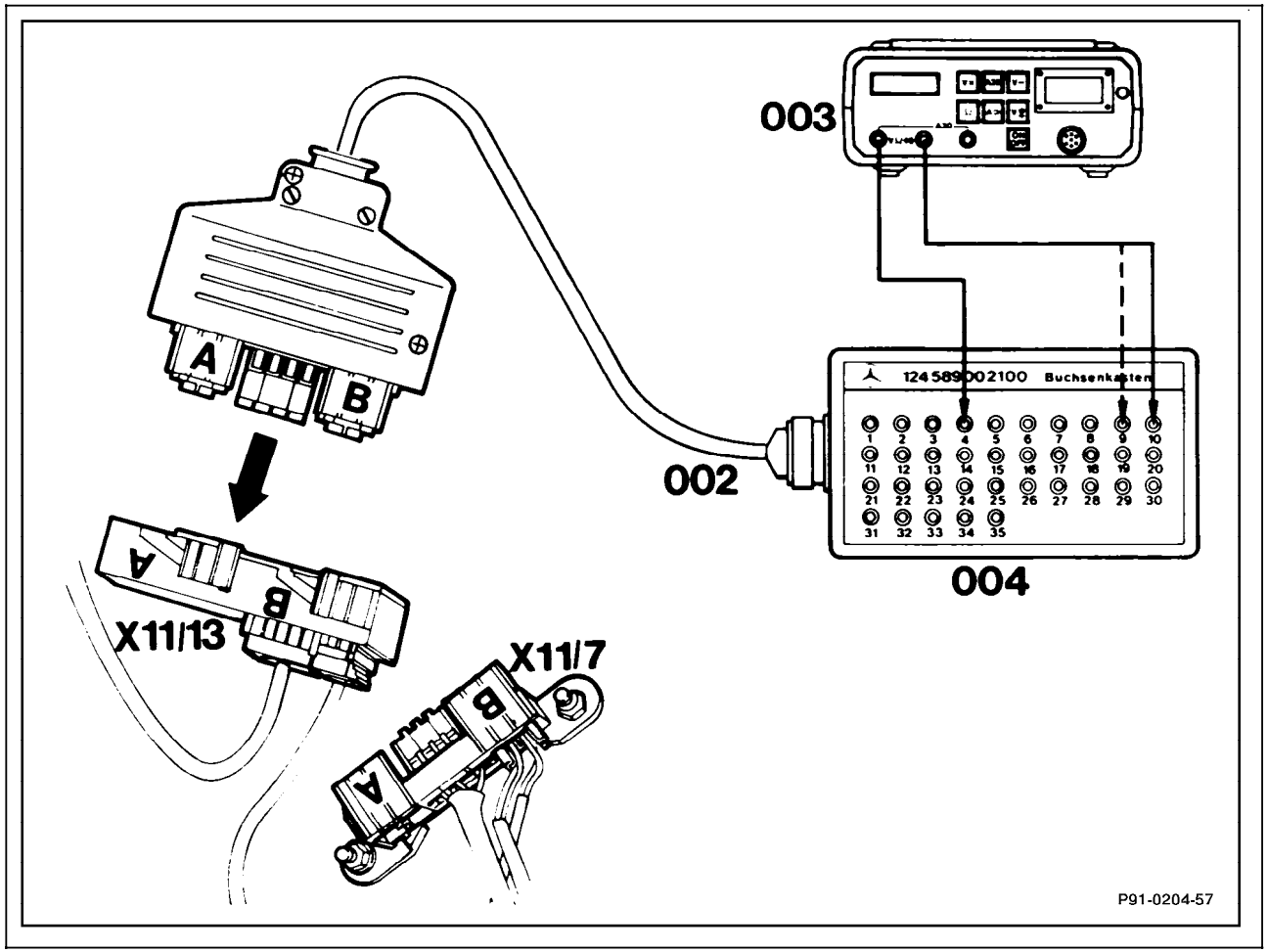
Equipment

Digital multimeter [1]	Fluke models 23, 83, 85, 87

[1] Available through the MBUSA Standard Equipment Program.

Electrical Test Program - Preparation for Test (ETR's)

Connection Diagram - Digital Multimeter and Socket Box Tester



P91-0204-57

Figure 1

002	Test cable 124 589 35 63 00
003	Digital multimeter
004	Socket box
X11/7	ETR test connection (4-pole)
X11/13	SRS test connection (12-pole)

Electrical Test Program - Test (ETR's)

⚠ This test has no DTC's.

This test is necessary:

- after an accident.
- if the seat belt/ETR is replaced.
- if no fault is found even though DTC ∃ and/or Ч is displayed.
- if the seat(s) are removed/reinstalled.

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 1.0	**Left front ETR squib (R12/1)**	X11/7 9 — (B.1) 10 — (B.1)	Ignition: **OFF** Disconnect and cover battery negative terminal. Disconnect ETR test connection (X11/7).	2–5 Ω	< 2 Ω short circuit, > 5 Ω ETR deployed or open circuit.
⇒ 1.1	Isolation resistance	X11/7 ⊥ — 9 ⊥ — 10		> 20 kΩ	Short to circuit 31, If the nominal values are obtained, but DTC ∃ and/or Ч can not be erased ⇒ 1.2
⇒ 1.2	Wiring	X11/7 — N2/2 9 — 5 (B.1) 10 — 1 N2/2 1 — 5	Disconnect control module (N2/2) connector.	 < 1 Ω > 20 kΩ	 Wiring. Short circuit.

Electrical Test Program - Test (ETR's)

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 2.0	**Right front ETR squib (R12/2)**	X11/7 11 — Ω — 12 (B.3) (B.4)	Ignition: **OFF** Disconnect and cover battery negative terminal. Disconnect ETR test connection (X11/7).	2–5 Ω	< 2 Ω short circuit, > 5 Ω ETR deployed or open circuit.
⇒ 2.1	Isolation resistance	X11/7 ⊥ — Ω — 11 ⊥ — Ω — 12		> 20 kΩ	Short to circuit 31, If the nominal values are obtained, but DTC ∃ and/or Ч can not be erased ⇒ 2.2
⇒ 2.2	Wiring	X11/7 N2/2 11 — Ω — 8 (B.3) 12 — Ω — 1 N2/2 1 — Ω — 8 (B.4)	Disconnect control module (N2/2) connector.	< 1 Ω > 20 kΩ	Wiring. Short circuit.

Electrical Test Program - Test (test if there is no DTC)

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 1.0	**Data link connector (X11/4)** Voltage supply	X11/4 1 — (V) — 2 1 — (V) — 3 ⊥ — (Ω) — 1	Ignition: **ON**	11–14 V 11–14 V < 1 Ω	Wiring, Circuit 15. Circuit 30. Circuit 31, ⇒ 1.1
⇒ 1.1	Wiring	X11/13 — X11/4 7 — (Ω) — 30	Ignition: **OFF** Disconnect and cover battery negative terminal. Disconnect SRS test connection (X11/13).	< 1 Ω	Wiring. Diagnostic connector (X11/15) not connected. ⇒ 1.2
⇒ 1.2	Isolation resistance	X11/4 1 — (Ω) — 30		> 20 kΩ	Wiring, Short to circuit 31.