14.1 Model 129

Diagnosis - Function Test

Test step/Test sequence		Test condition	Nominal value	Possible cause/Remedy [1]
⇒ 1.0	Seat heating stage **I**	Ignition: **ON** Press front of left front seat heater switch (S51/1) or right front seat heater switch (S51/2) respectively.	Switch indicator lamp for stage **I** lights up. Seat cushion and backrest cushion warm up.	23⇒ 1.0, 2.0, 5.0, 7.0, 8.0 23⇒ 3.0, 4.0
⇒ 2.0	Seat heating stage **II**	Ignition: **ON** Press rear of left front seat heater switch (S51/1) or right front seat heater switch (S51/2) respectively.	Switch indicator lamp for stage **II** lights up. Seat cushion and backrest cushion warm up noticeable more than in stage **I**	23⇒ 1.0, 2.0, 5.0, 7.0, 8.0 23⇒ 3.0, 4.0
⇒ 3.0	Illumination of seat heater switches	Parking lamps switched on.	Switch symbol is illuminated.	23⇒ 6.0, 9.0

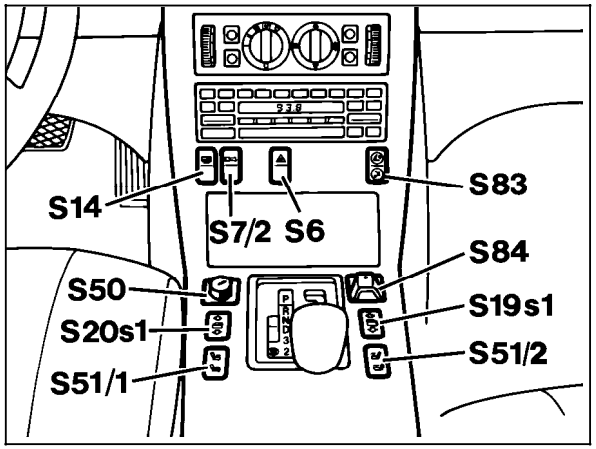
[1] Observe Preparation for Test, see 22.

Diagnosis - Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Remedy/Test step[1)]
Entire seat heating system does not work.	Seat heat control module (N25/5) voltage supply	23 ⇒ 1.0
Left front seat cushion and backrest heating does not operate	Seat heat control module (N25/5) voltage supply, Left front seat heater switch (S51/1), Left front seat cushion heating element (R13/1) and left front backrest heating element (R13/2)	23 ⇒ 1.0 23 ⇒ 2.0 23 ⇒ 3.0
Right front seat cushion and backrest heating does not operate	Seat heat control module (N25/5) voltage supply, Right front seat heater switch (S51/2), Right front seat cushion heating element (R13/3) and right front backrest heating element (R13/4)	23 ⇒ 1.0 23 ⇒ 7.0 23 ⇒ 4.0
Indicator lamp in left front seat heater switch (S51/1) or right front seat heater switch (S51/2) not operating. Seat heater operates.	S51/1 indicator lamps S51/2 indicator lamps	23 ⇒ 5.0 23 ⇒ 8.0
Illumination of left front seat heater switch (S51/1) or right front seat heater switch (S51/2) not functioning.	S51/1 illumination S51/2 illumination	23 ⇒ 6.0 23 ⇒ 9.0

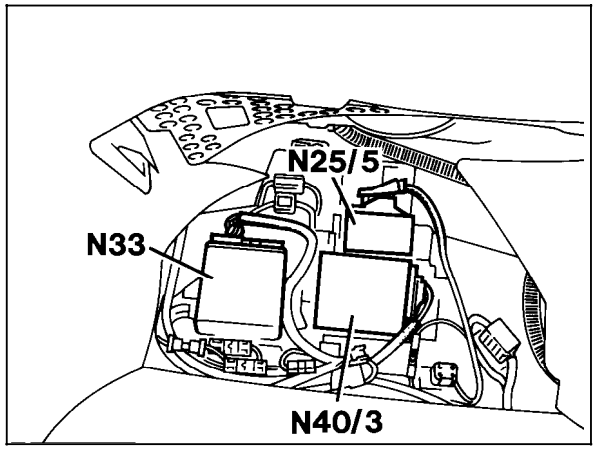
1) Observe Preparation for Test, see 22.

Electrical Test Program - Component Locations



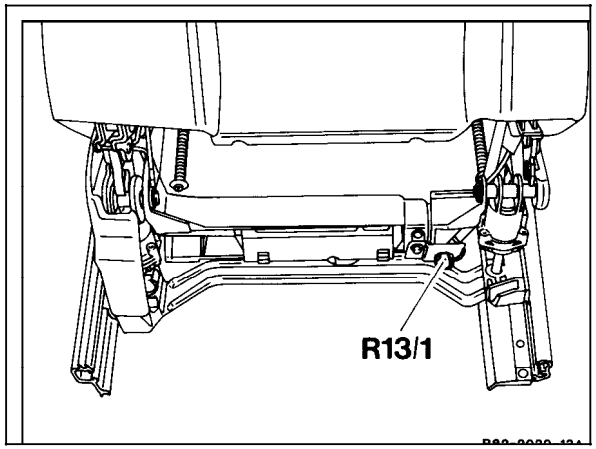
P82-2004-13

Figure 1



P54-2060-13A

Figure 2



P82-2020-13A

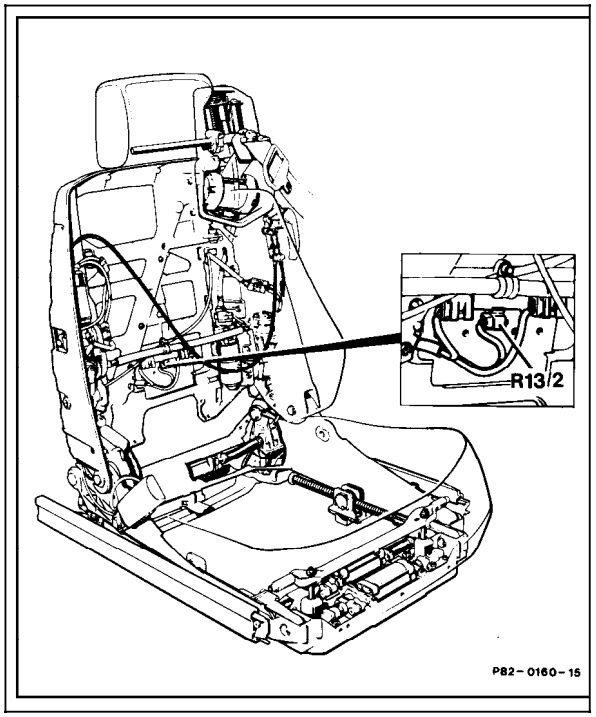
Figure 3

S51/1 Left front seat heater switch
S51/2 Right front seat heater switch

N25/5 Front HS control module

R13/1 Left front seat cushion heater element

Electrical Test Program - Component Locations



P82-0160-15

Figure 4

R13/2 Left front backrest heater element

Electrical Test Program - Preparation for Test

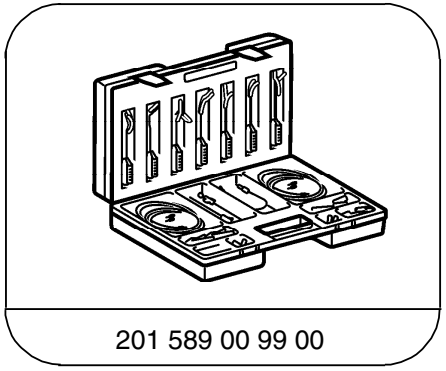
Preparations for testing

1. Battery voltage 11 – 14 V
2. Fuse F1 - 12 and F1 - D ok.

Electric wiring diagram reference

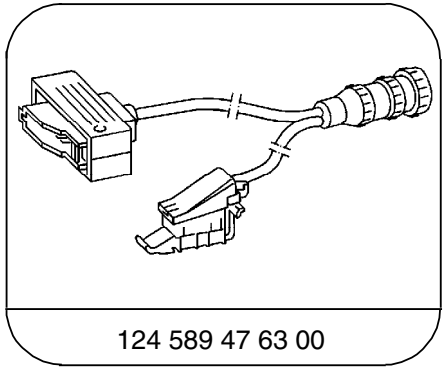
See Electrical Troubleshooting Manual, Model 129

Special Tools



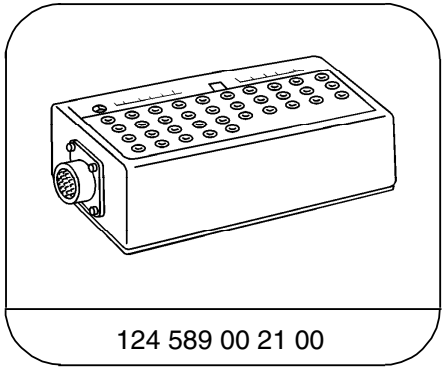
201 589 00 99 00

Electrical connecting set



124 589 47 63 00

21-pin test cable



124 589 00 21 00

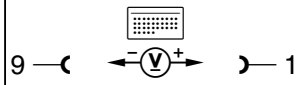
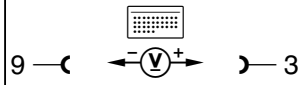
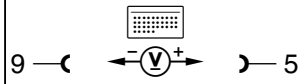
35-pin socket box

Equipment

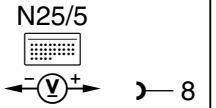
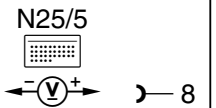
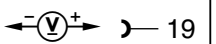
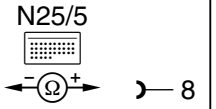
Multimeter [1]	Fluke models 23, 83, 85, 87

[1] Available through the MBUSA Standard Equipment Program.

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 1.0	**Front HS control module (N25/5)** Voltage supply Circuit 30	N25/5  9 — (V) — 1	Ignition: **OFF**	11 – 14 V	Wiring
	Circuit 15zx	N25/5  9 — (V) — 3	Ignition: **ON**	11 – 14 V	
⇒ 2.0	**Left front seat heater switch (S51/1)** Voltage supply	N25/5  9 — (V) — 5	Ignition: **ON** S51/1 Stage **I** held in depressed position	11 – 14 V 0 – 1 V	⇒ 2.1, Front HS control module (N25/5).
		9 — (V) — 13	S51/1 Stage **II** held in depressed position	0 – 1 V	
⇒ 2.1	Left front seat heater switch (S51/1) Resistance	N25/5  9 — (Ω) — 5	Ignition: **OFF** Disconnect test cable from N25/5. S51/1 Stage **I** held in depressed position	>20 kΩ 0 – 2 Ω	Wiring, Left front seat heater switch (S51/1).
		9 — (V) — 13	S51/1 Stage **II** held in depressed position	0 – 2 Ω	

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 3.0	**Left front seat cushion heater element (R13/1) and left backrest heater element (R13/2)** Voltage supply	   	Ignition: **ON** Left front seat heater switch (S51/1) in stage **II** Left front seat heater switch (S51/1) in stage **I**	0 – 1 V 9 – 14 V 9 – 14 V 5 – 7 V 9 – 14 V	⇒ 3.1, Front HS control module (N25/5).
⇒ 3.1	Resistance	 	Ignition: **OFF** Disconnect test cable from N25/5. R13/2 R13/1	 3.0 – 4.0 Ω 3.0 – 4.0 Ω	Wiring, Left front seat cushion heater element (R13/1), Left backrest heater element (R13/2).

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 4.0	**Right front seat cushion heater element (R13/3) and right backrest heater element (R13/4)** Voltage supply	N25/5 9 — V — 2 4 — V — 2 N25/5 9 — V — 2 9 — V — 4	Ignition: ON Right front seat heater switch (S51/2) in stage **II** Right front seat heater switch (S51/2) in stage **I**	0 – 1 V 9 – 14 V 9 – 14 V 5 – 7 V 9 – 14 V	⇒ 4.1, Front HS control module (N25/5).
⇒ 4.1	Resistance	N25/5 2 — Ω — 4 9 — Ω — 2	Ignition: **OFF** Disconnect test cable from N25/5. R13/4 R13/3	 3.0 – 4.0 Ω 3.0 – 4.0 Ω	Wiring, Right front seat cushion heater element (R13/3), Right backrest heater element (R13/4).

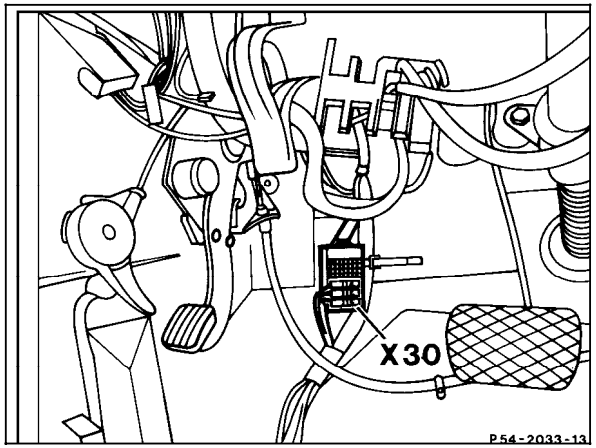
Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 5.0	**Left front seat heater switch (S51/1), indicator lamps** Voltage supply	N25/5  9 — V — 12	Ignition: **ON** S51/1 Stage **I** turned on S51/1 Stage **II** turned on	0 – 1 V 8 – 13 V 8 – 13 V	Wiring, Left front seat heater switch (S51/1), Front HS control module (N25/5).
		9 — V — 20	S51/1 Stage **I** turned on S51/1 Stage **II** turned on	0 – 1 V 8 – 13 V	
⇒ 6.0	**Left front seat heater switch (S51/1), illumination** Voltage supply	S51/1 6 — V — 5	Disconnect plug on S51/1 Turn on parking lamps	 11 – 14 V	Wiring.
⇒ 7.0	**Right front seat heater switch (S51/2)** Voltage supply	N25/5  9 — V — 17	Ignition: **ON** S51/2 Stage **I** hold depressed	9 – 14 V 0 – 1 V	⇒ 7.1, Front HS control module (N25/5).
		9 — V — 18	S51/2 Stage **II** hold depressed	0 – 1 V	

Electrical Test Program - Test

Test step **DTC**	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 7.1	Right front seat heater switch (S51/2) Resistance	N25/5 9 — Ω — 17	Ignition: **OFF** Disconnect test cable from N25/5. S51/2 Stage **I** hold depressed	>20 kΩ 0 – 2 Ω	Wiring, Right front seat heater switch (S51/2).
		9 — Ω — 18	S51/2 Stage **II** hold depressed	0 – 2 Ω	
⇒ 8.0	**Right front seat heater switch (S51/2), indicator lamps** Voltage supply	N25/5 9 — V — 11	Ignition: **ON** S51/2 Stage **I** turned on	0 – 1 V 8 – 13 V	Wiring, Right front seat heater switch (S51/2), Front HS control module (N25/5).
			S51/2 Stage **II** turned on	8 – 13 V	
		9 — V — 10	S51/2 Stage **I** turned on	0 – 1 V	
			S51/2 Stage **II** turned on	8 – 13 V	
⇒ 9.0	**Right front seat heater switch (S51/2), illumination** Voltage supply	S51/2 6 — V — 5	Disconnect plug on S51/2 Turn on parking lamps	 11 – 14 V	Wiring.

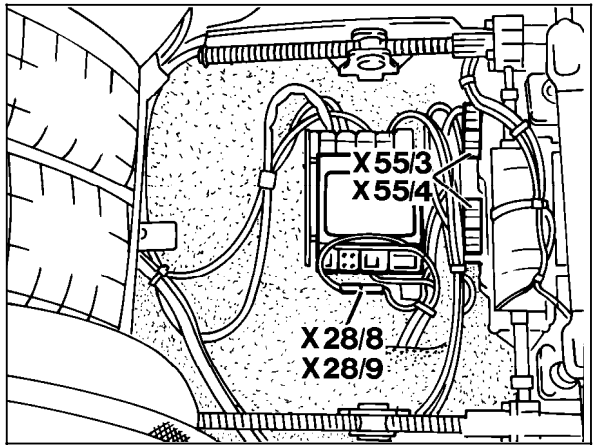
Electrical Test Program - Test



P54-2033-13

Figure 1

X30 Accessory equipment connector block (5-pole)



P54-2035-13A

Figure 2

X55/3 Left ESA connector block
X55/4 Right ESA connector block