

### 14.2a Models 140, 202 up to 08/95

#### Heated front seats

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### Diagnosis - Function Test

Test step/Test sequence	Test condition	Nominal value	Possible cause/Remedy <sup>1)</sup>
⇒ 1.0    Seat heating stage <b>I</b>	Ignition: <b>ON</b> Press front of left front seat heater switch (S51/1) or right front seat heater switch (S51/2), respectively.	Switch indicator lamp for stage <b>I</b> lights up. Seat cushion and back rest cushion warm up.	23⇒ 1.0, 3.0, 10.0  23⇒ 4.0, 5.0, 6.0, 11.0
⇒ 2.0    Seat heating stage <b>II</b>	Press rear of left front seat heater switch (S51/1) or right front seat heater switch (S51/2), respectively.	Switch indicator lamp for stage <b>II</b> lights up. Seat cushion and back rest cushion warm up noticeably more than in Stage <b>I</b> .	23⇒ 1.0, 3.0, 10.0  23⇒ 4.0, 5.0, 6.0, 11.0
⇒ 3.0    Dimming of indicator lamps in stages <b>I</b> or <b>II</b>	Ignition: <b>ON</b> Seat heaters switched on.  Parking lamps switched on.	Switch indicator lamp for stage <b>I</b> or <b>II</b> lights up brightly.  Indicator lamps become dimmer.	23⇒ 9.0, 14.0

<sup>1)</sup> Observe Preparation for Test, see 22.

Diagnosis - Function Test

Test step/Test sequence	Test condition	Nominal value	Possible cause/Remedy <sup>1)</sup>
<p>⇒ 4.0 <b>Model 140 only</b>                      Seat heating switches off with ignition: <b>OFF</b>                      When engine is restarted, or ignition is switched on, the seat heater is switched <b>ON</b> again automatically.</p>	<p>Ignition: <b>ON</b>                      Left front seat heater switch (S51/1) or right front seat heater switch (S51/2), respectively in stage <b>I</b> or <b>II</b>.</p> <p>Ignition: <b>OFF</b></p> <p>Ignition: <b>ON</b></p>	<p>Seat heating: <b>ON</b></p> <p>Seat heating: <b>OFF</b></p> <p>Seat heating automatically: <b>ON</b></p>	<p>23⇒ 1.0</p>
<p>⇒ 5.0 <b>Model 140 only with 8 or 12 cylinder engines</b>                      Increased idle speed at idle with seat heating in stage <b>II</b>.</p>	<p>Engine runs, seat heating switched on.</p> <p>Stage <b>I</b></p> <p>Stage <b>II</b></p>	<p>-</p> <p>Idle speed increase approx. 100 rpm.</p>	<p>23⇒ 15.0</p>

<sup>1)</sup> Observe Preparation for Test, see 22.

### Diagnosis - Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy <sup>1)</sup>
Entire front seat heater does not operate.	Front seat heater control module (N25/5), Voltage supply	23 ⇒ 1.0
Left front seat cushion and seatback heating does not operate.	Front seat heater control module (N25/5), Voltage supply. Left front seat heater switch (S51/1). <b>Model 140:</b> Left front seat cushion heater element (R13/1) and left front backrest heater element (R13/2). <b>Model 202:</b> Left front seat cushion heater element (R13/1) and left front backrest heater element (R13/2).	23 ⇒ 1.0 23 ⇒ 3.0  23 ⇒ 4.0  23 ⇒ 6.0
Right front seat cushion and seatback heating does not operate.	Front seat heater control module (N25/5), Voltage supply. Right front seat heater switch (S51/2). <b>Model 140:</b> Right front seat cushion heater element (R13/3) and right front backrest heater element (R13/4). <b>Model 202:</b> Right front seat cushion heater element (R13/3) and right front backrest heater element (R13/4).	23 ⇒ 1.0 23 ⇒ 10.0  23 ⇒ 5.0  23 ⇒ 11.0
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 ⇒ 8.0 23 ⇒ 13.0
Dimming of indicator lamps in left front seat heater switch (S51/1) or right front seat heater switch (S51/2) not operating.	S51/1 dimming. S51/2 dimming.	23 ⇒ 2.0, 9.0 23 ⇒ 2.0, 14.0
Lighting of indicator lamps in left front seat heater switch (S51/1) or right front seat heater switch (S51/2) not operating.	S51/1 lighting. S51/2 lighting.	23 ⇒ 7.0 23 ⇒ 12.0

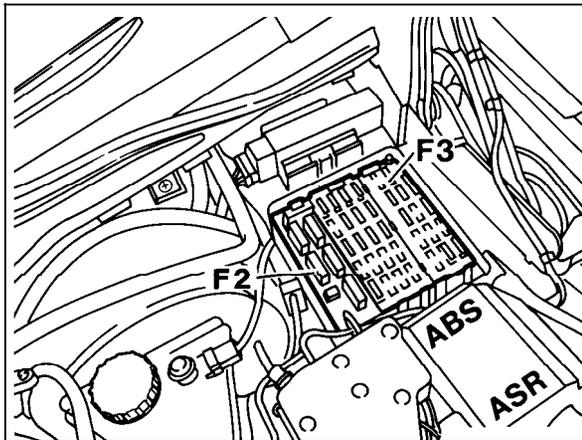
<sup>1)</sup> Observe Preparation for Test, see 22.

Diagnosis - Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy <sup>1)</sup>
<p><b>Model 140 only:</b>                      Seat heaters switch off with ignition: <b>OFF</b>                      Seat heaters do not switch on again when switching ignition back <b>ON</b>.</p>	<p>Front seat heater control module (N25/5), Voltage supply</p>	<p>23 ⇒ 1.0</p>
<p><b>Model 140 only with 8 and 12 cylinder engine:</b>                      Engine idle speed does not increase with seat heaters in stage <b>II</b>.</p>	<p>Left front seat heater switch (S51/1).                      Right front seat heater switch (S51/2).</p>	<p>23 ⇒ 3.0                      23 ⇒ 10.0                      23 ⇒ 15.0</p>

<sup>1)</sup> Observe Preparation for Test, see 22.

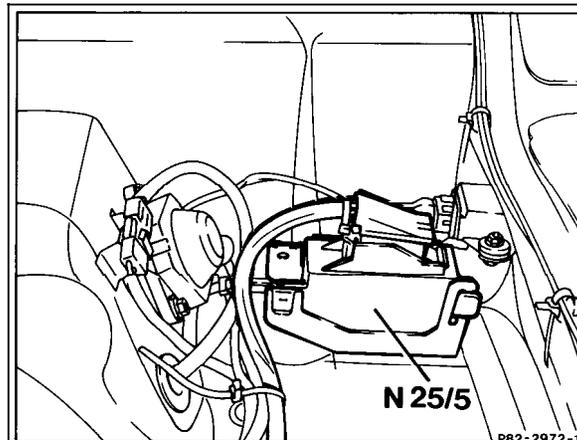
Electrical Test Program - Component Locations



P54-2806-13

Figure 1  
Model 140

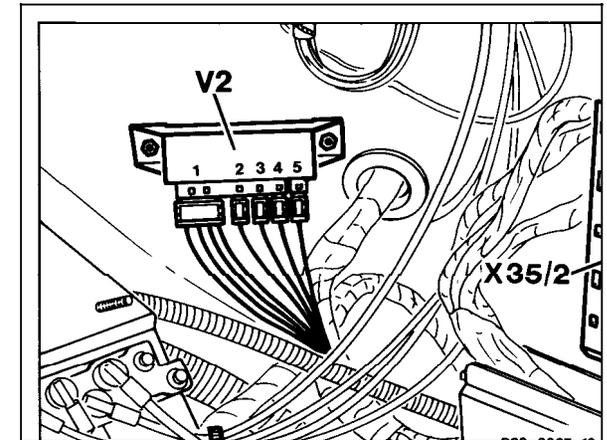
F3 Fuse box (35-fuse, in fuse and relay box F1)



P82-2972-13

Figure 2  
Model 140

N25/5 Front seat heater control module  
(under right rear seat)



P82-3067-13

Figure 3  
Model 140

V2 Engine rpm increase diode matrix (front  
passenger footwell)

Electrical Test Program - Component Locations

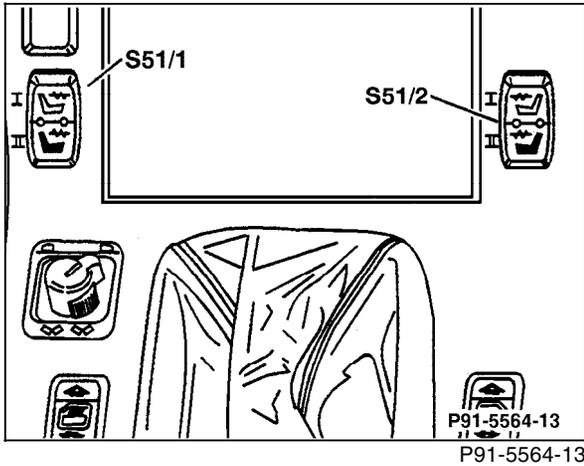


Figure 4  
Model 140  
S51/1 Left front seat heater switch  
S51/2 Right front seat heater switch

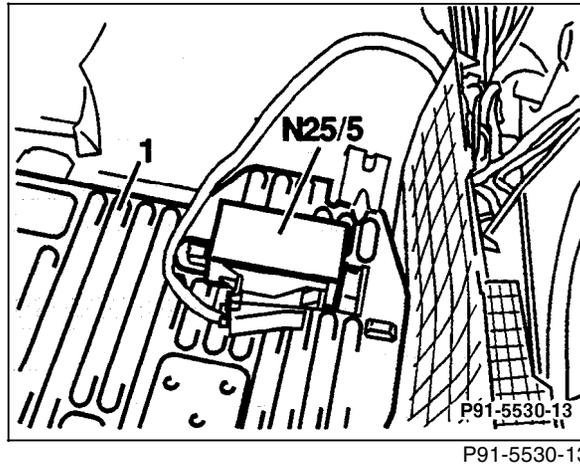


Figure 5  
Model 202  
N25/5 Front seat heater control module  
1 Front passenger side floor plate

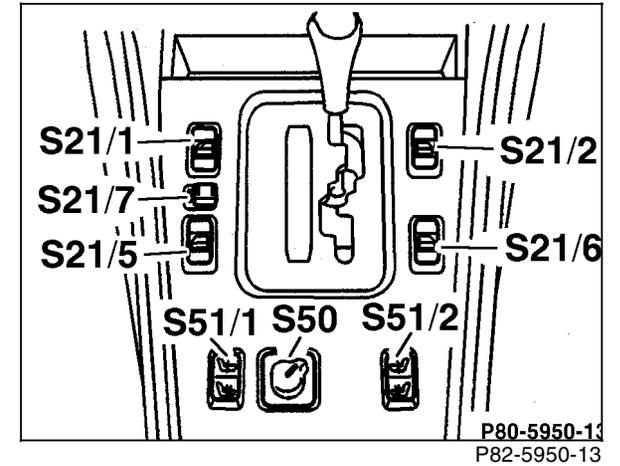
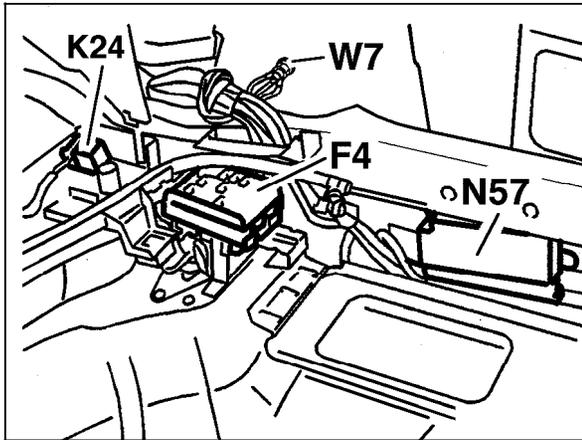


Figure 6  
Model 202  
S51/1 Left front seat heater switch  
S51/2 Right front seat heater switch

Electrical Test Program - Component Locations



P82-5949-13

Figure 7  
Model 202  
F4 Rear fuse box (19-fuse, in trunk)

### Electrical Test Program - Preparation for Test

1. Battery voltage 11–14 V.
2. Model 140: Fuses F3-29 and F3-34 O.K.  
Model 202: Fuses F3-20 and F4-12 O.K.

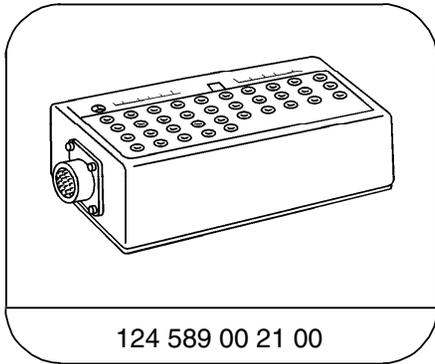
**Note:**

Test cable 124 589 47 63 00 must be modified for models 140 and 202 by filing a notch 8 mm long x 2 mm wide in the locking tab of the test harness connector to clear the divider in the slot on the vehicle control module.

**Wiring Diagrams**

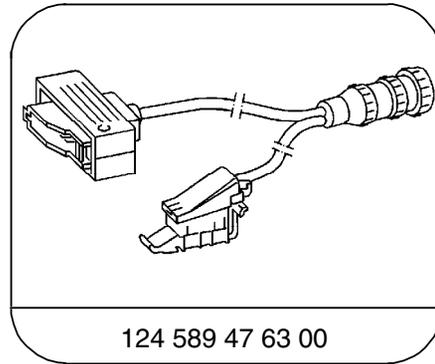
Electrical Troubleshooting Manual, Model 202.

**Special Tools**



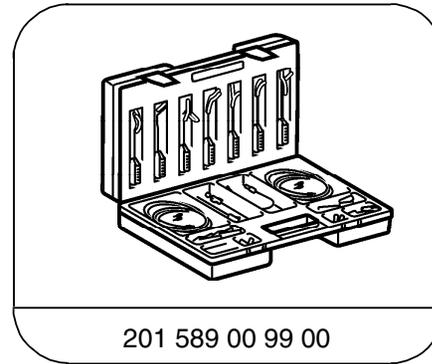
124 589 00 21 00

35-pin socket box



124 589 47 63 00

21-pin test cable



201 589 00 99 00

Electrical connecting set

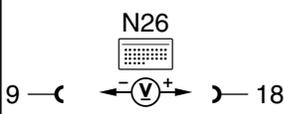
**Equipment**

Multimeter <sup>1)</sup>

Fluke models 23, 83, 85, 87

<sup>1)</sup> Available through the MBUSA Standard Equipment Program.

Electrical Test Program - Test

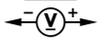
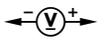
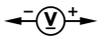
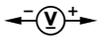
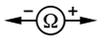
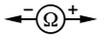
Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 1.0	<b>Front seat heater control module (N25/5)</b> Voltage supply Circuit 30  Circuit 15R  <b>Model 140 only:</b> Circuit 15C	  	Ignition: <b>OFF</b>  Ignition switch in position "1" Ignition switch in position "0" Ignition key inserted Ignition key removed	11 – 14 V  11 – 14 V  11 – 14 V 0 – 1 V	Wiring, <b>Model 140 only:</b> Combination relay module (N10/2).
⇒ 2.0	<b>Front seat heater control module (N25/5)</b> Voltage supply Circuit 58d		Parking lamps switched off Parking lamps switched on	0 – 1 V 11 – 14 V	Wiring.

Electrical Test Program - Test

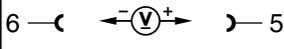
Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 3.0	<b>Left front seat heater switch (S51/1)</b> Voltage supply	 <p>N25/5 9 — ◀ — (V) — ▶ — 13</p>	Ignition: <b>ON</b>  S51/1 Stage <b>II</b> held in depressed position  S51/1 Stage <b>I</b> held in depressed position	6-8 V  0 – 1 V  2 – 4 V	⇒ 3.1 N25/5.
⇒ 3.1	S51/1 Resistance	 <p>N25/5 9 — ◀ — (Ω) — ▶ — 13</p>	Ignition: <b>OFF</b> Disconnect test cable from N25/5.  S51/1 Stage <b>II</b> held in depressed position  S51/1 Stage <b>I</b> held in depressed position	>20 kΩ  0 – 2 Ω  approx. 165 Ω	Wiring, S51/1.



Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 5.0 Model 140 only	Right front seat cushion heater element (R13/3) Right front backrest heater element (R13/4) Voltage supply	<p>N25/5</p>  <p>9 —( )— V —( )— 2</p>  <p>4 —( )— V —( )— 2</p> <p>N25/5</p>  <p>9 —( )— V —( )— 2</p>  <p>9 —( )— V —( )— 4</p>	Ignition: <b>ON</b> Right front seat heater switch (S51/2) Stage <b>II</b> switched on  S51/2 Stage <b>I</b> switched on	0 – 1 V  9 – 14 V  9 – 14 V  9 – 14 V  9 – 14 V	⇒ 5.1 N25/5.
⇒ 5.1	Resistance	<p>N25/5</p>  <p>2 —( )— Ω —( )— 4</p>  <p>9 —( )— Ω —( )— 4</p>	Ignition: <b>OFF</b> Disconnect test cable from N25/5  Leather upholstery  Leather upholstery	2.0 – 3.0 Ω  2.0 – 3.0 Ω	Wiring, R13/3, R13/4.

Electrical Test Program - Test

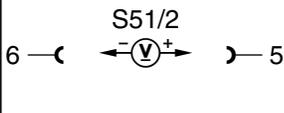
Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 6.0 Model 202 only	Left front seat cushion heater element (R13/1) Left front backrest heater element (R13/2) Voltage supply	N25/5 	Ignition: <b>ON</b> Left front seat heater switch (S51/1) Stage <b>II</b> switched on  S51/1 Stage <b>I</b> switched on	0 – 1 V  9 – 14 V  Intermittent display on Multimeter	⇒ 6.1 N25/5.
⇒ 6.1	R13/1, R13/2 Resistance	N25/5 	Ignition: <b>OFF</b> Disconnect test cable from N25/5	1.6 – 2.3 Ω	Wiring, R13/1, R13/2.
⇒ 7.0	Left front seat heater switch (S51/1), lighting Voltage supply	S51/1 	S51/1 connector pulled off.  Parking lamps switched on.	11 – 14 V	Wiring.



Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 10.0	<b>Left front seat heater switch (S51/2)</b> Voltage supply		Ignition: <b>ON</b>  S51/2 Stage <b>II</b> held in depressed position  S51/2 Stage <b>I</b> held in depressed position	6 – 8 V  0 – 1 V  2 – 4 V	⇒ 10.1 N25/5.
⇒ 10.1	S51/2 Resistance		Ignition: <b>OFF</b> Disconnect test cable from N25/5  S51/2 Stage <b>II</b> held in depressed position  S51/2 Stage <b>I</b> held in depressed position	>20 kΩ  0 – 2 Ω  approx. 165 Ω	Wiring, S51/2.

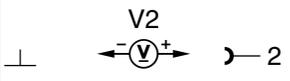
Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 11.0 Model 202 only	Right front seat cushion heater element (R13/3) Right front backrest heater element (R13/4) Voltage supply	 <p>N25/5 9 —( - ) —( + )— 2</p>	Ignition: <b>ON</b> Left front seat heater switch (S51/2) Stage <b>II</b> switched on  S51/2 Stage <b>I</b> switched on	0 – 1 V  9 – 14 V  Intermittent display on Multimeter	⇒ 11.1 N25/5.
⇒ 11.1	R13/3, R13/4 Resistance	 <p>N25/5 9 —( - ) —( + )— 2</p>	Ignition: <b>OFF</b> Disconnect test cable from N25/5	1.6 – 2.3 Ω	Wiring, R13/3, R13/4.
⇒ 12.0	Right front seat heater switch (S51/2), lighting Voltage supply	 <p>S51/2 6 —( - ) —( + )— 5</p>	S51/2 connector pulled off  Parking lamps switched on	11 – 14 V	Wiring.

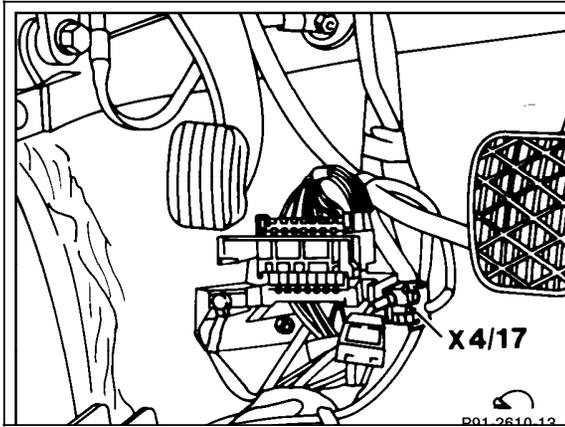
Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 13.0	<b>Right front seat heater switch (S51/2), indicator lamps</b> Voltage supply	 	Ignition: <b>ON</b> S51/1 Stage <b>I</b> switched on S51/1 Stage <b>II</b> switched on S51/1 Stage <b>I</b> switched on S51/1 Stage <b>II</b> switched on	0 – 1 V 8 – 13 V 8 – 13 V 0 – 1 V 8 – 13 V	Wiring, S51/2, N25/5.
⇒ 14.0	<b>Right front seat heater switch (S51/2), dimming</b> Voltage supply	 	Ignition: <b>ON</b> S51/2 Stage <b>I</b> switched on Parking lamps switched on Parking lamps switched off S51/2 Stage <b>II</b> switched on Parking lamps switched on	0 – 1 V 8 – 13 V 2.0 – 2.8 V 8 – 13 V 2.0 – 2.8 V	Wiring, S51/2, N25/5.

Electrical Test Program - Test

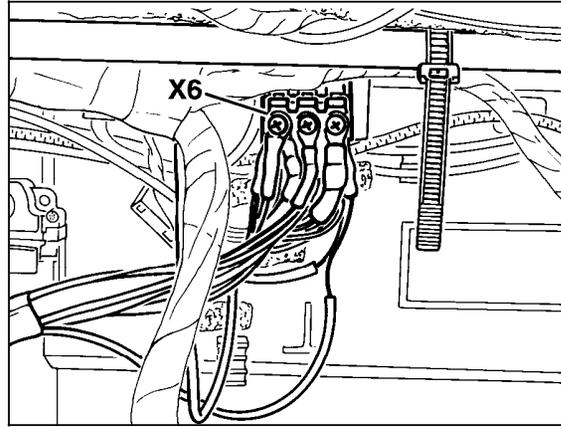
Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 15.0 Only model 140 with 8 or 12 cylinder engine	Idle rpm increase with seat heater operating in stage II	 <p>The diagram shows a voltmeter symbol labeled 'V2' with a '-' sign on the left and a '+' sign on the right. A vertical line with a horizontal crossbar at the bottom represents ground. A horizontal line with an arrow pointing right and the number '2' next to it represents terminal 2. The voltmeter is connected between the ground and terminal 2.</p>	Pull off connector (2) from engine rpm increase diode matrix (V2)0. Seat heater stage II switched on.	11 – 14 V	Wiring, N25/5, ⇒ 3.0 or 10.0 respectively.  Values O.K.: Diagnostic Manual Engines Vol. 3 6.2 or 6.3 Electronic Accelerator, Engine rpm increase diode matrix test

Electrical Test Program - Test



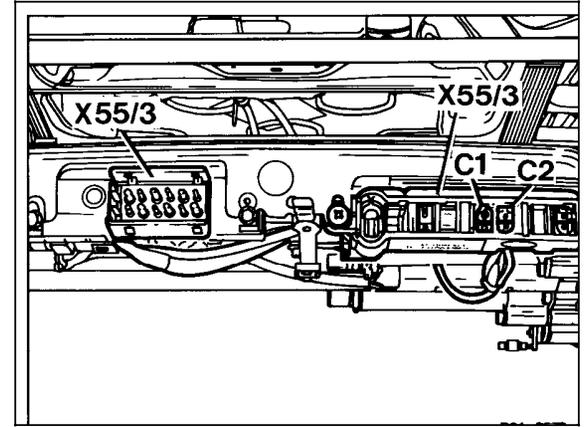
P91-2610-13

Figure 1  
Model 140  
X4/17 Terminal block (terminal 15C)



P82-3066-13

Figure 2  
Model 140  
X6 Terminal block (terminal 58d) (2-pole)



P91-2578-13

Figure 3  
Model 140  
X55/3 Left seat contact strip

Electrical Test Program - Test

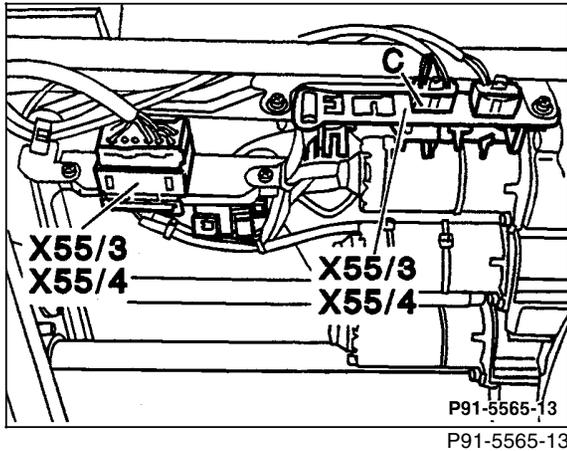


Figure 4  
Model 202  
C Interior/tail lamp harness connector  
X55/3 Left seat contact strip  
X55/4 Right seat contact strip

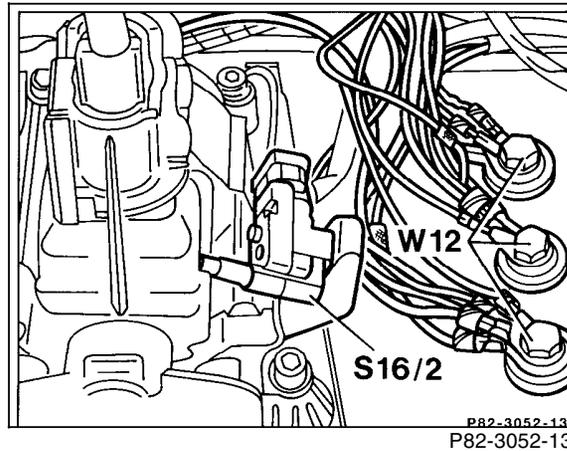


Figure 5  
Model 140  
W12 Ground (center console)  
S16/2

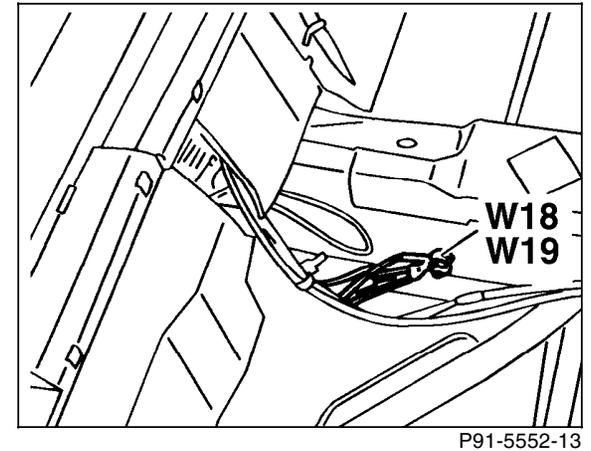


Figure 6  
Model 202  
W18 Ground (left front seat crossmember)  
W19 Ground (right front seat crossmember)