

Electrical Test Program – Test

Test step DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 1.0	<b>Electric mirror/steering column adjustment control module (N32/9)</b> Voltage supply	N32/9 15 —( —( ←(⊖)→ )— 16 (2) (2)	Disconnect connector (2) from control module (N32/9)	11–14 V	Wiring
⇒ 2.0	<b>Outside rearview mirror control switch (S50/2)</b> Resistance	see Table I ( 23)	Disconnect connector (1) from control module (N32/9)	see Table I	Wiring Outside rearview mirror control switch (S50/2)
⇒ 3.0	<b>Adjustable steering column switch (S59)</b> Resistance	N32/9 15 —( —( ←(⊖)→ )— 17 (2) (2)  N32/9 15 —( —( ←(⊖)→ )— 11 (2) (2)  N32/9 15 —( —( ←(⊖)→ )— 4 (2) (2)  N32/9 15 —( —( ←(⊖)→ )— 10 (2) (2)	Disconnect connector (2) from control module (N32/9) Move mirror control switch (S59) forward  Move switch (S59) back  Move switch (S59) up  Move switch (S59) down	< 1 Ω  < 1 Ω  < 1 Ω  < 1 Ω	Wiring Adjustable steering column switch (S59)

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⇒ 4.0	<b>Electrically adjustable and heated passenger side outside rearview mirror (M21/2)</b> Voltage supply		Disconnect connector (1) from control module (M21/1) Mirror control switch (S50/2) in left position Move switch (S50/2): forward back	11–14 V -11 to -14 V	Wiring Electric mirror/steering column adjustment control module (N32/9)
			Move switch (S50/2): left right	11–14 V -11 to -14 V	
⇒ 5.0	<b>Electrically adjustable and heated driver's side outside rearview mirror (M21/2)</b> Voltage supply		Disconnect connector (1) from control module (M21/2) Mirror control switch (S50/2) in right position Move switch (S50/2): forward back	11–14 V -11 to -14 V	Wiring Electric mirror/steering column adjustment control module (N32/9)
			Move switch (S50/2): right left	11–14 V -11 to -14 V	

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⇒ 6.0	<b>Electrically adjustable inside rearview mirror (M21/3)</b> Voltage supply	<p>M21/3 5 —( ←(V)→ )— 6</p> <p>M21/3 7 —( ←(V)→ )— 5</p>	<p>Remove inside mirror (M21/3) and disconnect connector</p> <p>Mirror control switch (S50/2) in center position</p> <p>Move switch (S50/2): forward back</p> <p>Move switch (S50/2): left right</p>	<p>11–14 V -11 to -14 V</p> <p>11–14 V -11 to -14 V</p>	<p>Wiring</p> <p>Electric mirror/steering column adjustment control module (N32/9)</p>
⇒ 7.0	<b>Electrically adjustable outside rearview mirrors (M21/1, M21/2), retraction feature</b> Voltage supply	<p>M21/1, M21/2 7 —( ←(V)→ )— 6</p>	<p>Disconnect connector (X54/7)</p> <p>Move switch (S50/2): forward back</p>	<p>11–14 V -11 to -14 V</p>	<p>Wiring</p> <p>Electric mirror/steering column adjustment control module (N32/9)</p>

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Test step DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 8.0	<b>Adjustable steering column motor (M20)</b> Voltage supply	<p>X54/7 2 —( ←(V)→ )— 1</p> <p>X54/7 7 —( ←(V)→ )— 8</p>	<p>Disconnect connector (X54/7)</p> <p>Move steering column switch (S59): right left</p> <p>Move switch (S50): forward back</p>	<p>11–14 V -11 to -14 V</p> <p>11–14 V -11 to -14 V</p>	<p>Wiring</p> <p>Electric mirror/steering column adjustment control module (N32/9)</p>
⇒ 9.0	<b>Adjustable steering column motor (M20)</b> Voltage supply	<p>X54/7 1 v ←(Ω)→ — 2</p> <p>X54/7 7 v ←(Ω)→ — 8</p>	<p>Disconnect connector (X54/7)</p>	<p>0.1–15 Ω</p> <p>0.1–15 Ω</p>	<p>Wiring</p> <p>Adjustable steering column motor (M20)</p>

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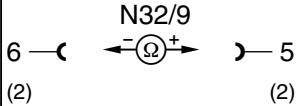
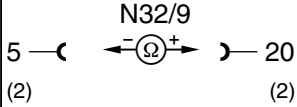
Test step DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 10.0	<b>Serial Data Exchange <sup>1)</sup> from Left front power seat control module (N32/1) to Electric mirror/steering column adjustment control module (N32/9)</b>		Disconnect connector (1) from control module (N32/9)  Press one of the memory position buttons on left front power seat switch group (S91)	0–1 V  4–7 V	Wiring Left front power seat control module (N32/1)
⇒ 11.0	<b>Electrically adjustable and heated driver's side outside rearview mirror (M21/1)</b> Potentiometer resistance	  	Disconnect connector (1) from control module (N32/9)  Manually move mirror glass in all directions	approx. 1000 Ω  value changes from 300–1200 Ω	Wiring Electrically adjustable and heated driver's side outside rearview mirror (M21/1)

1) Serial Data Exchange=data cable over which digital data is transmitted in sequence.

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Test step DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 12.0	<b>Electrically adjustable and heated passenger side outside rearview mirror (M21/2)</b> Potentiometer resistance	N32/9 14 —( ←  → )— 19 (1) (1)	Disconnect connector (1) from control module (N32/9)	approx. 1000 Ω	Wiring Electrically adjustable and heated passenger side outside rearview mirror (M21/2)
		N32/9 9 —( ←  → )— 16 (1) (1)	Manually move mirror glass in all directions	value changes from 300–1200 Ω	
⇒ 13.0	<b>Electrically adjustable inside rearview mirror (M21/3)</b> Potentiometer resistance	N32/9 6 —( ←  → )— 7 (2) (2)	Disconnect connector (2) from control module (N32/9)	approx. 1200 Ω	Wiring Electrically adjustable inside rearview mirror (M21/3)
		N32/9 18 —( ←  → )— 19 (2) (2)	Manually move mirror glass in all directions	value changes from 400–1300 Ω	
⇒ 14.0	<b>Adjustable steering column motor (M20)</b> Potentiometer resistance	N32/9 6 —( ←  → )— 13 (2) (2)	Disconnect connector (2) from control module (N32/9)	1100±220 Ω	Wiring Adjustable steering column motor (M20) ⇒ 14.1

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Test step DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 14.1	Potentiometer resistance	 <p>N32/9 6 — Ω — 5 (2) (2)</p>	<p>Connect connector (2) to control module (N32/9) Adjust steering column through complete range: up/back/down/forward</p> <p>Disconnect connector (2) from control module (N32/9)</p> <p>Connect connector (2) to control module (N32/9) Adjust steering column to full rear stop</p> <p>Disconnect connector (2) from control module (N32/9)</p>	<p>record value</p> <p>600±300 Ω difference from recorded value</p>	<p>Wiring Adjustable steering column motor (M20) ⇒ 14.2</p>
		 <p>N32/9 5 — Ω — 20 (2) (2)</p>			

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⇒ 14.2	Potentiometer resistance	<p style="text-align: center;">N32/9</p> <p>6 —( ← ⊖ Ω ⊕ → )— 20 (2) (2)</p>	<p>Disconnect connector (2) from control module (N32/9)</p> <p>Connect connector (2) to control module (N32/9) Adjust steering column to full up stop</p>	<p>record value</p> <p>600±300 Ω difference from recorded value</p>	<p>Wiring</p> <p>Adjustable steering column motor (M20)</p>
⇒ 15.0	<p><b>Outside rearview mirror switch (S50/2)</b></p> <p>Voltage supply</p>	<p style="text-align: center;">S50/2</p> <p>3 —( ← ⊖ V ⊕ → )— 2</p>	<p>Disconnect connector from switch (S50/2)</p> <p>Parking lamps ON</p>	11–14 V	<p>Wiring</p> <p>Outside rearview mirror switch (S50/2)</p>



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Test step DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 16.0	<b>Adjustable steering column switch (S59)</b> Voltage supply	7 —( ←(V)→ )— 5 S59	Disconnect switch (S59) Parking lamps ON	11–14 V	Voltage supply, circuit 58d Adjustable steering column switch (S59)
⇒ 17.0	<b>Automatic dimming inside rearview mirror (H7)</b> Voltage supply	2 —( ←(V)→ )— 5 H7	Disconnect connector from mirror (H7) Ignition: <b>ON</b>	11–14 V	Wiring
⇒ 18.0	<b>Backup lamp switch (S16/2)</b> Voltage supply	2 —( ←(V)→ )— 1 H7	Disconnect connector from mirror (H7) Ignition: <b>ON</b>  Transmission range “R” engaged	0–1 V  11–14 V	Wiring Backup lamp switch (S16/2) Exterior lamp failure monitoring module (N7)
⇒ 19.0	<b>Dome lamp (E15)</b> Voltage supply	3 —( ←(V)→ )— 5 H7	Disconnect connector from mirror (H7) Ignition: <b>ON</b>  Dome lamp: ON	0–5 V  11–14 V	Wiring Dome lamp (E15)

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Switch (S50/2) setting	Move switch	1) $\perp$ $\leftarrow \ominus^+ \rightarrow$ $\curvearrowright$ 10	$\perp$ $\leftarrow \ominus^+ \rightarrow$ $\curvearrowright$ 11	$\perp$ $\leftarrow \ominus^+ \rightarrow$ $\curvearrowright$ 17	$\perp$ $\leftarrow \ominus^+ \rightarrow$ $\curvearrowright$ 18
<b>Center</b> (inside mirror)	to the: left right forward back	< 1 $\Omega$ < 1 $\Omega$ < 1 $\Omega$ < 1 $\Omega$	> 20 k $\Omega$ > 20 k $\Omega$ > 20 k $\Omega$ > 20 k $\Omega$	> 20 k $\Omega$ < 1 $\Omega$ < 1 $\Omega$ > 20 k $\Omega$	> 20 k $\Omega$ > 20 k $\Omega$ < 1 $\Omega$ < 1 $\Omega$
<b>Left</b> (Driver side mirror)	to the: left right forward back	< 1 $\Omega$ < 1 $\Omega$ < 1 $\Omega$ < 1 $\Omega$	< 1 $\Omega$ < 1 $\Omega$ < 1 $\Omega$ < 1 $\Omega$	> 20 k $\Omega$ < 1 $\Omega$ < 1 $\Omega$ > 20 k $\Omega$	> 20 k $\Omega$ > 20 k $\Omega$ < 1 $\Omega$ < 1 $\Omega$
<b>Right</b> (Passenger side)	to the: left right forward back	> 20 k $\Omega$ > 20 k $\Omega$ > 20 k $\Omega$ > 20 k $\Omega$	< 1 $\Omega$ < 1 $\Omega$ < 1 $\Omega$ < 1 $\Omega$	> 20 k $\Omega$ < 1 $\Omega$ < 1 $\Omega$ > 20 k $\Omega$	> 20 k $\Omega$ > 20 k $\Omega$ < 1 $\Omega$ < 1 $\Omega$
<b>Retract</b> (mirrors fold-in)	to the: forward back	> 20 k $\Omega$ > 20 k $\Omega$	< 20 k $\Omega$ < 20 k $\Omega$	< 1 $\Omega$ > 20 k $\Omega$	< 1 $\Omega$ < 1 $\Omega$

1) Disconnect connector (1) from Control module (N32/9)

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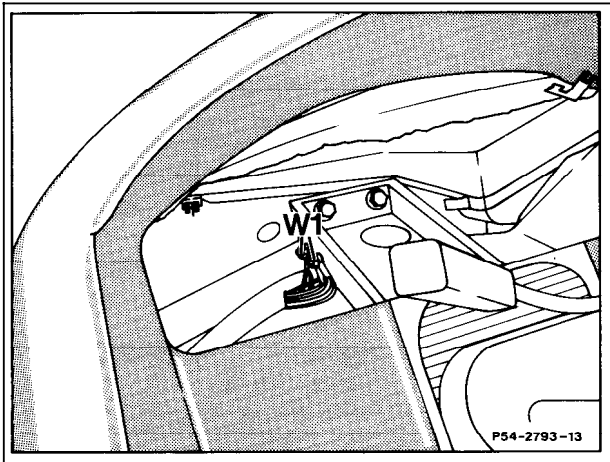


Figure 1  
W1 Main ground (behind instrument cluster)

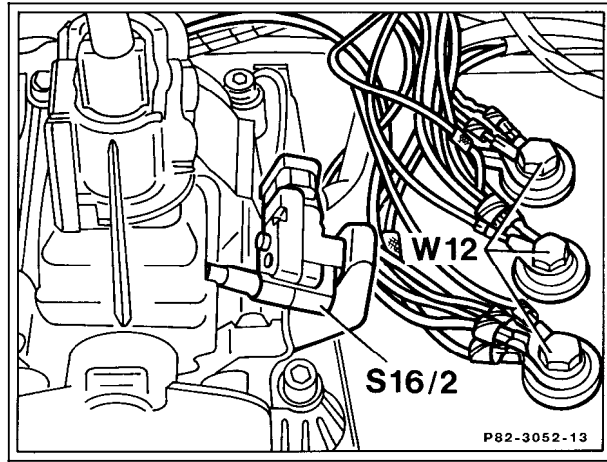


Figure 2  
W12 Ground (center console)

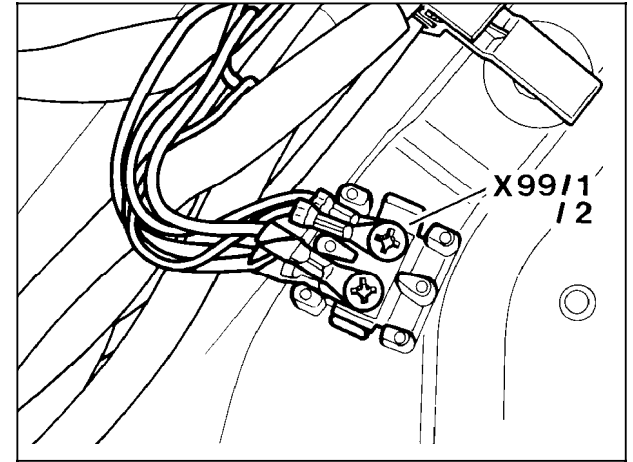


Figure 3  
X99/1 Engine/chassis harness connector

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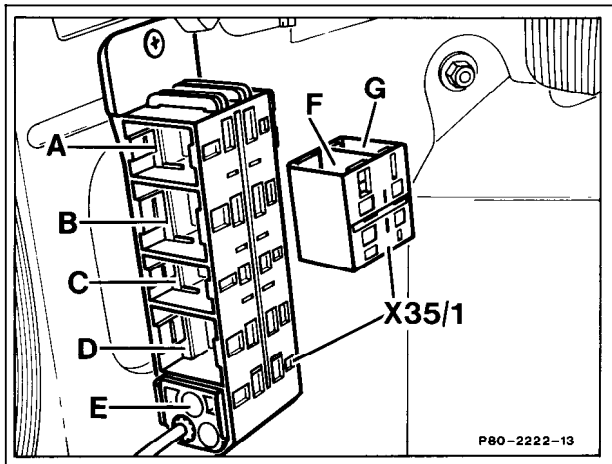


Figure 4  
X35/1 Left front door plug connection  
P80-2222-13

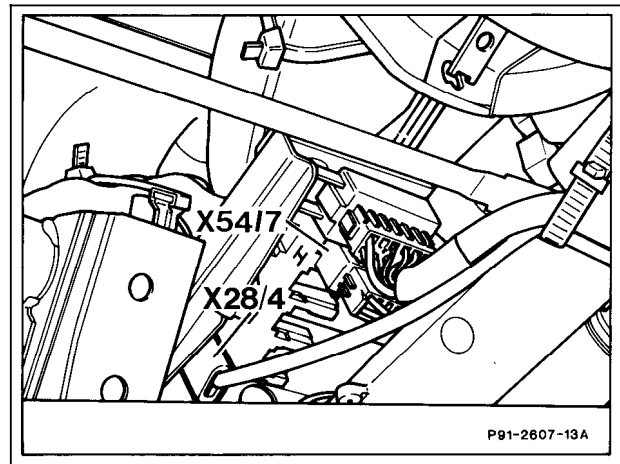


Figure 5  
X54/7 Adjustable steering column control module/motor  
connector  
X28/4  
P91-2607-13A