

5.4 Model 140 (with Bose® Sound System), up to M.Y. 1993

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Diagnosis – Function Test

Function Test Explanation

For the Function Test, adjust the radio as follows:

- Tune-in a strong radio station (music) or play a cassette or CD.
- Set fader, bass, treble and balance to mid-range setting.
- Listen to each individual loudspeaker at the various locations.

Diagnosis – Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾
Complete sound system does not function	Left/right audio power amplifier (N40/3)	23 ⇒ 1.0
Left or right front door speaker group (H4/1 or H4/2) does not function	H4/1 or H4/2 Tuner/amplifier (A2/3) Left/right audio power amplifier (N40/3)	23 ⇒ 2.0
Bass speakers do not function	H4/7 or H4/8	23 ⇒ 3.0
Bass and rear door speakers do not function	Left/right audio power amplifier (N40/3)	23 ⇒ 4.0
Center fill tweeter speaker (H4/11), in mirror base, not functioning	H4/11	23 ⇒ 5.0
Individual speaker does not function	Speaker Left/right audio power amplifier (N40/3)	23 ⇒ 6.0
Fader switch (R26) does not function	R26 Left/right audio power amplifier (N40/3)	23 ⇒ 7.0
Front – rear stereo effect is offset to one side, even with balance/fader adjustments set to mid-range		23 ⇒ 8.0

¹⁾ Observe Preparation for Test, see 22.

Electrical Test Program – Component Locations

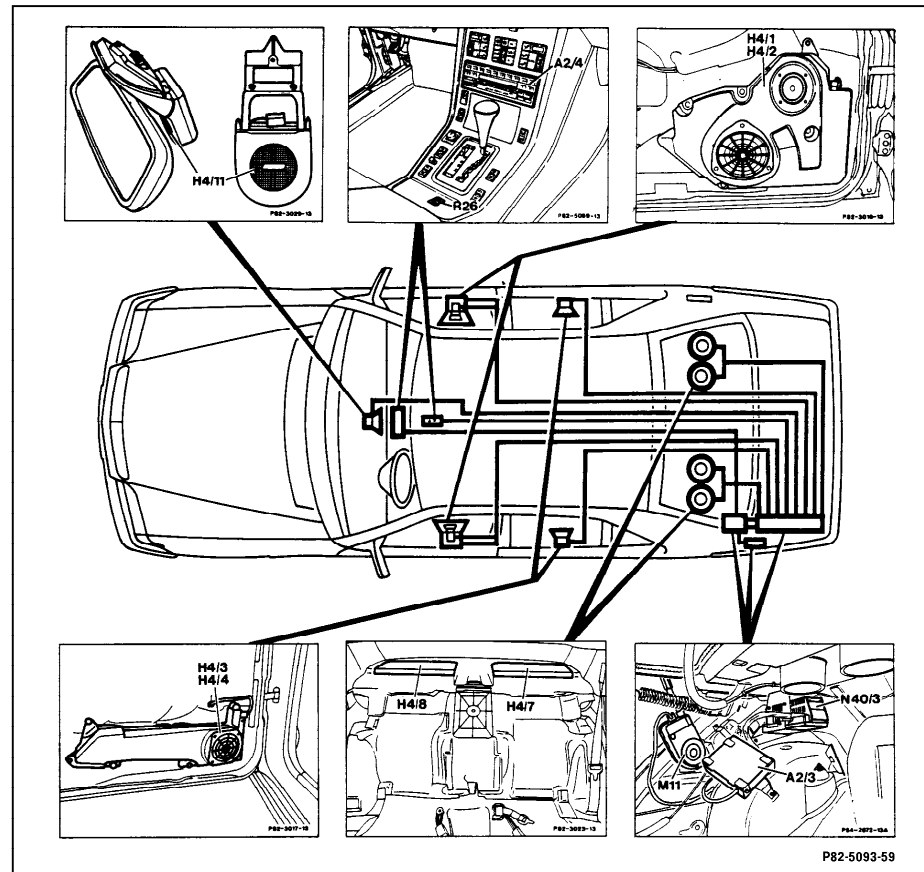


Figure 1

- A2/3 Tuner/amplifier
- A2/4 Radio control module
- H4/1 Left front door speaker group
- H4/2 Right front door speaker group (not shown)
- H4/3 Left rear door speaker
- H4/4 Right rear door speaker
- H4/7 Left rear speaker
- H4/8 Right rear speaker
- H4/11 Center fill tweeter speaker
- M11 Automatic antenna
- N40/3 Left/right audio power amplifier
- R26 Fader switch

P82-5093-59

Electrical Test Program – Preparation for Test

1. Battery voltage 11–14 V.
2. Check fuses.
3. Radio OK.
4. Connections to N40/3 OK.
5. Balance, fader, bass and treble adjusted to mid-range setting.
6. Vent ports on door speaker enclosures are free of obstructions (vent ports located on underside of interior door panels).

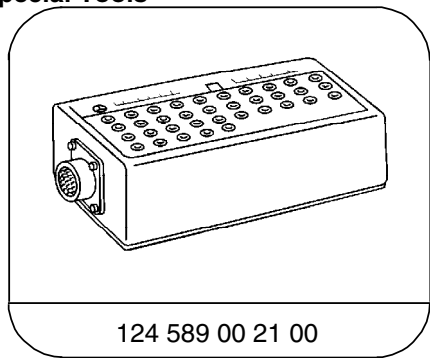
Electrical wiring diagrams :

Electrical Troubleshooting Manual, Model 140

Note:

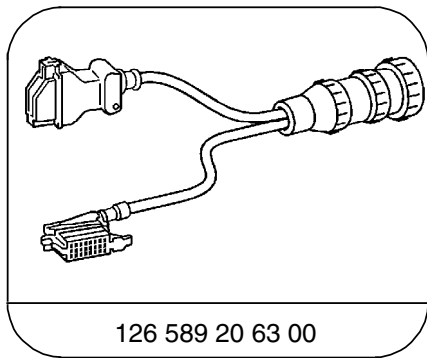
To prevent damage to the radio and left/right audio power amplifier, the connectors must only be removed or installed with the ignition and radio **OFF**.

Special Tools



124 589 00 21 00

35-pin socket box



126 589 20 63 00

27-pin test cable

Conventional tools, test equipment











Description	Brand, model, etc.
Digital multimeter ¹⁾	Fluke models 23, 83, 85, 87

¹⁾ Available through the MBUSA Standard Equipment Program.

5.4 Loudspeaker Systems (LS)

Model 140, up to M.Y. 1993












Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0	Left/right audio power amplifier (N40/3) Voltage supply	<p style="text-align: center;">N40/3</p> <p>2 —  ←  + → 1</p> <p>11 —  ←  + → 10</p>	Radio (A2): OFF Disconnect N40/3.	11 – 14 V	Fuse F4-16, Ground (W6), Wiring, ⇒ 1.1, If nominal value is OK: Replace N40/3.
1.1	Control voltage from tuner/amplifier (A2/3)	<p style="text-align: center;">N40/3</p> <p>11 —  ←  + → 19</p>	Disconnect N40/3. Radio: ON	11 – 14 V	Wiring, A2/3 (see 3 volume DM, EC&B, section EB-03).
1.2	Noise-frequency (line-out) signal from tuner/amplifier (A2/3)	<p style="text-align: center;">N40/3</p> <p>18 —  ←  + → 27</p> <p>24 —  ←  + → 9</p>	Disconnect N40/3. Turn volume control to maximum. Radio: ON	2.0 V A momentary lower value is permissible.	Wiring, A2/3 (see 3 volume DM, EC&B, section EB-03).

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
2.0	Left front door speaker group (H4/1)	<p style="text-align: center;">H4/1</p> <p>8 — C ← ⊖ Ω ⊕ → D — 17</p> <p>11 — C ← ⊖ Ω ⊕ → D — 8</p> <p>11 — C ← ⊖ Ω ⊕ → D — 17</p>	Radio (A2): OFF Disconnect N40/3.	0.7 – 1.2 Ω ∞ Ω ∞ Ω	Wiring, H4/1, If nominal values are OK: Replace N40/3.
3.0	Right front door speaker group (H4/2)	<p style="text-align: center;">H4/2</p> <p>7 — C ← ⊖ Ω ⊕ → D — 16</p> <p>11 — C ← ⊖ Ω ⊕ → D — 7</p> <p>11 — C ← ⊖ Ω ⊕ → D — 16</p>	Radio (A2): OFF Disconnect N40/3.	0.7 – 1.2 Ω ∞ Ω ∞ Ω	Wiring, H4/2, If nominal values are OK: Replace N40/3.
4.0	Left rear door speaker (H4/3)	<p style="text-align: center;">H4/3</p> <p>6 — C ← ⊖ Ω ⊕ → D — 15</p> <p>11 — C ← ⊖ Ω ⊕ → D — 6</p> <p>11 — C ← ⊖ Ω ⊕ → D — 15</p>	Radio (A2): OFF Disconnect N40/3.	3.0 – 4.5 Ω ∞ Ω ∞ Ω	Wiring, H4/3, If nominal values are OK: Replace N40/3.
5.0	Right rear door speaker (H4/4)	<p style="text-align: center;">H4/4</p> <p>5 — C ← ⊖ Ω ⊕ → D — 14</p> <p>11 — C ← ⊖ Ω ⊕ → D — 5</p> <p>11 — C ← ⊖ Ω ⊕ → D — 14</p>	Radio (A2): OFF Disconnect N40/3.	3.0 – 4.5 Ω ∞ Ω ∞ Ω	Wiring, H4/4, If nominal values are OK: Replace N40/3.

Electrical Test Program – Test

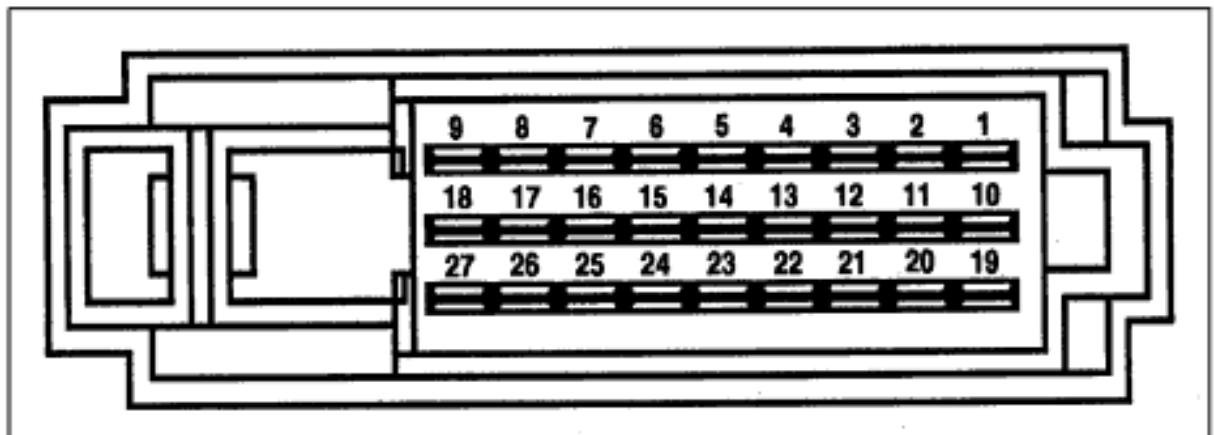
⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
6.0	Left rear door speaker group (H4/7)	<p>H4/7</p> <p>4 —  — 13</p> <p>11 —  — 4</p> <p>11 —  — 13</p>	Radio (A2): OFF Disconnect N40/3.	0.4 – 1.5 Ω ∞ Ω ∞ Ω	Wiring, ⇒ 6.1, If nominal values are OK: Replace N40/3.
6.1	Left rear door speaker group (H4/7) Individual speakers (H4/7h1 or H4/7h2)	<p>H4/7h1 or H4/7h2</p> <p>—  —</p>	Radio (A2): OFF Disconnect speaker group connectors.	1.8 – 2.4 Ω	H4/7h1 or H4/7h2.
7.0	Right rear door speaker group (H4/8)	<p>H4/8</p> <p>3 —  — 12</p> <p>11 —  — 3</p> <p>11 —  — 12</p>	Radio (A2): OFF Disconnect N40/3.	0.4 – 1.5 Ω ∞ Ω ∞ Ω	Wiring, ⇒ 7.1, If nominal values are OK: Replace N40/3.
7.1	Right rear door speaker group (H4/8) Individual speakers (H4/8h1 or H4/8h2)	<p>H4/8h1 or H4/8h2</p> <p>—  —</p>	Radio (A2): OFF Disconnect speaker group connectors.	1.8 – 2.4 Ω	H4/8h1 or H4/8h2.
8.0	Center fill tweeter speaker (H4/11)	<p>H4/11</p> <p>25 —  — 26</p> <p>11 —  — 25</p> <p>11 —  — 26</p>	Radio (A2): OFF Disconnect N40/3.	3.5 – 5.0 Ω ∞ Ω ∞ Ω	Wiring, H4/11, If nominal values are OK: Replace N40/3.

Electrical Test Program – Test

⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
9.0	Fader switch (R26)	<p style="text-align: center;">N40/3</p> <p>20 —C ← ⊗⁺ → 21</p> <p>21 —C ← ⊗⁺ → 22</p> <p>20 —C ← ⊗⁺ → 22</p> <p>11 —C ← ⊗⁺ → 21</p> <p>11 —C ← ⊗⁺ → 22</p> <p>11 —C ← ⊗⁺ → 20</p>	<p>Radio (A2): OFF Disconnect N40/3.</p> <p>R26 in center position.</p> <p>R26 in center position.</p> <p>Vary position of R26 from stop -to-stop.</p> <p>R26 in center position.</p>	<p>10 k Ω</p> <p>5 k Ω</p> <p>0 – 10 k Ω</p> <p>∞ Ω</p> <p>∞ Ω</p> <p>∞ Ω</p>	<p>Wiring, R26, If nominal values are OK: Replace N40/3.</p>

Electrical Test Program – Test

Connector Layout - Left/right audio power amplifier (N40/3)



M82-N40.3-SR

1	Circuit 30, F4-16	10	Circuit 30, F4-16	19	Control voltage from A2/3
2	Ground (W6)	11	Ground (W6)	20	Fader switch (R26) (-)
3	Right rear speaker (H4/8) (-)	12	Right rear speaker (H4/8) (+)	21	Fader switch (R26) (+)
4	Left rear speaker (H4/7) (-)	13	Left rear speaker (H4/7) (+)	22	Fader switch (R26)
5	Right rear door speaker (H4/4) (-)	14	Right rear door speaker (H4/4) (-)	23	-
6	Left rear door speaker (H4/3) (-)	15	Left rear door speaker (H4/3) (+)	24	Right NF signal (-) from A2/3
7	Right front door speaker group (H4/2) (-)	16	Right front door speaker group (H4/2) (+)	25	Center fill tweeter speaker (H4/11) (-)
8	Left front door speaker group (H4/1) (-)	17	Left front door speaker group (H4/1) (+)	26	Center fill tweeter speaker (H4/11) (+)
9	Right NF signal (+) from A2/3	18	Left NF signal (-) from A2/3	27	Left NF signal (+) from A2/3