

15.2c Model 140
Rear Power Bench Seat Backrest

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15.2 Electric Seat Adjustment (ESA)

Model 140

Diagnosis - Function Test

Test step/Test sequence	Test condition	Nominal value	Possible cause/Remedy ¹⁾
⇒ 1.0 Rear power bench seat, fore/aft adjustment Left switch (S53/1)	Ignition: ON Activate power bench seat switch (S53/1s1) fore/aft	Rear bench seat adjusts forward/backward	23 ⇒ 1.0 23 ⇒ 3.0, 4.0
⇒ 2.0 Rear power bench seat, head restraint raise/lower adjustment Left switch (S53/1)	Ignition: ON Activate power bench seat switch (S53/1s2) head restraint up/down	Rear bench seat head restraints adjust up/down	23 ⇒ 1.0 23 ⇒ 5.0, 8.0
⇒ 3.0 Rear power bench seat, fore/aft adjustment Right switch (S54/1)	Ignition: ON Activate power bench seat switch (S54/1s1) fore/aft	Rear bench seat rear adjusts forward/backward	23 ⇒ 2.0 23 ⇒ 3.0, 4.0
⇒ 4.0 Rear power bench seat, head restraint raise/lower adjustment Right switch (S54/1)	Ignition: ON Activate power bench seat switch (S54/1s2) head restraint up/down	Rear bench seat head restraints adjust up/down	23 ⇒ 2.0 23 ⇒ 5.0 23 ⇒ 11.0–13.0
⇒ 5.0 Rear power bench seat, head restraint raise/lower adjustment Console switch (S52/5)	Ignition: ON Activate power bench seat switch (S52/5) head restraint up/down	Rear bench seat head restraints adjust up/down	23 ⇒ 5.0 23 ⇒ 16.0–19.0

¹⁾ Observe Preparation for Test, see 22.

15.2 Electric Seat Adjustment (ESA)

Model 140

Diagnosis - Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾
Rear power bench seat adjustment does not function	Convenience relay module (K24) Rear power bench seat adjustment switch group Left (S53/1) Right (S54/1)	DM Body & Accessories Vol. 1 section 5.1 23 ⇒ 1.0 23 ⇒ 2.0
Rear power bench seat fore/aft adjustment does not function Left switch (S53/1)	Rear power bench seat adjustment switch group, left (S53/1) Rear backrest/head restraint motor group, backrest fore/aft motor (M17/1m1)	23 ⇒ 1.0 23 ⇒ 3.0, 4.0
Rear power bench seat fore/aft adjustment does not function Right switch (S54/1)	Rear power bench seat adjustment switch group, left (S54/1) Rear backrest/head restraint motor group, backrest fore/aft motor (M17/1m1)	23 ⇒ 2.0 23 ⇒ 3.0, 4.0
Rear power bench seat, head restraint raise/lower adjustment does not function Console switch (S52/5)	Rear head restraint control module (N32/12) Rear head restraint raise/lower switch, center console (S52/5) Rear backrest/head restraint motor group, left rear head restraint raise/lower motor (M17/1m2) Rear backrest/head restraint motor group, right rear head restraint raise/lower motor (M17/1m3)	23 ⇒ 5.0 23 ⇒ 16.0–17.0 23 ⇒ 18.0 23 ⇒ 19.0

¹⁾ Observe Preparation for Test, see 22.

Diagnosis - Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾
Rear power bench seat, left rear head restraint raise/lower adjustment does not function Left switch (S53/1)	Rear power bench seat adjustment switch group, left (S53/1) Rear head restraint control module (N32/12) Rear backrest/head restraint motor group, left rear head restraint raise/lower motor (M17/1m2)	23 ⇒ 1.0 23 ⇒ 5.0 23 ⇒ 7.0, 8.0
Rear power bench seat, right rear head restraint raise/lower adjustment does not function Right switch (S54/1)	Rear power bench seat adjustment switch group, right (S54/1) Rear head restraint control module (N32/12) Rear backrest/head restraint motor group, right rear head restraint raise/lower motor (M17/1m3)	23 ⇒ 2.0 23 ⇒ 5.0 23 ⇒ 12.0, 13.0
Rear power bench seat adjustment switch group illumination does not function Left switch (S53/1)	Rear power bench seat adjustment switch group, left (S53/1), illumination	23 ⇒ 9.0, 10.0
Rear power bench seat adjustment switch group illumination does not function Right switch (S54/1)	Rear power bench seat adjustment switch group, right (S54/1), illumination	23 ⇒ 14.0, 15.0
Rear head restraint raise/lower switch illumination does not function Console switch (S52/5)	Wiring Rear head restraint raise/lower switch (S52/5) illumination	23 ⇒ 20.0 23 ⇒ 21.0

1) Observe Preparation for Test, see 22.

Electrical Test Program - Component Locations

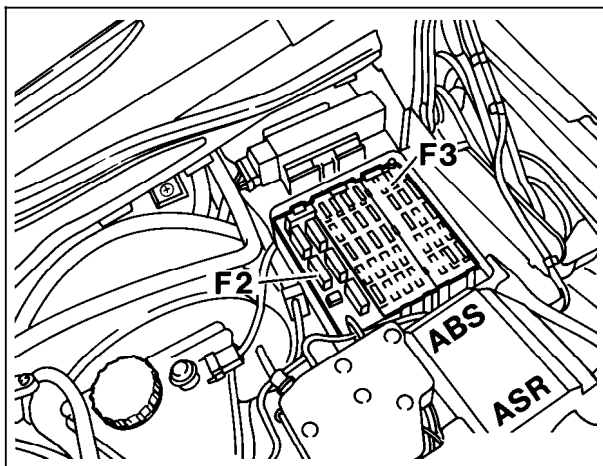


Figure 1 P54-2806-13

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

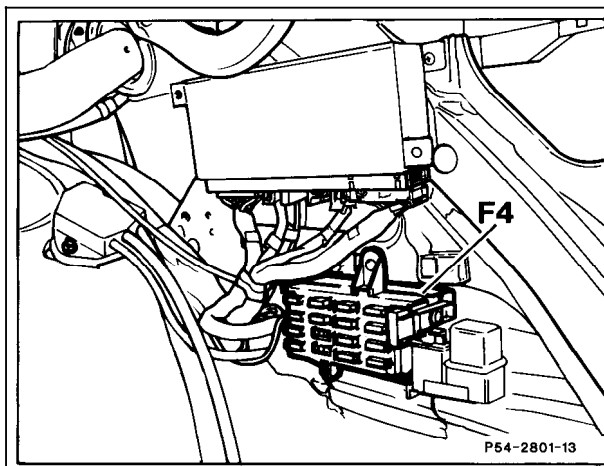


Figure 2 P54-2801-13

F4 Rear fuse box (17-fuse, in trunk)

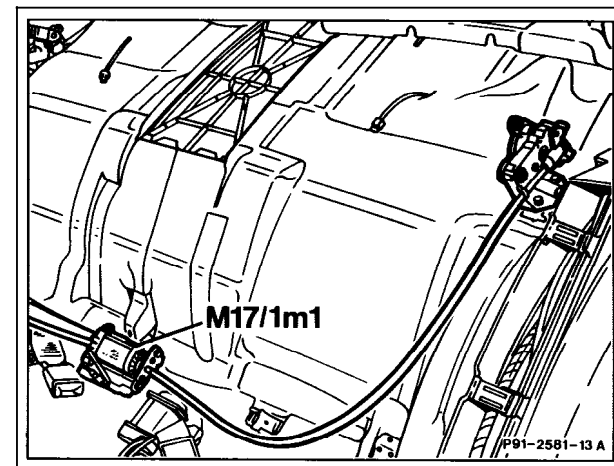


Figure 3 P91-2581-13A

M17/1m1 Backrest fore/aft motor

Electrical Test Program - Component Locations

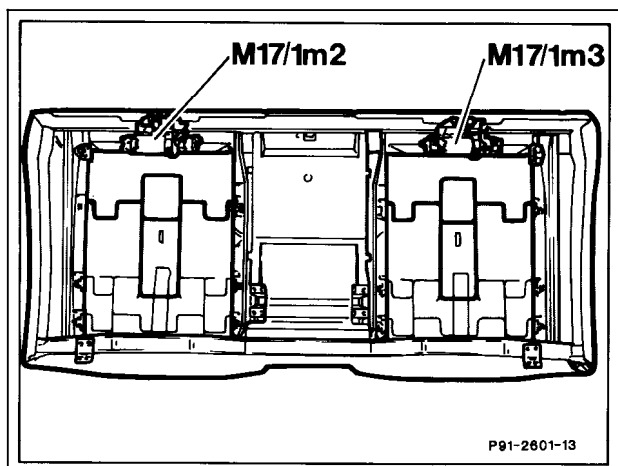


Figure 4
M17/1m2 Left rear head restraint raise/lower motor
M17/1m3 Right rear head restraint raise/lower motor

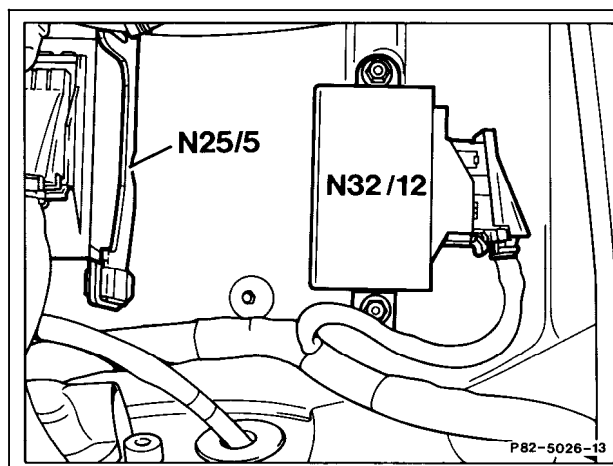


Figure 5
N32/12 Rear head restraint control module
N25/5 Rear head restraint raise/lower switch

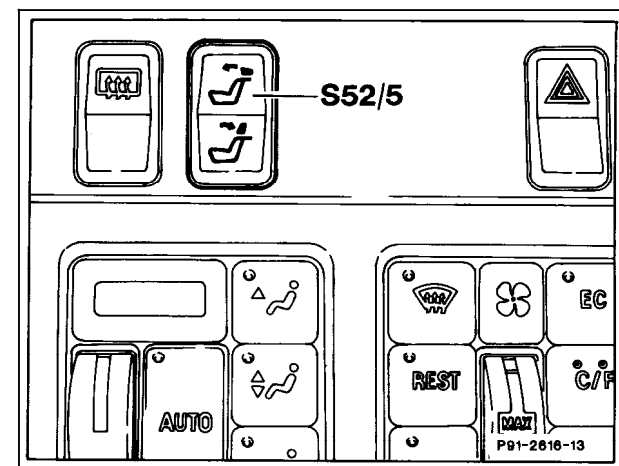


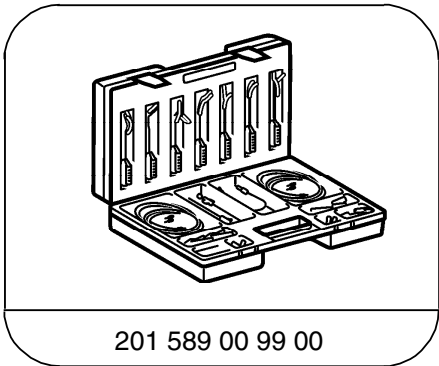
Figure 6
S52/5 Rear head restraint raise/lower switch
N32/12 Rear head restraint control module

Electrical Test Program - Preparation for Test

- 1. Battery voltage 11–14 V.
- 2. Fuses F3-31 and F4-15 O.K.

Electrical wiring diagrams
Electrical Troubleshooting Manual, Model 140.

Special Tools



Electrical connecting set

Equipment

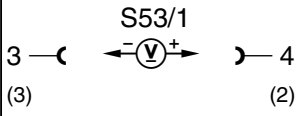
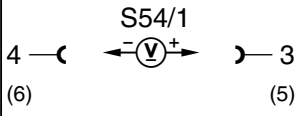
Digital multimeter ¹⁾	Fluke model 23 with 80i-410 current probe Sun DMM-5
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¹⁾ Available through the MBUSA Standard Equipment Program.

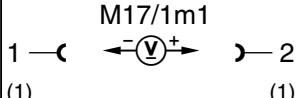
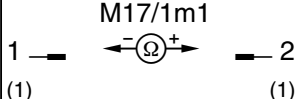
15.2 Electric Seat Adjustment (ESA)

Model 140

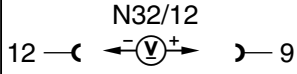
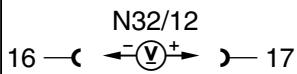
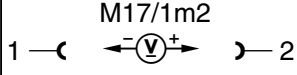
Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 1.0	Rear power bench seat adjustment switch group (S53/1) Left switch Voltage supply		Ignition: ON Connectors (2 and 3) from switch (S53/1) disconnected.	11–14 V	Wiring
⇒ 2.0	Rear power bench seat adjustment switch group (S54/1) Right switch Voltage supply		Ignition: ON Connectors (5 and 6) from switch (S54/1) disconnected.	11–14 V	Wiring

Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 3.0	Rear backrest/head restraint motor group, backrest fore/aft motor (M17/1m1) Voltage supply		Ignition: ON Connector (1) from motor (M17/1m1) disconnected. Press seat switch (S53/1s1): forward backward Press seat switch (S54/1s1): forward backward	11–14 V -11 to -14 V 11–14 V -11 to -14 V	Wiring, Rear power bench seat adjustment switch group (S53/1), Rear power bench seat adjustment switch group (S54/1) not connected. Rear power bench seat adjustment switch group (S54/1), Rear power bench seat adjustment switch group (S53/1) not connected.
⇒ 4.0	Rear backrest/head restraint motor group, backrest fore/aft motor (M17/1m1) Resistance		Connector (1) from motor (M17/1m1) disconnected.	0.5–15 Ω	Rear backrest/head restraint motor group, backrest fore/aft motor (M17/1m1)

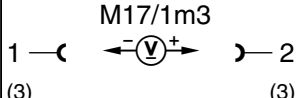
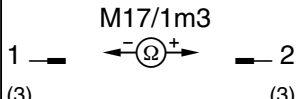
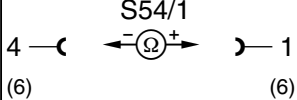
Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 5.0	Rear head restraint control module (N32/12) Voltage supply		Ignition: ON Connector from module (N32/12) disconnected.	11–14 V	Wiring
⇒ 6.0	Rear power bench seat adjustment, head restraint raise/lower switch (S53/1s2) Electrical circuit		Ignition: ON Connector from module (N32/12) disconnected. Press head restraint switch (S53/1s2): head restraint up head restraint down	11–14 V -11 to -14 V	Wiring, Rear power bench seat adjustment switch group (S53/1).
⇒ 7.0	Rear backrest/head restraint motor group, left rear head restraint raise/lower motor (M17/1m2) Voltage supply		Ignition: ON Remove covering behind head restraint Connector (2) from motor (M17/1m2) disconnected. Press head restraint switch (S53/1s2): head restraint up head restraint down	constant value for 5–10 seconds 11–14 V -11 to -14 V	Wiring, Rear power bench seat adjustment switch group (S53/1), Rear head restraint control module (N32/12).

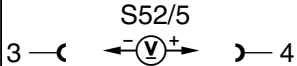
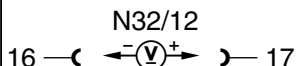
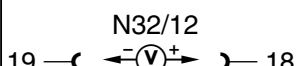
Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 8.0	Rear backrest/head restraint motor group, left rear head restraint raise/lower motor (M17/1m2) Resistance	M17/1m2 2 —  — 1 (2) (2)	Connector (2) from motor (M17/1m2) disconnected.	0.5–15 Ω	Rear backrest/head restraint motor group, left rear head restraint raise/lower motor (M17/1m2)
⇒ 9.0	Rear power bench seat adjustment switch group illumination (S53/1e1) Voltage supply	S53/1 3 —  — 2 (3) (3)	Connector (3) from switch (S53/1) disconnected. Headlamps: ON	11–14 V	Wiring
⇒ 10.0	Rear power bench seat adjustment switch group illumination (S53/1e1) Resistance	S53/1 3 —  — 2 (3) (3)	Connector (3) from switch (S53/1) disconnected.	approx. 10 Ω	Bulb, Rear power bench seat adjustment switch group (S53/1).
⇒ 11.0	Rear power bench seat adjustment, head restraint raise/lower switch (S54/1s2) Electrical circuit	N32/12 19 —  — 18 (3) (3)	Ignition: ON Connector from module (N32/12) disconnected. Press head restraint switch (S54/1s2): head restraint up head restraint down	11–14 V -11 to -14 V	Wiring, Rear power bench seat adjustment switch group (S54/1).

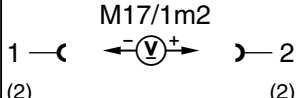
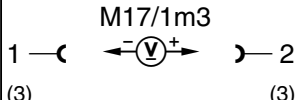
Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 12.0	Rear backrest/head restraint motor group, right rear head restraint raise/lower motor (M17/1m3) Voltage supply		Ignition: ON Remove covering behind head restraint Connector (3) from motor (M17/1m2) disconnected. Press head restraint switch (S53/1s2): head restraint up head restraint down	constant value for 5–10 seconds 11–14 V -11 to -14 V	Wiring, Rear power bench seat adjustment switch group (S54/1), Rear head restraint control module (N32/12).
⇒ 13.0	Rear backrest/head restraint motor group, right rear head restraint raise/lower motor (M17/1m3) Resistance		Connector (3) from motor (M17/1m3)	0.5–15 Ω	Rear backrest/head restraint motor group, right rear head restraint raise/lower motor (M17/1m3)
⇒ 14.0	Rear power bench seat adjustment switch group illumination (S54/1e1) Voltage supply		Connector (6) from switch (S54/1) disconnected. Headlamps: ON	11–14 V	Wiring
⇒ 15.0	Rear power bench seat adjustment switch group illumination (S54/1e1) Resistance		Connector (6) from switch (S54/1) disconnected.	approx. 10 Ω	Bulb, Rear power bench seat adjustment switch group (S54/1).

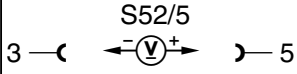
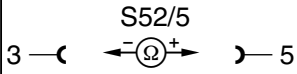
Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 16.0	Rear head restraint raise/lower switch (S52/5) Voltage supply		Ignition: ON Connector from switch (S52/5)	11–14 V	Wiring, Rear head restraint raise/lower switch (S52/5).
⇒ 17.0	Rear head restraint raise/lower switch (S52/5) Left electrical circuit Right electric alcircuit	 	Ignition: ON Connector from module (N32/12) disconnected. Press switch (S52/5): head restraint up head restraint down Press switch (S52/5): head restraint up head restraint down	11–14 V -11 to -14 V 11–14 V -11 to -14 V	Rear power bench seat adjustment switch group (S53/1)

Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 18.0	Rear backrest/head restraint motor group, left rear head restraint raise/lower motor (M17/1m2) Voltage supply		Ignition: ON Connector (2) from motor (M17/1m2) disconnected. Press head restraint switch (S52/5): head restraint up head restraint down	constant value for 5–10 seconds 11–14 V -11 to -14 V	Wiring, Rear head restraint raise/lower switch (S52/5), Rear head restraint control module (N32/12).
⇒ 19.0	Rear backrest/head restraint motor group, right rear head restraint raise/lower motor (M17/1m3) Voltage supply		Ignition: ON Connector (3) from motor (M17/1m2) disconnected. Press head restraint switch (S52/5): head restraint up head restraint down	constant value for 5–10 seconds 11–14 V -11 to -14 V	Wiring, Rear head restraint raise/lower switch (S52/5), Rear head restraint control module (N32/12).

Electrical Test Program - Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 20.0	Rear head restraint raise/lower switch (S52/5) illumination Voltage supply		Connector from switch (S52/5) Headlamps: ON	11–14 V	Wiring, Rear head restraint raise/lower switch (S52/5).
⇒ 21.0	Rear head restraint raise/lower switch (S52/5) illumination Resistance		Connector from switch (S52/5)	approx. 10 Ω	Wiring, Rear head restraint raise/lower switch (S52/5).

Electrical Test Program - Test

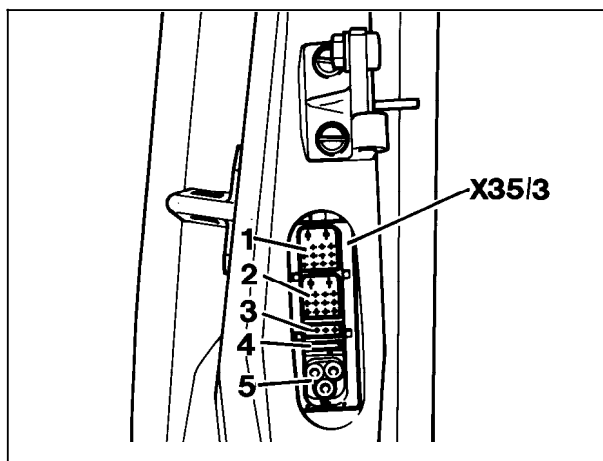


Figure 1

X35/3 Left rear door plug connection

P54-2808-13

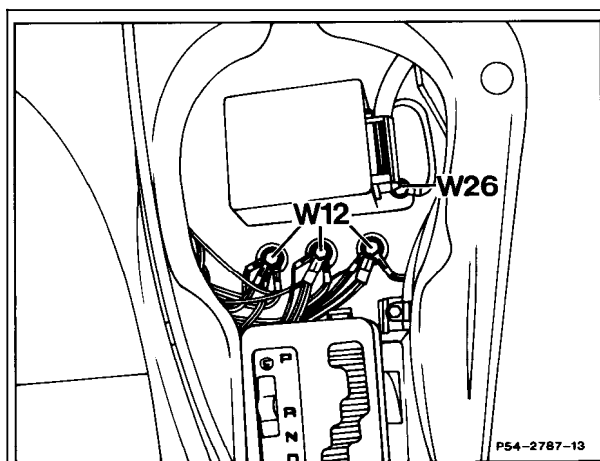


Figure 2

W12 Ground (center console)

P54-2787-13

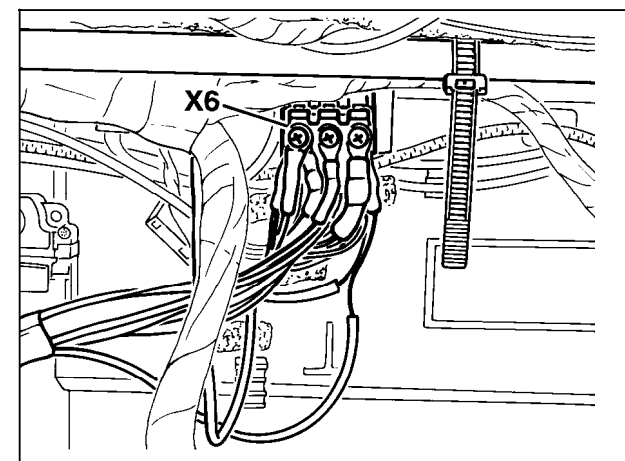


Figure 3

X6 Terminal block (terminal 58d) (3- or 4-pole)

P82-3066-13

Electrical Test Program - Test

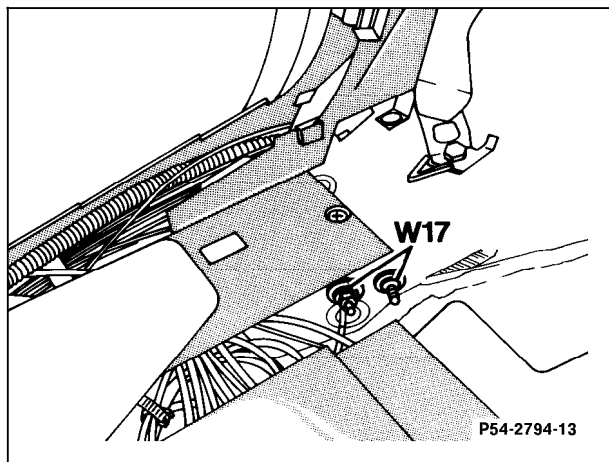


Figure 4

P54-2794-13

W17 Ground (right rear seat)