
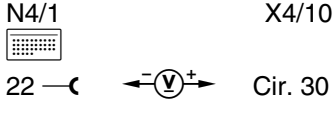
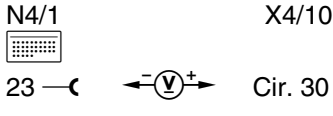
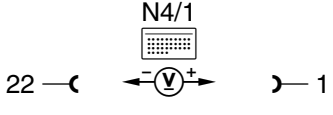
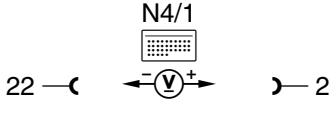

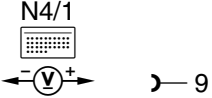
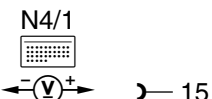
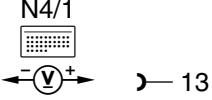



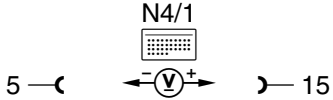
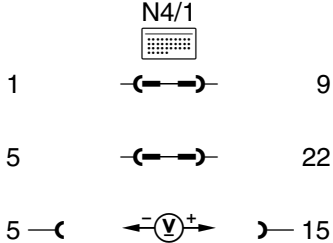
Electrical Test Program – Electronic Accelerator Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0		Electronic accelerator/cruise control module (N4/1) Ground connection	N4/1 X4/10  22 — 30 N4/1 X4/10  23 — 30	Ignition: OFF	11 – 14 V	Model 124: Ground, battery (W10), Model 129: Ground, component compartment (W16), Open circuit.
2.0		Electronic accelerator/cruise control module (N4/1) Voltage supply	 22 — 1  22 — 2	Ignition: ON	11 – 14 V	Check connector for multi-function block (X30/1) (see 23, Figure 6). Check X30/1.


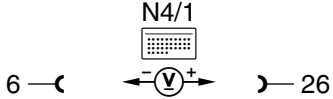
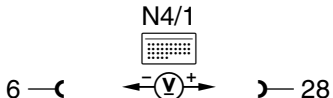
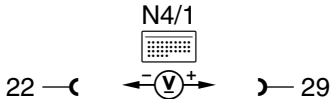
Electrical Test Program – Electronic Accelerator Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
3.0		Accelerator pedal position sensor (R25) Potentiometer voltage supply		Ignition: ON Note voltage value.	6.8 – 7.6 V Reference value in column “A” of table “Voltage Values - Accelerator Pedal Position Sensor (R25)”	Open circuit, ⇒ 7.0, R25 defective, EA/CC control module (N4/1) defective.
3.1		R25 potentiometer signal		Ignition: ON Closed throttle position “a”, Move accelerator pedal to wide open throttle position “b”, kickdown position “c”	Voltage values see table “Voltage Values - Accelerator Pedal Position Sensor (R25)” columns “a, b, c”	Open/short circuit, ⇒ 7.0, If nominal value is not attained, ⇒ 3.3
3.2		R25 safety switch switching point		Ignition: ON Closed throttle position	< 1 V	Open/short circuit, ⇒ 7.0


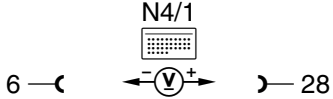
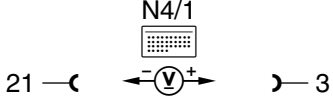
Electrical Test Program – Electronic Accelerator Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
[3.2]		Connect second multimeter to socket box		<p>Slowly move accelerator pedal until switching point occurs</p> <p>Note voltage value at switching point</p>	<p>11 – 14 V</p> <p>Voltage value see table “Voltage Values - Accelerator Pedal Position Sensor (R25)” column “d”</p>	<p>⇒ 1.1, W15 Masse Federdom rechts, Leitungen.</p> <p>Accelerator pedal position sensor (R25) defective.</p>
3.3		R25		<p>Ignition: OFF Unplug EA/CC/ISC module (N4/1),</p> <p>Ignition: ON Move accelerator pedal to wide open throttle contact</p>	Voltage must increase to > 9 V	R25 defective



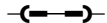






Electrical Test Program – Electronic Accelerator Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
4.0		EA/CC actuator (M16/1) Potentiometer voltage supply		Ignition: ON Note voltage value	6.8 – 7.6 V Reference value in column "B" of table "Voltage Values - Actuator (M16/1)"	Open circuit, ⇒ 8.0, EA/CC module(N4/1) defective.
4.1		M16/1, potentiometer signal		Ignition: ON Closed throttle position "e", Move accelerator pedal toward open throttle position "f"	Voltage values see table "Voltage Values - Actuator (M16/1)" columns "e, f"	Open circuit, ⇒ 8.0, If nominal value is not attained, ⇒ 4.4
4.2		M16/1, safety switch switching point		Ignition: ON Closed throttle position	11 – 14 V	Open circuit, ⇒ 8.0

































































Electrical Test Program – Electronic Accelerator Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
[4.2]		Connect second multimeter to socket box		<p>Slowly move accelerator pedal until switching point occurs</p> <p>Note voltage value at switching point</p>	<p>< 1 V</p> <p>Voltage values see table “Voltage Values - Actuator (M16/1)” column “g”</p>	EA/CC actuator (M16/1) defective.
4.3		Actuator motor		<p>Ignition: ON</p> <p>Allow control linkage, linkage rod to return to closed throttle position.</p> <p>Move control linkage, linkage rod towards the wide open throttle position.</p>	<p>Voltage must increase (positive (+) value)</p> <p>Indication must change (negative (-) voltage value)</p> <p>Note: The voltage values for engine 104 are the opposite from above.</p>	Open circuit, ⇒ 4.5, If nominal values are not obtained, ⇒ 4.4


Electrical Test Program – Electronic Accelerator Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
4.4		EA/CC actuator (M16/1)	<p style="text-align: center;">N4/1 </p> <p>1 —  — 26</p> <p>6 —  — 22</p> <p>6 —  — 28</p>	Ignition: OFF Unplug electronic accelerator control module (N4/1), Ignition: ON Move accelerator pedal to wide open throttle contact	Voltage must decrease to < 7 V	M16/1 defective.
4.5		EA/CC actuator (M16/1)	<p style="text-align: center;">N4/1 </p> <p>21 —  — 3</p>	Ignition: OFF Unplug N4/1. Ignition: ON Move accelerator pedal to wide open throttle contact	< 10 Ω	M16/1 defective.
5.0		Starter lock-out/backup lamp switch (S16/1)	<p style="text-align: center;">N4/1 </p> <p>22 —  — 33</p>	Ignition: ON Selector lever position “P” Selector lever position “R” Fully depress service brake, move accelerator pedal to partial load and shift selector lever from transmission range “P” into “R” and “R” into “P”	< 1 V 11 – 14 V Position of lever on actuator (M16/1) must change.	Open/short circuit. EA/CC module (N4/1) defective.


Electrical Test Program – Electronic Accelerator Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy																														
6.0		Engine systems (MAS) control module (N16)	22 —   — 30	Engine: Start, at Idle Disconnect test cable 129 589 00 63 00 from vehicle wiring harness.	11 – 14 V Engine must shut off	Open/short circuit  Socket 30 is not short circuit protected to ground. EA/CC module (N4/1) defective. Check wiring for correct terminal layout.																														
7.0		Check if wires are isolated from each other between accelerator pedal position sensor connector (R25x1) and connector for control module (N4/1)	R25x1 <table border="0" style="display: inline-table; vertical-align: middle;"> <tr><td>1 — </td><td></td><td>2</td></tr> <tr><td>1 — </td><td></td><td>3</td></tr> <tr><td>1 — </td><td></td><td>6</td></tr> <tr><td>1 — </td><td></td><td>7</td></tr> <tr><td>2 — </td><td></td><td>3</td></tr> <tr><td>2 — </td><td></td><td>6</td></tr> <tr><td>2 — </td><td></td><td>7</td></tr> <tr><td>3 — </td><td></td><td>6</td></tr> <tr><td>3 — </td><td></td><td>7</td></tr> <tr><td>6 — </td><td></td><td>7</td></tr> </table> R25x1	1 — 		2	1 — 		3	1 — 		6	1 — 		7	2 — 		3	2 — 		6	2 — 		7	3 — 		6	3 — 		7	6 — 		7	Ignition: OFF Unplug EA/CC control module, disconnect plug connections for position sensor (R25) and actuator (M16/1). The connector is unlocked by sliding the metal plate in the connector towards the center pin with a screwdriver.	> 500 kΩ	If < 500 kΩ, replace wiring harness.
1 — 		2																																		
1 — 		3																																		
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Electrical Test Program – Electronic Accelerator Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
8.0		Check if wires are isolated from each other between actuator connector (M16/1x1) and connector for control module (N4/1)	<p>M16/1x1 M16/1x1</p> <p>1 —C ←Ω+)— 2</p> <p>1 —C ←Ω+)— 3</p> <p>1 —C ←Ω+)— 4</p> <p>1 —C ←Ω+)— 5</p> <p>1 —C ←Ω+)— 6</p> <p>1 —C ←Ω+)— 7</p> <p>2 —C ←Ω+)— 3</p> <p>2 —C ←Ω+)— 4</p> <p>2 —C ←Ω+)— 5</p> <p>2 —C ←Ω+)— 6</p> <p>2 —C ←Ω+)— 7</p> <p>3 —C ←Ω+)— 4</p> <p>3 —C ←Ω+)— 5</p> <p>3 —C ←Ω+)— 6</p>	<p>Ignition: OFF</p> <p>Unplug EA/CC control module, disconnect plug connections for position sensor (R25) and actuator (M16/1).</p> <p>The connector is unlocked by sliding the metal plate in the connector towards the center pin with a screwdriver.</p>	> 500 kΩ	If < 500 kΩ, replace wiring harness.

Electrical Test Program – Electronic Accelerator Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
[8.0]			<p>M16/1x1 M16/1x1</p> <p>3 —┐ ←⊖Ω⊕→ ┌— 7</p> <p>4 —┐ ←⊖Ω⊕→ ┌— 5</p> <p>4 —┐ ←⊖Ω⊕→ ┌— 6</p> <p>4 —┐ ←⊖Ω⊕→ ┌— 7</p> <p>5 —┐ ←⊖Ω⊕→ ┌— 6</p> <p>5 —┐ ←⊖Ω⊕→ ┌— 7</p> <p>6 —┐ ←⊖Ω⊕→ ┌— 7</p>	<p>Ignition: OFF</p> <p>Unplug EA/CC control module, disconnect plug connections for position sensor (R25) and actuator (M16/1).</p> <p>The connector is unlocked by sliding the metal plate in the connector towards the center pin with a screwdriver.</p>	> 500 kΩ	If < 500 kΩ, replace wiring harness.

Electrical Test Program - Electronic Accelerator Test

Voltage Values - Accelerator Pedal Position Sensor (R25) ¹⁾

“A” Voltage supply Potentiometer V	“a” Voltage at Closed Throttle Position V	“b” Voltage at Wide Open Throttle Position V	“c” Voltage at Kickdown Position V	“d” Voltage at Potentiometer Safety Switch V
6.8	0.50 – 0.56	5.86 – 6.22	5.86 – 6.37	0.86 – 1.13
6.9	0.51 – 0.57	5.95 – 6.32	5.95 – 6.46	0.87 – 1.14
7.0	0.52 – 0.58	6.04 – 6.41	6.04 – 6.55	0.89 – 1.16
7.1	0.53 – 0.58	6.13 – 6.50	6.13 – 6.64	0.90 – 1.17
7.2	0.53 – 0.59	6.21 – 6.59	6.21 – 6.74	0.91 – 1.19
7.3	0.54 – 0.60	6.30 – 6.68	6.30 – 6.83	0.92 – 1.21
7.4	0.55 – 0.61	6.39 – 6.77	6.37 – 6.92	0.94 – 1.22
7.5	0.56 – 0.62	6.48 – 6.86	6.48 – 7.01	0.95 – 1.24
7.6	0.56 – 0.63	6.56 – 6.95	6.56 – 7.11	0.96 – 1.26

¹⁾ The battery voltage must be greater than 11 volts.

Electrical Test Program - Electronic Accelerator Test

Voltage Values - Actuator Potentiometer (M16/1) ¹⁾

“B” Voltage supply Potentiometer V	“e” Voltage at Closed Throttle Position V	“f” Voltage at Wide Open Throttle Position V	“g” Voltage at Potentiometer Safety Switch V
6.8	6.05 – 6.19	0.61 – 0.75	5.35 – 5.68
6.9	6.14 – 6.28	0.62 – 0.76	5.43 – 5.76
7.0	6.23 – 6.37	0.63 – 0.77	5.51 – 5.89
7.1	6.32 – 6.46	0.64 – 0.78	5.59 – 5.93
7.2	6.41 – 6.55	0.65 – 0.79	5.67 – 6.01
7.3	6.50 – 6.64	0.66 – 0.80	5.75 – 6.10
7.4	6.59 – 6.73	0.67 – 0.81	5.82 – 6.18
7.5	6.68 – 6.83	0.68 – 0.83	5.90 – 6.26
7.6	6.76 – 6.92	0.69 – 0.84	5.98 – 6.35

¹⁾ The battery voltage must be greater than 11 volts.

Electrical Test Program – Electronic Accelerator Test

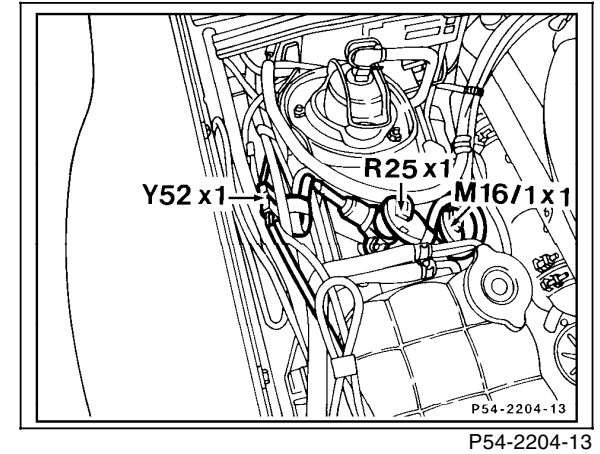
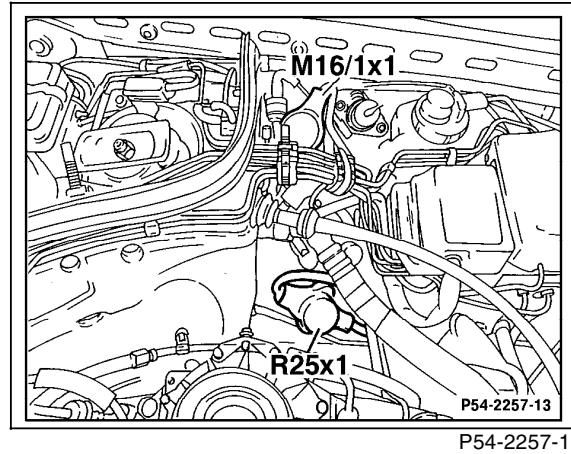
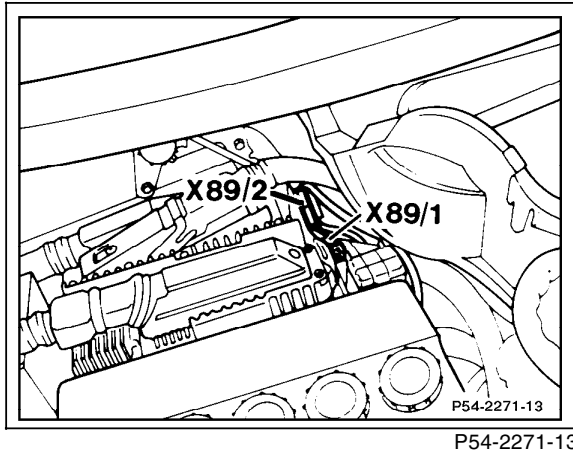


Figure 1
Engine 104, Model 124

- X89/1 Electronic accelerator/cruise control module/ASR connector (2-pole)
- X89/2 EA/CC control module/engine harness connector (3-pole)

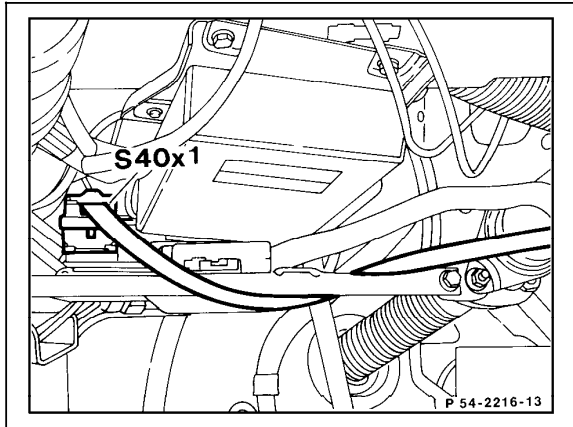
Figure 2
Engine 104, Model 124

- M16/1x1 EA/CC actuator connector
- R25x1 Accelerator pedal position sensor connector

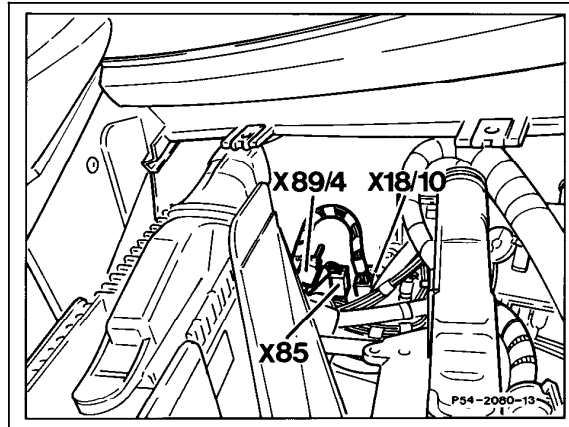
Figure 3
Engine 104, Model 129

- M16/1x1 EA/CC actuator connector
- R25x1 Accelerator pedal position sensor connector
- Y52x1 Right front axle damper valve unit connector

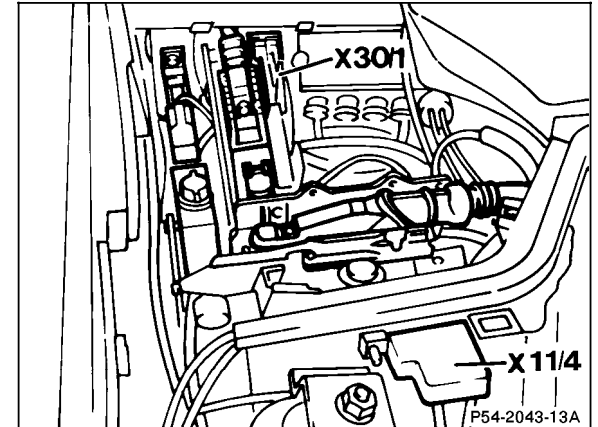
Electrical Test Program – Electronic Accelerator Test



P54-2216-13



P54-2080-13



P54-2043-13A
P54-2043-13A

Figure 4
Engine 104, 119, Model 129

S40x1 Cruise control switch connector

Figure 5
Engine 104, 119, Model 129

- X18/10 Interior/ASR connector (8-pole)
- X85 Automatic A/C harness/engine harness connector (4-pole)
- X89/4 Electronic accelerator/cruise control module connector (1-pole)

Figure 6
Engine 104, 119, Model 129

- X11/4 Data link connector (DTC readout)
- X30/1 Multi-function connector block