

6.1 Electronic Accelerator – (EA)

Contents

6.1 Engines 104, 119 with Continuous Fuel Injection System (CFI) ¹⁾

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¹⁾ Formerly known as CIS-E.

Diagnosis - Function Test

Connection of Multimeter and Signal Generator for Input Test (Electronic Accelerator/ASR Recognition Test)
Engines 104, 119

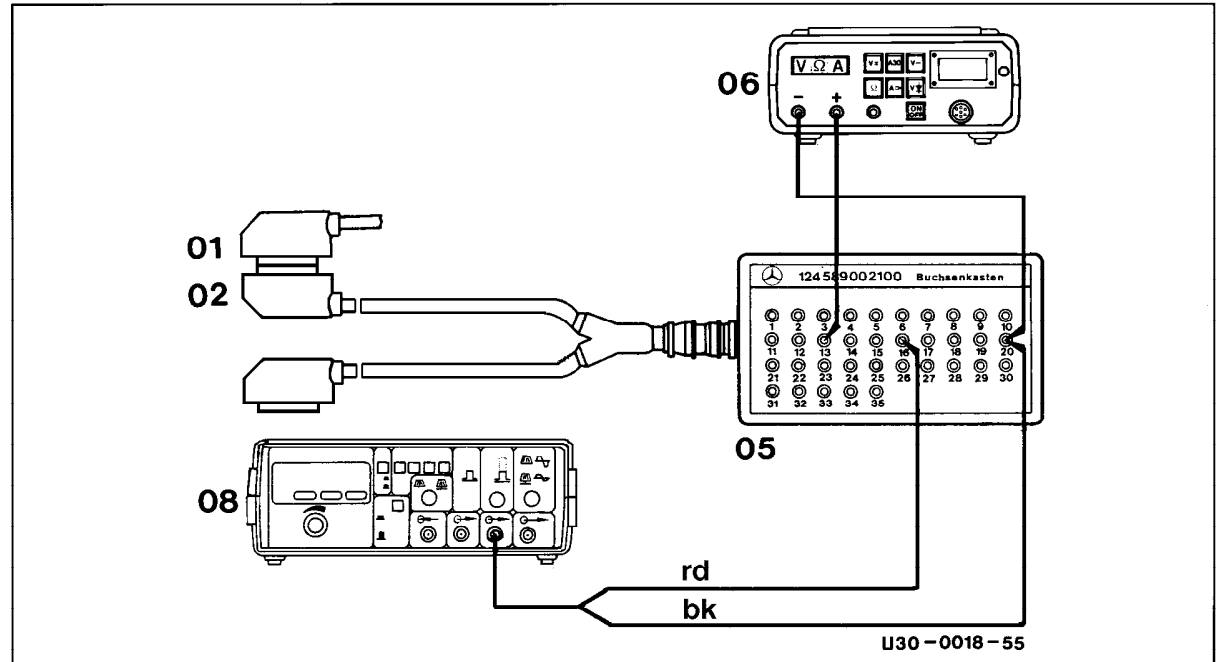


Figure 1

- 01 Vehicle wiring harness (ABS/ASR control module)
- 02 Test cable 129 589 00 63 00
- 05 Socket box 124 589 00 21 00
- 06 Multimeter
- 08 Signal generator

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Electrical wiring diagrams, see Electrical Troubleshooting Manual.

Diagnosis - Function Test

Test step	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 1.0	Throttle valve signal from/to electronic accelerator/cruise control module (N4/1)		<p>Ignition: OFF Unplug ABS/ASR control module (N30/1), Connect socket box and signal generator.</p> <p> Connect red wire to socket 16, set frequency to 200 Hz and voltage to 10 V (square wave).</p> <p>Ignition: ON Move accelerator pedal to full load position.</p>	<p>4 - 7 V and electronic accelerator actuator (M16/1) must only move approx. 50% from idle position</p>	<p>Open/short circuit between control modules (N30/1 and N4/1).</p> <p>If nominal value is attained: perform ABS/ASR Test Program (see Diagnostic Manual, Chassis and Drivetrain),</p> <p>If nominal value is not attained: perform Test 23¹⁾.</p>

1) Observe Preparation for Test, see 22.

Diagnosis - Complaint Related Diagnostic Chart

Electronic Accelerator

Complaint/Problem	Possible Cause	Remedy ¹⁾ /Test Step
ASR malfunction indicator lamp comes on while driving and electronic accelerator goes into "limp-home" mode	Check accelerator pedal position sensor (R25), replace if necessary, Electronic accelerator/cruise control actuator (M16/1), Electronic accelerator control/cruise control module (N4/1)	23 ⇒ 3.0 ¹⁾ 23 ⇒ 4.0 ¹⁾ 23 ⇒ 1.0 ¹⁾
Increased resistance when pressing accelerator pedal and/or electronic accelerator switches off	Telescoping linkage rod (20, Figures 1, 3, 6) bent	SMS, Repair Instructions, Group 30, Job no. 300.
Automatic transmission downshift incorrect	Control linkage not correctly adjusted	SMS, Repair Instructions, Group 30, Job no. 300.

¹⁾ Observe Preparation for Test, see 22.

Cruise Control

Complaint/Problem	Possible Cause	Remedy ¹⁾ /Test Step
Cruise control does not operate	No vehicle speed signal at electronic accelerator/cruise control module (N4/1)	26 ⇒ 3.0 ¹⁾
Surging during cruise control operation	Check electronic accelerator/cruise control actuator (M16/1), replace if necessary	26 ⇒ 5.0 ¹⁾

¹⁾ Observe Preparation for Test, see 22.

Electrical Test Program - Electronic Accelerator Component Locations

Engine Compartment,
Models 124, 129 with Engine 104

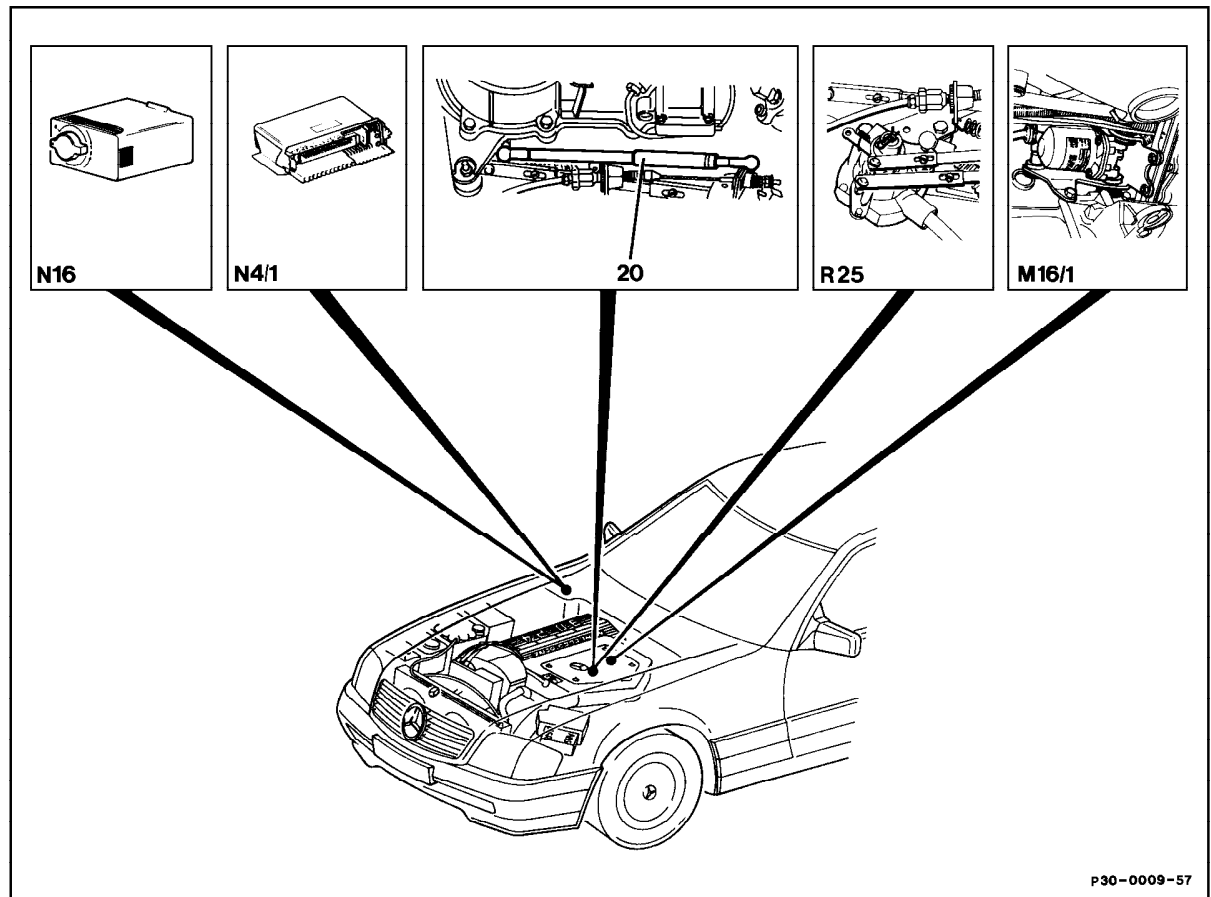


Figure 1

- N4/1 Electronic accelerator/cruise control (EA/CC) module
- N16 Engine systems control module (MAS)
- M16/1 EA/CC actuator
- R25 Accelerator pedal position sensor
- 20 Telescoping linkage rod (back-up linkage)

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Electrical Test Program - Electronic Accelerator Component Locations

Passenger Compartment
Models 124, 129 with Engine 104

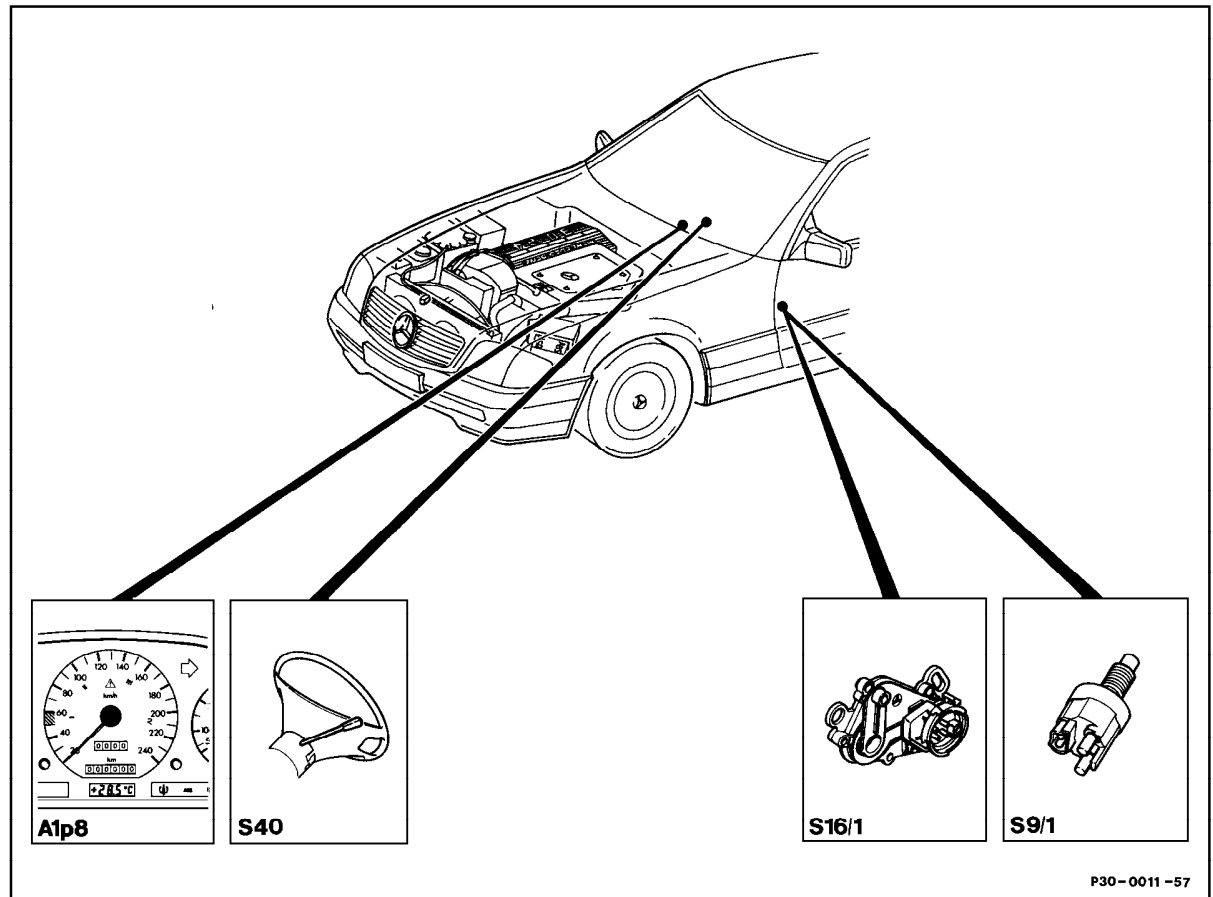


Figure 2

- A1p8 Electronic speedometer with top speed limitation
- S9/1 Stop lamp switch
- S16/1 Starter lock-out/backup lamp switch
- S40 Cruise control switch
- V Decelerate/set
- B Accelerate/set
- SP Resume
- A Off

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Electrical Test Program - Electronic Accelerator Component Locations

Engine Compartment,
Model 129 with Engine 119

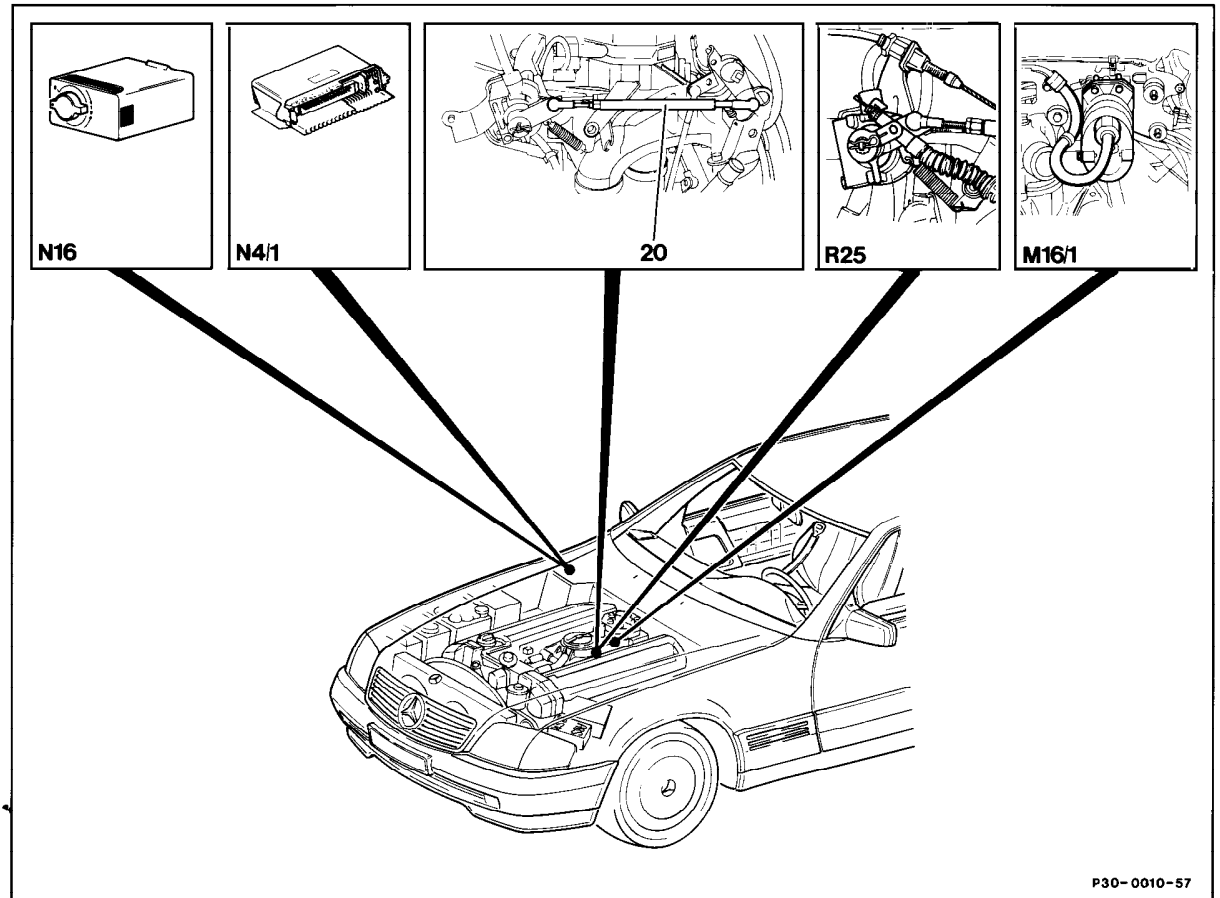


Figure 3

- N4/1 Electronic accelerator/cruise control (EA/CC) module
- N16 Engine systems control module (MAS)
- M16/1 EA/CC actuator
- R25 Accelerator pedal position sensor
- 20 Telescoping linkage rod (back-up linkage)

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Electrical Test Program - Electronic Accelerator Component Locations

Passenger Compartment
Model 129 with Engine 119

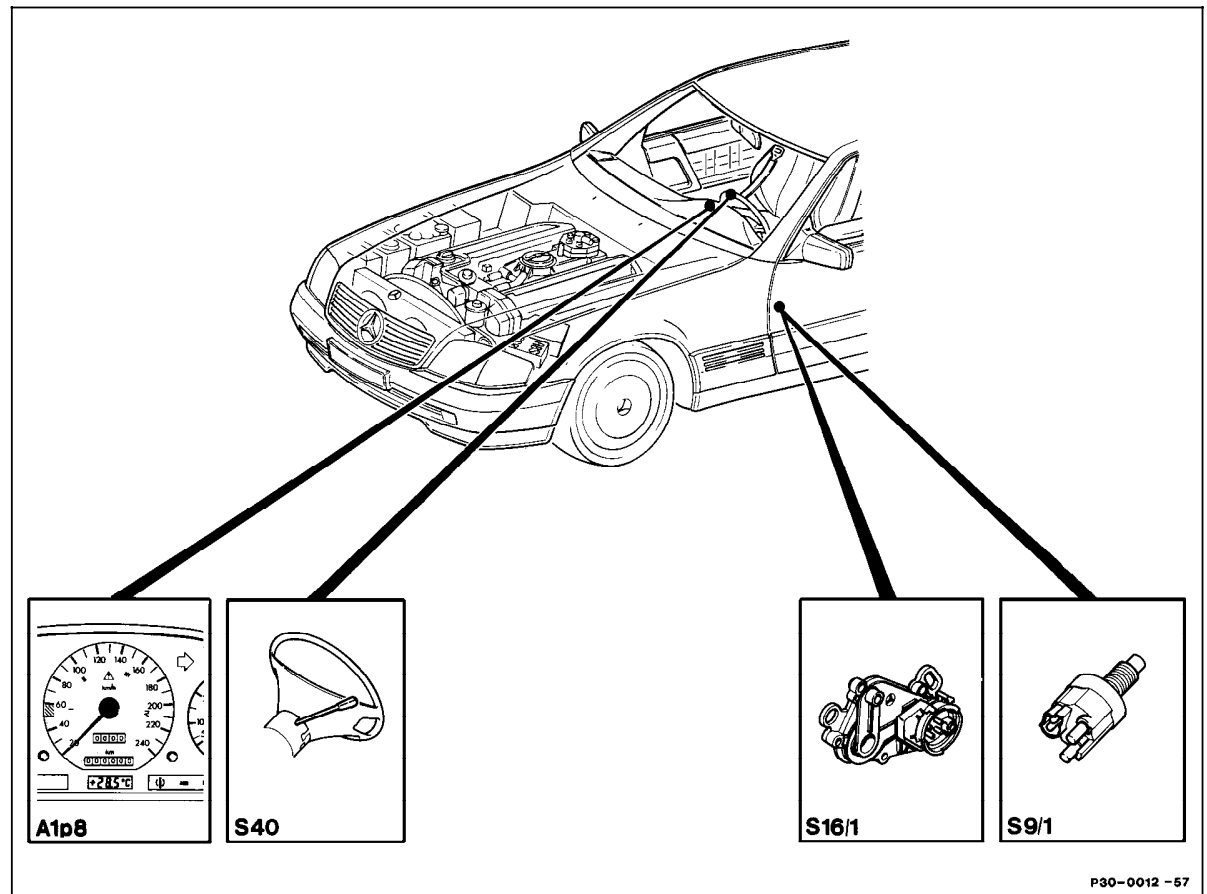


Figure 4

- A1p8 Electronic speedometer with top speed limitation
- S9/1 Stop lamp switch
- S16/1 Starter lock-out/backup lamp switch
- S40 Cruise control switch
- V Decelerate/set
- B Accelerate/set
- SP Resume
- A Off

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Electrical Test Program - Electronic Accelerator Preparation for Test

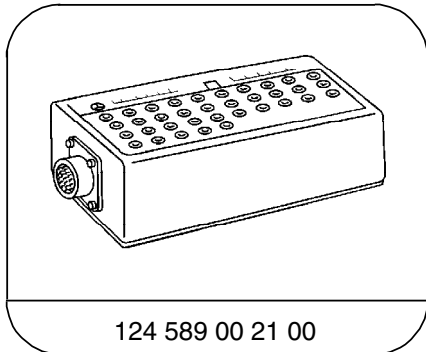
Preliminary work: Linkage adjustment SMS, Group, Job No. 30-300

Electronic Accelerator Preparation for Test

- Battery voltage: minimum 11 V

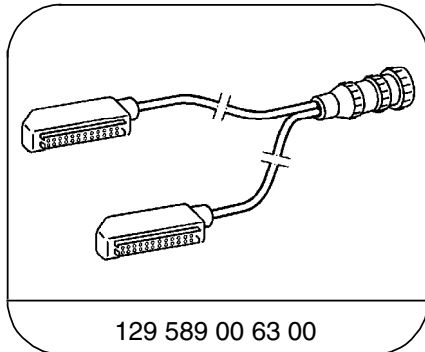
Electrical wiring diagrams, see Electrical Troubleshooting Manual.

Special Tools



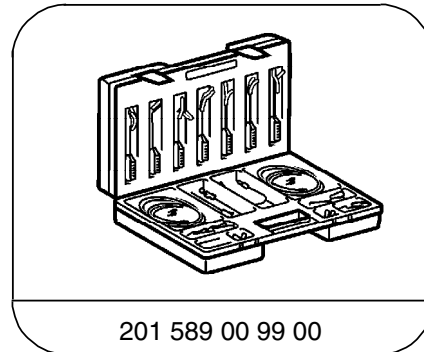
124 589 00 21 00

35-pin socket box



129 589 00 63 00

35-pin test cable



201 589 00 99 00

Electrical connecting set

Equipment

Digital multimeter ¹⁾	Sun DMM-5 Fluke model 23 with 80i-410 current probe
Signal generator ¹⁾	Sun DTR 8416

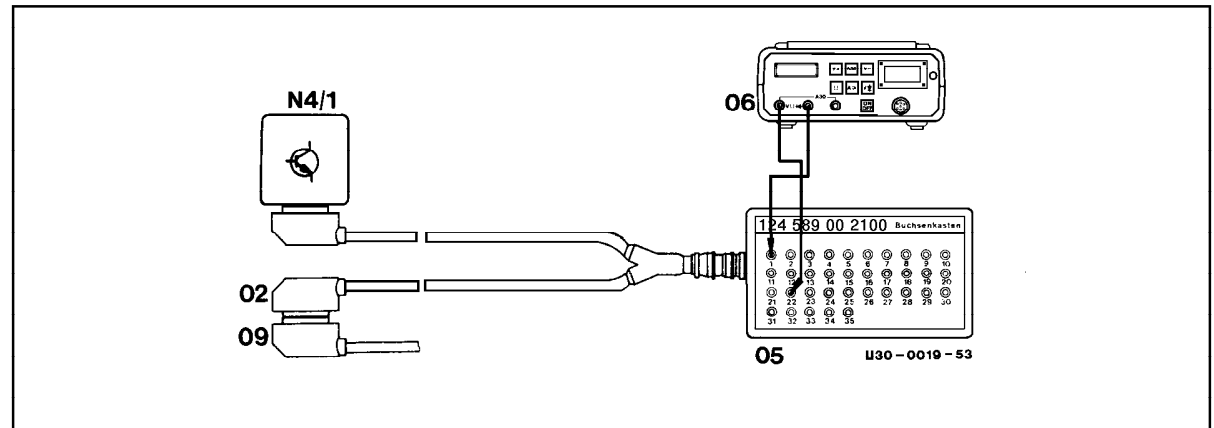
¹⁾ Available through the MBUSA Standard Equipment Program.

Electrical Test Program - Electronic Accelerator Preparation for Test

Connection Diagram – Multimeter for Electronic Accelerator Test Program Engines 104, 119

Figure 1

02	Test cable	129 589 00 63 00
05	Socket box	124 589 00 21 00
06	Multimeter	
09	Vehicle wiring harness (EA/CC) control module	
N4/1	Electronic accelerator/cruise control module	



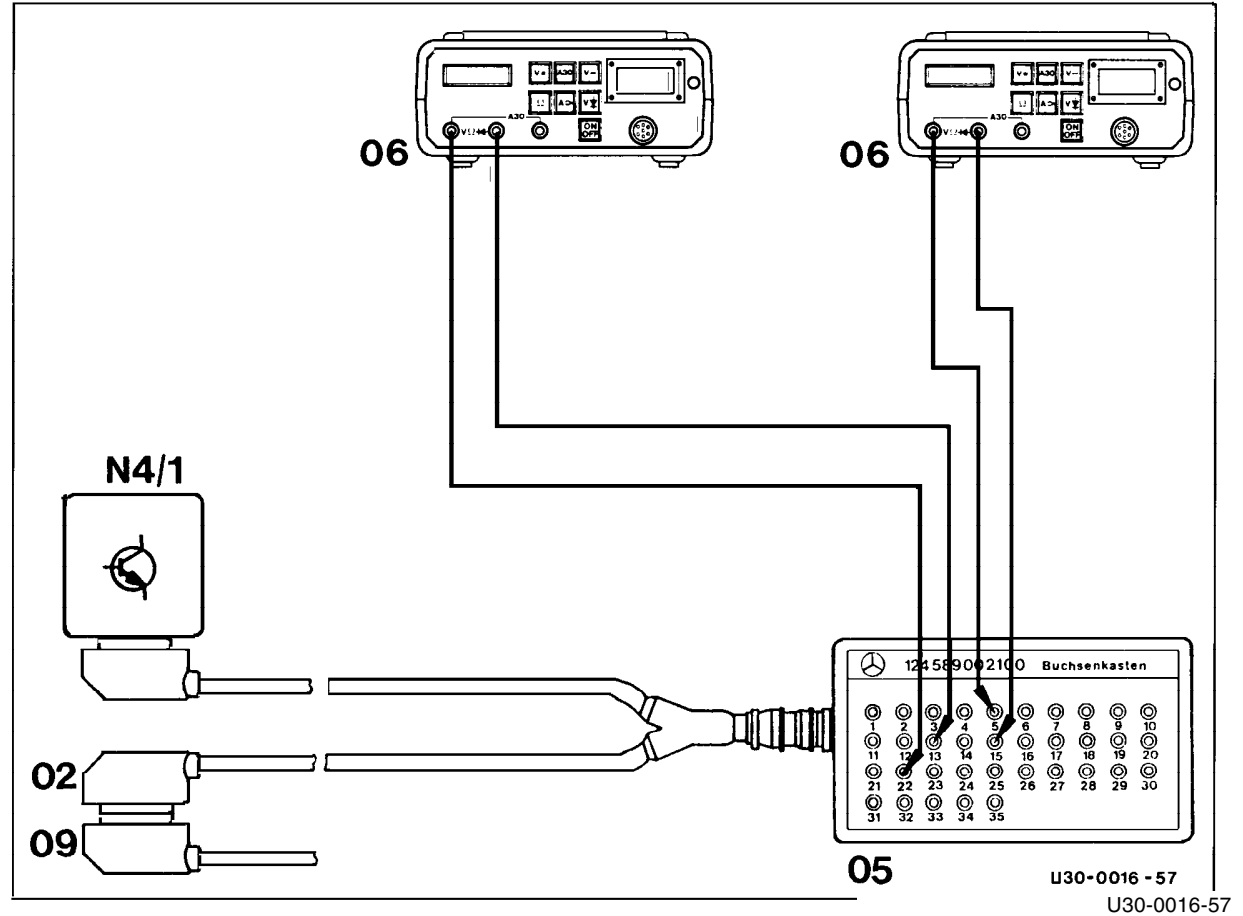
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Note:

On vehicles with 5-speed automatic transmission, unplug transmission control module (5-speed automatic) (N15/1) in order to connect test cable.

Electrical Test Program - Electronic Accelerator Preparation for Test

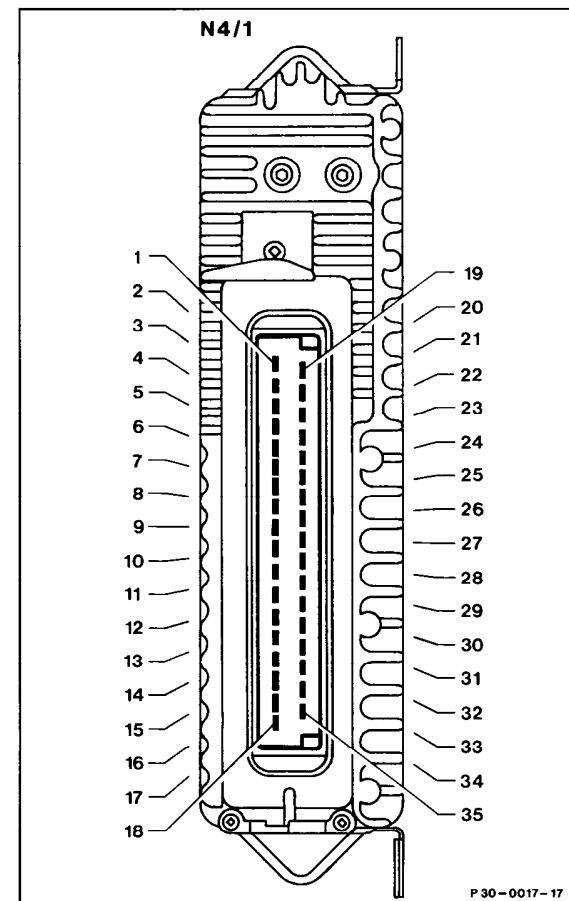
Connection Diagram – 2 Multimeters for Electronic Accelerator Test Program Engines 104, 119



Electrical Test Program - Electronic Accelerator Preparation for Test


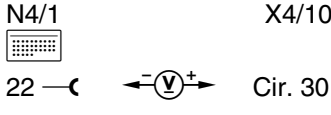
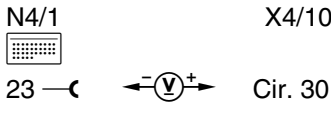
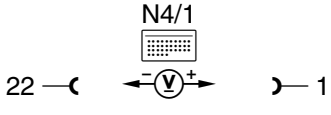
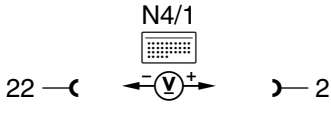
Terminal layout of electronic accelerator control module connector

1	Voltage supply circuit 15 (unfused)	22	Model 124: Ground, battery (W10) Model 129: Ground, component compartment (W16)
2	Voltage supply circuit 15 (unfused)	23	Model 124: Ground, battery (W10) Model 129: Ground, component compartment (W16)
3	EA/CC actuator (engine)	24	Not used
4	EA/CC actuator (engine)	25	Not used
5	Accelerator pedal position sensor, potentiometer (ground)	26	EA/CC actuator, feedback potentiometer (voltage supply)
6	Electronic accelerator/cruise control actuator, feedback potentiometer (ground)	27	Not used
7	Not used	28	EA/CC actuator, potentiometer
8	Engine 104: Idle speed signal to CFI control module Engine 119: Not used	29	EA/CC actuator, safety switch
9	Accelerator pedal position sensor, potentiometer voltage supply (+)	30	Engine systems control module (MAS), circuit 15, socket 10
10	Not used	31	To ABS/ASR control module (throttle valve-actual voltage signal)
11	Model 124: Ground, battery (W10) Model 129.066: Ground, component compartment (W16)	32	Cruise control switch (ACCEL. SET)
12	Electronic speedometer, speed signal	33	Starter lock-out/backup lamp switch position "R"
13	Accelerator pedal position sensor, safety switch	34	From ABS/ASR control module (throttle valve-nominal voltage signal)
14	Brake lamp switch	35	Cruise control switch (OFF)
15	Accelerator pedal position sensor, potentiometer return signal		
16	Cruise control switch (DECEL. SET)		
17	Not used		
18	Cruise control switch (RESUME)		
19	Not used		
20	EA/CC actuator (engine)		
21	EA/CC actuator (engine)		


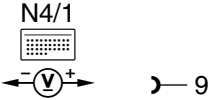
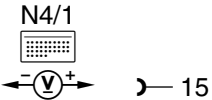
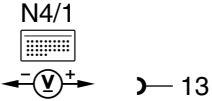


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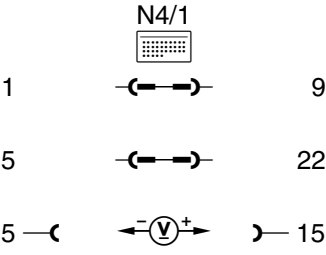
Electrical Test Program – Electronic Accelerator Test

⇒		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  N4/1 X4/10 	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	 	Ignition: ON	11 – 14 V	Check connector for multi-function block (X30/1) (see 23, Figure 6). Check X30/1.


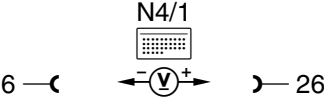
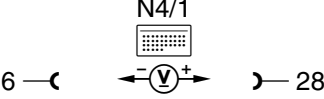
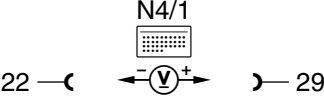
Electrical Test Program – Electronic Accelerator Test

⇒		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


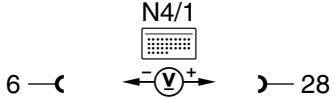
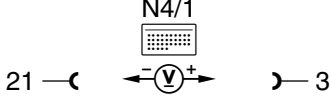
Electrical Test Program – Electronic Accelerator Test

⇒		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



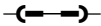
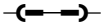





Electrical Test Program – Electronic Accelerator Test

⇒		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  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.

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.

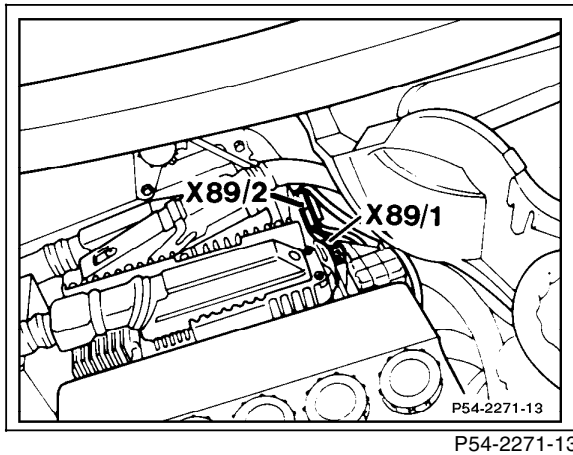
Electrical Test Program - Electronic Accelerator Test

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

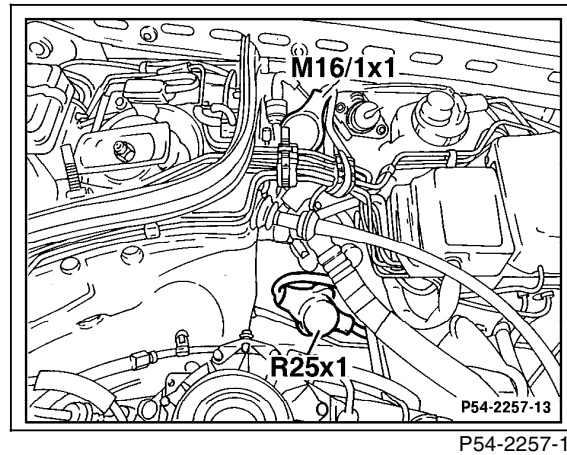
“B” Voltage supply Potentiometer V	“e” Voltage at Closed Throttle Position V	“f” Voltage at Wide Open Throttle Position V	“g” Voltage at Potentiometer Safety Switch V
6.8	6.05 – 6.19	0.61 – 0.75	5.35 – 5.68
6.9	6.14 – 6.28	0.62 – 0.76	5.43 – 5.76
7.0	6.23 – 6.37	0.63 – 0.77	5.51 – 5.89
7.1	6.32 – 6.46	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.

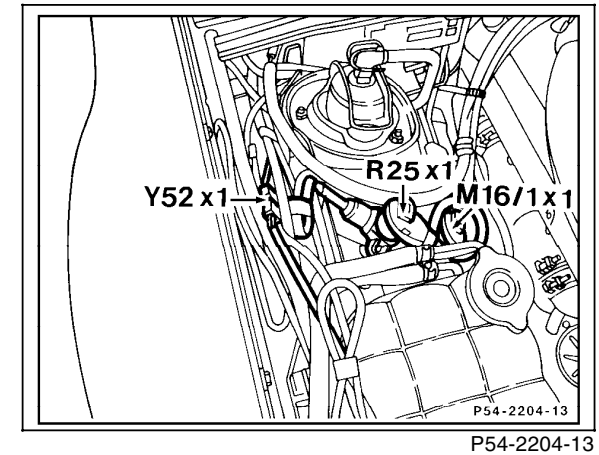
Electrical Test Program – Electronic Accelerator Test



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P54-2204-13

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)

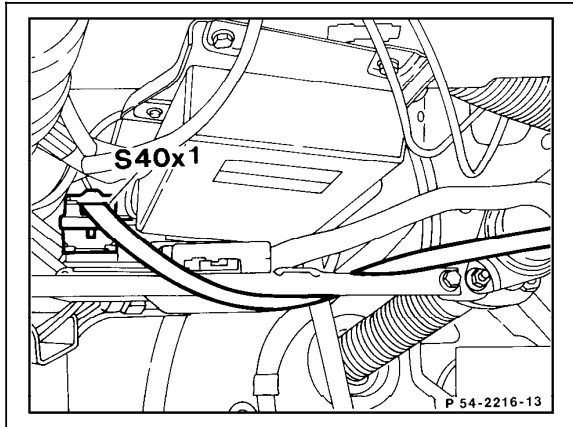
Figure 2
Engine 104, Model 124

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

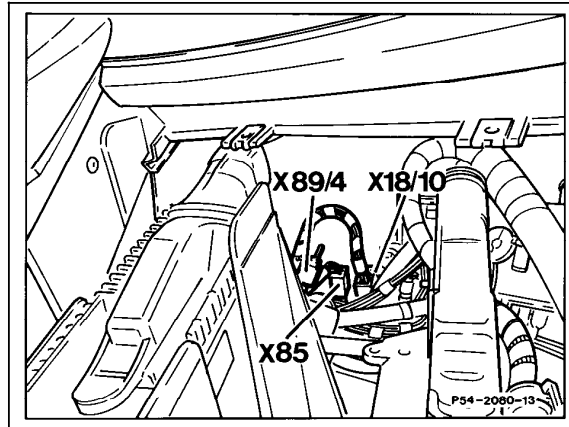
Figure 3
Engine 104, Model 129

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

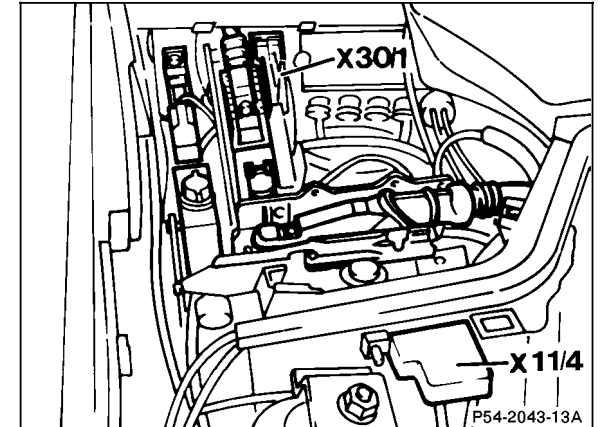
Electrical Test Program – Electronic Accelerator Test



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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

Electrical Test Program - Cruise Control Component Locations

Engine Compartment,
Models 124, 129 with Engine 104

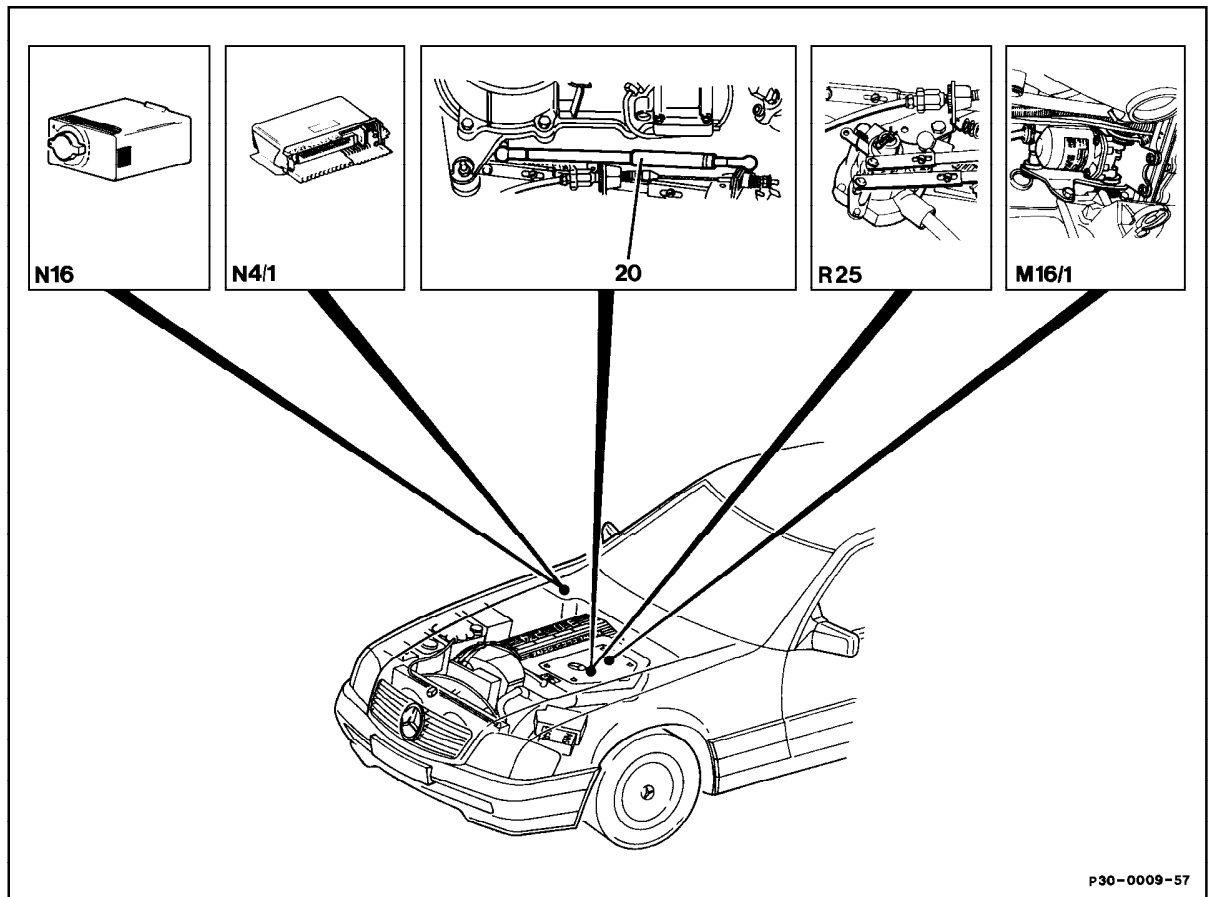


Figure 1

- N4/1 EA/CC control module
- N16 Engine systems control module (MAS)
- M16/1 EA/CC actuator
- R25 Accelerator pedal position sensor
- 20 Telescoping linkage rod (back-up linkage)

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Electrical Test Program - Cruise Control Component Locations

Passenger Compartment
Models 124, 129 with Engine 104

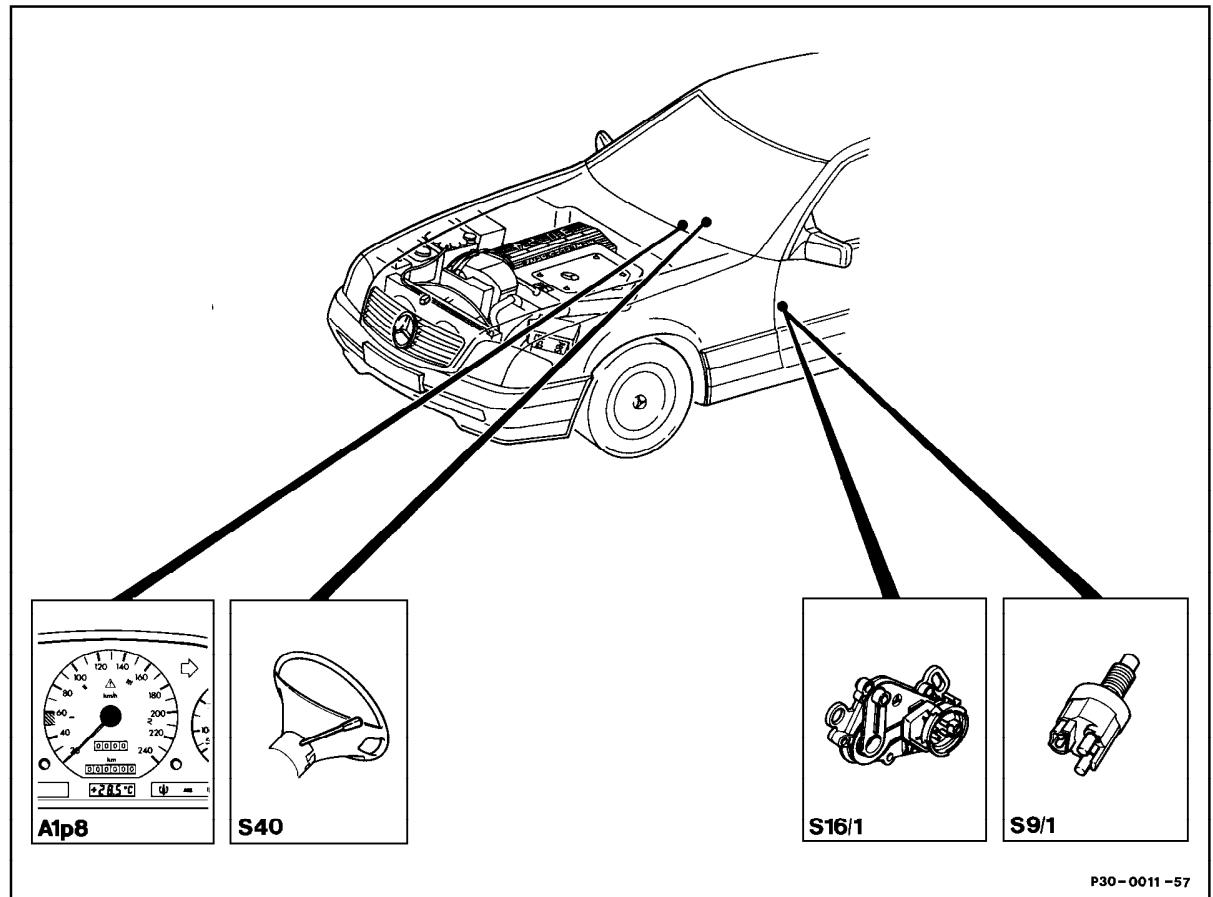


Figure 2

- A1p8 Electronic speedometer with top speed limitation
- S9/1 Stop lamp switch
- S16/1 Starter lock-out/backup lamp switch
- S40 Cruise control switch
- V Decelerate/set
- B Accelerate/set
- SP Resume
- A Off

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Electrical Test Program - Cruise Control Component Locations

Engine Compartment,
Model 129 with Engine 119

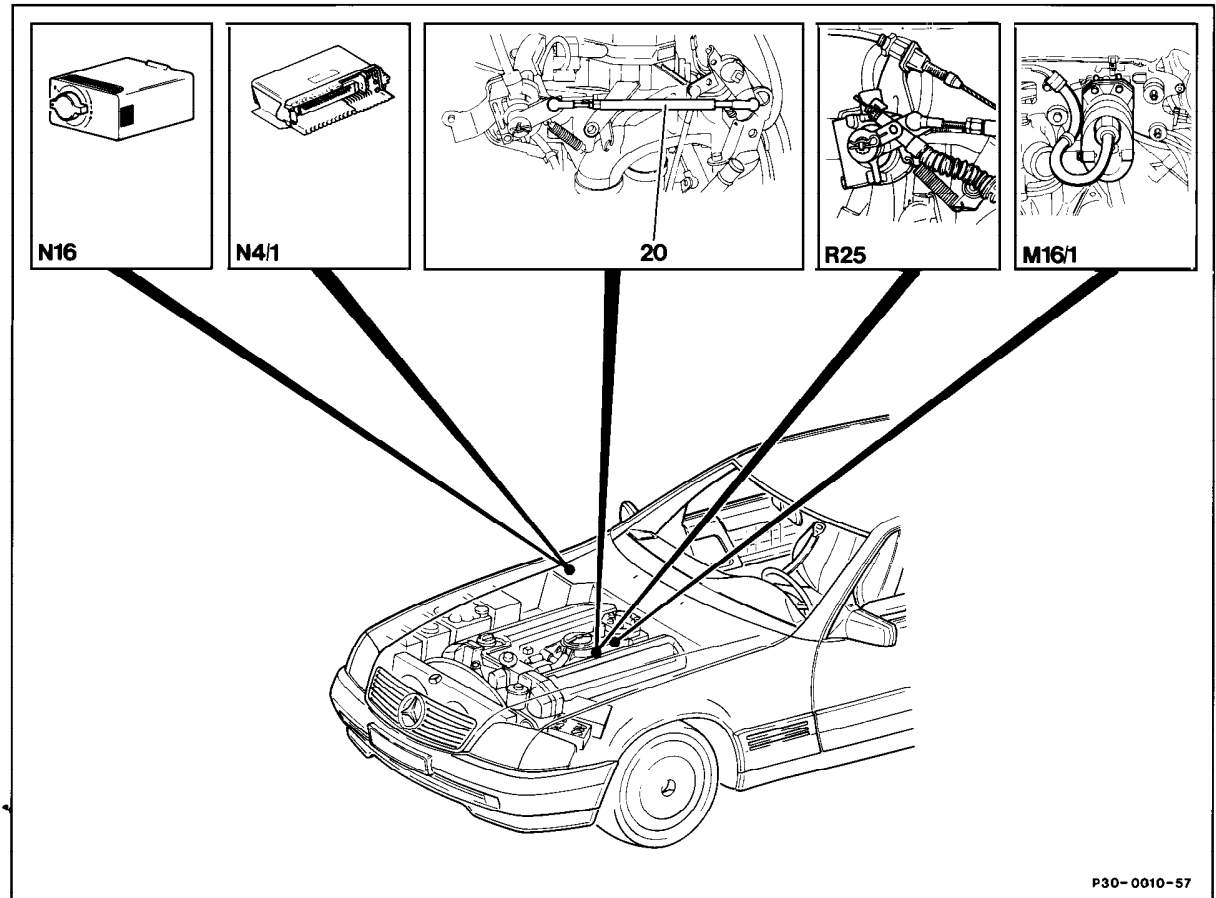


Figure 3

- N4/1 EA/CC control module
- N16 Engine systems control module (MAS)
- M16/1 EA/CC actuator
- R25 Accelerator pedal position sensor
- 20 Telescoping linkage rod (back-up linkage)

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Electrical Test Program - Cruise Control Component Locations

Passenger Compartment
Model 129 with Engine 119

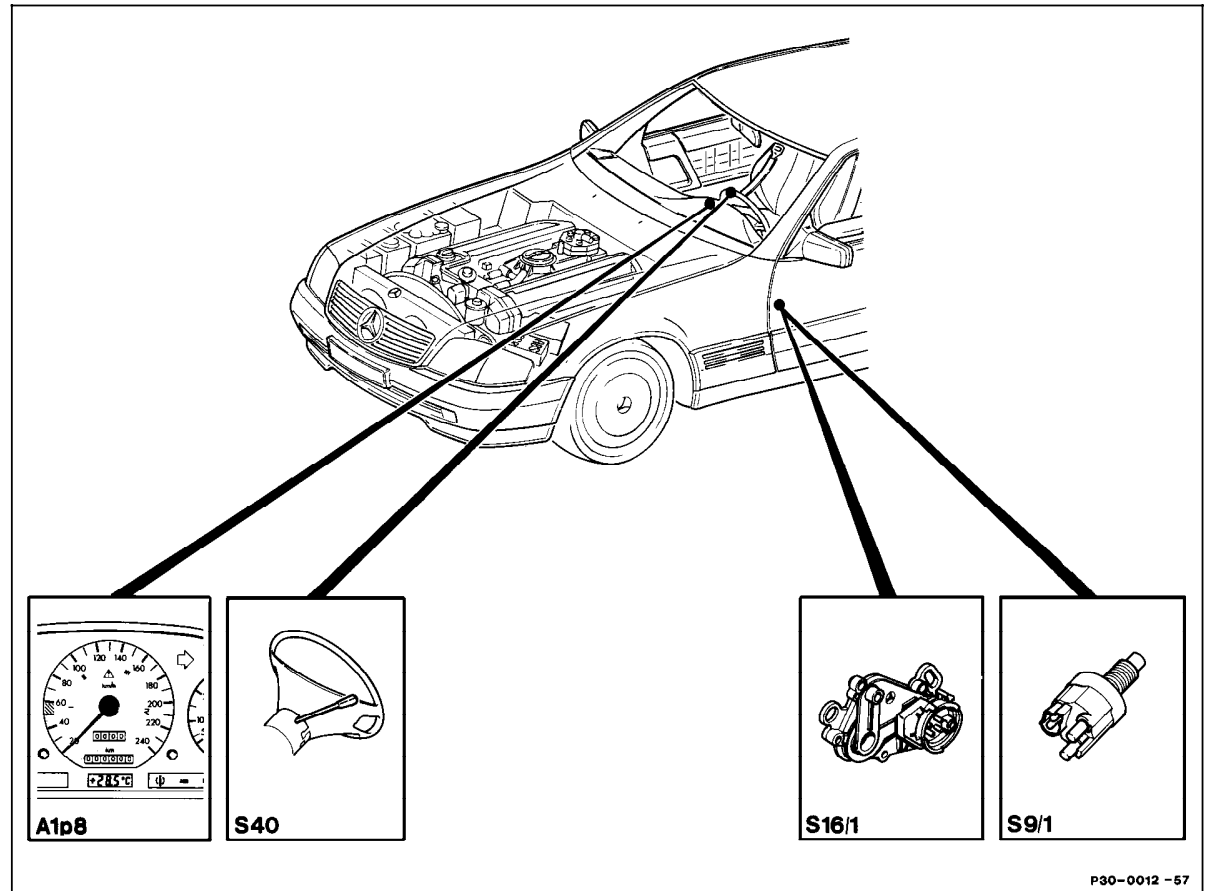


Figure 4

- A1p8 Electronic speedometer with top speed limitation
- S9/1 Stop lamp switch
- S16/1 Starter lock-out/backup lamp switch
- S40 Cruise control switch
- V Decelerate/set
- B Accelerate/set
- SP Resume
- A Off

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Electrical Test Program - Cruise Control Preparation for Test

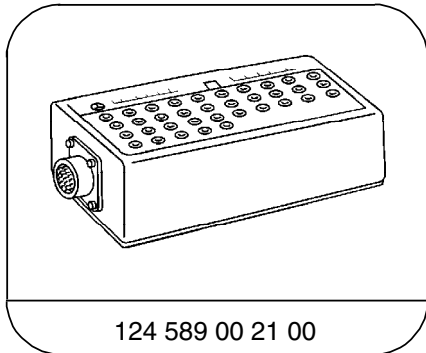
Preliminary work: Linkage adjustment SMS, Group, Job No. 30-300

Cruise Control Preparation for Test

- Battery voltage: minimum 11 V

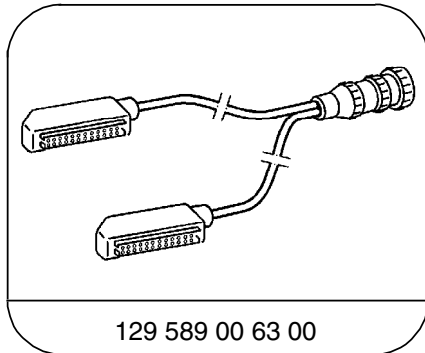
Electrical wiring diagrams, see Electrical Troubleshooting Manual.

Special Tools



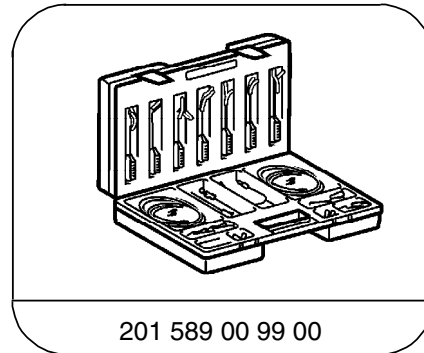
124 589 00 21 00

35-pin socket box



129 589 00 63 00

35-pin test cable



201 589 00 99 00

Electrical connecting set

Equipment

Digital multimeter ¹⁾	Sun DMM-5 Fluke model 23 with 80i-410 current probe
Signal generator ¹⁾	Sun DTR 8416

¹⁾ Available through the MBUSA Standard Equipment Program.

6.1 Electronic Accelerator (EA)

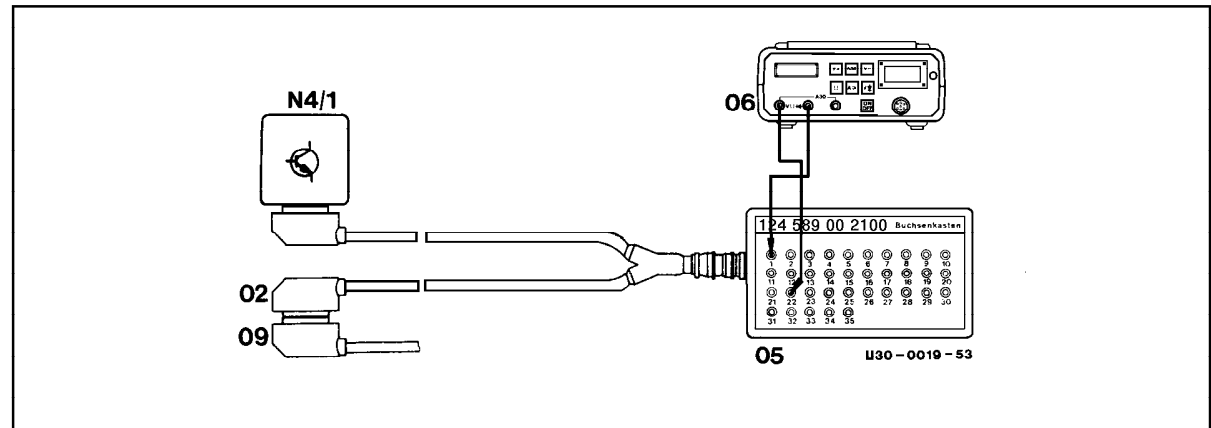
Engines 104, 119 CFI

Electrical Test Program - Cruise Control Preparation for Test

Connection Diagram – Multimeter for Cruise Control Test Program Engines 104, 119

Figure 1

02	Test cable	129 589 00 63 00
05	Socket box	124 589 00 21 00
06	Multimeter	
09	Vehicle wiring harness (EA/CC control module)	
N4/1	EA/CC control module	

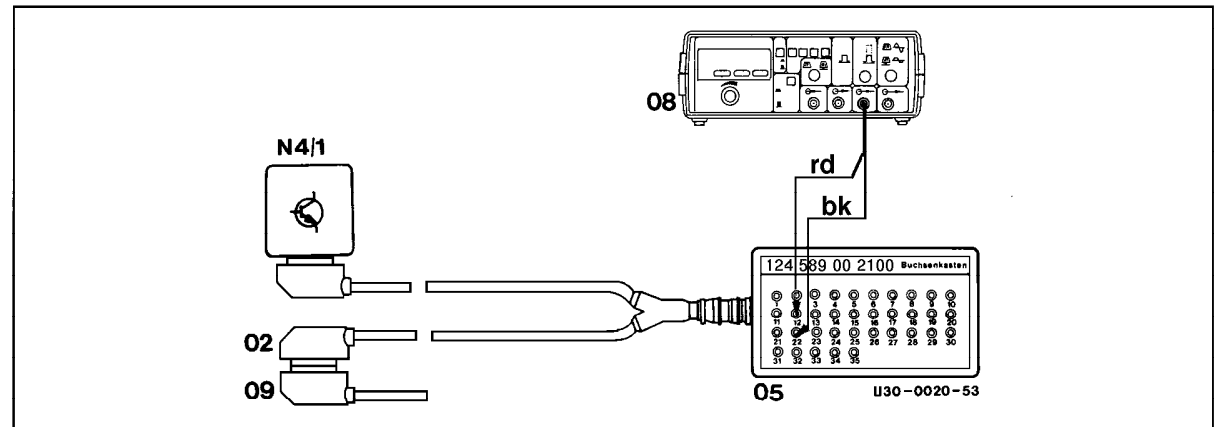


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Connection Diagram – Signal Generator for Cruise Control Test Program Engines 104, 119

Figure 2

02	Test cable	129 589 00 63 00
05	Socket box	124 589 00 21 00
08	Signal generator	
09	Vehicle wiring harness (EA/CC control module)	
N4/1	EA/CC control module	

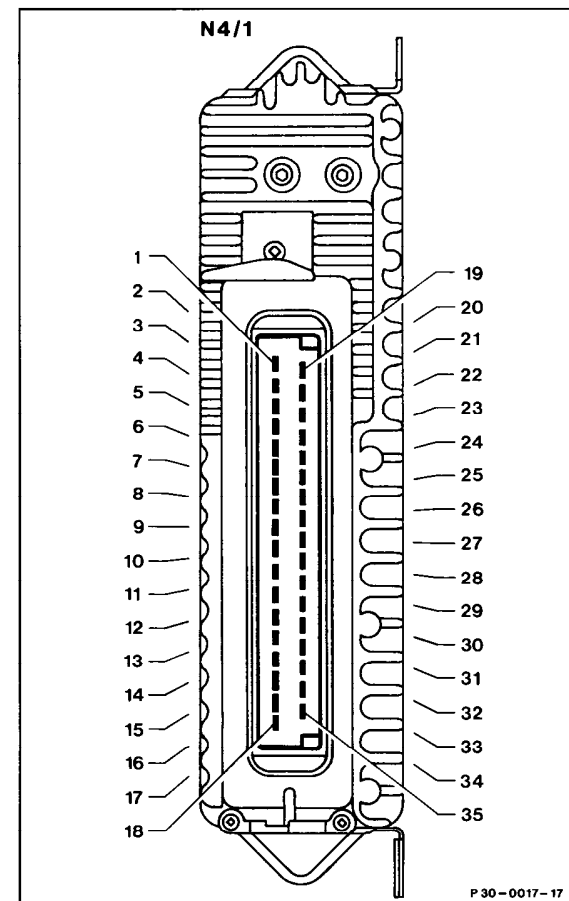


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Electrical Test Program - Cruise Control Preparation for Test



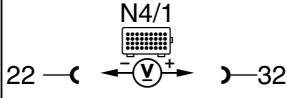
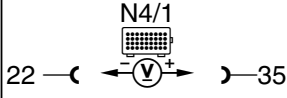
Terminal layout of electronic accelerator control module connector

1	Voltage supply circuit 15 (unfused)	22	Model 124: Ground, battery (W10) Model 129: Ground, component compartment (W16)
2	Voltage supply circuit 15 (unfused)	23	Model 124: Ground, battery (W10) Model 129: Ground, component compartment (W16)
3	EA/CC actuator (engine)	24	Not used
4	EA/CC actuator (engine)	25	Not used
5	Accelerator pedal position sensor, potentiometer (ground)	26	EA/CC actuator, feedback potentiometer (voltage supply)
6	EA/CC actuator, feedback potentiometer (ground)	27	Not used
7	Not used	28	EA/CC actuator, potentiometer
8	Engine 104: Idle speed signal to CFI (CIS-E) control module Engine 119: Not used	29	EA/CC actuator, safety switch
9	Accelerator pedal position sensor, potentiometer voltage supply (+)	30	Engine systems control module (MAS), circuit 15, socket 10
10	Not used	31	To ABS/ASR control module (throttle valve-actual voltage signal)
11	Model 124: Ground, battery (W10) Model 129.066: Ground, component compartment (W16)	32	Cruise control switch (ACCEL. SET)
12	Electronic speedometer, speed signal	33	Starter lock-out/backup lamp switch position "R"
13	Accelerator pedal position sensor, safety switch	34	From ABS/ASR control module (throttle valve-nominal voltage signal)
14	Brake lamp switch	35	Cruise control switch (OFF)
15	Accelerator pedal position sensor, potentiometer return signal		
16	Cruise control switch (DECEL. SET)		
17	Not used		
18	Cruise control switch (RESUME)		
19	Not used		
20	EA/CC actuator (engine)		
21	EA/CC actuator (engine)		



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Electrical Test Program - Cruise Control Test

Test step	Test scope	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 1.0	Cruise control switch (S40) V Decelerate/set B Accelerate/set SP Resume A Off		Ignition: ON Switch not activated Position "DECEL."	< 1 V 11–14 V	Open/short circuit, Cruise control switch (S40) defective.
			Switch not activated Position "RESUME"	< 1 V 11–14 V	
			Switch not activated Position "ACCEL."	< 1 V 11–14 V	
			Switch not activated Position "OFF"	11–14 V < 1 V	

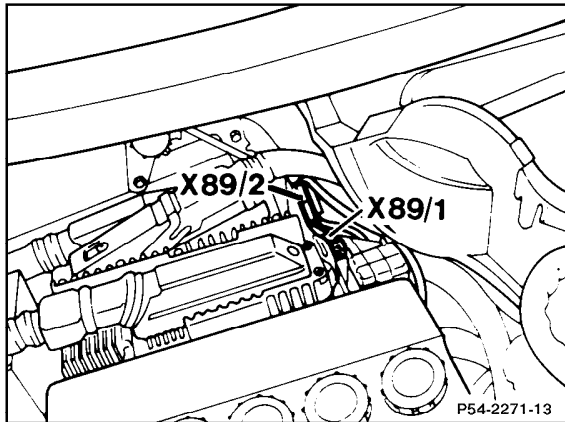
Electrical Test Program - Cruise Control Test

Test step	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 2.0	Stop lamp switch (S9/1)		Ignition: OFF Brake pedal not applied Brake pedal applied	< 10 Ω > 500 kΩ	Open/short circuit, Stop lamp switch (S9/1) defective.
⇒ 3.0	Speed signal		Ignition: ON Drive vehicle on dynamometer or road (> 13 mph, 20 km/h).	> 1 V	Open/short circuit, Electronic speedometer with top speed limitation (A1p8) defective.
⇒ 4.0	Speed sensor supply signal Models 124, 129.066 with 4- speed automatic transmission only!		Ignition: ON	11 – 14 V	Open/short circuit, Check wiring for correct terminal layout.
⇒ 5.0	EA/CC actuator (M16/1)		Model 129 only: Remove instrument cluster and unplug connector "1". Connect signal generator. Set frequency to > 150 Hz and voltage to 5 V. Ignition: ON Cruise control switch position "ACCEL."	M16/1 adjusts to wide open position	EA/CC control module (N4/1) defective.

Electrical Test Program - Cruise Control Test

Test step	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ [5.0]			Position "DECEL." Position "OFF" Position "RESUME" Apply brake pedal	EA/CC actuator (M16/1) adjusts towards closed throttle position. M16/1 must move towards closed throttle position. M16/1 must adjust to previously set position. M16/1 must go to closed throttle position.	

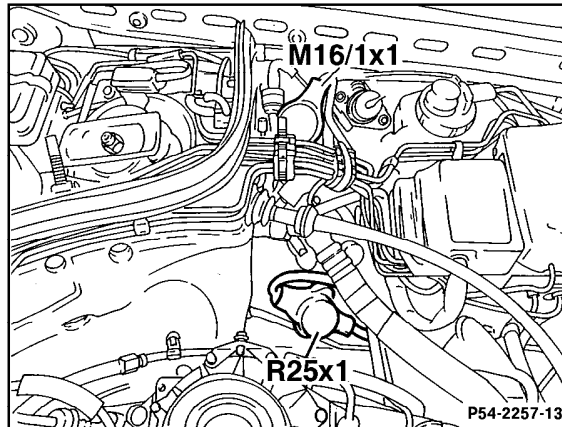
Electrical Test Program - Cruise Control Test



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Figure 1
Engine 104, Model 124

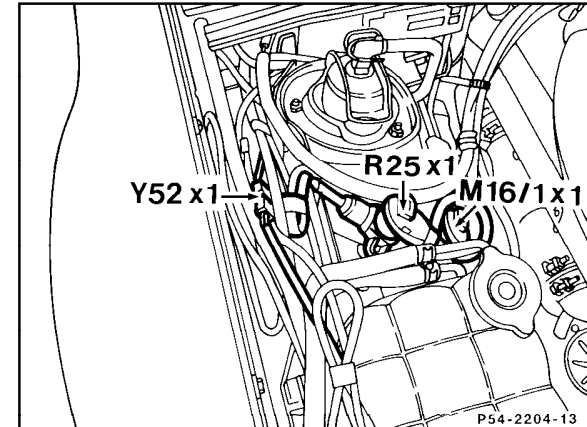
- | | |
|-------|---|
| X89/1 | Electronic accelerator/cruise control module connector (ASR) (3-pole) |
| X89/2 | EA/CC control module/engine harness connector (3-pole) |



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Figure 2
Engine 104, Model 124

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



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Figure 3
Engine 104, Model 129

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

Electrical Test Program - Cruise Control Test

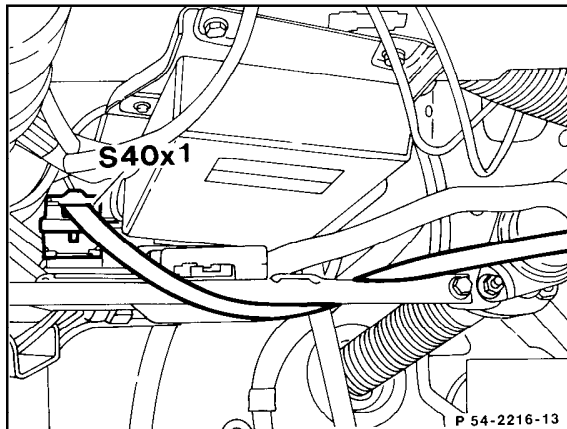


Figure 4
Engine 104, 119, Model 129

S40x1 Cruise control switch connector

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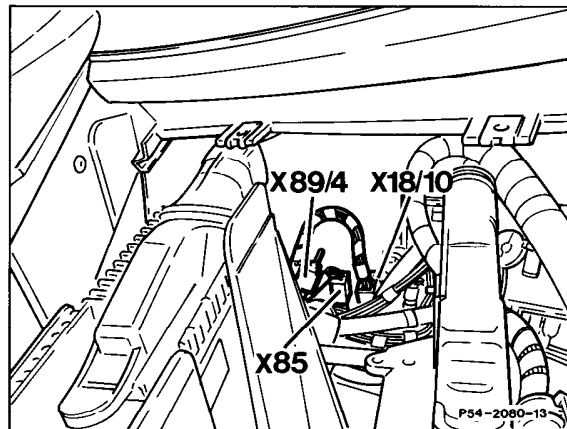


Figure 5
Engine 104, 119, Model 129

X18/10 Interior/ASR connector (8-pole)
X85 Automatic A/C engine harness connector (4-pole)
X89/4 EA/CC control module/CFI (CIS-E) connector (1-pole)

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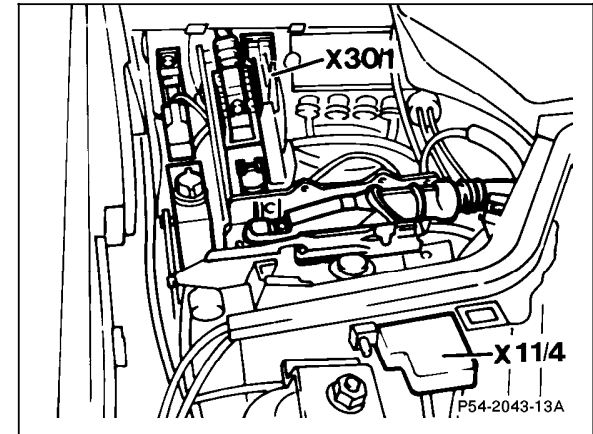


Figure 6
Engine 104, 119, Model 129

X11/4 Diagnostic connector (diagnostic trouble code, 16-pole)
X30/1 Multi-function block connector

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