

6.2 Engine 104, 119 with LH-SFI Models 124, 129, 140

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Diagnosis - Diagnostic Trouble Code (DTC) Readout

Preparation for DTC Readout

- Connect impulse counter scan tool and/or HHT to data link connector (X11/4) according to connection diagram.
Yellow wire to socket 7

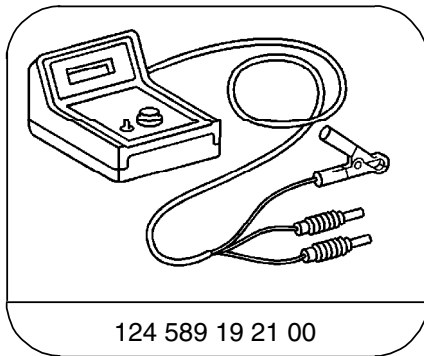
Note

The Test Program is divided into two sections:

- Electronic accelerator with ISC
- Cruise control

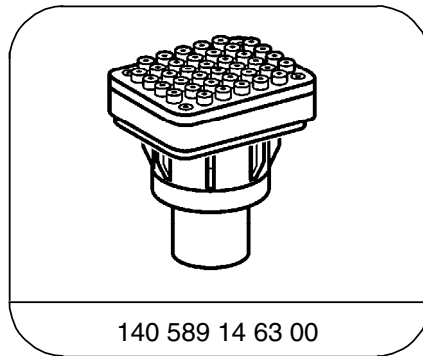
According to the diagnosis made, troubleshoot by performing only the related test steps in the particular group.

Special Tools



124 589 19 21 00

Pulse counter



140 589 14 63 00

Adapter

Equipment

Hand-Held Tester (HHT)

see current MBUSA service information in groups 58 and 99

Diagnosis - Diagnostic Trouble Code (DTC) Readout

Diagnostic trouble code (DTC)	Possible cause	Test step/Remedy ¹⁾
1	-	No fault in system
2	002 006 007 008 009 025	EA/CC/ISC control module (N4/1) Safety contact switch (M16/1s1) Stop lamp switch (S9/1) Safety contact switch (M16/1s1) Cruise control switch (S40) OFF EA/CC/ISC control module (N4/1) Actual value potentiometer (M16/1r2) Starter lock-out/back-up lamp switch (S16/3) (transmission range recognition) Closed throttle position switch (S29/3) Engine speed (TNA) signal Vehicle speed signal (VSS) Safety relay within EA/CC/ISC control module (N4/1) EA/CC/ISC control module (N4/1) Engine harness
-	037	Conditions for activation of EA/CC/ISC actuator (M16/1) not fulfilled.
		N4/1 23⇒ 5.0, 6.0 24⇒ 2.0, 3.0 23⇒ 5.0, 7.0 24⇒ 1.0 N4/1 23⇒ 2.0, 4.0 23⇒ 12.0 23⇒ 11.0 23⇒ 15.0 23⇒ 16.0 N4/1 N4/1 Check harness wire insulation.
		Conditions: Engine: OFF Transmission range: P/N



¹⁾ Observe Preparation for Test, see 22.

Diagnosis - Diagnostic Trouble Code (DTC) Readout

Diagnostic trouble code (DTC)	Possible cause	Test step/Remedy ¹⁾
3 054, 056 048 049, 057 050 051	EA/CC/ISC actuator (M16/1) Reference potentiometer (M16/1r1) Actual value potentiometer (M16/1r2) Safety contact switch (M16/1s1) Closed throttle position switch (M16/1s2)	23⇒ 2.0–10.0 23⇒ 2.0, 3.0 23⇒ 2.0, 4.0 23⇒ 5.0, 7.0 23⇒ 5.0, 6.0
3 052	Actuator motor (M16/1m1)	23⇒ 9.0
3 053	Magnetic clutch (M16/1k1)	23⇒ 10.0
– 055	Reset not accomplished (actuator adaptation)	Erase DTCs: Ignition: OFF Ignition: ON (for at least 90 seconds). If DTC appears: EA/CC/ISC actuator (M16/1)
4 064	Cruise control switch (S40)	24⇒ 1.0
5 080	Stop lamp switch (S9/1)	24⇒ 2.0, 3.0
6 096	Starter lock-out/backup lamp switch (S16/1)	23⇒ 12.0
6 097	<i>Not valid for U.S.A. vehicles</i>	
7 112 113 115	CAN databus: Message from EA/CC/ISC control module (N4/1) faulty Message from ABS/ASR control module (N30/1) faulty Message from LH-SFI control module (N3/1) faulty	N4/1, 23⇒ 20.0 23⇒ 20.0

¹⁾ Observe Preparation for Test, see 22.

Diagnosis - Diagnostic Trouble Code (DTC) Readout

Diagnostic trouble code (DTC)  	Possible cause	Test step/Remedy ¹⁾
8 128-130	Left front axle vehicle speed signal (L6/1) from ABS/ASR control module (N30/1)	23⇒ 16.0
9 144	Left rear axle vehicle speed signal (L6/3) from ABS/ASR control module (N30/1)	23⇒ 17.0
10 160	Engine speed signal (TNA) from base module (N16/1)	23⇒ 15.0
11 176-188	Fuel safety shut-off signal to LH-SFI control module (N3/1)	23⇒ 18.0
- 177-180	Closed throttle recognition signal to LH-SFI control module (N3/1)	23⇒ 19.0
12 192, 193	Voltage supply, circuit 87	23⇒ 1.0
14 224	Closed throttle position switch (S29/3)	23⇒ 11.0
15 240	Data exchange with ABS/ASR control module (N30/1) implausible	N30/1

¹⁾ Observe Preparation for Test, see 22.

Diagnosis - Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾
Electronic accelerator in "limp-home" mode	Closed throttle position switch (S29/3)	23 ⇒ 11.0
Engine speed limiter active at 1200 rpm (engine 104) or 1100 rpm (engine 119)	Fuel safety shut-off to LH-SFI control module (N3/1)	23 ⇒ 18.0

¹⁾ Observe Preparation for Test, see 22.

Electrical Test Program - Component Locations

Engine 104

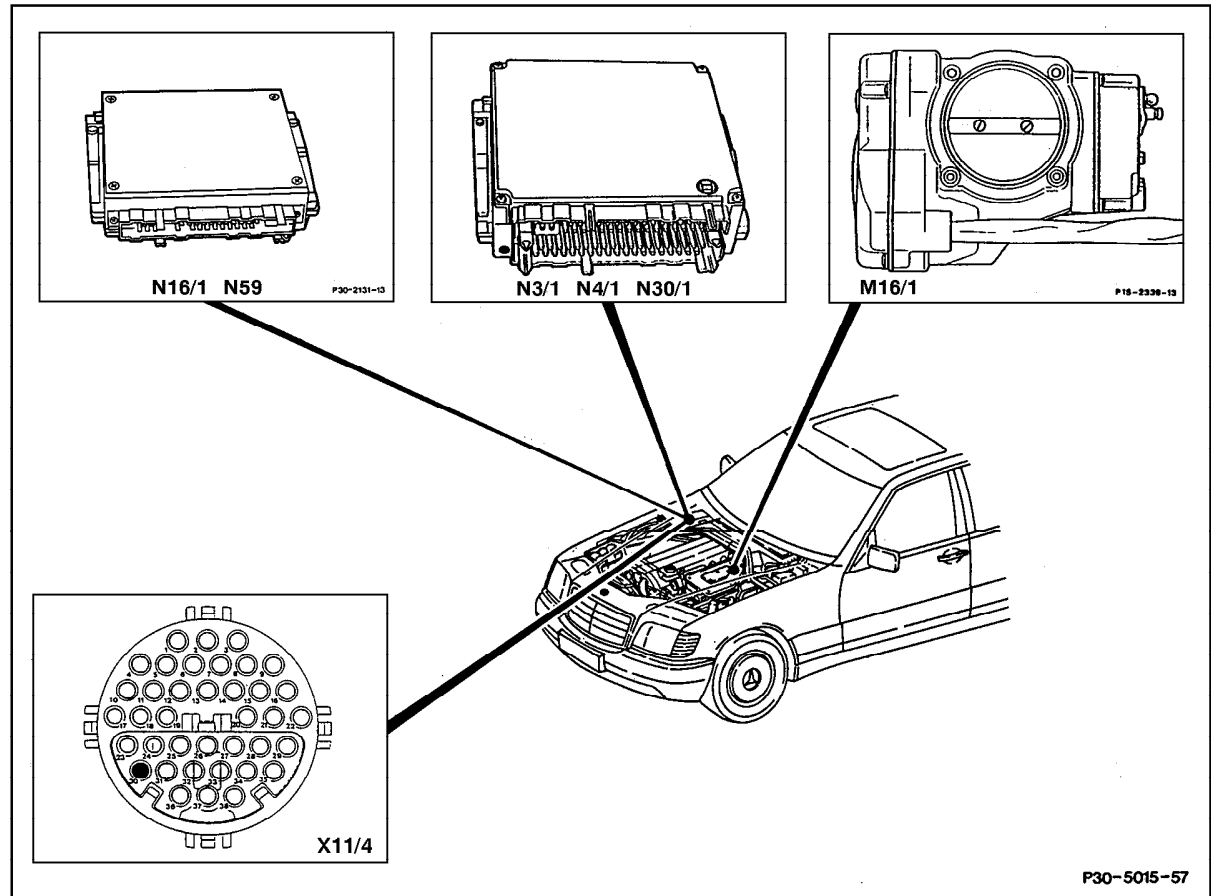


Figure 1

- M16/1 Electronic accelerator/cruise control actuator
- N3/1 LH-SFI control module
- N4/1 EA/CC/ISC control module
- N16/1 Base module
- N30/1 ABS/ASR control module
- N59 Diagnostic module (OBD I)
- X11/4 Data link connector (DTC readout)

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Electrical Test Program - Component Locations

Engine 104

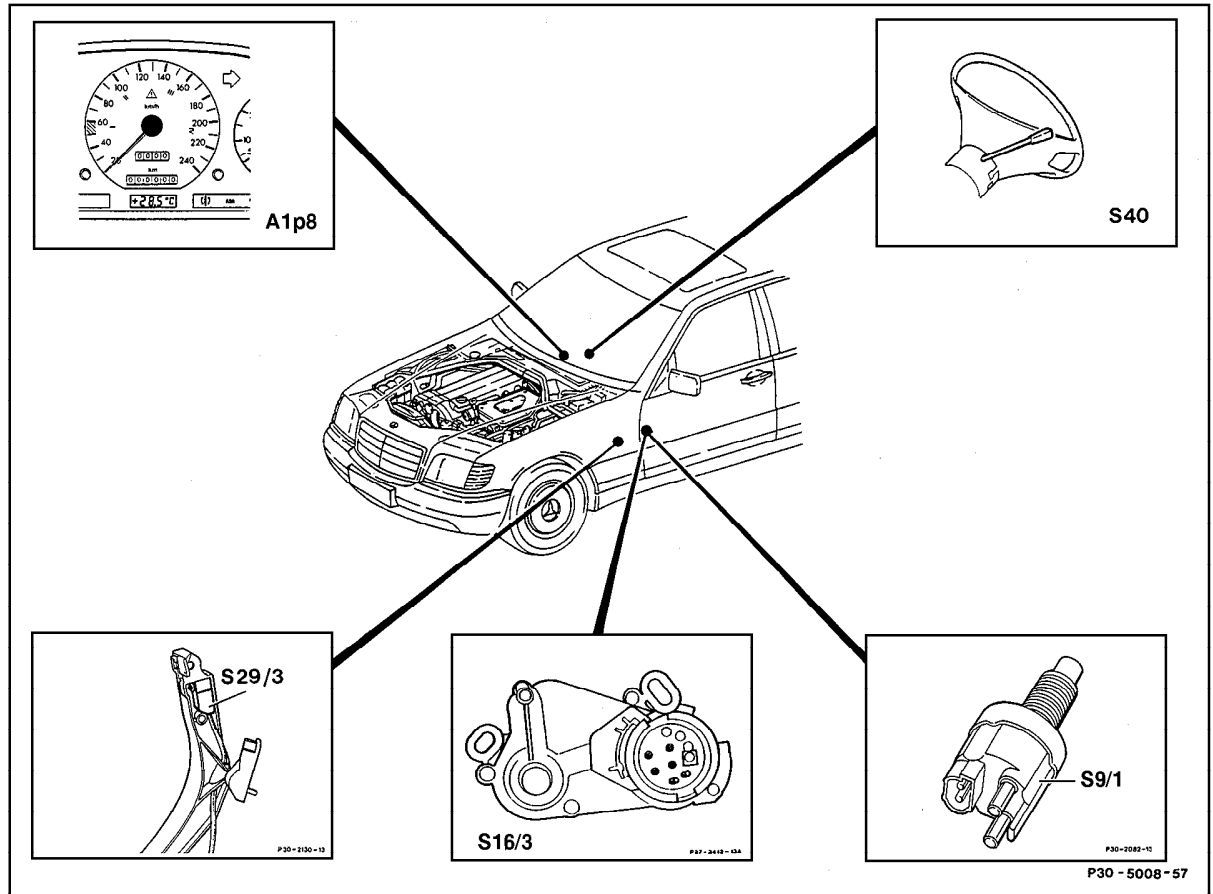


Figure 2

- A1p8 Electronic speedometer
- S9/1 Stop lamp switch (ASR) (4-pole)
- S16/3 Starter lock-out/backup lamp switch (transmission range recognition)
- S29/3 Closed throttle position switch
- S40 Cruise control switch
- V Decelerate/set
- B Accelerate/set
- SP Resume
- A Off

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Electrical Test Program - Component Locations

Engine 119

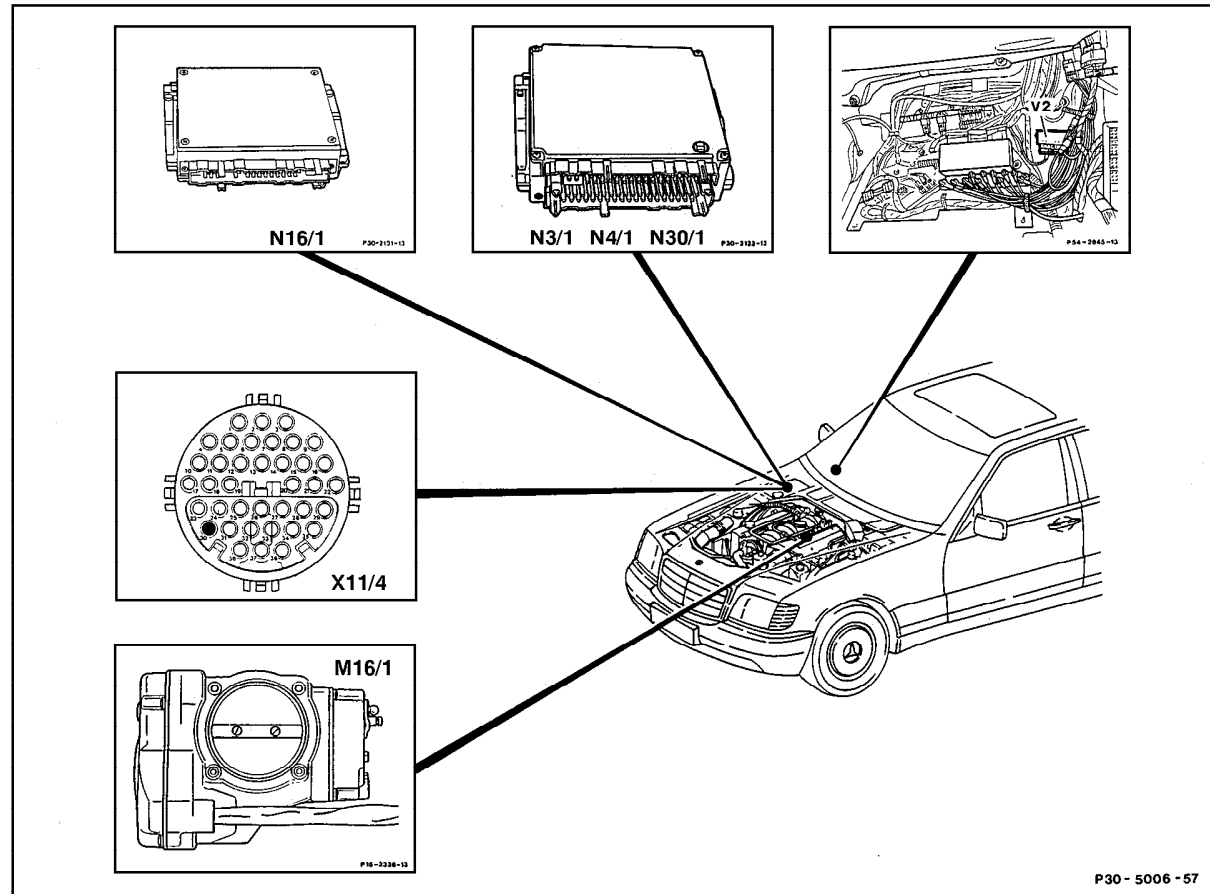


Figure 3

- M16/1 Electronic accelerator/cruise control actuator
- N3/1 LH-SFI control module
- N4/1 EA/CC/ISC control module
- N16/1 Base module
- N30/1 ABS/ASR control module
- N59 Diagnostic module (OBD I)
- X11/4 Data link connector (DTC readout)
- V2 Engine rpm increase diode matrix (right footwell, model 140 with engine 119 only)

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Electrical Test Program - Component Locations

Engine 119

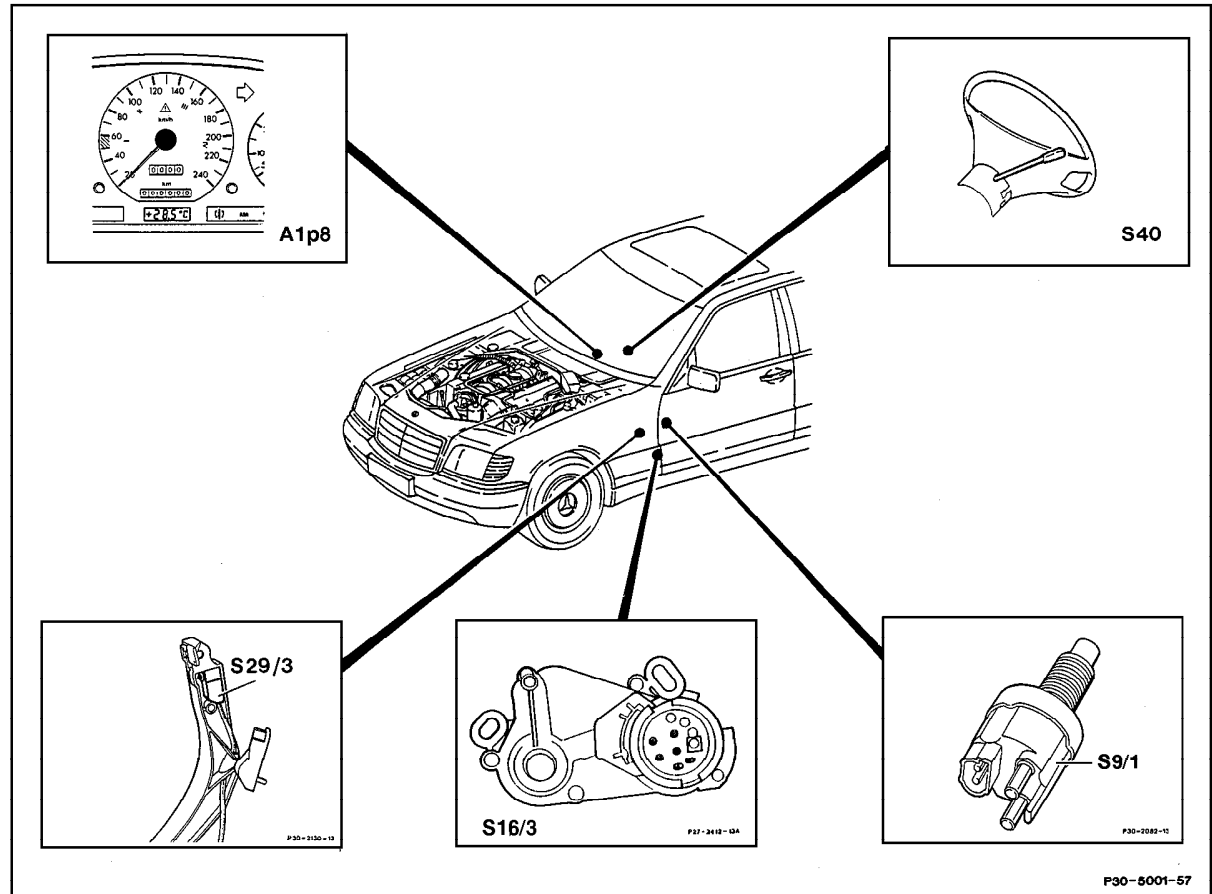


Figure 4

- A1p8 Electronic speedometer
- S9/1 Stop lamp switch (ASR) (4-pole)
- S16/3 Starter lock-out/backup lamp switch (transmission range recognition)
- S29/3 Closed throttle position switch
- S40 Cruise control switch
- V Decelerate/set
- B Accelerate/set
- SP Resume
- A Off

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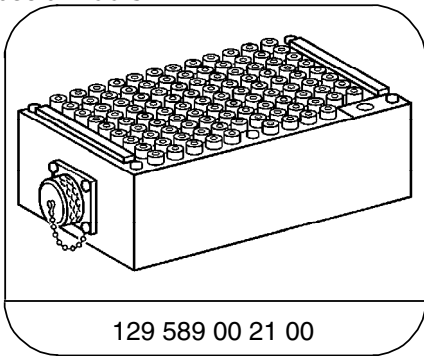
Electrical Test Program - Preparation for Test

Preliminary work: Diagnosis – Diagnostic Trouble Code (DTC) Memory 11

1. Ignition: **OFF**.
2. Connect socket box according to connection diagram (Figure 1 to 3).

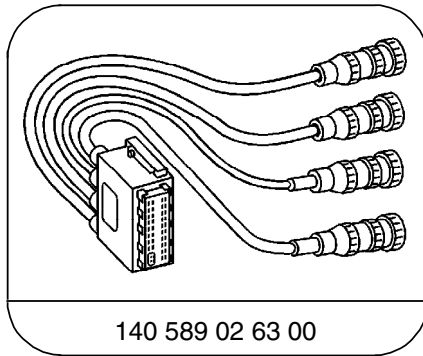
Electrical wiring diagrams :
 Electrical Troubleshooting Manual, Model 124
 Electrical Troubleshooting Manual, Model 129
 Electrical Troubleshooting Manual, Model 140

Special Tools



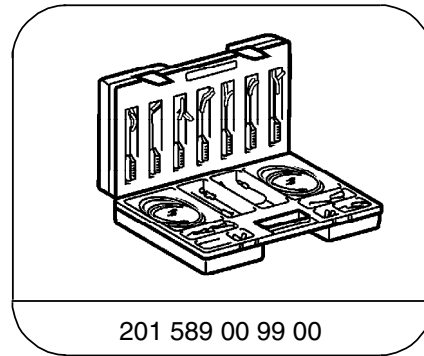
129 589 00 21 00

126-pin socket box



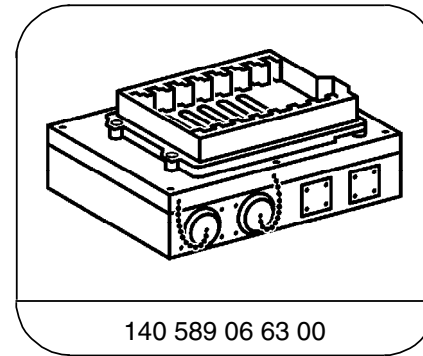
140 589 02 63 00

Contacting module 2



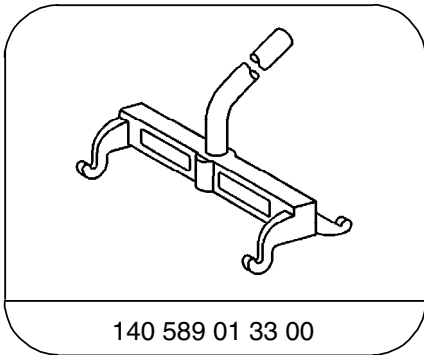
201 589 00 99 00

Electrical connecting set



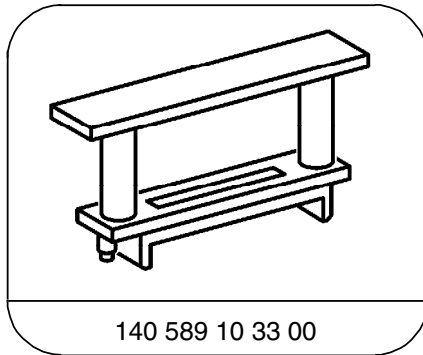
140 589 06 63 00

Contacting box



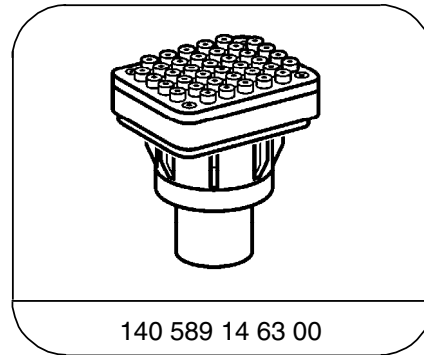
140 589 01 33 00

Mounting lever



140 589 10 33 00

Spacer



140 589 14 63 00

Adapter

Equipment

Digital multimeter ¹⁾

Fluke models 23, 83, 85, 87

¹⁾ Available through the MBUSA Standard Equipment Program.

Electrical Test Program - Preparation for Test

Connection Diagram – Socket Box
 Model 124
 Engine 119

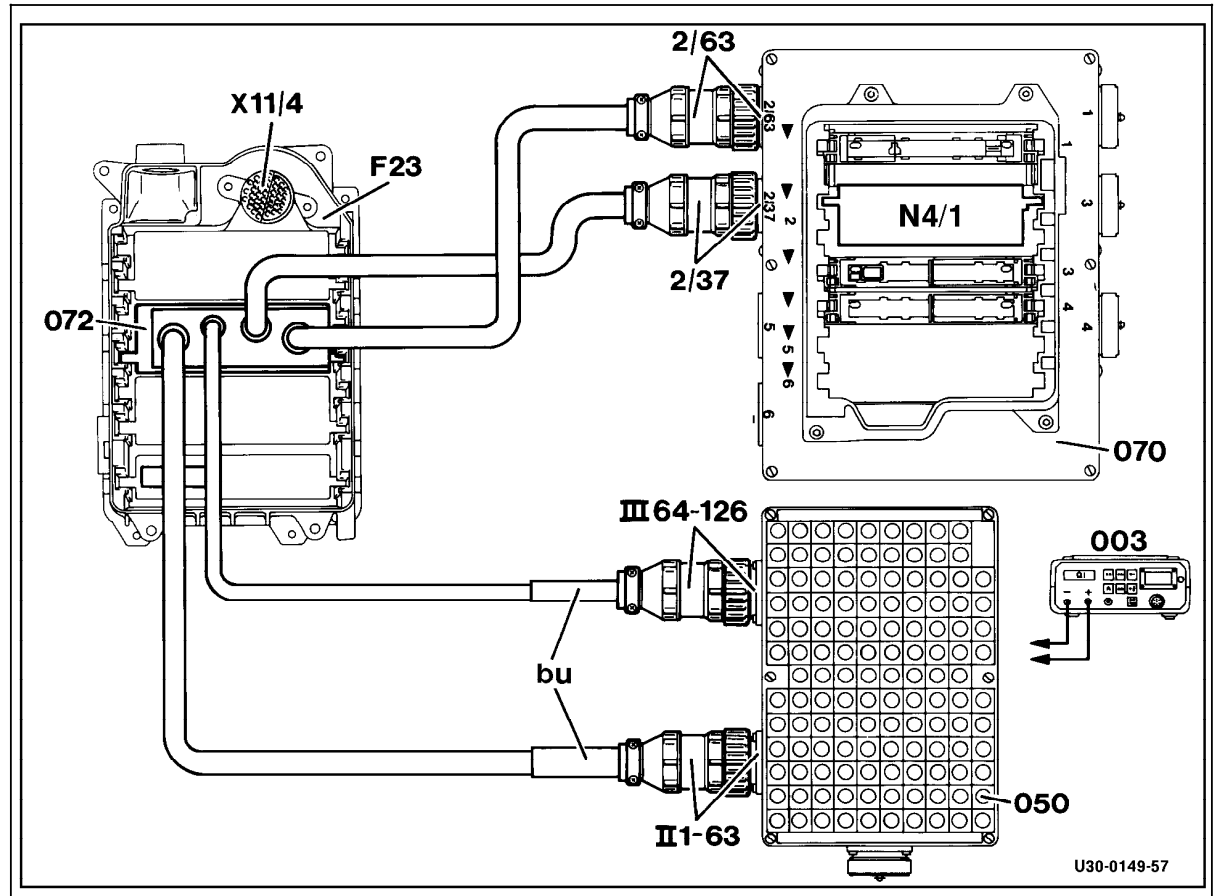


Figure 1

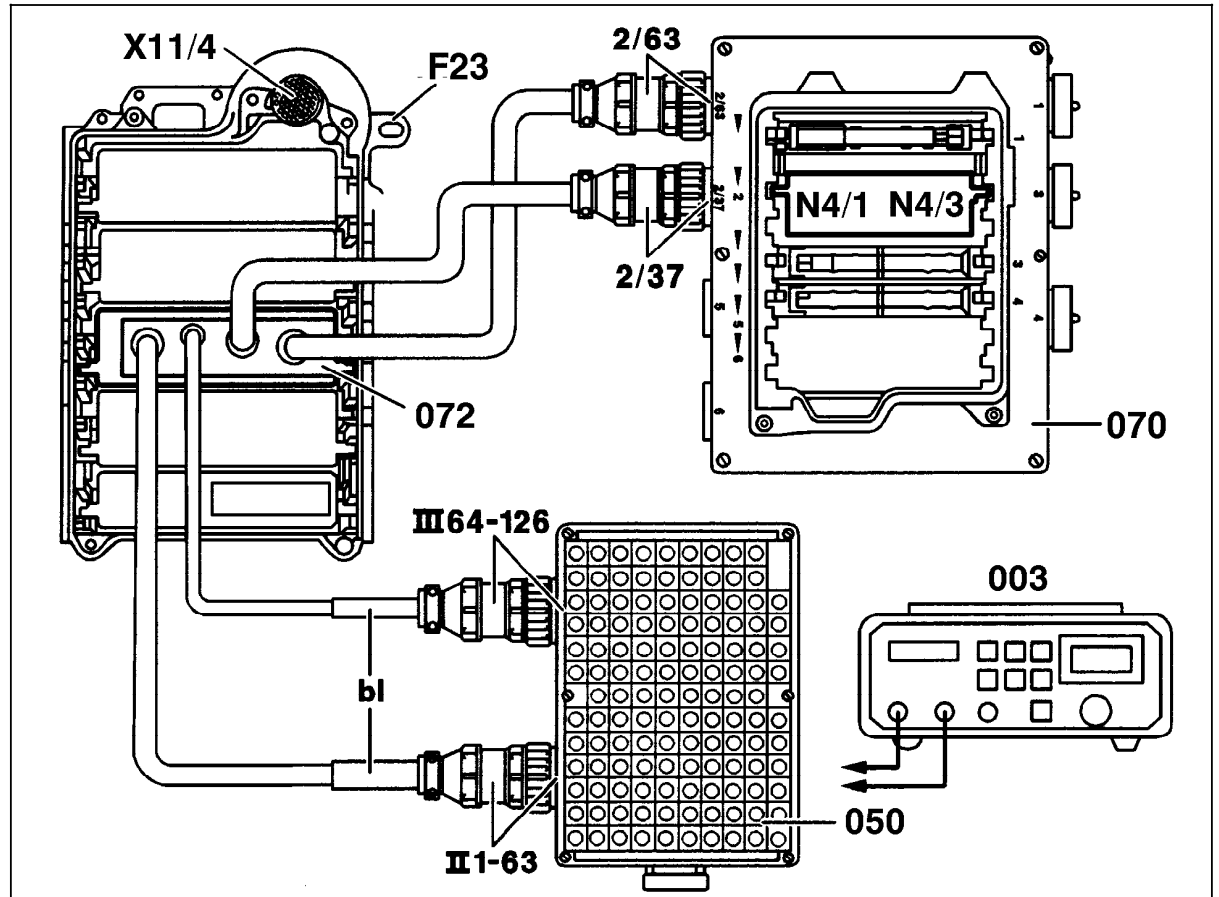
- F23 Module box
- N4/1 EA/CC/ISC control module
- X11/4 Data link connector (DTC readout)
- 003 Digital multimeter
- 050 Socket box (126-pole)
- 070 Contact box
- 072 Contact module 2
- bu blue

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Electrical Test Program - Preparation for Test

Connection Diagram – Socket Box
 Model 129
 Engine 119



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Figure 1

- F23 Module box
- N4/1 EA/CC/ISC control module
- X11/4 Data link connector (DTC readout)
- 003 Digital multimeter
- 050 Socket box (126-pole)
- 070 Contact box
- 072 Contact module 2
- bu blue

Electrical Test Program - Preparation for Test

Connection Diagram – Socket Box
Model 140
Engines 104, 119

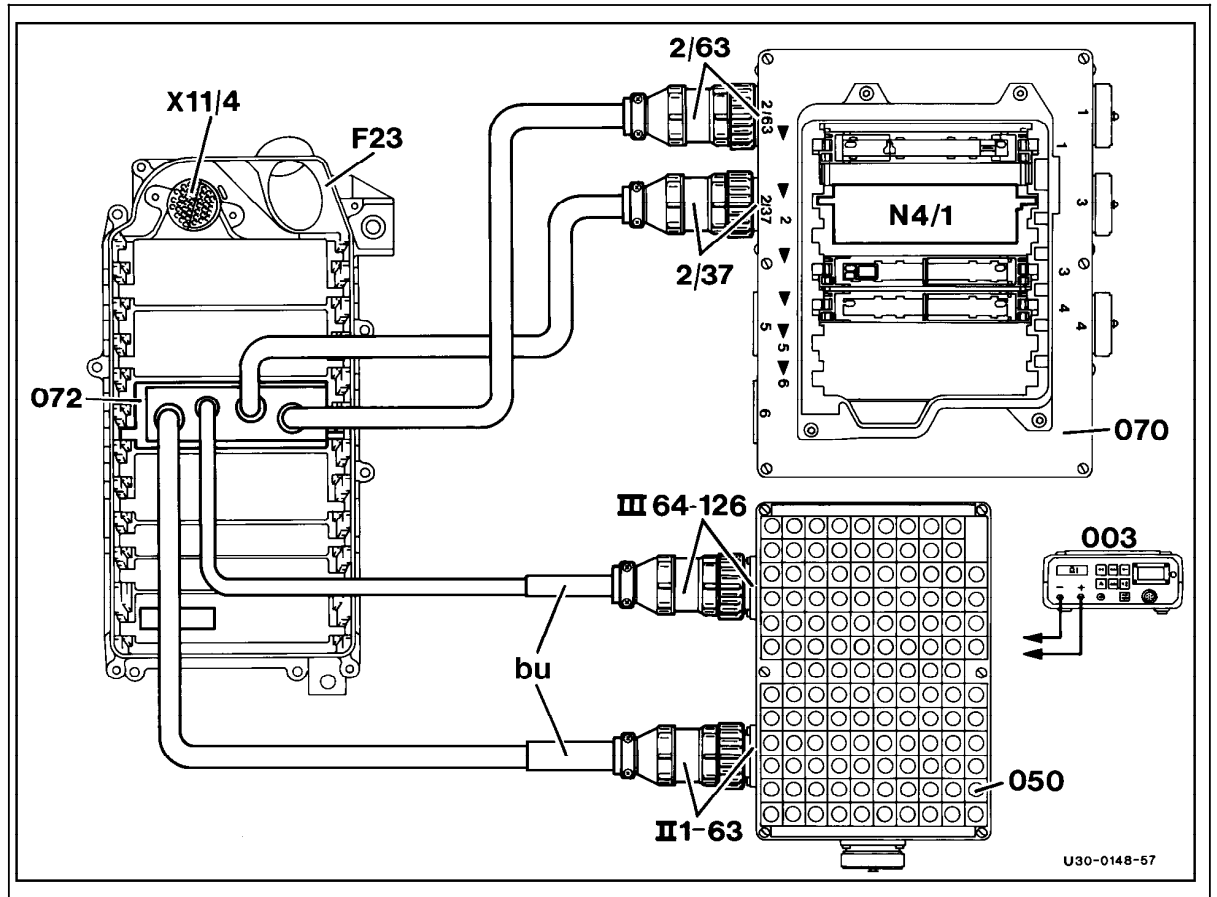


Figure 1

- F23 Module box
- N4/1 EA/CC/ISC control module
- X11/4 Data link connector (DTC readout)
- 003 Digital multimeter
- 050 Socket box (126-pole)
- 070 Contact box
- 072 Contact module 2
- bu blue

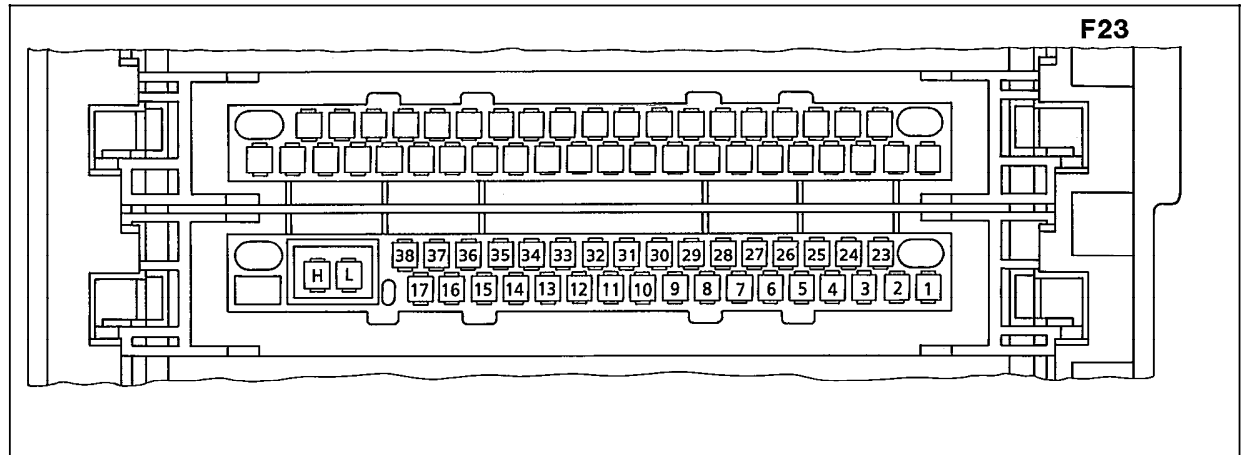
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Electrical Test Program - Preparation for Test

Layout of EA/CC/ISC Control Module Connector "1"

Figure 4

- | | |
|---------|---|
| 1 | Not used |
| 2 | Cruise control switch |
| 3 | Starter lock-out/backup lamp switch, transmission range "D" recognition |
| 4 | Starter lock-out/backup lamp switch, transmission range "D" recognition |
| 5 | Data link connector (Socket 7) |
| 6 | Not used |
| 7 | Fuel safety shut-off (LH-SFI control module) |
| 8 | Not used |
| 9 | Closed throttle position switch (ground) |
| 10 | Cruise control switch |
| 11 | Cruise control switch . |
| 12 | Left rear wheel speed sensor, ABS/ASR control |
| 13 | Brake lamp switch (ground) |
| 14 | Not used |
| 15 | Left front wheel speed sensor, |
| 16 | A/C compressor input signal (base module) |
| 17 - 23 | Not used |
| 24 | Closed throttle position recognition |
| 25 | Closed throttle position recognition (positive) |
| 26-28 | Not used |
| 29 | Starter lock-out/backup lamp switch, transmission range "R" recognition |

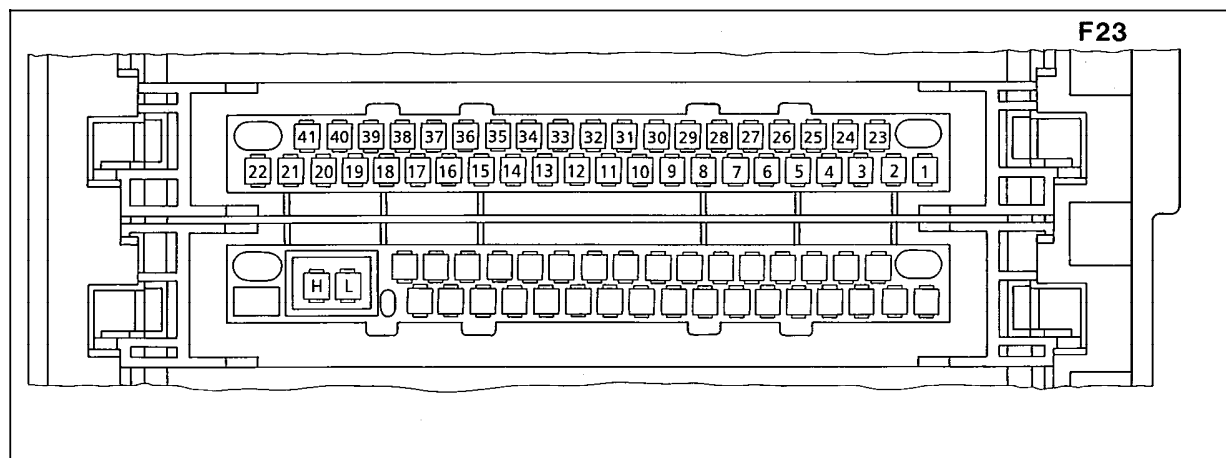


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- | | |
|----|---|
| 30 | Brake lamp switch |
| 31 | Cruise control switch |
| 32 | Idle speed increase diode matrix (V2), Model 140 with M119 only |
| 33 | Cruise control switch (OFF) |
| 34 | Engine speed signal (base module) |
| 35 | Voltage supply unfused circuit 87 Ug |
| 36 | Voltage supply unfused circuit 87 Ug |
| 37 | Ground, Model 124: W16 |
| 38 | Ground, Models 129, 140: W15 |
| L | Data line (-) |
| | Controller Area Network |
| H | Data line (+) |
| | Controller Area Network |

Electrical Test Program - Preparation for Test

Layout of EA/CC/ISC Control Module Connector "2"



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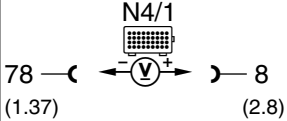

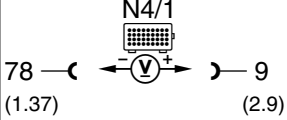

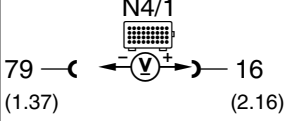
Figure 4

1-7	Not used
8	EA/CC/ISC actuator (reference potentiometer, socket 1)
9	EA/CC/ISC actuator (actual value potentiometer, socket 2)
10	EA/CC/ISC actuator (ground, socket 18)
11	Not used
12	EA/CC/ISC actuator (positive, socket 9)
13-15	Not used
16	EA/CC/ISC actuator (positive, socket 7)
17-18	Not used
19	EA/CC/ISC actuator (magnetic clutch ground, socket 11)
20	EA/CC/ISC actuator (positive, socket 12)
21	EA/CC/ISC actuator (ground, socket 13)
22	EA/CC/ISC actuator (ground, socket 13)
23-34	Not used
35	EA/CC/ISC actuator (ground, socket 4)
36-37	Not used
38	EA/CC/ISC actuator (closed throttle position switch, ground, socket 5)
39	Not used
40	EA/CC/ISC actuator (magnetic clutch, positive, socket 10)
41	EA/CC/ISC actuator (actuator motor positive, socket 12)

Electrical Test Program - Electronic Accelerator Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 1.0 12	Electronic accelerator/cruise control/idle speed control module (N4/1) Voltage supply Circuit 87 unfused	<p>N4/1 78 —(1.37)— ←(V)→ —(1.35)— 76 79 —(1.38)— ←(V)→ —(1.36)— 77</p>	Ignition: ON	11–14 V	Wiring, ⇒ 1.1, Base module (N16/1), DM, Chassis & Drivetrain, Vol. 1, section 1.1.
⇒ 1.1	Ground Model 124 W16 Models 129, 140 W15	<p>N4/1 79 —(1.38)— ←(V)→ — 3 — X11/4 78 —(1.37)— ←(V)→ — 3 — X11/4</p>	Ignition: ON	11–14 V	Wiring, Model 124: W16 Models 129, 140: W15
⇒ 2.0 3	Electronic accelerator/cruise control/idle speed control actuator (M16/1) Voltage supply Reference potentiometer (M16/1r1) and actual value potentiometer (M16/1r2)	<p>N4/1 78 —(1.37)— ←(V)→ — 12 — (2.12)</p>	Ignition: ON	4.7–5.3 V Reference value for table I or II .	Wiring, EA/CC/ISC actuator (M16/1), EA/CC/ISC control module (N4/1).

Electrical Test Program - Electronic Accelerator Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 3.0 	EA/CC/ISC actuator (M16/1) Reference potentiometer (M16/1r1) signal		Ignition: ON Accelerator pedal position: Closed throttle Wide open throttle	Table I columns "a" column "b"	Wiring, EA/CC/ISC actuator (M16/1).
⇒ 4.0 	EA/CC/ISC actuator (M16/1) Actual value potentiometer (M16/1r2) signal		Ignition: ON Accelerator pedal position: Closed throttle Wide open throttle	Table II , columns "e" column "f"	Wiring, EA/CC/ISC actuator (M16/1).
⇒ 5.0 	EA/CC/ISC actuator (M16/1) Voltage supply Safety contact switch (M16/1s1) with closed throttle position switch (M16/1s2)		Ignition: ON Accelerator pedal position: Closed throttle	6 – 10 V (value jumps)	Wiring, EA/CC/ISC actuator (M16/1), EA/CC/ISC control module (N4/1).

Electrical Test Program - Electronic Accelerator Test

Test step	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 6.0	EA/CC/ISC actuator (M16/1) Closed throttle position switch (M16/1s2) switching point		Ignition: ON Accelerator pedal position: Closed throttle Connect second multimeter Accelerator pedal position: Closed throttle Slowly depress accelerator pedal until switch point occurs.	4.7–5.3 V Reference value for Table III . Table III , column “h” (value jumps) Table III , column “i”	Wiring, EA/CC/ISC actuator (M16/1).

Electrical Test Program - Electronic Accelerator Test

Test step	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
<p>⇒ 7.0</p> <p>DTC</p>	<p>EA/CC/ISC actuator (M16/1) Safety contact switch (M16/1s1) switching point</p>		<p>Ignition: ON Accelerator pedal position: Closed throttle</p> <p>Connect second multimeter</p> <p>Accelerator pedal position: Closed throttle</p> <p>Slowly depress accelerator pedal until switch point occurs.</p>	<p>4.7–5.3 V Reference value for Table III.</p> <p>Table III, column “k”</p> <p>Table III, column “l” (value jumps)</p>	<p>Wiring, EA/CC/ISC actuator (M16/1).</p>


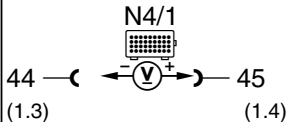
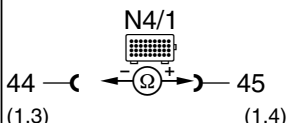
Electrical Test Program - Electronic Accelerator Test

Test step	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
<p>⇒ 8.0</p> <p>DTC</p>	<p>EA/CC/ISC actuator (M16/1) Closed throttle position switch (M16/1s2) and safety contact switch (M16/1s1)</p>		<p>Ignition: ON Accelerator pedal position: Closed throttle</p> <p>Slowly depress accelerator by hand, until both contact switches are closed (overlap point is immediately after closed throttle)</p> <p>Accelerator pedal position: Wide open throttle</p>	<p>Positive voltage value (value jumps)</p> <p><1 V</p> <p>Negative voltage value (value jumps)</p>	<p>Wiring, EA/CC/ISC actuator (M16/1).</p>
<p>⇒ 9.0</p>	<p>EA/CC/ISC actuator (M16/1) Actuator motor (M16/1m1) resistance</p>		<p>Ignition: OFF Disconnect EA/CC/ISC control module (N4/1). Accelerator pedal position: Closed throttle</p>	<p><10 Ω</p>	<p>Wiring, EA/CC/ISC actuator (M16/1).</p>

Electrical Test Program - Electronic Accelerator Test

Test step	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 10.0	EA/CC/ISC actuator (M16/1) Magnetic clutch (M16/1k1)		Ignition: ON	7.5–10 V	Wiring, EA/CC/ISC actuator (M16/1), EA/CC/ISC control module (N4/1).
⇒ 11.0	Closed throttle position switch (S29/3) Voltage supply		Ignition: ON	4.0–5.5 V	Throttle linkage (adjustment or damaged), Control return spring, Wiring, ⇒ 11.1
⇒ 11.1	Closed throttle position switch signal.		Ignition: ON Accelerator pedal position: Closed throttle Slowly depress accelerator pedal until switching point occurs.	<1 V 1.0–2.25 V	Wiring, Closed throttle position switch (S29/3), ⇒ 11.2
⇒ 11.2	Closed throttle position switch resistance (accelerator pedal)		Ignition: OFF Disconnect EA/CC/ISC control module (N4/1). Accelerator pedal position: Closed throttle Accelerator pedal depressed	> 20 kΩ 900–1100 Ω	Wiring, Closed throttle position switch (S29/3).



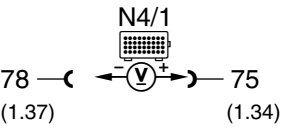

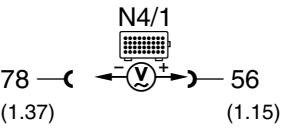
Electrical Test Program - Electronic Accelerator Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 12.0 	Starter lock-out/backup lamp switch (S16/3) Transmission range recognition voltage		Ignition: ON Transmission range: P→ R→ 1.0 V N→ 0.3 V D→ 4.0 V 3→ 3.5 V 2→ 2.5 V 1.8 V (± 10 %)		Wiring, Starter lock-out/backup lamp switch (S16/3), ⇒ 12.1, EA/CC/ISC control module (N4/1).
⇒ 12.1	Resistance		Ignition: OFF Disconnect EA/CC/ISC control module (N4/1). Ignition: ON Transmission range: P→ 1.4 kΩ R→ 294 Ω N→ 28 kΩ D→ 11.3 kΩ 3→ 5.9 kΩ 2→ 3.1 kΩ (± 10 %)		Wiring, Starter lock-out/backup lamp switch (S16/3).


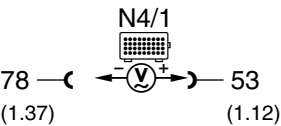

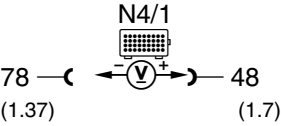
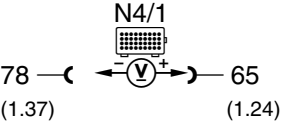
Electrical Test Program - Electronic Accelerator Test

Test step	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
DTC ⇒ 13.0	EA/CC/ISC control module (N4/1) A/C compressor signal		Engine: Start Accelerator pedal position: Closed throttle Set temperature selector wheel to MIN and activate blower.	<1 V 11–14 V	Wiring, Base module (N16/1), DM, Chassis and Drivetrain, Vol. 1, section 1.1.
⇒ 14.0 Model 140 with M119 only!	EA/CC/ISC control module (N4/1) Engine rpm increase signal from diode matrix (V2)		Engine: Start Accelerator pedal position: Closed throttle Switch on the the following consumers individually: Front seat heaters Rear seat heaters Blower speed setting 3 Rear window defroster	<1 V 11–14 V 11–14 V 11–14 V 11–14 V	Wiring, Engine rpm increase signal from diode matrix (V2), ⇒ 14.1. DM, Body and Accessories, Vol. 2, section 14.1.
⇒ 14.1	Engine rpm increase diode matrix (V2) (right footwell) Voltage supply		Ignition: OFF Ignition: ON	<1 V 11–14 V	Fuse, Wiring.

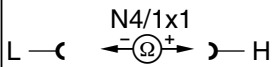
Electrical Test Program - Electronic Accelerator Test

Test step	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 15.0  DTC					
⇒ 15.0 	EA/CC/ISC control module (N4/1) Engine speed (TNA) signal from base module (N16/1)		Engine: Start Accelerator pedal position: Closed throttle	6–12 V	Base module (N16/1), DM, Chassis & Drivetrain, Vol. 1, section 1.1.
⇒ 16.0 	Left front axle vehicle speed sensor (L6/1) Speed signal		Lift front of vehicle. Ignition: ON Turn left front wheel by hand	4 – 8 V	Wiring, L6/1, ABS/ASR control module (N30/1), DM, Chassis & Drivetrain, Vol. 1, sections 5.1, 5.2. Note: Upon completion of test, erase DTC's from ABS/ASR control module memory.

Electrical Test Program - Electronic Accelerator Test

Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 17.0 	Left rear axle vehicle speed sensor (L6/3) Speed signal		Lift rear of vehicle. Ignition: ON Turn left rear wheel by hand	4 – 8 V	Wiring, L6/3, ABS/ASR control module (N30/1), DM, Chassis & Drivetrain, Vol. 1, sections 5.1, 5.2. Note: Upon completion of test, erase DTC's from ABS/ASR control module memory.
⇒ 18.0 	EA/CC/ISC control module (N4/1) Fuel safety shut-off signal to LH-SFI control module (N3/1)		Ignition: ON	2.0–11 V (value jumps).	Wiring, EA/CC/ISC actuator (M16/1), EA/CC/ISC control module (N4/1).
⇒ 19.0	EA/CC/ISC control module (N4/1) Closed throttle position recognition signal to LH-SFI control module (N3/1)		Ignition: ON Accelerator pedal position: Closed throttle Accelerator pedal applied	4.8 V 5.5 V	Wiring, EA/CC/ISC actuator (M16/1), N4/1

Electrical Test Program - Electronic Accelerator Test

Test step	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
<p>DTC</p> <p>⇒ 20.0 7</p>	<p>Serial data bus (CAN)</p>	<p>N4/1x1</p>  <p>L — (— Ω —) — H</p>	<p>Ignition: OFF EA/CC/ISC control module (N4/1) unplugged.</p> <p>Measure resistance at connector.</p>	<p>55–65 Ω</p>	<p>Wiring, LH-SFI control module (N3/1), DM, Engines, Vol. 2, section 3.1, Ignition control module (N1/2), DM, Engines, Vol. 2, section 5.2, ABS/ASR control module (N30/1), DM, Chassis & Drivetrain, Vol. 1, sections 5.1, 5.2.</p>

Electrical Test Program - Electronic Accelerator Test

Table I Voltage values - reference potentiometer (M16/1r1)

Reference values	“a” Accelerator pedal position: Closed throttle	“b” Accelerator pedal position: Wide open throttle
4.7 V	0.23 V	4.46 V
4.8 V	0.24 V	4.56 V
4.9 V	0.24 V	4.65 V
5.0 V	0.25 V	4.75 V
5.1 V	0.25 V	4.84 V
5.2 V	0.26 V	4.94 V
5.3 V	0.26 V	5.03 V

Electrical Test Program - Electronic Accelerator Test

Table II Voltage values - actual value potentiometer (M16/1r2)

Reference values	“e” Accelerator pedal position: Closed throttle	“f” Accelerator pedal position: Wide open throttle
4.7 V	4.55 V	0.23 V
4.8 V	4.65 V	0.24 V
4.9 V	4.75 V	0.24 V
5.0 V	4.85 V	0.25 V
5.1 V	4.94 V	0.25 V
5.2 V	5.04 V	0.26 V
5.3 V	5.14 V	0.26 V

Electrical Test Program - Electronic Accelerator Test

Table III Voltage values - closed throttle position switch and safety contact switch (M16/1s2 and M16/1s1)

Reference values	“h” Closed throttle position switch (closed) Accelerator pedal position: Closed throttle	“j” Closed throttle position switch (open) Accelerator pedal position: Depress until switch point occurs	“k” Safety contact switch (open) Accelerator pedal position: Closed throttle	“l” Safety contact switch (closed) Accelerator pedal position: Depress until switch point occurs
4.7 V	4.12 V	3.49 V	3.49 V	4.12 V
4.8 V	4.21 V	3.57 V	3.57 V	4.21 V
4.9 V	4.30 V	3.64 V	3.64 V	4.30 V
5.0 V	4.39 V	3.72 V	3.72 V	4.39 V
5.1 V	4.48 V	3.79 V	3.79 V	4.48 V
5.2 V	4.56 V	3.86 V	3.86 V	4.56 V
5.3 V	4.65 V	3.94 V	3.94 V	4.65 V

Electrical Test Program - Electronic Accelerator Test

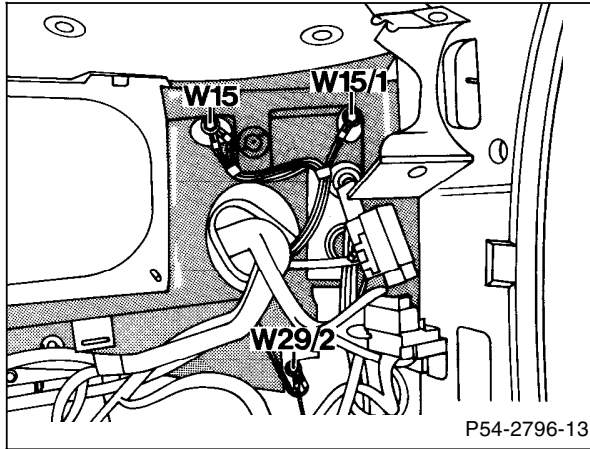


Figure 1
Models 129, 140

W15 Ground, output ground, electronics (right footwell)

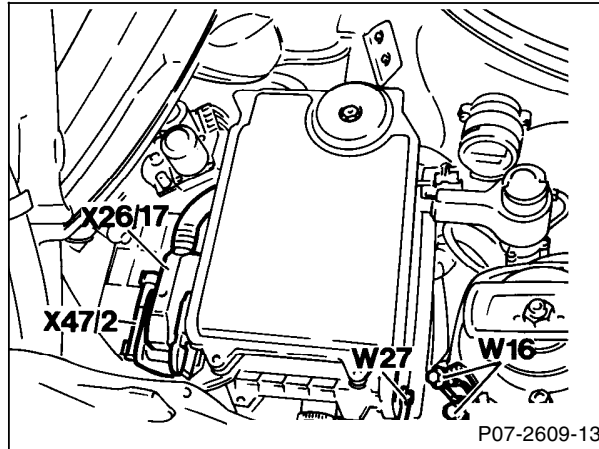


Figure 2
Model 124

W16 Ground (component compartment)

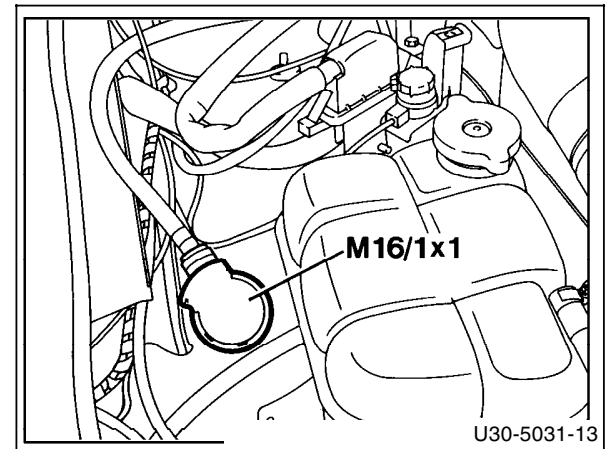


Figure 3

M16/1x1 EA/CC/ISC actuator connector

Electrical Test Program - Electronic Accelerator Test

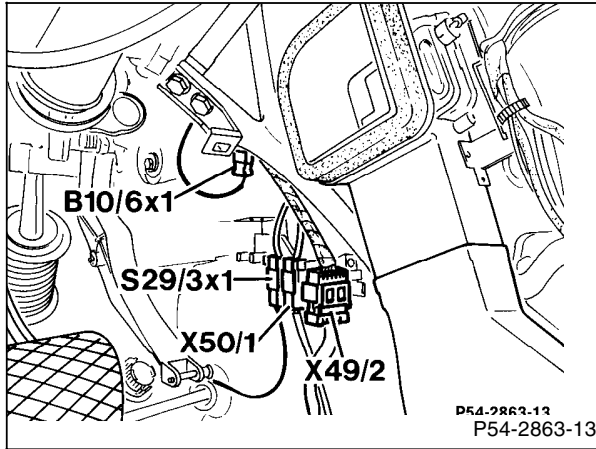


Figure 4

S29/3x1 Closed throttle position switch connector

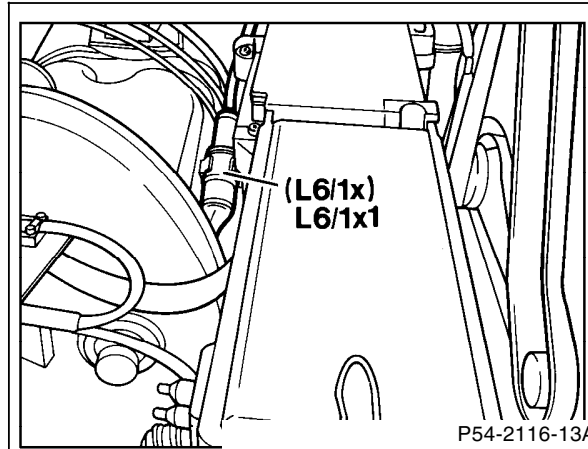


Figure 5
Model 124

L6/1x Left front axle vehicle speed sensor harness connector

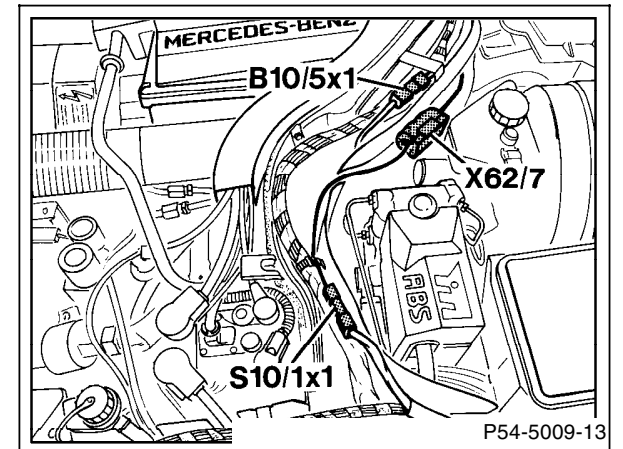


Figure 6
Model 140

X62/7 Left front axle vehicle speed sensor connector (component compartment)

Electrical Test Program - Electronic Accelerator Test

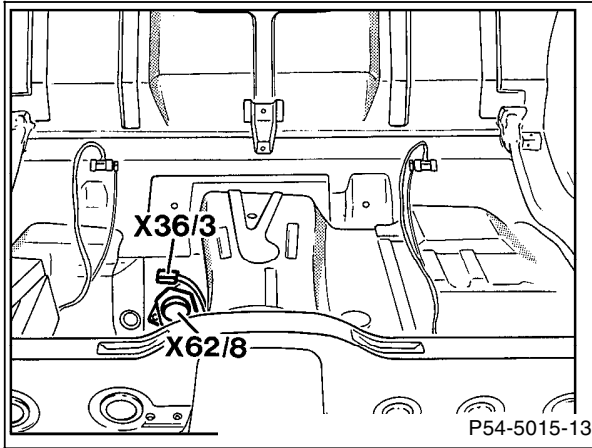


Figure 7

X62/8 Rear axle multiple circuit junction connector

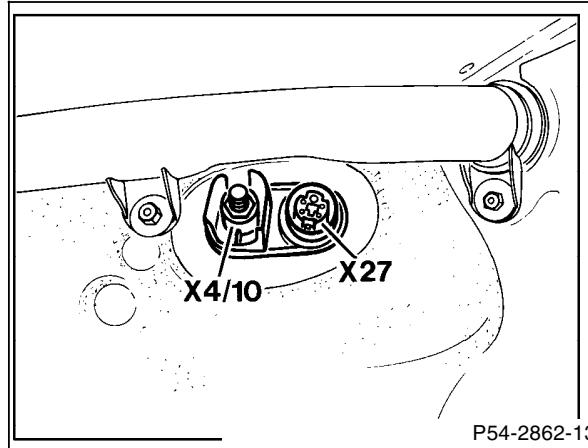


Figure 8

Model 140

X4/10 Terminal block (terminal 30/30Ü)

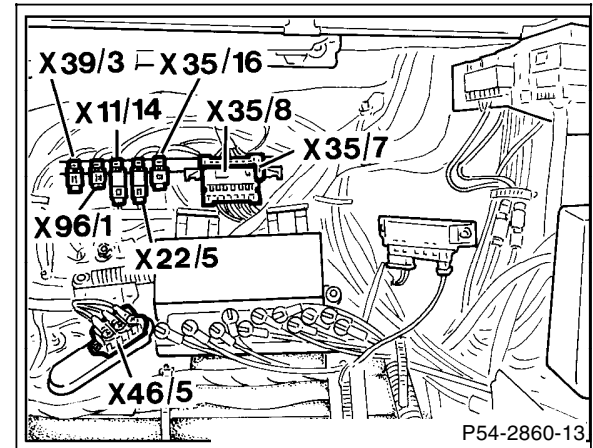


Figure 9

Model 140

X35/8 Cockpit/module box plug connection, electronic accelerator/cruise control/idle speed control (16-pole)

Electrical Test Program - Electronic Accelerator Test

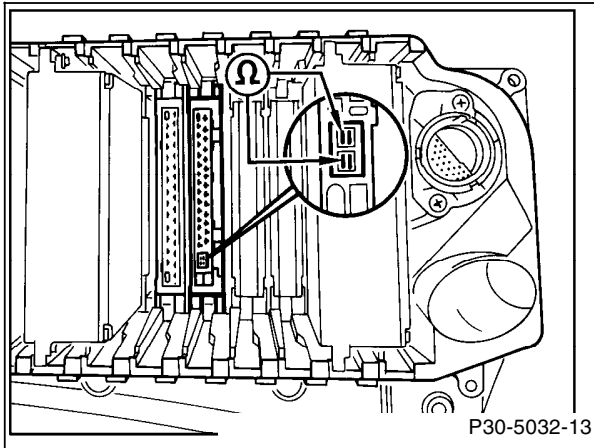
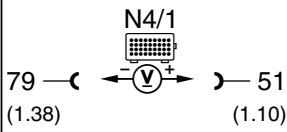
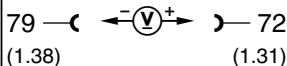
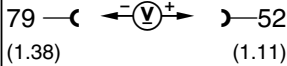
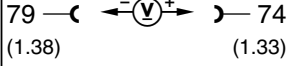

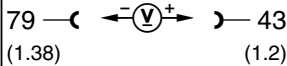



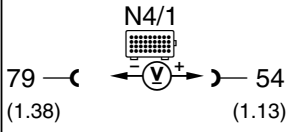

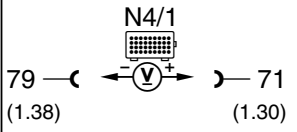

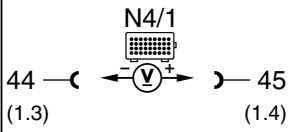
Figure 10

N4/1x1 Electronic accelerator/cruise control/idle speed control module connector (CAN Bus)

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)				
DTC					
	V Decelerate/set		Ignition: ON Cruise control switch not activated	< 1 V	Wiring, Cruise control switch (S40).
	B Accelerate/set		Position DECEL	11 – 14 V	
	SP Resume		Position RESUME	11 – 14 V	
	A Off		Position ACCEL	11 – 14 V	
	Control switch contact		Switch not activated	11 – 14 V	
			Position OFF	< 1 V	
			Control switch contact in position: DECEL., ACCEL., RESUME OFF.	11 – 14 V	


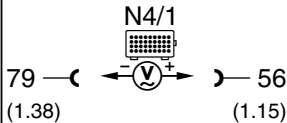

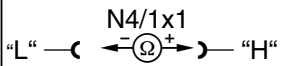
Electrical Test Program - Cruise Control Test

Test step	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 2.0	 Stop lamp switch (S9/1) Signal (N.C. contact)		Ignition: ON Brake pedal not applied Brake pedal applied	11 – 14 V <1 V	Wiring, Stop lamp switch (S9/1), Base module (N16/1), DM, Chassis & Drivetrain, Vol. 1, section 1.1,
⇒ 3.0	 Stop lamp switch (S9/1) Signal (N.O. contact)		Ignition: ON Brake pedal not applied Brake pedal applied	<1 V 11 – 14 V	Wiring, Stop lamp switch (S9/1),
⇒ 4.0	 Starter lock-out/backup lamp switch (S16/3) Transmission range recognition voltage		Ignition: ON Transmission range	P→ 1.0 V R→ 0.3 V N→ 4.0 V D→ 3.5 V 3→ 2.5 V 2→ 1.8 V (± 10%)	Wiring, Starter lock-out/backup lamp switch (S16/3), ⇒ 4.1, EA/CC/ISC control module (N4/1).

Electrical Test Program - Cruise Control Test

Test step	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
DTC					
⇒ 4.1	Starter lock-out/backup lamp switch (S16/3) Resistance	<p>N4/1 44 ← Ω → 45 (1.3) (1.4)</p>	Disconnect EA/CC/ISC control module (N4/1) Ignition: ON Transmission range P→ R→ N→ D→ 3→ 2→	1.4 kΩ 294 Ω 28 kΩ 11.3 kΩ 5.9 kΩ 3.1 kΩ (± 10%)	Wiring, Starter lock-out/backup lamp switch (S16/3).
⇒ 5.0	Non-USA vehicles only. Continue to next test step.				

Electrical Test Program - Cruise Control Test

Test step	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
<p>⇒ 6.0</p> <p>DTC</p>	<p> Left front axle vehicle speed sensor (L6/1) Speed signal</p>		<p>Lift front of vehicle: Ignition: ON Turn left front wheel by hand</p>	<p>4 – 8 V</p>	<p>Wiring, Left front axle vehicle speed sensor (L6/1), DM, Chassis & Drivetrain, Vol. 1, section 5.2,</p> <p>Note: Upon completion of test, erase DTC's stored in ABS/ASR control module memory.</p>
<p>⇒ 7.0</p>	<p> CAN data bus</p>		<p>Ignition: OFF EA/CC/ISC control module (N4/1) disconnected.</p> <p>Measure resistance at connector (see Figure 8)</p>	<p>55 – 65 Ω</p>	<p>Wiring, LH-SFI control module (N3/1), DM, Engines, Vol. 2, section 3.1, Ignition control module (N1/2), DM, Engines, Vol. 2, section 5.2.</p>

Electrical Test Program - Cruise Control Test

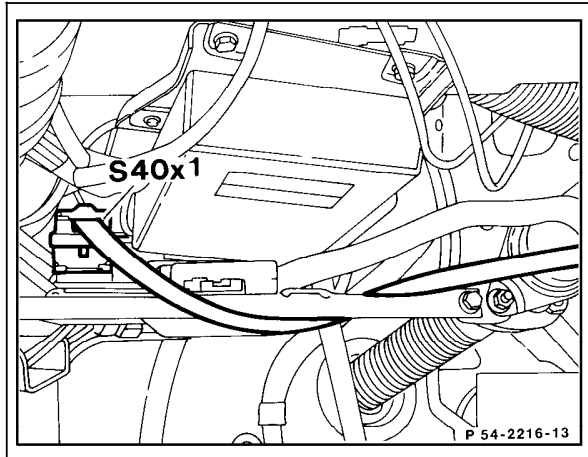


Figure 1
Model 124
S40x1 Cruise control switch connector

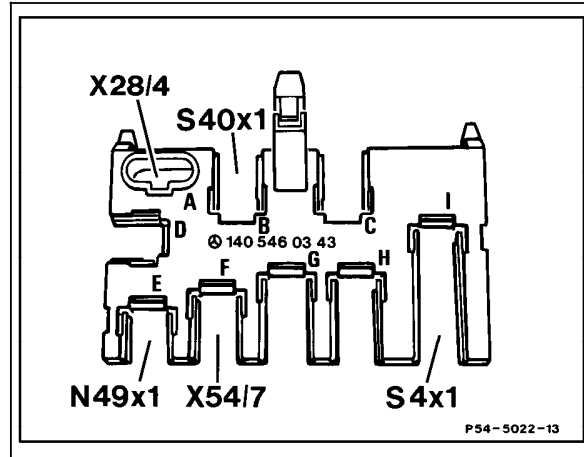


Figure 2
Model 140
S40x1 Cruise control switch connector

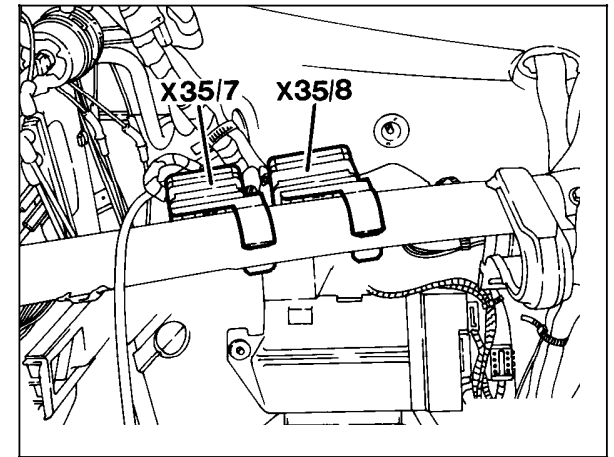


Figure 3
Model 124
X35/8 Cockpit/module box plug connection (electronic accelerator/cruise control/idle speed control) (16-pole)

Electrical Test Program - Cruise Control Test

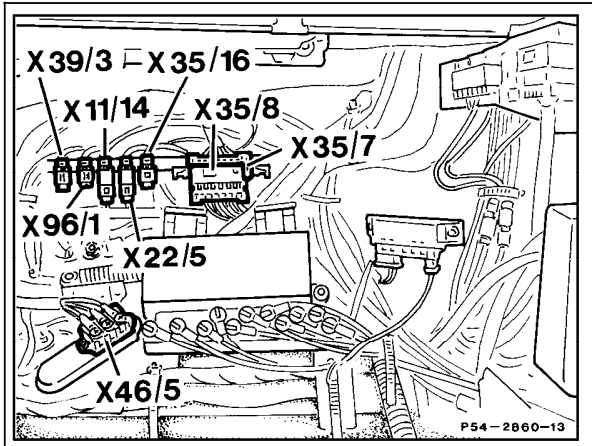


Figure 4
Model 140
P54-2860-13

X35/8 Cockpit/module box plug connection (electronic accelerator/cruise control/idle speed control) (16-pole)

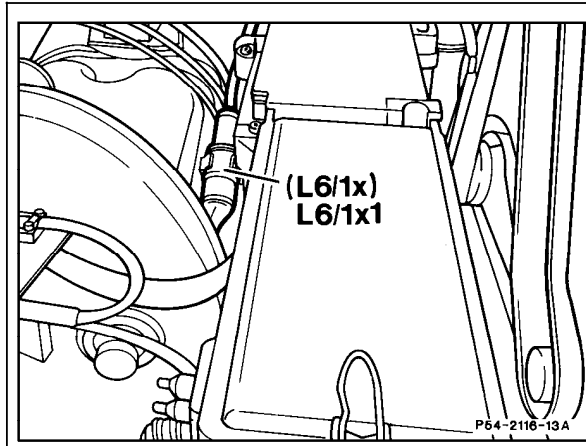


Figure 5
Model 124
P54-2116-13A

L6/1x1 Left front axle vehicle speed sensor harness connector

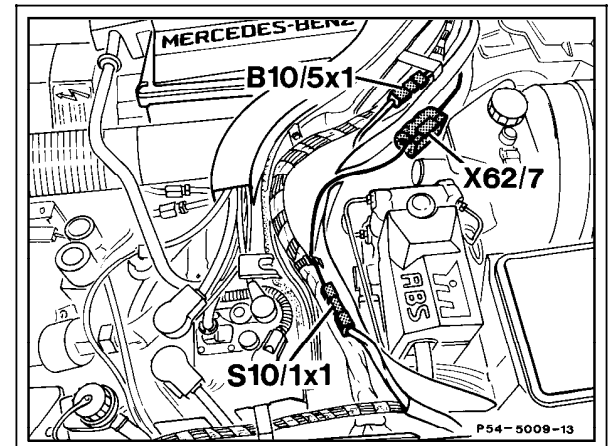


Figure 6
Model 140
P54-5009-13

X62/7 Left front axle vehicle speed sensor connector (component compartment)

Electrical Test Program - Cruise Control Test

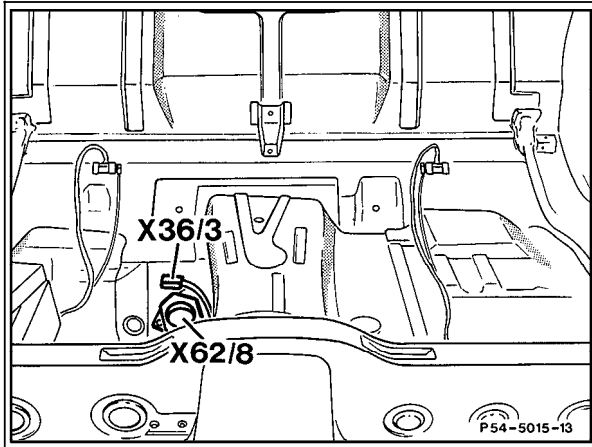


Figure 7
Model 140

X62/8 Rear axle multiple circuit junction connector

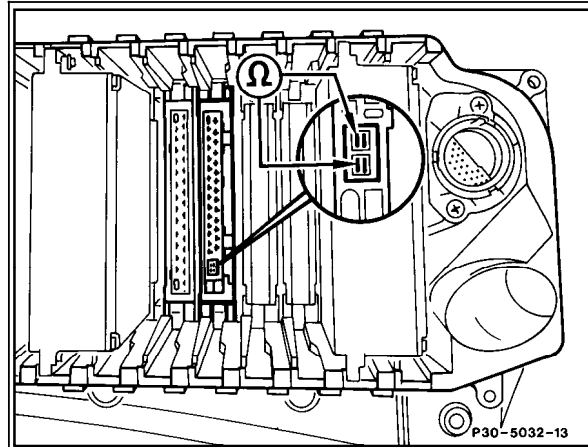


Figure 8

N4/1x1 EA/CC/ISC control module connector
Circle = CAN Bus