

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		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		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)		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).

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Test step DTC	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 3.0 3	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 3	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 3	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).

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Test step	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
<p>⇒ 6.0</p> <p>DTC</p>	<p>EA/CC/ISC actuator (M16/1) Closed throttle position switch (M16/1s2) 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 “h” (value jumps)</p> <p>Table III, column “i”</p>	<p>Wiring, EA/CC/ISC actuator (M16/1).</p>

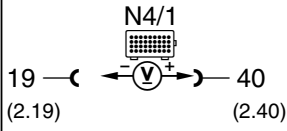
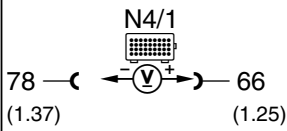
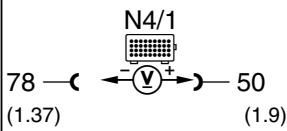
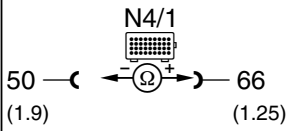
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Test step	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
<p>⇒ 7.0</p> <p>DTC</p>	<p>EA/CC/ISC actuator (M16/1) Safety contact switch (M16/1s1) switching point</p>		<p>Ignition: ON Accelerator pedal position: Closed throttle</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>


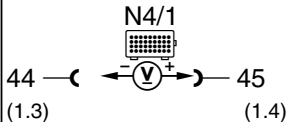
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Test step	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
<p>⇒ 8.0</p> <p>DTC</p>	<p>EA/CC/ISC actuator (M16/1) Closed throttle position switch (M16/1s2) and safety contact switch (M16/1s1)</p>		<p>Ignition: ON Accelerator 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>

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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).



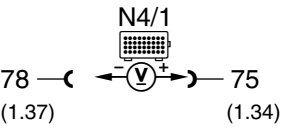

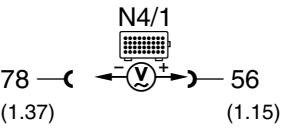
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Test step	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
⇒ 12.0 DTC	Starter lock-out/backup lamp switch (S16/3) Transmission range recognition voltage		Ignition: ON Transmission range:	P→ 1.0 V R→ 0.3 V N→ 4.0 V D→ 3.5 V 3→ 2.5 V 2→ 1.8 V (± 10 %)	Wiring, Starter lock-out/backup lamp switch (S16/3), ⇒ 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).


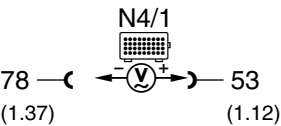

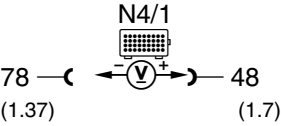
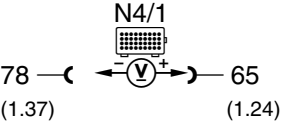
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Test step	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
DTC ⇒ 13.0	EA/CC/ISC control module (N4/1) A/C compressor signal		Engine: Start Accelerator pedal position: Closed throttle Set temperature selector wheel to MIN 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.

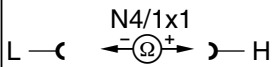
Electrical Test Program - Electronic Accelerator Test

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.

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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

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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>

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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

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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

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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

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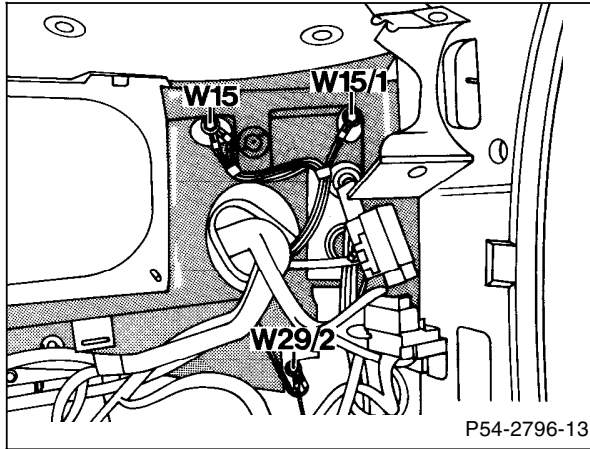


Figure 1
Models 129, 140

W15 Ground, output ground, electronics (right footwell)

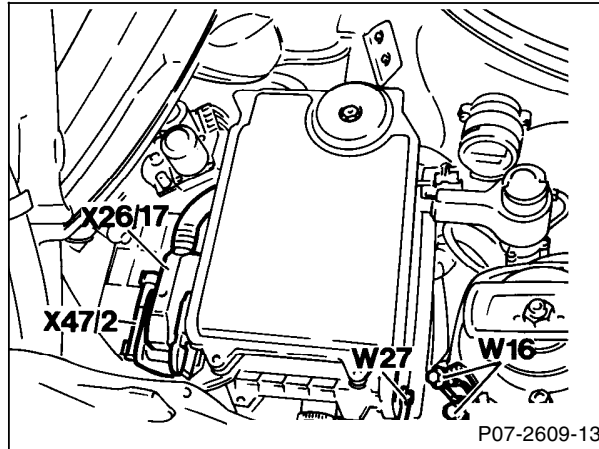


Figure 2
Model 124

W16 Ground (component compartment)

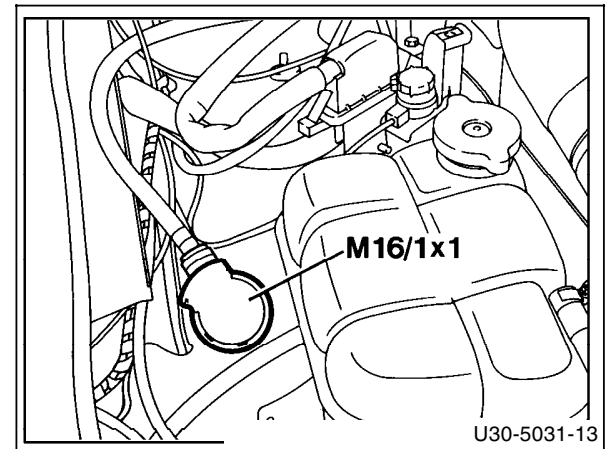


Figure 3

M16/1x1 EA/CC/ISC actuator connector

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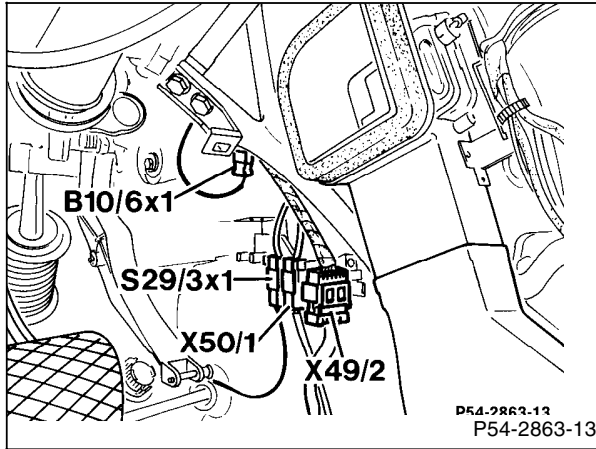


Figure 4

S29/3x1 Closed throttle position switch connector

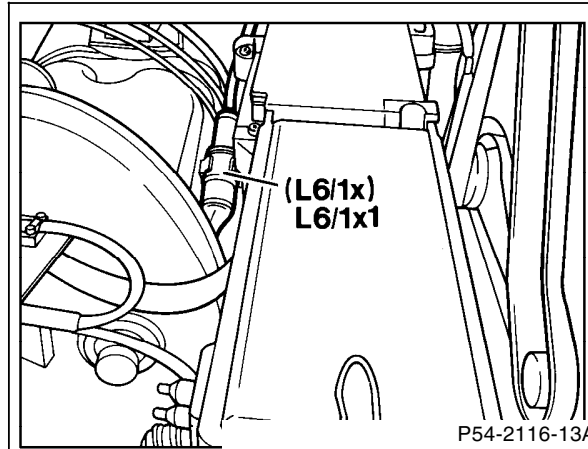


Figure 5
Model 124

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

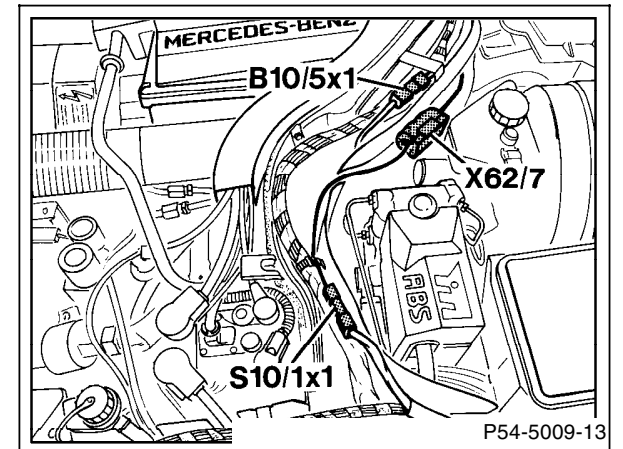


Figure 6
Model 140

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

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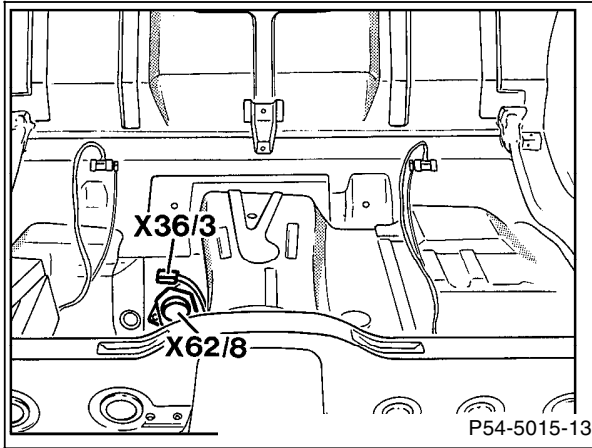


Figure 7

X62/8 Rear axle multiple circuit junction connector

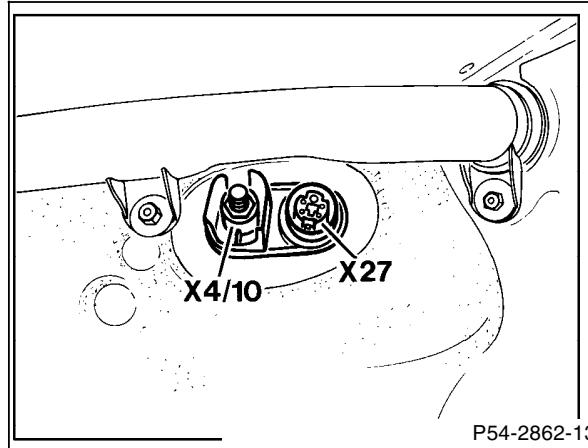


Figure 8

Model 140

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

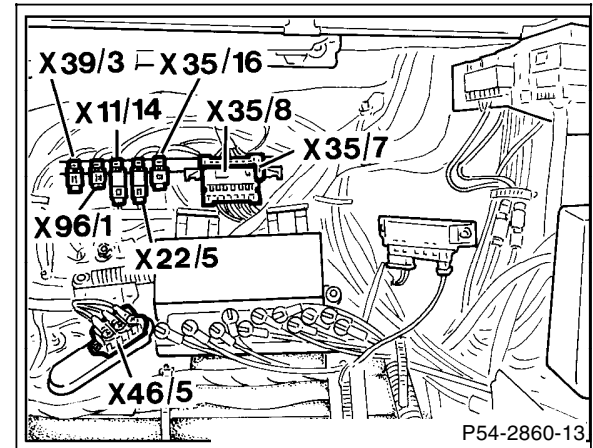


Figure 9

Model 140

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

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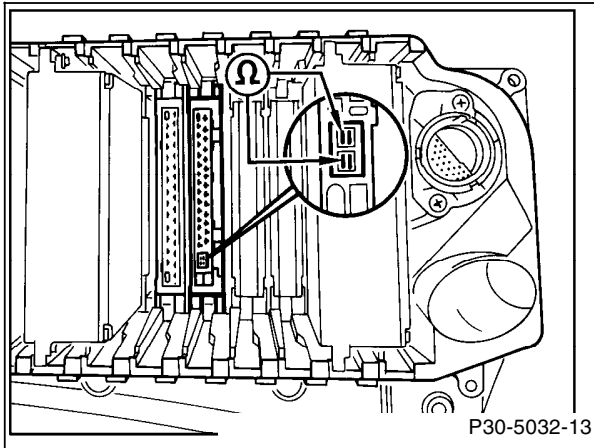


Figure 10

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