Electrical Test Program - Electronic AcceleratorTest

Test step / DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 1.0 12	**EA/CC/ISC control module (N4/1)** Voltage supply Circuit 87 unfused	N4/1 78 — (1.37) — 76 (1.35) 79 — (1.38) — 77 (1.36)	Ignition: **ON**	11 – 14 V	Wiring, ⇒ 1.1, Base module (N16/1), DM, Chassis and Drivetrain, Vol. 1, section 1.1
⇒ 1.1	Ground, output ground, electronics (W15) (right footwell)	N4/1 — X11/4 78 — (1.37) — 3 79 — (1.38) — 3	Ignition: **ON**	11 – 14 V	Wiring, W15.
⇒ 2.0 3	**Right EA/CC/ISC actuator (M16/3, on left of engine)** Voltage supply Actuator reference potentiometer (M16/3r1) and throttle valve actual value potentiometer (M16/3r2)	N4/1 78 — (1.37) — 12 (2.12)	Ignition: **ON**	4.7 – 5.3 V **Reference value for tables I or II.**	Wiring, EA/CC/ISC actuator (M16/3), EA/CC/ISC control module (N4/1).

Electrical Test Program - Electronic Accelerator Test

Test step / DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 3.0 ∃	**Right EA/CC/ISC actuator (M16/3, on left of engine)** Actuator reference potentiometer (M16/3r1) signal	N4/1 78 (1.37) — 8 (2.8)	Ignition: **ON** Accelerator pedal position: Closed throttle position, Wide open throttle or Kickdown	**Table I**, column "**a**" column "**b**"	Wiring, EA/CC/ISC actuator (M16/3).
⇒ 4.0 ∃	**Right EA/CC/ISC actuator (M16/3, on left of engine)** Actual value potentiometer (M16/3r2) signal	N4/1 78 (1.37) — 9 (2.9)	Ignition: **ON** Accelerator pedal position: Closed throttle position, Wide open throttle or Kickdown	**Table II**, column "**e**" column "**f**"	Wiring, EA/CC/ISC actuator (M16/3),
⇒ 5.0 ∃	**Right EA/CC/ISC actuator (M16/3, on left of engine)** Voltage supply Safety contact switch (M16/3s1) and closed throttle position switch (M16/3s2)	N4/1 79 (1.38) — 16 (2.16)	Ignition: **ON** Accelerator pedal position: Closed throttle	6 – 10 V	Wiring, EA/CC/ISC actuator (M16/3), EA/CC/ISC control module (N4/1).

Electrical Test Program - Electronic Accelerator Test

Test step DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 6.0 ∃	**Right EA/CC/ISC actuator (M16/3, on left of engine)** Closed throttle position switch (M16/3s2) switching point	N4/1 10 (2.10) — V — 12 (2.12)	Ignition: **ON** Accelerator pedal position: Closed throttle **Connect second multimeter.**	4.7 – 5.3 V **Reference value for Table III**.	Wiring, EA/CC/ISC actuator (M16/3).
		N4/1 78 (1.37) — V — 38 (2.38)	Accelerator pedal position: Closed throttle Slowly depress accelerator pedal until switching point occurs	**Table III,** column "**h**" (value jumps) **Table III**, column "**i**"	

Electrical Test Program - Electronic Accelerator Test

Test step DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 7.0	**Right EA/CC/ISC actuator (M16/3, on left of engine)** Safety contact switch (M16/3s1) switching point	N4/1 10 (2.10) — V — 12 (2.12)	Ignition: **ON** Accelerator pedal position: Closed throttle **Connect second multimeter.**	4.7 – 5.3 V **Reference value for Table III.**	Wiring, EA/CC/ISC actuator (M16/3).
		N4/1 78 (1.37) — V — 35 (2.35)	Accelerator pedal position: Closed throttle Slowly depress accelerator pedal until switching point occurs	**Table III,** column “**k**” (value jumps) **Table III**, column “**l**”	

Electrical Test Program - Electronic Accelerator Test

Test step DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 8.0	**Right EA/CC/ISC actuator (M16/3, on left of engine)** Closed throttle position switch (M16/3s2) and safety contact switch (M16/3s1)	N4/1 35 (2.35) — V — 38 (2.38)	Ignition: **ON** Accelerator pedal position: Closed throttle **Slowly** depress accelerator, so that **both** contact switches are closed (overlap). Accelerator pedal position: Partial or wide open throttle	Positive voltage value (value jumps) <1 V Negative voltage value (value jumps)	Wiring, EA/CC/ISC actuator (M16/3).
⇒ 9.0	**Right EA/CC/ISC actuator (M16/3, on left of engine)** Actuator motor (M16/3m1) resistance	N4/1 21 (2.21) — Ω — 20 (2.20) 22 (2.22) — Ω — 41 (2.41)	Ignition: **OFF** Unplug EA/CC/ISC control module (N4/1) Accelerator pedal position: Closed throttle	<10 Ω	Wiring, EA/CC/ISC actuator (M16/3).

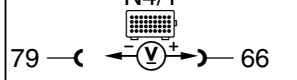
Electrical Test Program - Electronic Accelerator Test

Test step / DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 10.0	**Right EA/CC/ISC actuator (M16/3, on left of engine)** Magnetic clutch (M16/3k1)	N4/1 19 (2.19) — V — 40 (2.40)	Ignition: **ON**	7.5 – 10 V	Wiring, EA/CC/ISC actuator (M16/3), EA/CC/ISC control module (N4/1).
⇒ 11.0	**Left EA/CC/ISC actuator (M16/4, on right of engine)** Voltage supply Actual value potentiometers (M16/4r1 and M16/4r2)	N4/1 79 (1.38) — V — 33 (2.33)	Ignition: **ON**	4.7 – 5.3 V **Reference value for Table II.**	Wiring, EA/CC/ISC actuator (M16/4), EA/CC/ISC control module (N4/1).
⇒ 12.0	**Left EA/CC/ISC actuator (M16/4, on right of engine)** Throttle valve actual value potentiometer (M16/4r2) signal	N4/1 79 (1.38) — V — 27 (2.27)	Ignition: **ON** Accelerator pedal position: Closed throttle Wide open throttle or Kickdown	 **Table II**, column “e” column “f”	Wiring, EA/CC/ISC actuator (M16/4), EA/CC/ISC control module (N4/1).

Electrical Test Program - Electronic Accelerator Test

Test step / DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 13.0	**Left EA/CC/ISC actuator (M16/4, on right of engine)** Actual value potentiometer signal (M16/4r1)	N4/1 79 (1.38) — V — 30 (2.30)	Ignition: **ON** Accelerator pedal position: Closed throttle Wide open throttle or Kickdown	Table I, column “a” column “b”	Wiring, EA/CC/ISC actuator (M16/4), EA/CC/ISC control module (N4/1).
⇒ 14.0	**Left EA/CC/ISC actuator (M16/4, on right of engine)** Actuator motor (M16/4m1) Resistance	N4/1 1 (2.1) — Ω — 3 (2.3) N4/1 2 (2.2) — Ω — 23 (2.23)	Ignition: **OFF** Unplug EA/CC/ISC control module (N4/1). Accelerator pedal position: Closed throttle	<10 Ω	Wiring, EA/CC/ISC actuator (M16/4).
⇒ 15.0	**Left EA/CC/ISC actuator (M16/4, on right of engine)** Magnetic clutch (M16/4k1)	N4/1 4 (2.4) — V — 24 (2.24)	Ignition: **ON**	7.5 – 10 V	Wiring, EA/CC/ISC actuator (M16/4), EA/CC/ISC control module (N4/1).

Electrical Test Program - Electronic Accelerator Test

Test step / DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 16.0 14	**Closed throttle position switch (S29/3)** Voltage supply		Ignition: **ON**	4 – 5.5 V	Wiring, ⇒ 16.1, EA/CC/ISC control module (N4/1).
⇒ 16.1	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). ⇒ 16.2
⇒ 16.2	Closed throttle position switch resistance		Ignition: **OFF** Unplug 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	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 17.0 Б	**Starter lock-out/backup lamp switch (S16/3)** Transmission range recognition voltage	N4/1 44 (1.3) — V — 45 (1.4)	Ignition: **ON** Transmission range: P → R → N → D → 3 → 2 →	1.0 V 0.3 V 4.0 V 3.5 V 2.5 V 1.8 V (± 10%)	Wiring, Starter lock-out/backup lamp switch (S16/3), ⇒ 17.1 EA/CC/ISC control module (N4/1).
⇒ 17.1	Resistance	N4/1 44 (1.3) — Ω — 45 (1.4)	Ignition: **OFF** Unplug EA/CC/ISC control module (N4/1). Transmission range: P → R → N → D → 3 → 2 →	1400 Ω 294 Ω 28000 Ω 11300 Ω 5900 Ω 3100 Ω (± 10%)	Wiring, Starter lock-out/backup lamp switch (S16/3).

Electrical Test Program - Electronic Accelerator Test

Test step **DTC**	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 18.0	**EA/CC/ISC control module (N4/1)** A/C compressor signal	N4/1 79 (1.38) — V — 57 (1.16)	Engine: **Start** Accelerator pedal position: Closed throttle Switch on climate control (A/C compressor) and set temperature wheel to “MIN”.	 <1 V 9 – 14 V	Wiring, Base module (N16/1), DM, Chassis and Drivetrain, Vol. 1, section 1.1.
⇒ 19.0 **Model 140 only**	**EA/CC/ISC control module (N4/1)** Idle speed increase signal from diode matrix (V2) (right footwell)	N4/1 79 (1.38) — V — 73 (1.32)	Engine: **Start** Accelerator pedal position: Closed throttle Switch on the the following consumers individually: Front seat heaters Rear seat heaters Rear window defroster Blower speed setting 3	 <1 V 11 – 14 V 11 – 14 V 11 – 14 V 11 – 14 V	Wiring, Diode matrix (V2) ⇒ 19.1
⇒ 19.1	Idle speed increase diode matrix (V2) (right footwell) Voltage supply	V2 W15 — V — 3	Ignition: **OFF** Ignition: **ON**	<1 V 11 – 14 V	Wiring, Fuse.

Electrical Test Program - Electronic Accelerator Test

Test step / DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 20.0 10	**EA/CC/ISC control module (N4/1)** Engine speed (TNA) signal from base module (N16/1)	N4/1 79 (1.38) — V — 75 (1.34)	Engine: **Start** Accelerator pedal position: Closed throttle	6 – 12 V	Wiring, Base module (N16/1), DM, Chassis and Drivetrain, Vol. 1, section 1.1.
⇒ 21.0 8	**Left front axle vehicle speed sensor (L6/1)** Speed signal	N4/1 79 (1.38) — V — 56 (1.15)	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 and Drivetrain, Volume 1, section 5.2. **Note:** Upon completion of test, erase DTC's from ABS/ASR control module (N30/1) memory.
⇒ 22.0 9	**Left rear axle vehicle speed sensor (L6/3)** Speed signal	N4/1 79 (1.38) — V — 53 (1.12)	Lift rear of vehicle. Ignition: **ON** Turn left rear wheel by hand.	4 – 8 V	Wiring, L6/3, N30/1, DM, Chassis and Drivetrain, Vol. 1, section 5.2. **Note:** Upon completion of test, erase DTC's from ABS/ASR control module (N30/1) memory.

Electrical Test Program - Electronic Accelerator Test

Test step / DTC	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 23.0	**EA/CC/ISC control module (N4/1)** Fuel safety shut-off signal to right LH-SFI control module (N3/3)	N4/1 79 (1.38) — V — 48 (1.7)	Ignition: **ON**	2 – 11 V (value jumps).	Wiring, Right EA/CC/ISC actuator (M16/3), N4/1
⇒ 24.0	**EA/CC/ISC control module (N4/1)** Fuel safety shut-off signal to left LH-SFI control module (N3/2)	N4/1 79 (1.38) — V — 68 (1.27)	Ignition: **ON**	2 – 11 V (value jumps).	Wiring, Left EA/CC/ISC actuator (M16/4), N4/1
⇒ 25.0	**EA/CC/ISC control module (N4/1)** Closed throttle position recognition signal to right LH-SFI control module (N3/3)	N4/1 79 (1.38) — V — 65 (1.24)	Ignition: **ON** Closed throttle position Accelerator pedal applied	 4.8 V 5.5 V	Wiring, N4/1

Electrical Test Program - Electronic Accelerator Test

Test step **DTC**	Scope of test	Test connection	Test condition	Nominal value	Possible cause/remedy
⇒ 26.0	**EA/CC/ISC control module (N4/1)** Idle speed recognition signal to left LH-SFI control module (N3/2)	N4/1 79 (1.38) — V — 64 (1.23)	Ignition: **ON** Accelerator pedal position: Closed throttle Accelerator pedal depressed	 4.8 V 5.5 V	Wiring, EA/CC/ISC control module (N4/1).
⇒ 27.0 ┐	**Serial data bus (CAN)**	N4/1x1 "L" — Ω — "H"	Ignition: **OFF** EA/CC/ISC control module (N4/1) unplugged. Measure resistance at connector (see Figure 9).	 55 – 65 Ω	Wiring, LH-SFI control module (N3/2 or N3/3), DM, Engine, Vol. 2, section 3.2, Ignition control module (N1/4 or N1/5), DM, Engine, Vol. 2, section 5.3, ABS/ASR control module (N30/1), DM, Chassis and Drivetrain, Vol. 1, section 5.2.

Electrical Test Program - Electronic Accelerator Test

Table I Voltage values - actuator reference potentiometer (M16/3r1) and actual value potentiometer (M16/4r1)

Reference Voltage Supply Value	"**a**" Accelerator pedal position: **Closed Throttle**	"**b**" Accelerator pedal position: **Wide Open Throttle or Kickdown**
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	5.50 V

Electrical Test Program - Electronic Accelerator Test

Table II Voltage values - throttle valve actual value potentiometers (M16/3r2, M16/4r2)

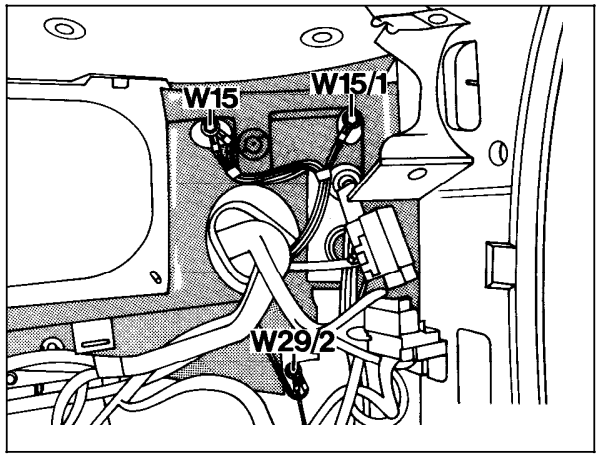
Reference Voltage Supply Value	"**e**" Accelerator pedal position: **Closed Throttle**	"**f**" Accelerator pedal position: **Wide Open Throttle or Kickdown**
4.7 V	4.55 V	0.23 V
4.8 V	4.65 V	0.24 V
4.9 V	4.75 V	0.24 V
5.0 V	4.85 V	0.25 V
5.1 V	4.94 V	0.25 V
5.2 V	5.04 V	0.26 V
5.3 V	5.14 V	0.26 V

Electrical Test Program - Electronic Accelerator Test

Table III Voltage values - closed throttle position switch and safety contact switch (M16/3s2 and M16/4s1)

Reference Voltage Supply Value	**"h"** Closed Throttle Position Switch **(closed)** Accelerator pedal position: Closed Throttle	**"i"** Closed Throttle Position Switch **(just opened)** Accelerator pedal position: Pedal depressed to switch point	**"k"** Safety Contact Switch **(open)** Accelerator pedal position: Closed Throttle	**"l"** Safety Contact Switch **(just closed)** Accelerator pedal position: Pedal depressed to switch point
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



P54-2796-13

Figure 1
Model 140

W15 Ground, output ground, electronics (right footwell)

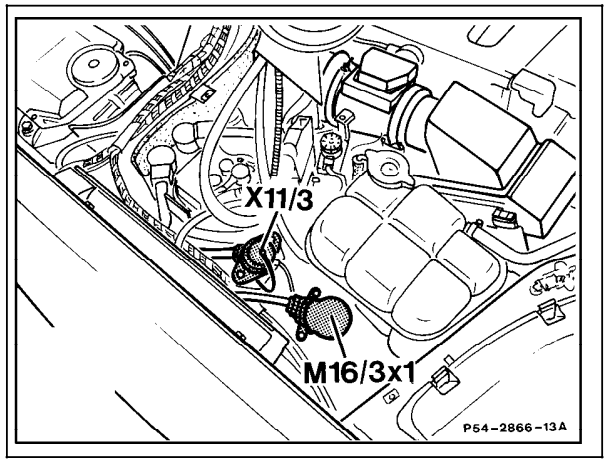


Figure 2 P54-2866-13A

M16/3x1 Right EA/CC/ISC actuator connector (located on left side of engine)

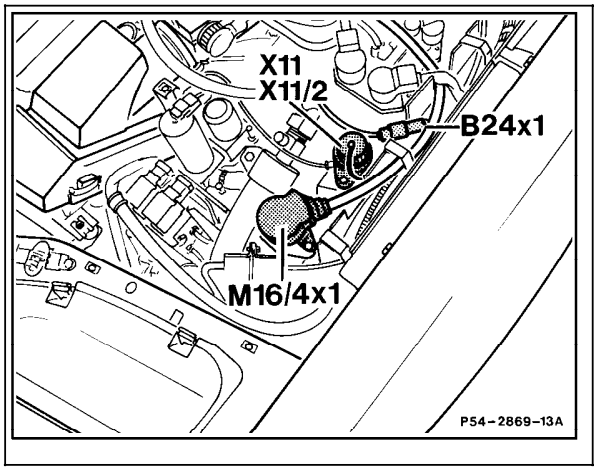


Figure 3 P54-2869-13A

M16/4x1 Left EA/CC/ISC actuator connector (located on right side of engine)

Electrical Test Program - Electronic Accelerator Test

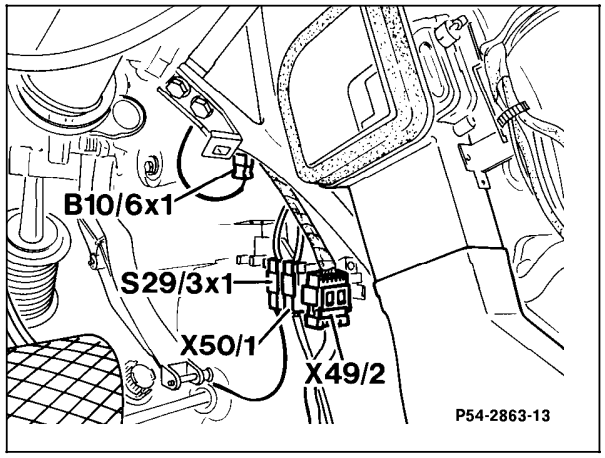


Figure 4 P54-2863-13

S29/3x1 losed throttle position switch connector
X50/1 Starter lock-out switch connector electronic accelerator/cruise control/idle speed control (4-pole)

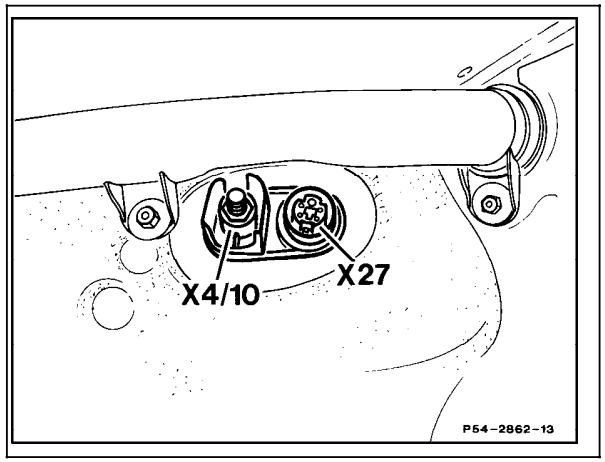


Figure 5 P54-2862-13

X4/10 Terminal block, terminal 30/30Ü

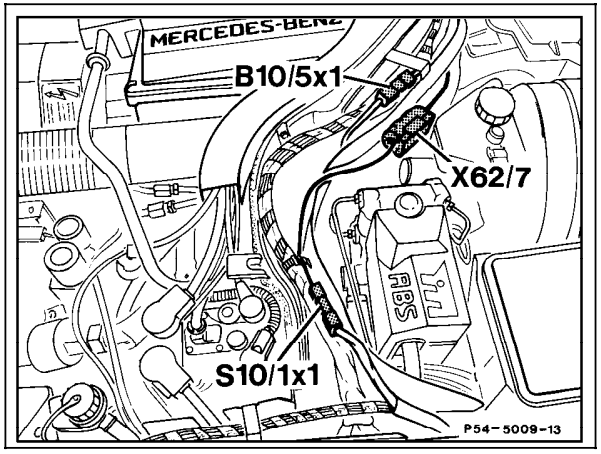


Figure 6 P54-5009-13

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

Electrical Test Program - Electronic Accelerator Test

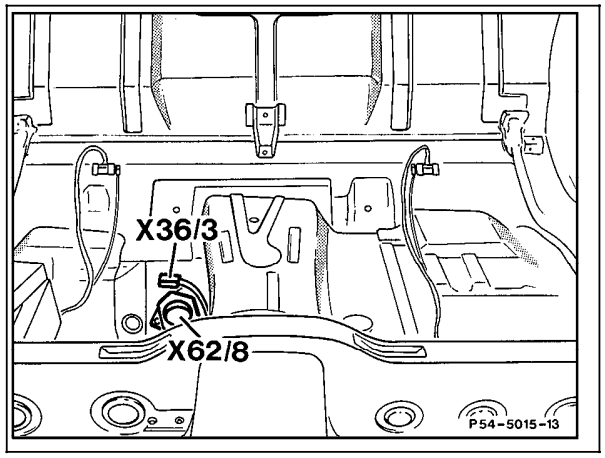


Figure 7 P54-5015-13

X62/8 Rear axle multiple circuit junction connector

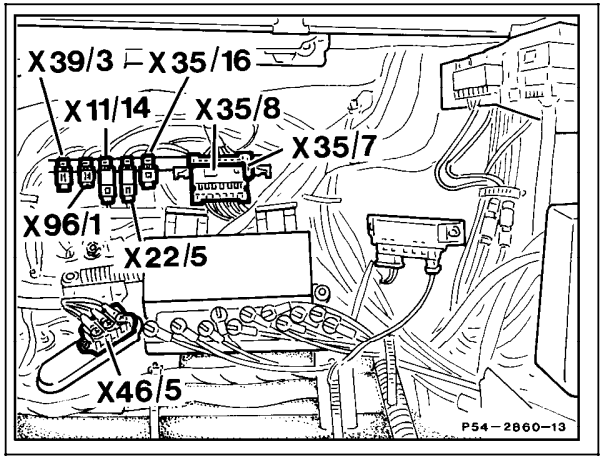
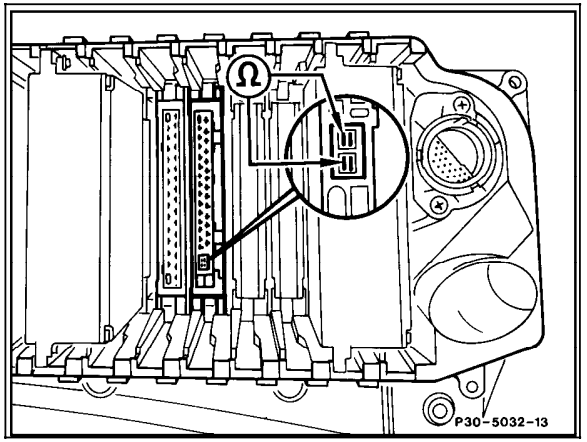


Figure 8 P54-2860-13

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



P30-5032-13

Figure 9

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