Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0	P1750	**Diagnostic module (OBD II, N59/1)** Voltage supply Circuit 30	N59/1 25 (1.25) — V — 5 (1.5)	Ignition: **ON**	11 – 14 V	Wiring, ⇒ 1.1, **Model 129, 140:** Base module (N16/1). **Model 210:** Relay module (K40)
1.1		Ground wire	N59/1 25 (1.25) — V — X11/4 3	Ignition: **ON**	11 – 14 V	**Model 129:**Ground, module box bracket (W27), **Model 140** to end of 1995: Electronic ground, right footwell (W15) **Model 140** as of 1996: Ground, right rear seat (W17) **Model 210**: Ground, left wheelhousing (W16/3)
2.0		**Diagnostic module (OBD II, N59/1)** Voltage supply Circuit 87E	N59/1 31 (1.31) — V — 26 (1.26)	Ignition: **ON**	11 – 14 V	Wiring, ⇒ 2.1, **Model 129, 140:** Base module (N16/1). **Model 210:** Relay module (K40)
2.1		Ground wire to engine control module (N3/4)	N59/1 31 (1.31) — V — 5 (1.5)	Ignition: **ON**	11 – 14 V	Wiring

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
3.0		**"CHECK ENGINE" MIL** Control	N59/1 28 (1.28) — V — 26 (1.26)	Ignition: **ON**	11 – 14 V	Diagnostic module (OBD II, N59/1)
4.0	P0132 P0134 P0131 P1131 P0133	**O2S 1 (before TWC) (G3/2)** Signal	N59/1 31 (1.31) — V — 7 (1.7)	Engine: **at Idle** and at operating temperature >80 °C. Run engine at idle for at least 2 minutes.	oscillates between -0.2V and +1.0 V, by more than 0.3 V.	Wiring, G3/2.
5.0	P0138 P1137 P1138	**O2S 2 (after TWC) (G3/1)** Signal	N59/1 31 (1.31) — V — 6 (1.6)	Start engine at engine coolant temperature >80 °C. Increase and hold engine speed to 2000 – 3000 rpm for approx. 3 minutes until O2S 2 (after TWC) heater is switched on (see HHT). Accelerate briefly.	450 mV constant Voltage changes Voltage changes by > 100 mV	Wiring, G3/1

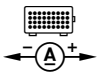
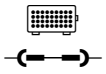
Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
6.0	P1335	**Engine speed signal** TNA	N59/1 [1] 31 (1.31) — (+) — 8 (1.8) N59/1 [2] 31 (1.31) — (V) — 8 (1.8)	Engine: **at Idle**	Signal see Figure 1 5.0 – 7.5 V	Wiring, Engine control module (N3/4).
7.0	P1340	**Model 129, 140** **CMP sensor (L5/1)** **Model 210** **Camshaft Hall-effect sensor (B6/1)** Output signal	N59/1 [1] 31 (1.31) — (+) — 3 (1.3) N59/1 [2] 31 (1.31) — (V) — 3 (1.3)	Engine: **at Idle**	Signal see Figure 2 and 3 9.5 – 11.0 V voltage jumps	Wiring, CMP sensor (L5/1), Camshaft Hall-effect sensor (B6/1), Engine control module (N3/4).

[1] Test with oscilloscope.

[2] Test with digital multimeter only if oscilloscope is not available.

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
8.0	P1443	**Purge flow switchover valve (Y27/6)** Current draw	N59/1  25 (1.25) — 10 (1.10)	Ignition: **ON**	0.4 – 0.6 A	Wiring, Y27/6.
9.0	P0441	**Purge flow system** Logic chain	N59/1  25 (1.25) — 10 (1.10)	Connect vacuum tester to switchover valve (Y27/6) (see Figure 4) Engine: **Start** and bring to operating temperature (80 °C) Engine speed approximately 2500 rpm	Purge switchover valve (Y58/1) noticeably cycles. Vacuum tester needle oscillates by approx. 5 mbar vacuum with cycle frequency of the purge control valve (Y58/1)	Regeneration line, Purge switchover valve (Y58/1), Y27/6.

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
10.0	P1444	**Purge flow switchover valve (Y27/6)** Logic chain vacuum switchover	N59/1 25 (1.25) — 10 (1.10)	Connect vacuum tester to switchover valve (Y27/6). Disconnect 2-pole connector from purge control valve (Y58/1). Engine: **at Idle** Remove bridge from socket box tester	approx. 0 mbar vacuum > 500 mbar vacuum	Vacuum line, Y27/6.
11.0	P0105	**DM pressure sensor (B5/2)** Voltage	N59/1 2 (1.2) — V — 17 (1.17)	Coonect vacuum tester to pressure sensor (B5/2) using Y-fitting (Figure 4). Igmition: **ON** Engine: **at Idle**	> 3.5 V < 2 V and pressure increase to > 500 mbar	Vacuum line, Wiring, ⇒ 11.1, B5/2.
11.1		DM pressure sensor (B5/2) Voltage supply	N59/1 2 (1.2) — V — 16 (1.16)	Ignition: **ON**	4.7 – 5.3 V	Diagnostic module (OBD II, N59/1)

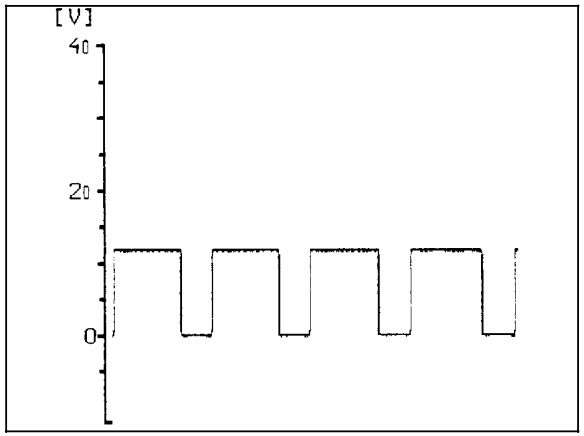
Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
12.0	P0600	**CAN databus**	N59/1 L — ◄ Ω ► — H	Ignition: **OFF** Disconnect test cable or diagnostic module. Test with ohmmeter directly on both connections of diagnostic module connector (Figure 5).	**Model 140** to end of 1995 55 – 65 Ω **Model 129, 140, 210** as of 1996 115 – 125 Ω	Data bus, ⇒ 12.1, Diagnostic module (OBD II, N59/1).
12.1		CAN segment in engine control module (N3/4) Resistance	N3/4 L — Ω — H	Remove control module (N3/4) or disconnect connector 1 from control module (N3/4) and test with ohmmeter directly on control module (Figure 6).	115 – 125 Ω	Engine control module (N3/4), ⇒ 12.2.
12.2		CAN segement **Model 140** to end of 1995 in EA/CC/ISC control module (N4/1) or CC/ISC control module (N4/3) **Model 129, 140** as of 1996 and **Model 210** in RCL control module (N54)	N4/1 N54 L — Ω — H 44 — N4/3 — 45 (1.44) (1.45)	Remove control module (N4/1, N4/3 or N54) and test with ohmmeter directly on control module (Figure 7 – 9)	115 – 125 Ω	EA/CC/ISC control module (N4/1), CC/ISC control module (N4/3), RCL control module (N54).

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
13.0		**Coding diagnostic module (N59/1)** **Model 129** **Model 210**	N59/1 9 (1.9) — V — 26 (1.26) N59/1 29 (1.29) — V — 26 (1.26)	Ignition: ON	11 – 14 V	Wiring.

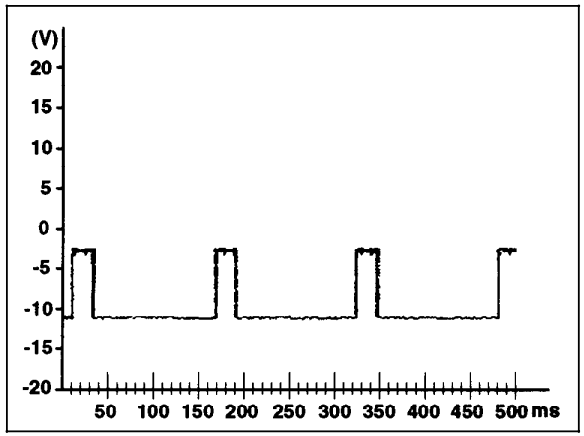
Electrical Test Program – Test



P15-0370-13

Figure 1

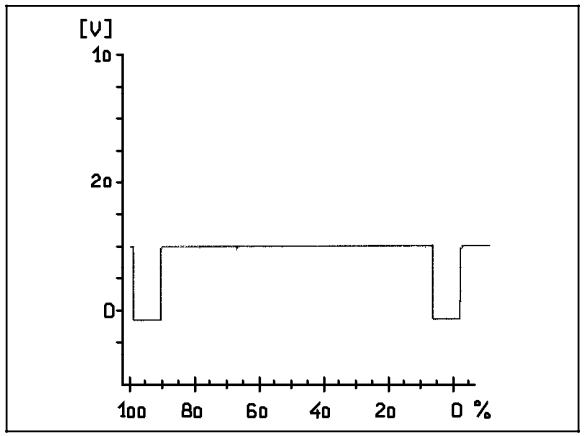
Engine speed signal (TNA)



P07-6413-13

Figure 2
Model 129, 140

Camshaft position sensor signal
t 50 ms

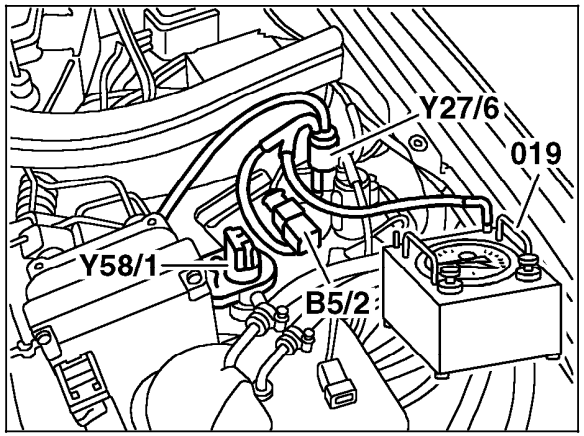


P07-6818-13

Figure 3
Model 210

Camshaft Hall-effect sensor output signal

Electrical Test Program – Test



P07.51-0377-13

Figure 4
Shown on Model 210

B5/2 DM pressure sensor
Y27/6 Purge flow switchover valve
Y58/1 Purge control valve
019 Vacuum tester

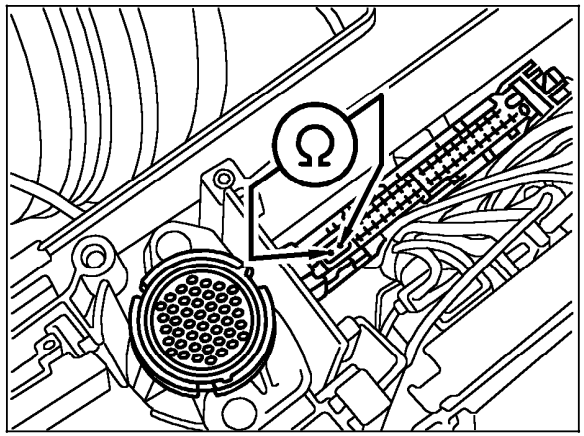


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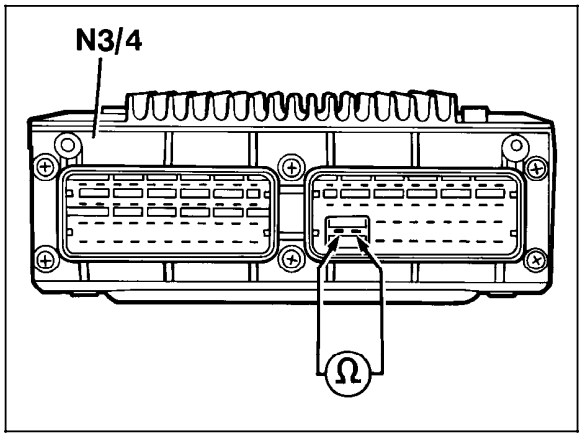
Figure 5

X11/4 Diagnostic module connector (shown on model 210)

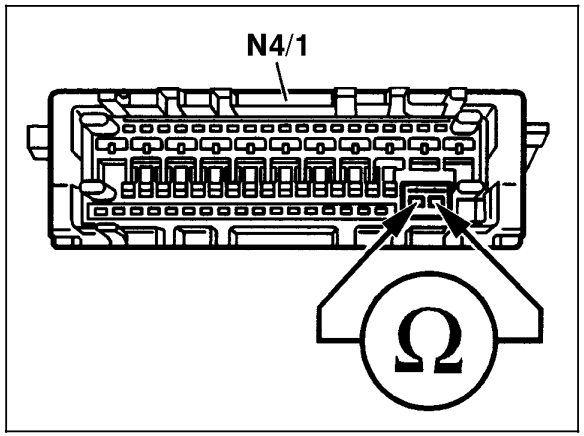


P07-6010-13

Figure 6

N3/4 Engine control module (HFM-SFI)

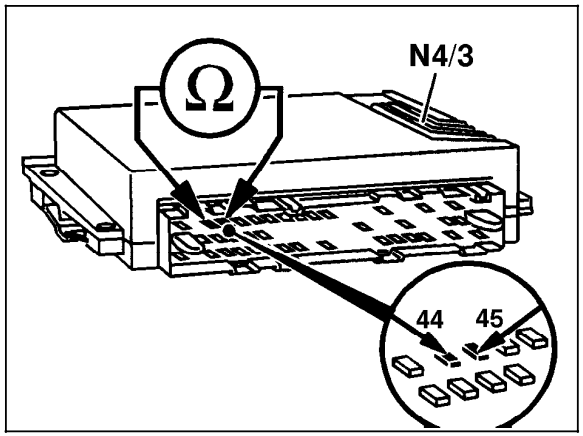
Electrical Test Program – Test



P07-6277-13

Figure 7

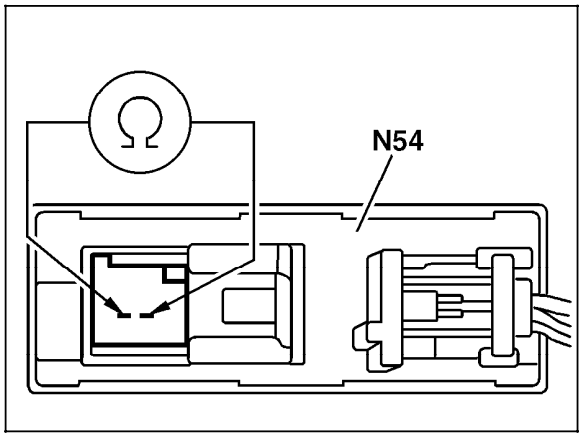
N4/1 EA/CC/ISC control module



P07-6327-13

Figure 8

N4/3 CC/ISC control module



P07.51-0338-13

Figure 9

N54 RCL control module