Electrical Test Program – Sequential Multiport Fuel Injection System Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0		**Engine control module (HFM-SFI) (N3/4)** Voltage supply Circuit 30	N3/4 33 — (1.33) 40 — (1.40)	Ignition: **ON**	11 – 14 V	⇒ 1.1
1.1		Ground wire	N3/4 33 — (1.33) X11/4 2 [1]	Ignition: **ON**	11 – 14 V	Ground wire, **Model 124** Battery ground (W10), **Model 129** Ground, module box bracket (W27), **Model 140** Wiring harness ground, right footwell (W15), **Model 202, 210** Ground (component compartment - right [W16/4]), ⇒ 1.2
1.2		Voltage supply Circuit 30	X11/4 1 — N3/4 40 — (1.40)	Ignition: **ON**	11 – 14 V	Wire to terminal block X4/10 or X4/22.

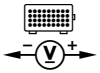
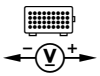
[1] For models 129, 140 and 202. On model 124, connect to socket 16.

Electrical Test Program – Sequential Multiport Fuel Injection System Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
2.0		**Engine control module (HFM-SFI) (N3/4)** Voltage supply Circuit 87U	N3/4 32 (1.32) — V — 39 (1.39)	Ignition: **ON**	11 – 14 V	⇒ 2.1
2.1		Electronics ground	N3/4 32 (1.32) — V — X11/4 2 [1]	Ignition: **ON**	11 – 14 V	Wiring, **Model 124** Electronic ground (W10/1), **Model 129 and 140** Electronic ground, right footwell (W15/1), **Model 202, 210** Ground in component compartment right, electronic ground (W16/6), ⇒ 2.2
2.2		Voltage supply Circuit 87U	X11/4 1 — V — N3/4 39 (1.39)	Ignition: **ON** Ignition: **OFF**	11 – 14 V < 1 V	Wiring, Overvoltage protection relay module (K1/2), base module (N16/1) or relay module (K40), Ignition/starter switch (S2/1).

[1] For models 129, 140 and 202. On model 124, connect to socket 16.

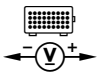
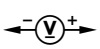
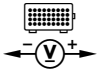
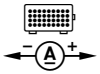
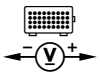
Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
3.0		**Engine control module (HFM-SFI) (N3/4)** Voltage supply Circuit 87M	N3/4 66 — (2.22)  — 27 (1.27)	Ignition: **ON**	11 – 14 V	Wiring, Fuse, Overvoltage protection relay module (K1/2), base module (N16/1) or relay module (K40), ⇒ 3.1
3.1		Electronics ground	N3/4  66 — (2.22)  X11/4 — 2 [1]	Ignition: **ON**	11 – 14 V	Wiring, **Model 124** Electronics ground (W10/1), **Model 129 and 140** Electronic ground, right footwell (W15/1), **Model 202, 210** Electronic ground in component compartment right (W16/6),
4.0	009 010	**Hot film MAF sensor (B2/5)** Voltage at hot film	N3/4  71 — (2.27) — 49 (2.5)	Engine: **at Idle** Engine coolant temperature >70°C	 0.8 – 1.1 V [2]	Wiring, ⇒ 4.1, ⇒ 5.0, Air intake system leak, B2/5.

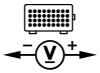
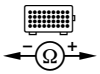
[1] For models 129, 140 and 202. On model 124, connect to socket 16.

[2] Voltage increases with increasing rpm.

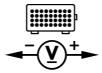
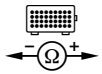
Electrical Test Program – Sequential Multiport Fuel Injection System Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
4.1		Voltage supply	N3/4  71 (2.27) — 39 (1.39)	Ignition: **ON**	11 – 14 V	Wiring, Engine control module (N3/4).
5.0	009 010	**Ground wire for hot film MAF sensor (B2/5)**	B2/5  4 — 2	Disconnect connector on B2/5 and measure directly at sockets 2 (rt/bl) and 4 (br). Ignition: **ON**	11 – 14 V	Ground wire.
6.0	076	**FP relay module (K27) or relay module (K40)** Control signal	N3/4  32 (1.32) — 29 (1.29)	Engine: **Start**	6 – 14 V while cranking.	⇒ 6.1, N3/4.
6.1		Current draw	N3/4  29 (1.29) — 39 (1.39)	Ignition: **ON**	0.1 – 0.3 A	Wiring, K27 or K40
7.0	101	**Starter signal** Circuit 50	N3/4  32 (1.32) — 21 (1.21)	Engine: **Start**	6 – 14 V while cranking.	Wiring.

Electrical Test Program – Sequential Multiport Fuel Injection System Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
8.0	002 003 004 005	**ECT sensor (B11/3)** Voltage	N3/4  72 (2.28) — 80 (2.36)	Ignition: **ON**	°C V 20 3.5 30 3.1 40 2.7 50 2.3 60 1.9 70 1.5 80 1.2 90 1.0 100 0.8 ±5 %	⇒ 8.1, Engine control module (N3/4).
8.1		Resistance	N3/4  72 (2.28) — 80 (2.36)	Ignition: **OFF** Unplug connector 2 on engine control module (N3/4).	°C Ω 20 2500 30 1700 40 1170 50 830 60 600 70 435 80 325 90 245 100 185 ±5 %	Wiring, B11/3.

Electrical Test Program – Sequential Multiport Fuel Injection System Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
9.0	006 007 008	**IAT sensor (B17)** Voltage	N3/4  72 (2.28) — 81 (2.37)	Ignition: **ON**	°C V 10 3.2 20 2.6 30 2.1 40 1.6 50 1.2 60 0.9 70 0.7 80 0.5 ±5 %	⇒ 9.1, Engine control module (N3/4).
9.1		Resistance	N3/4  72 (2.28) — 81 (2.37)	Ignition: **OFF** Unplug connector 2 on engine control module (N3/4).	°C Ω 10 9670 20 6060 30 3900 40 2600 50 1760 60 1220 70 860 80 620 ±5 %	Wiring, B17.

Electrical Test Program – Sequential Multiport Fuel Injection System Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
10.0	070 071	**Engine control module (N3/4)** TN-signal output (engine rpm output signal)	N3/4 [3] 32 (1.32) — ⏚ — 18 (1.18) N3/4 [4] 32 (1.32) — V — 18 (1.18)	Engine: **Start** or Engine: **at Idle**	Signal, see Figure 1. 5 – 7.5 V	Wiring, Engine control module (N3/4).
11.0		**Closed throttle position recognition signal** EA/CC/ISC actuator (M16/1) or CC/ISC actuator (M16/2)	N3/4 32 (1.32) — V — 10 (1.10)	Ignition: **ON** Accelerator pedal in closed throttle position. Accelerator pedal in wide open throttle position.	4.8 V 5.5 V	Wiring, M16/1 or M16/2 (see electronic accelerator or cruise control/idle speed control tests in Diagnostic Manual, Engines, Volume 3, sections 6 or 7).
12.0	104	**Fuel safety shut-off** from EA/CC/ISC actuator (M16/1) or CC/ISC actuator (M16/2)	N3/4 32 (1.32) — V — 4 (1.4)	Ignition: **ON**	2.2 – 11 V (voltage fluctuates)	Wiring, M16/1 or M16/2 (see electronic accelerator or cruise control/idle speed control tests in Diagnostic Manual, Engines, Volume 3, sections 6 or 7).

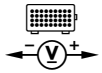
[3] Test with oscilloscope.

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

Electrical Test Program – Sequential Multiport Fuel Injection System Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
13.0.	104	**Fuel safety shut-off**	N3/4 32 (1.32) — 4 (1.4)	Engine: **Start** and apply wide open throttle.	Engine speed surges between 1000 – 2000 rpm.	Engine control module (N3/4).
14.0	023 024 025	**O2S 1 (before TWC) (G3/2)** O2S 1 signal	N3/4 34 (1.34) — V — 35 (1.35)	Engine: **at Idle** and at operating temperature > 80 °C let engine run for a minimum of 2 minutes.	Oscillates between – 0.2 and + 1.0 V by more than 0.3 V	Wiring, G3/2, ⇒ 14.1, ⇒ 15.0
14.1		Insulation, O2S 1 wire	N3/4 35 (1.35) — Ω — 36 (1.36)	Ignition: **OFF** Unplug connector 1 on N3/4.	>20 kΩ	Wiring.
15.0	029 030 031	**O2S 1 (before TWC) (G3/2)** O2S 1 heater Control signal	N3/4 32 (1.32) — V — 30 (1.30)	Engine: **at Idle** and at operating temperature > 80 °C let engine run for a minimum of 2 minutes.	11 – 14 V	⇒ 15.1, N3/4.
15.1		Current draw	N3/4 30 (1.30) — A — 39 (1.39)	Ignition: **ON**	0.6 – 3.4 A	Wiring, G3/2.

Electrical Test Program – Sequential Multiport Fuel Injection System Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
16.0	026 027 028	**Except model 124** Perform both measurements simultaneously **O2S 2 (after TWC) (G3/1)** O2S 2 signal	N3/4  24 (1.24) — 25 (1.25)	Start engine at engine coolant temperature > 80°C. Maintain an engine speed of 2000 – 3000 rpm for approx. 3 minutes until O2S 2 (after TWC) heater is switched on (see second multimeter or HHT).	450 mV constant Voltage changes	Wiring, ⇒ 16.1, ⇒ 17.0, ⇒ 18.0, G3/1.
		Note to Test connection: Connect second multimeter **Except model 210** **O2S 2 (after TWC) heater relay module (K35)** Control signal	N3/4  31 (1.31) — 27 (1.27)	Accelerate briefly. O2S 2 (after TWC) heater not switched on. O2S 2 (after TWC) heater switched on. **Note:** After the O2S 2 (after TWC) heater is switched on, the O2S signal must change.	Voltage changes by > 100 mV 11 – 14 V < 1 V	

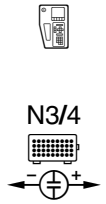
Electrical Test Program – Sequential Multiport Fuel Injection System Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
16.1		Insulation, O2S 2 wire	N3/4 25 (1.25) — Ω — 26 (1.26)	Ignition: **OFF** Unplug connector 1 on engine control module (N3/4).	>20 kΩ	Wiring.
17.0	032 033 034	**Except model 124** **O2S 2 (after TWC) (G3/1)** O2S 2 heater Control signal	N3/4 32 (1.32) — V — 41 (1.41)	Engine: **at Idle** and at operating temperature > 80 °C let engine run for a minimum of 2 minutes.	11 – 14 V	⇒ 17.1. Engine control module (N3/4).
17.1		Current draw	N3/4 41 (1.41) — A — 39 (1.39)	Ignition: **ON**	0.6 – 3.4 A	Wiring, O2S 2 (after TWC) heater relay module (K35), O2S 2 (G3/1).
18.0	108 109	**Except model 124, 210** **O2S 2 (after TWC) heater relay module (K35)** Control signal	N3/4 31 (1.31) — V — 27 (1.27)	Disconnect ECT sensor (B11/3) and simulate 2.5 kΩ at sockets 1 and 2 with resistance substitution unit. Engine: **at Idle**	11 – 14 V	⇒ 18.1, N3/4.

Electrical Test Program – Sequential Multiport Fuel Injection System Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
18.1		Current draw	N3/4 33 — (1.33) – A + — 31 (1.31)	Ignition: **ON**	0.1 – 0.3 A	Wiring, K35.
19.0	037 038	**Injector (Y62y1)** Control and injection time	N3/4 67 — (2.23) – ⏚ + — 39 (1.39)	**ECT approx. 20 °C** at start → **ECT approx. 80 °C** at idle → accelerate briefly →	Injection time: approx. 8 ms approx. 3 – 5 ms approx. 17 ms (see signals, Figures 2 and 3)	⇒ 19.1, Engine control module (N3/4), **Further possibilities:** ECT sensor (B11/3), IAT sensor (B17), O2S 1 (G3/2).
19.1		Resistance	N3/4 67 — (2.23) – Ω + — 53 (2.9)	Ignition: **OFF** Connector 2 on engine control module unplugged.	14 – 17 Ω	Wiring, Y62y1.

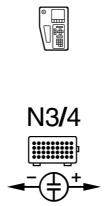
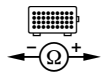
Electrical Test Program – Sequential Multiport Fuel Injection System Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
20.0	039 040	**Injector (Y62y2)** Control and injection time		**ECT approx. 20 °C** at start → **ECT approx. 80 °C** at idle → accelerate briefly →	Injection time: approx. 8 ms approx. 3 – 5 ms approx. 17 ms (see signals, Figures 2 and 3)	⇒ 20.1, Engine control module (N3/4), **Further possibilities:** ECT sensor (B11/3), IAT sensor (B17), O2S 1 (G3/2).
20.1		Resistance		Ignition: **OFF** Connector 2 on engine control module unplugged.	14 – 17 Ω	Wiring, Y62y2.
21.0	041 042	**Injector (Y62y3)** Control and injection time		**ECT approx. 20 °C** at start → **ECT approx. 80 °C** at idle → accelerate briefly →	Injection time: approx. 8 ms approx. 3 – 5 ms approx. 17 ms (see signals, Figures 2 and 3)	⇒ 21.1, Engine control module (N3/4), **Further possibilities:** ECT sensor (B11/3), IAT sensor (B17), O2S 1 (G3/2).

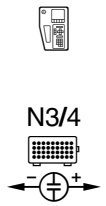
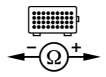
Electrical Test Program – Sequential Multiport Fuel Injection System Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
21.1		Resistance	N3/4 46 (2.2) — Ω — 53 (2.9)	Ignition: **OFF** Connector 2 on engine control module unplugged.	14 – 17 Ω	Wiring, Y62y3.
22.0	043 044	**Injector (Y62y4)** Control and injection time	N3/4 47 (2.3) — 39 (1.39)	**ECT approx. 20 °C** at start → **ECT approx. 80 °C** at idle → accelerate briefly →	Injection time: approx. 8 ms approx. 3 – 5 ms approx. 17 ms (see signals, Figures 2 and 3)	⇒ 22.1, Engine control module (N3/4), **Further possibilities:** ECT sensor (B11/3), IAT sensor (B17), O2S 1 (G3/2).
22.1		Resistance	N3/4 47 (2.3) — Ω — 53 (2.9)	Ignition: **OFF** Connector 2 on engine control module unplugged.	14 – 17 Ω	Wiring, Y62y4.

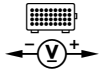
Electrical Test Program – Sequential Multiport Fuel Injection System Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
23.0	045 046	**Injector (Y62y5)** Control and injection time	 N3/4 56 (2.12) — 39 (1.39)	**ECT approx. 20 °C** at start → **ECT approx. 80 °C** at idle → accelerate briefly →	Injection time: approx. 8 ms approx. 3 – 5 ms approx. 17 ms (see signals, Figures 2 and 3)	⇒ 23.1, Engine control module (N3/4), **Further possibilities:** ECT sensor (B11/3), IAT sensor (B17), O2S 1 (G3/2).
23.1		Resistance	 N3/4 56 (2.12) — 53 (2.9)	Ignition: **OFF** Connector 2 on engine control module unplugged.	14 – 17 Ω	Wiring, Y62y5.

Electrical Test Program – Sequential Multiport Fuel Injection System Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
24.0	047 048	**Injector (Y62y6)** Control and injection time	 N3/4 68 (2.24) 39 (1.39)	**ECT approx. 20 °C** at start → **ECT approx. 80 °C** at idle → accelerate briefly →	Injection time: approx. 8 ms approx. 3 – 5 ms approx. 17 ms (see signals, Figures 2 and 3)	⇒ 24.1, Engine control module (N3/4), **Further possibilities:** ECT sensor (B11/3), IAT sensor (B17), O2S 1 (G3/2).
24.1		Resistance	 N3/4 68 (2.24) 53 (2.9)	Ignition: **OFF** Connector 2 on engine control module unplugged.	14 – 17 Ω	Wiring, Y62y6.

Electrical Test Program – Sequential Multiport Fuel Injection System Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
25.0	068 069	***Non-USA vehicles only.*** ***Continue to next test step.***				
26.0	077 078	***Non-USA vehicles only.*** ***Continue to next test step.***				
27.0	072 073	***Non-USA vehicles only.*** ***Continue to next test step.***				
28.0	085	**Models 124, 129, 140: Electromagnetic AIR pump clutch (Y33) and AIR pump switchover valve (Y32)** **Model 202, 210: AIR pump switchover valve (Y32) and AIR relay module (K17)** Control signal	N3/4  32 (1.32) — 59 (2.15)	Disconnect ECT sensor (B11/3) and simulate 2.5 kΩ at sockets 1 and 2 with resistance substitution unit. Engine: **at Idle**	11 – 14 V (for approx. 2 minutes after start **and** AIR pump runs)	⇒ 28.1, Engine control module (N3/4).

Electrical Test Program – Sequential Multiport Fuel Injection System Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
28.1		Current draw	N3/4 59 (2.15) — 39 (1.39)	Ignition: **ON**	**Models 124, 129, 140** 3.0 – 4.5 A **Model 202, 210** 0.4 – 0.7 A	Wiring, **Models 124, 129, 140** Y32, Y33. **Model 202, 210** Y32, K17.
29.0	086 087	**Purge control valve (Y58/1)** Control signal	N3/4 43 (1.43) — 39 (1.39)	Engine: **at Idle** and at operating temperature.	After approx. 1 minute, purge control valve (Y58/1, Figure 5) must cycle noticeably (signal, see Figure 4).	⇒ 29.1, ⇒ 30.0, Engine control module (N3/4).
29.1		Current draw	N3/4 32 (1.32) — 43 (1.43)	Ignition: **ON**	0.2 – 0.3 A	Wiring, Purge control valve (Y58/1).

Electrical Test Program – Sequential Multiport Fuel Injection System Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
30.0		**Purge control valve (Y58/1)** Vacuum control		**Note to test connection:** Connect vacuum tester to Y58/1 (Figure 5), connection (A). Engine: **at Idle** and at operating temperature.	After approx. 1 minute, > 400 mbar	Vacuum lines, Y58/1.
31.0	089 090	**Adjustable camshaft timing solenoid (Y49)** Current draw	Y49 1 — (A) — 2	**Note to test connection:** Connect test cable (102 589 04 63 00) to solenoid. Engine: **Start** and raise engine speed to approx. 3000 rpm.	Briefly approx. 1.5 A, then 1 A	⇒ 31.1, ⇒ 32.0, N3/4.
31.1		Resistance	N3/4 45 — (Ω) — 53 (2.1) (2.9)	Ignition: **OFF**	4 – 8 Ω	Wiring, Y49.

Electrical Test Program – Sequential Multiport Fuel Injection System Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
32.0		**Adjustable camshaft timing solenoid (Y49)** Mechanical operation	N3/4 45 (2.1) — 66 (2.22)	Engine: **at Idle** Bridge socket box sockets for maximum of 10 seconds.	Engine runs unevenly or stalls	Mechanical camshaft adjustment (see SMS, Repair Instructions, Engine 104, Job No. 05–216).
33.0	105 106	**Resonance intake manifold switchover valve (Y22/6)** Control signal	N3/4 58 (2.14) — V — 39 (1.39)	Engine: **Start** Engine speed: < 3900 rpm Engine speed: > 3900 rpm	0 V 11 – 14 V	⇒ 33.1, Engine control module (N3/4).
33.1		Current draw	N3/4 32 (1.32) — A — 58 (2.14)	Ignition: **ON**	0.4 – 0.6 A	Wiring, Y22/6.
34.0	088	**Upshift delay switchover valve (Y3/3)** Current draw	N3/4 42 (1.42) — A — 39 (1.39)	Ignition: **ON**	0.4 – 0.6 A	Wiring, Y3/3, ⇒ 35.0

Electrical Test Program – Sequential Multiport Fuel Injection System Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
35.0		**Pneumatic upshift delay** Vacuum control and sealing	N3/4 42 (1.42) — 39 (1.39)	**Note to test connection:** Connect vacuum tester to upshift delay switchover valve (Y3/3) according to Figure 13 and connect bridge. Engine: **at Idle**	 > 400 mbar	Vacuum lines, Y3/3.
36.0	098 099 100	**Serial data bus (CAN)**	N3/4 L — Ω — H	Ignition: **OFF**	55 – 65 Ω	⇒ 36.1, ⇒ 37.0, Data line.

Electrical Test Program – Test

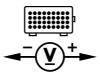
⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
36.1		**CAN element in CC/ISC (N4/3) or EA/CC/ISC (N4/1) control module** **RCL control module (N54)** [5] Resistance	N4/1 N4/3 N54 L — ◄–Ω+► — H	Remove N4/3, N4/1 or N54 control module and measure resistance directly at control module (see Figure 8 to 10 and 15).	115 – 125 Ω	N4/1, N4/3 or N54.
37.0	097	**CAN element in engine control module** Resistance	N3/4 L — ◄–Ω+► — H	Ignition: **OFF** **Models 124, 129, 140, 202, 210 as of 6/95** Unplug connector 1 on N3/4 and measure resistance directly at engine control module (Figure 11). **Models 129, 140 up to 5/95** Remove N3/4 and measure resistance directly at engine control module (Figure 12).	115 – 125 Ω	Engine control module (N3/4)

[5] As of model year 1996.

Electrical Test Program – Sequential Multiport Fuel Injection System Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
38.0	091 092	**EGR switchover valve (Y27)** Vacuum control	N3/4 69 (2.25) — V — 39 (1.39)	Engine: **at Idle** Engine coolant temperature > 60 °C Apply briefly full throttle.	11 – 14V	⇒ 38.1, Engine control module (N3/4), ⇒ 39.0 – 40.0
38.1		Current draw	N3/4 32 (1.32) — A — 69 (2.25)	Ignition: **ON**	0.3 – 0.5 A	Fuse, Wiring, Y27.
39.0		**EGR switchover valve (Y27)** Vacuum control		**Note to test connection:** Connect vacuum tester to the EGR valve (Figure 14). Engine control module (N3/4) plugged in. Engine: **Start** and run at > 3000 rpm.	> 400 mbar	EGR valve.

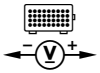
Electrical Test Program – Sequential Multiport Fuel Injection System Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
40.0		**EGR valve** Mechanical test		**Note to test connection:** Connect vacuum tester directly to EGR valve. Engine: **at Idle** Apply 500 mbar vacuum with vacuum tester. Engine: **Off** Apply 500 mbar vacuum with vacuum tester and pull off vacuum line.	 Engine runs unevenly EGR valve closes audibly	EGR valve.
41.0		***Non-USA vehicles only.*** ***Continue to next test step.***				
42.0		**P/N position recognition** **5-speed AT only!**	N3/4  20 (1.20) — 39 (1.39)	Ignition: **ON** Selector lever position: P → R → N → D – 3 – 2 →	 11 – 14 V < 1 V 11 – 14 V < 1 V	Wiring, Starter lock-out/backup lamp switch (S16/1).
43.0		***Non-USA vehicles only.*** ***Continue to next test step.***				
44.0		***Non-USA vehicles only.*** ***Continue to next test step.***				

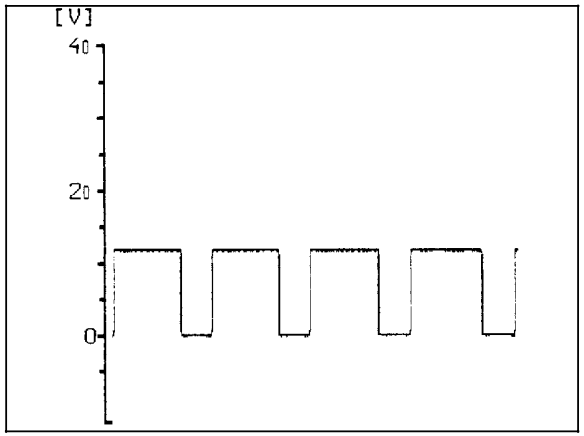
Electrical Test Program – Sequential Multiport Fuel Injection System Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
45.0		**Models 129, 140, 202, 210** **O2S 1 (before TWC) (G3/2)** O2S 1 signal for diagnostic module (OBD II)	N3/4 34 (1.34) — V — 15 (1.15)	Engine: **at Idle** and at operating temperature > 80 °C let engine run for a minimum of 2 minutes.	Oscillates in range between -0.2 and+1.0 V by more than 0.3 V	Wiring, Engine control module (N3/4).
46.0		**Models 129, 140, 202, 210** **O2S 2 (after TWC) (G3/1)** O2S 2 signal for diagnostic module (OBD II)	N3/4 24 (1.24) — V — 16 (1.16)	At operating temperature > 80 °C start engine. and run at 2000 – 3000 rpm for a minimum of 3 minutes. Accelerate briefly.	450 mV constant. Voltage fluctuates. Voltage fluctuates by >100 mV	Wire, N3/4.
47.0		**Models 129, 140, 202** **CMP sensor (L5/1)** Signal for diagnostic module (OBD II) **Model 210** **Camshaft Hall-effect sensor (B6/1)** Signal for diagnostic module (OBD II)	N3/4 32 (1.32) — V — 17 (1.17) N3/4 17 (1.17) — V — 27 (1.27)	Engine: **at Idle** Engine: **at Idle**	9.5 - 10.5 V 1.3 – 1.7 V Value fluctuates	Wiring, N3/4.

Electrical Test Program – Test

⇒		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
48.0		**Fuel consumption signal**	N3/4  7 (1.7) — 39 (1.39)	Engine: **at Idle** Accelerate briefly.	approx. 0.85 V > 1 V	Wiring, Engine control module (N3/4).

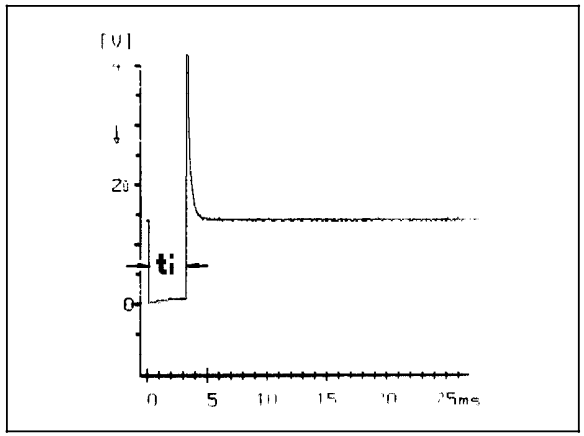
Electrical Test Program – Sequential Multiport Fuel Injection System Test



P15-0370-13

Figure 1

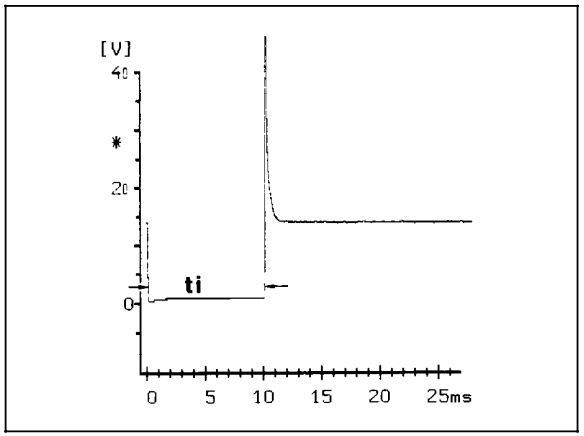
TN signal (engine rpm)



P07-0699-13

Figure 2

Injection time signal “ti” of injectors at idle speed

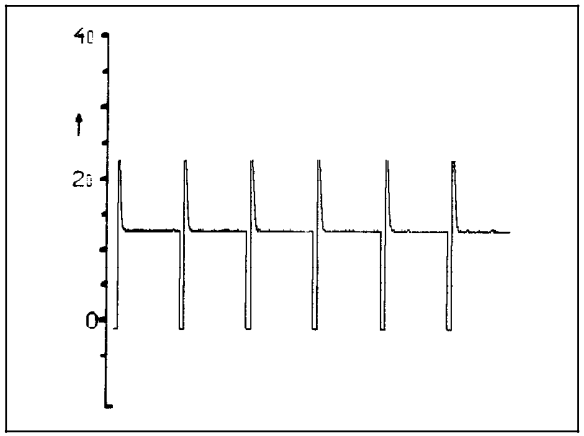


P07-0700-13

Figure 3

Injection time signal “ti” of injectors when briefly accelerating

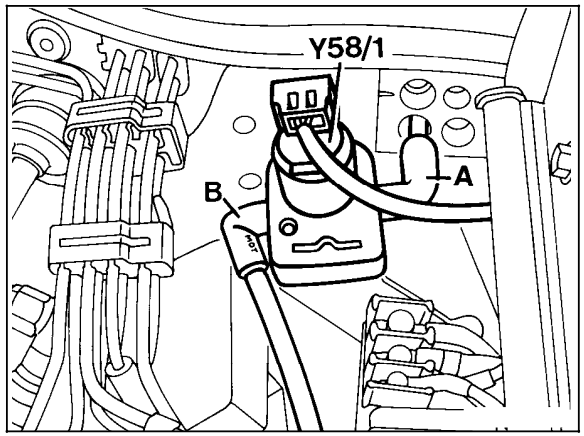
Electrical Test Program – Sequential Multiport Fuel Injection System Test



P07-5330-13

Figure 4

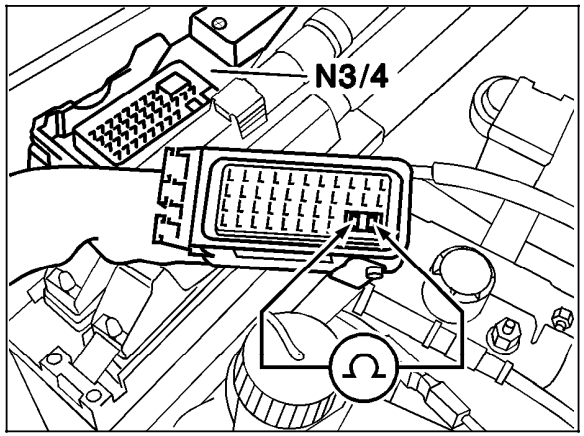
Purge control valve control signal



P07-5455-13

Figure 5 As shown on Model 124)

Y58/1	Purge control valve
A	Line to charcoal canister
B	Line to engine



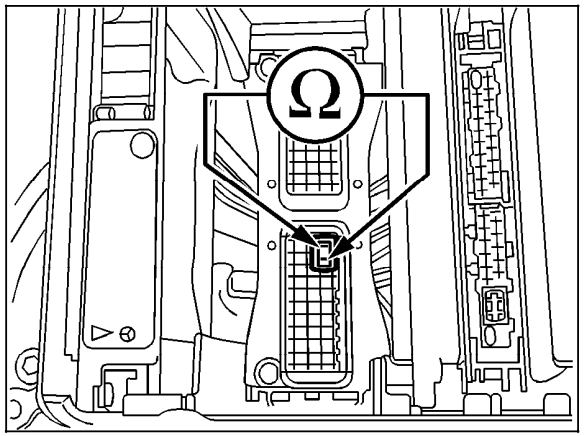
P07-6115-13

Figure 6

Model 124, 202, 210

N3/4	Engine control module (HFM-SFI)

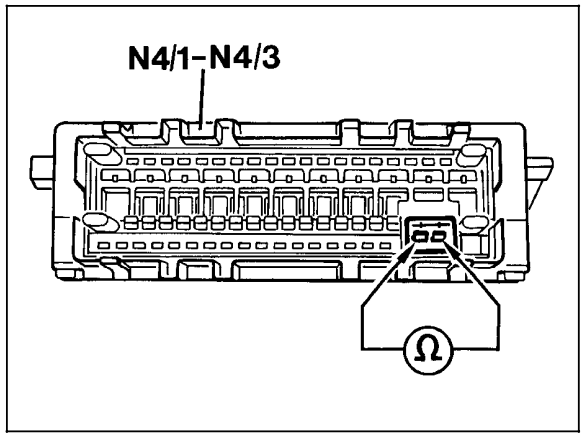
Electrical Test Program – Sequential Multiport Fuel Injection System Test



P07-6366-13

Figure 7
Model 129, 140

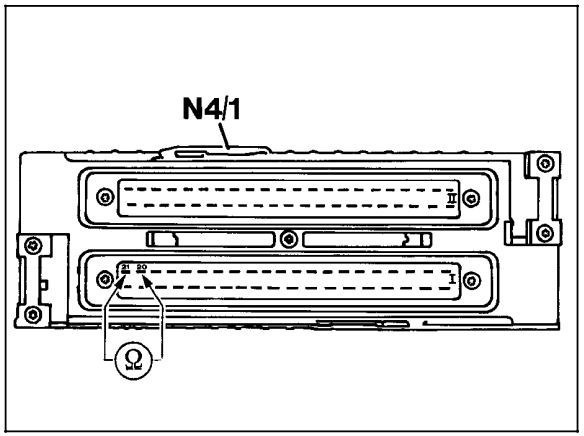
N3/4 Engine control module (HFM-SFI)



P07-6011-13

Figure 8
Model 124, 202

N4/3 CC/ISC control module

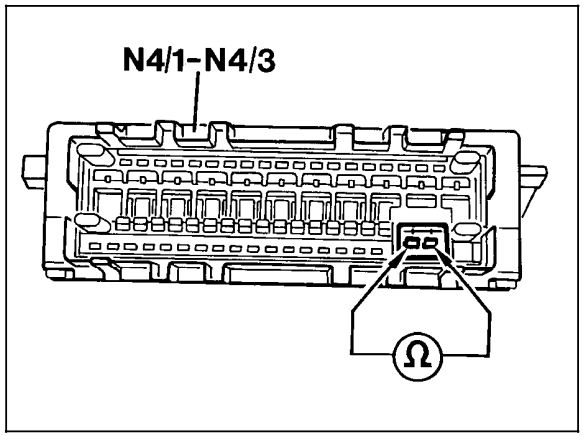


P07-6009-13

Figure 9
Model 124, 202, 210

N4/1 EA/CC/ISC control module

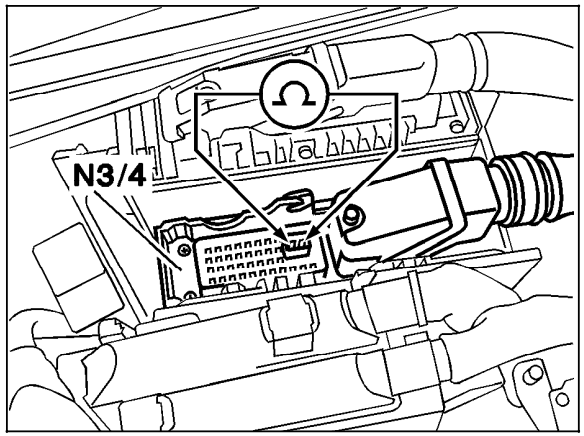
Electrical Test Program – Sequential Multiport Fuel Injection System Test



P07-6008-13

Figure 10
Model 129, 140

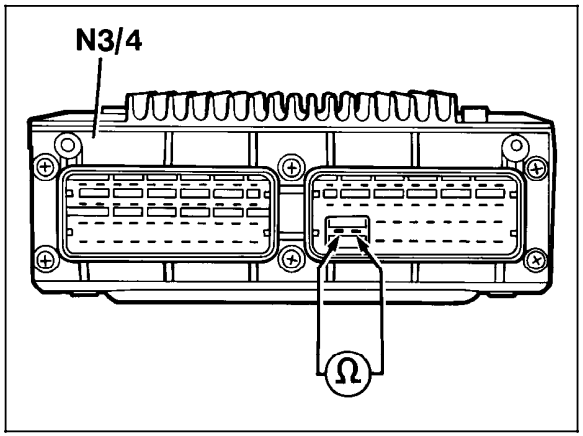
N4/1 EA/CC/ISC control module
N4/3 CC/ISC control module



P07-6116-13

Figure 11
Model 124, 202, 210 and 129/140 as of 06/95

N3/4 Engine control module (HFM-SFI)

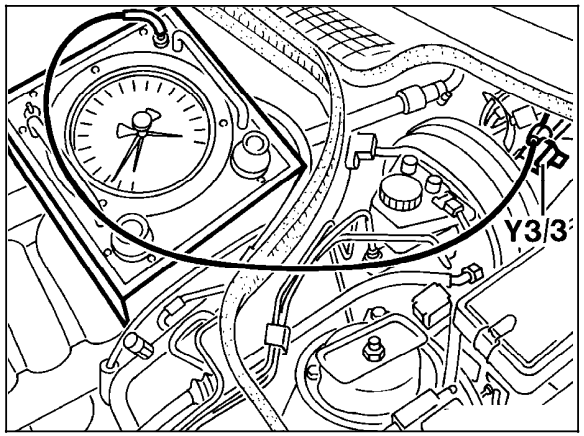


P07-6010-13

Figure 12
Model 129, 140 up to 05/95

N3/4 Engine control module (HFM-SFI)

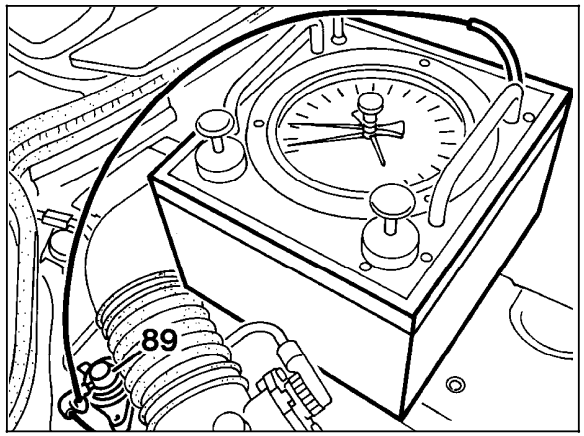
Electrical Test Program – Sequential Multiport Fuel Injection System Test



P07-5735-13

Figure 13 As shown on Model 124

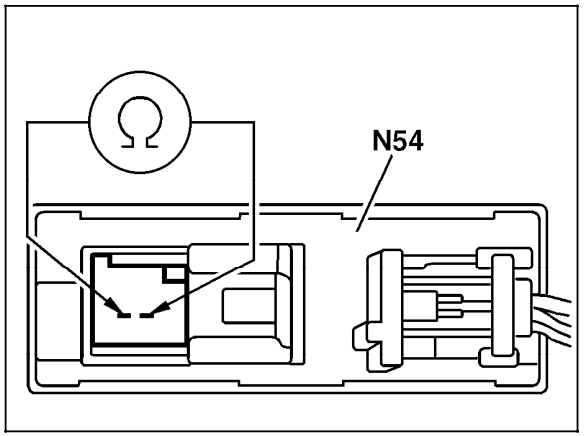
Y3/3 Upshift delay switchover valve



P07-5733-13

Figure 14

89 EGR valve



P07.51-0338-13

Figure 15

N54 RCL control module