

Diagnosis – Complaint Related Diagnostic Chart – Injection/Ignition




WARNING!

Risk of severe injury when touching ignition parts which produce high voltages. Do not touch ignition components.

Persons with heart pacemakers are not to perform repairs on this type of ignition system.


Preparation for Test:

1. Review **WARNING!** on pages 11/1 and 11/2,
2. Review 11, 21, 22, 23, 24, 31, 33,
3. Review section 0,
4. Connect HHTand readout DTC memory, see 11,
5. Ignition: **OFF**

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾	 Actual value Engine test Menu item
Engine starts and accelerates poorly when cold	Injector (Y62) activation and injection duration. Hot film MAF sensor (B2/5). ECT sensor (B11/4). Ignition voltage too low. Intake air leak.	23 ⇒ 14.0 – 17.0 23 ⇒ 4.0 23 ⇒ 8.0 24 ⇒ 9.0 Remedy air leak.	3/11 2/11 4/11 – –
Engine does not start	Voltage supply is missing. Malfunction of drive authorization system (DAS) . Fuel pumps defective. No compression, oil pressure too high. Ignition voltage too low.	23 ⇒ 1.0 – 2.0 23 ⇒ 32.0 34 ⇒ 1.0 – 2.0 Check compression and oil pressure. 24 ⇒ 9.0	– DAS 1/1 – – –
Engine has uneven idle	Camshaft timing. Injector (Y62) activation and injection duration. Intake air leak.	23 ⇒ 24.0 – 25.0 23 ⇒ 14.0 – 17.0 Remedy air leak.	3/11 3/11 –


¹⁾ Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart – Injection/Ignition

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾	 Actual value Engine test Menu item
Engine has insufficient output	TWC flow restricted. O2S 1 (G3/2) (before TWC). ECT sensor (B11/4). Hot film MAF sensor (B2/5). Camshaft timing.	Check exhaust back pressure, see DM, Engines, Vol. 1, section A, "Engine Output" 23 ⇒ 10.0 – 11.0 23 ⇒ 8.0 23 ⇒ 4.0 23 ⇒ 24.0 – 25.0	– 8/11 4/11 2/11 3/11
Engine runs unevenly (shakes)	Injector (Y62) activation and injection duration. Injector leaking, spray pattern. O2S 1 (G3/2) (before TWC). Ignition voltage too low. Compression on one or more cylinders too low. Intake air leak.	23 ⇒ 14.0 – 17.0 36 ⇒ 1.0 – 2.0 23 ⇒ 10.0, 11.0 24 ⇒ 9.0 Check compression. Remedy air leak.	3/11 – 8/11 – – –
Engine runs unevenly (misfiring)	Ignition voltage too low. Hot film MAF sensor (B2/5).	24 ⇒ 9.0 23 ⇒ 4.0	– 2/11
Engine surges after cold start	Intake air leak.	Remedy air leak.	–

¹⁾ Observe Preparation for Test, see 22.

Diagnosis – Complaint Related Diagnostic Chart – Injection/Ignition

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾	 Actual value Engine test Menu item
Transition failure during warm-up	ECT sensor (B11/4). Hot film MAF sensor (B2/5). Intake air leak.	23 ⇒ 8.0 23 ⇒ 4.0 Remedy leak.	4/11 2/11 –
Transition failure when warm or increased fuel consumption	O2S 1 (G3/2) (before TWC). Purge control valve (Y58/1) stuck in open position.	23 ⇒ 10.0 – 11.0 23 ⇒ 26.0 – 27.0	8/11 4/11
Engine vibrates	Hot film MAF sensor (B2/5). Ignition voltage too low. O2S 1 (G3/2) (before TWC).	23 ⇒ 4.0 24 ⇒ 9.0 23 ⇒ 10.0 – 11.0	2/11 – 8/11
EA is in “limp-home” mode	Nominal value potentiometer in pedal value sensor (B37). EA/CC/ISC actuator actual value potentiometer.	25 ⇒ 1.0 – 3.0 25 ⇒ 1.0 – 3.0	5/11 5/11

¹⁾ Observe Preparation for Test, see 22.