

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 11, 21, 22, 23, 24, 31, 33

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾	 Actual value Engine test Menu item
Engine starts and accelerates poorly when cold	Injector (Y62) control and injection duration. Hot film MAF sensor (B2/6 or B2/7). ECT sensor (B11/9 or B11/10). Ignition voltage too low. Intake air leak.	23 ⇒ 14.0 – 19.0 23 ⇒ 4.0 23 ⇒ 7.0 24 ⇒ 24.0 Remedy leak.	2/7 1/7 3/7 – –
Engine does not start	No voltage supply from base module (N16/1). Malfunction of drive authorization system (DAS) . Fuel pumps defective. No compression, oil pressure too high. Ignition voltage too low.	23 ⇒ 1.0 – 3.0 23 ⇒ 30.0 34 ⇒ 2.0 Check compression and oil pressure. 24 ⇒ 24.0	– DAS 1/1 – – –
Engine has uneven idle	Camshaft timing. Injector (Y62) control and injection duration. Intake air leak.	23 ⇒ 22.0 – 23.0 23 ⇒ 14.0 – 19.0 Remedy leak.	2/7 2/7 –


¹⁾ Observe Preparation for Test, see 22.

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Complaint/Problem	Possible cause	Test step/Remedy ¹⁾	 Actual value Engine test Menu item
Engine has insufficient output	TWC flow restricted. Left or right O2S 1 (G3/3 or G3/4) (before TWC). ECT sensor (B11/9 or B11/10). Hot film MAF sensor (B2/6 or B2/7). Camshaft timing.	Check exhaust back pressure, see DM, Engines, Vol. 1, section A, “Engine Output“ 23 ⇒ 10.0 – 11.0 23 ⇒ 7.0 23 ⇒ 4.0 23 ⇒ 22.0 – 23.0	– 5/7 3/7 1/7 2/7
Engine runs unevenly (shakes)	Injector (Y62) control and injection duration. Injector leaking, spray pattern. Left or right O2S 1 (G3/3 or G3/4) (before TWC). Ignition voltage too low. Compression on one or more cylinders too low. Intake air leak.	23 ⇒ 14.0 – 19.0 36 ⇒ 1.0 23 ⇒ 10.0 – 11.0 24 ⇒ 24.0 Check compression. Remedy leak.	2/7 – 5/7 – – –
Engine runs unevenly (misfiring)	Ignition voltage too low. Hot film MAF sensor (B2/6 or B2/7).	24 ⇒ 24.0 23 ⇒ 4.0	– 1/7
Engine surges after cold start	Intake air leak.	Remedy leak.	–
Transition failure during warm-up	ECT sensor (B11/9 or B11/10). Hot film MAF sensor (B2/6 or B2/7). Intake air leak.	23 ⇒ 7.0 23 ⇒ 4.0 Remedy leak.	3/7 1/7 –
Transition failure when warm or with increased fuel consumption	Left or right O2S 1 (G3/3 or G3/4) (before TWC). Purge control valve (Y58/2 or Y58/3) stuck in open position.	23 ⇒ 10.0 – 11.0 23 ⇒ 24.0 – 25.0	5/7 3/7

1) Observe Preparation for Test, see 22.

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Complaint/Problem	Possible cause	Test step/Remedy ¹⁾	 Actual value Engine test Menu item
Engine vibrates	Hot film MAF sensor (B2/6 or B2/7). Ignition voltage too low. Left or right O2S 1 (G3/3 or G3/4) (before TWC).	23 ⇒ 4.0 24 ⇒ 24.0 23 ⇒ 10.0 – 11.0	1/7 – 5/7
EPC MIL (A1e43) illuminates and EA is in “limp-home” mode	Nominal value potentiometer in pedal value sensor (B37). EA/CC/ISC actuator actual value potentiometer.	25 ⇒ 4.0 – 5.0 25 ⇒ 6.0 – 7.0	4/7 4/7

¹⁾ Observe Preparation for Test, see 22.