

DRIVE CYCLE

ENGINE (DIAGNOSTICS)

13. Drive Cycle

A: OPERATION

There are 3 drive patterns for trouble diagnosis. Driving in the specified pattern allows to diagnose the malfunctioning items listed below. After the malfunctioning items listed below are repaired, always check whether they correctly resume their functions by driving in the required drive pattern.

1. PREPARATION FOR THE DRIVE CYCLE

- 1) Make sure that fuel remains approx. half amount [20 to 40 ℓ (5.3 — 10.6 US gal, 4.4 — 8.8 Imp gal)], and battery voltage is 12V or more.
- 2) After performing diagnostics and cleaning the memory, check for any remaining unresolved trouble data. <Ref. to EN(H4SO)-50, Clear Memory Mode.>
- 3) Separate test mode connector.

NOTE:

- Except for water temperature specified items at starting, diagnosis is carried out after engine warm up.
- Carry out diagnosis which is marked * on DTC twice, Then, after finishing 1st diagnosis, stop engine and do the second time at the same condition.

2. AFTER RUNNING 20 MINUTES AT 80 KM/H (50 MPH), IDLE ENGINE FOR 1 MINUTE.

DTC No.	Item	Condition
P0030	HO2S Heater control circuit (Bank 1 Sensor 1)	—
*P0111	Intake air temperature circuit range/performance	Coolant temperature at start is less than 30°C (86°F).
*P0125	Insufficient coolant temperature for closed loop fuel control	Coolant temperature at start is less than 20°C (68°F).
*P0128	Coolant thermostat (coolant temperature below thermostat regulating temperature)	Coolant temperature at start is less than 55°C (131°F).
*P0130	O2 Sensor circuit (Bank 1 Sensor 1)	—
*P0133	O2 Sensor circuit slow response (Bank 1 Sensor 1)	—
*P0181	Fuel temperature sensor “A” circuit range/performance	—
*P0420	Catalyst system efficiency below threshold (Bank 1)	—
*P0442	Evaporative emission control system leak detected (small leak)	—
*P0451	Evaporative emission control system pressure sensor range/performance	—
P0453	Evaporative emission control system pressure sensor high input	—
*P0456	Evaporative emission control system leak detected (very small leak)	—
*P0457	Evaporative emission control system leak detected (fuel cap loose/off)	—
*P0459	Evaporative emission control system purge control valve circuit high	—
*P0461	Fuel level sensor circuit range/performance	—
*P0464	Fuel level sensor circuit intermittent	—
*P1137	O2 Sensor circuit (Bank 1 Sensor 1)	—
P1443	Vent control solenoid valve function problem	—
*P1448	Fuel tank sensor control valve range/performance	—

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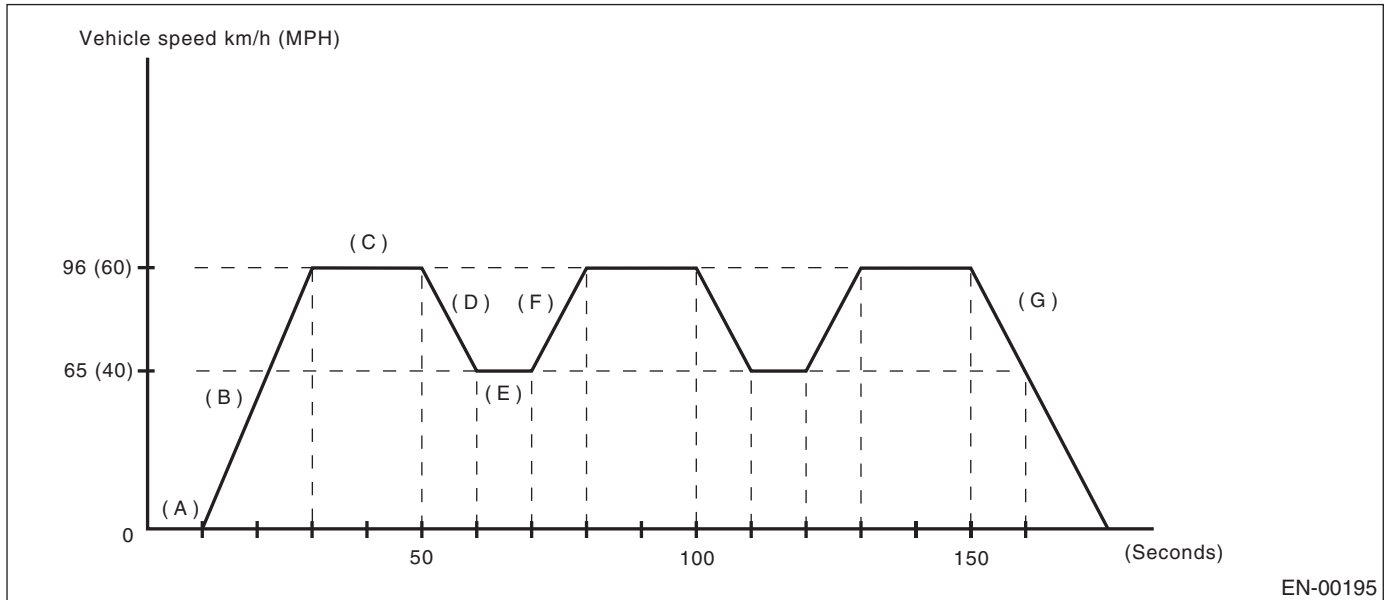
3. IDLE FOR 10 MINUTES

NOTE:

Before diagnosis, drive vehicle at 4 km/h (6 MPH) or more.

DTC No.	Item	Condition
*P0483	Cooling fan rationality check	—
*P0506	Idle control system RPM lower than expected	—
*P0507	Idle control system RPM higher than expected	—

4. DRIVE ACCORDING TO THE FOLLOWING DRIVE PATTERN



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|---|--|---|
| (A) Idle engine for 1 minute. | (D) Decelerate with fully closed throttle to 64 km/h (40 MPH). | (F) Accelerate to 97 km/h (60 MPH) within 10 seconds. |
| (B) Accelerate to 97 km/h (60 MPH) within 20 seconds. | (E) Drive vehicle at 64 km/h (40 MPH) for 10 seconds. | (G) Stop vehicle with throttle fully closed. |
| (C) Drive vehicle at 97 km/h (60 MPH) for 20 seconds. | | |

DTC No.	Item	Condition
*P0065	Air assisted injector control range/performance	—
*P0121	Throttle/pedal position sensor/switch "A" circuit range/performance	—
*P0126	INSUFFICIENT COOLANT TEMPERATURE FOR STABLE OPERATION	—
*P0139	O2 Sensor circuit slow response (Bank 1 Sensor 2)	—
*P0171	System too lean (Bank 1)	—
*P0172	System too rich (Bank 1)	—
*P0301	Cylinder 1 misfire detected	—
*P0302	Cylinder 2 misfire detected	—
*P0303	Cylinder 3 misfire detected	—
*P0304	Cylinder 4 misfire detected	—
*P0400	Exhaust gas recirculation flow	—
*P2096	Post catalyst fuel trim system too lean bank 1	—
*P2097	Post catalyst fuel trim system too rich bank 1	—