

13. Drive Cycle

A: OPERATION

There are three drive patterns for the trouble diagnosis. Driving in the specified pattern allows to diagnose 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 DRIVE CYCLE

1) Make sure that the fuel remains approx. half amount [20 — 40 ℓ (5.3 — 10.6 US gal, 4.4 — 8.8 Imp gal)], and battery voltage is 12 V or more.

2) After performing the diagnostics and cleaning memory, check for any remaining unresolved trouble data. <Ref. to EN(H4SO)-49, Clear Memory Mode.>

3) Separate the test mode connector.

NOTE:

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

DRIVE CYCLE

ENGINE (DIAGNOSTICS)

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

DTC	Item	Condition
P0067	Air Assisted Injector Control Circuit High	—
*P0111	Intake Air Temperature Circuit Range/Performance	Coolant temperature at start is less than 30°C (86°F).
P0121	Throttle/Pedal Position Sensor/Switch "A" Circuit Range/Performance	—
*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	O ₂ Sensor Circuit (Bank 1 Sensor 1)	—
*P0133	O ₂ Sensor Circuit Slow Response (Bank 1 Sensor 1)	—
P0171	System too Lean (Bank 1)	—
P0172	System too Rich (Bank 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 Performance Problem (Travel Distance)	—
*P0464	Fuel Level Sensor Circuit Intermittent	—
P0483	Cooling Fan Rationality Check	—
P0506	Idle Control System RPM Lower Than Expected	—
P0507	Idle Control System RPM Higher Than Expected	—
*P1137	O ₂ Sensor Circuit (Bank1 Sensor1)	—
P1443	Vent Control Solenoid Valve Function Problem	—
*P1448	Fuel Tank Sensor Control Valve Range/Performance	—
P2096	Post Catalyst Fuel Trim System Too Lean Bank 1	—
P2097	Post Catalyst Fuel Trim System Too Rich Bank 1	—

DRIVE CYCLE

ENGINE (DIAGNOSTICS)

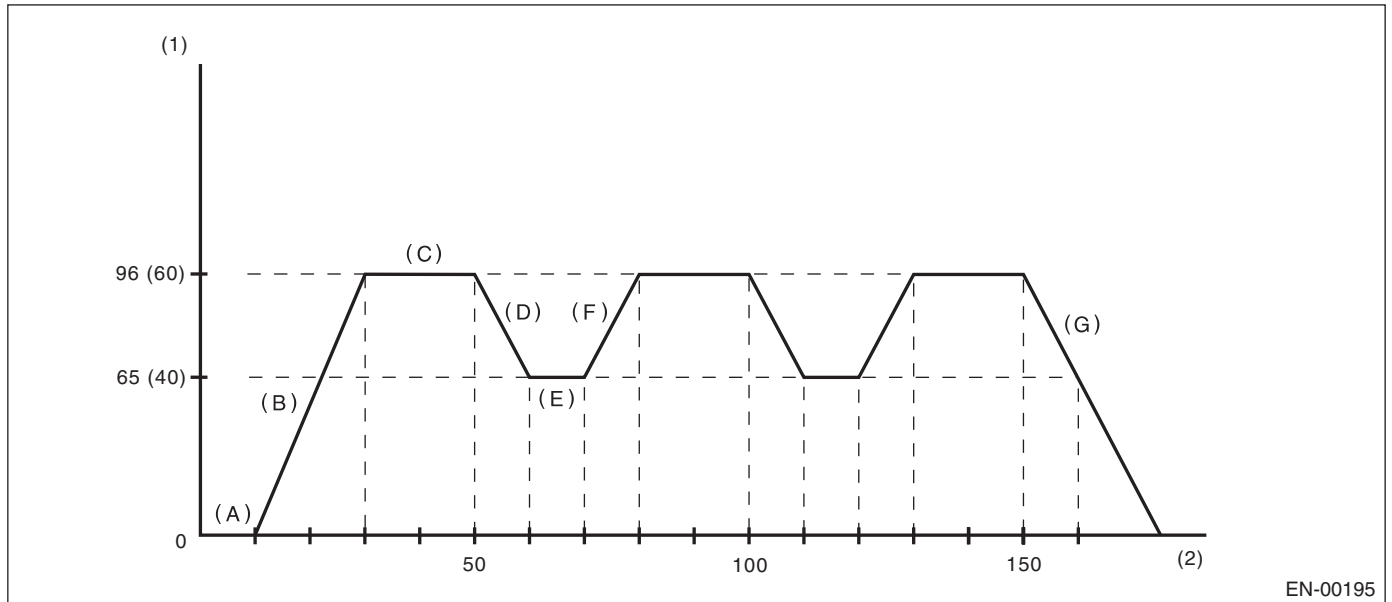
3. IDLE FOR 10 MINUTES

NOTE:

Before the diagnosis, drive the vehicle at 10 km/h (6 MPH) or more.

DTC	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



EN-00195

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|---|--|--|
| (A) Idle engine for 1 minute. | (D) Decelerate with fully closed throttle to 65 km/h (40 MPH). | (G) Stop vehicle with throttle fully closed. |
| (B) Accelerate to 96 km/h (60 MPH) within 20 seconds. | (E) Drive vehicle at 65 km/h (40 MPH) for 10 seconds. | (1) Vehicle speed km/h (MPH) |
| (C) Drive vehicle at 96 km/h (60 MPH) for 20 seconds. | (F) Accelerate to 96 km/h (60 MPH) within 10 seconds. | (2) Seconds |

DTC	Item	Condition
P0030	HO2S Heater Control Circuit (Bank 1 Sensor 1)	—
*P0065	Air Assisted Injector Control Range/Performance	—
*P0121	Throttle/Pedal Position Sensor/Switch "A" Circuit Range/Performance	—
P0130	O ₂ Sensor Circuit (Bank 1 Sensor 1)	—
*P0139	O ₂ 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	EGR System	—
P1134	A/F Sensor Micro-computer Problem	—
*P1142	Throttle Position Sensor Performance Problem (Low Input)	—