13.Drive Cycle

A: OPERATION

There are three drive patterns for 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 THE 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 12V or more.

2) After performing the diagnostics and clearing the memory, check for any remaining unsolved trouble data. <Ref. to EN(H4SO)-46, Clear Memory Mode.>

3) Separate the test mode connector.

NOTE:

- Except for when the water temperature at starting is specified, diagnoses should always be carried out after the engine is warmed up.
- For DTCs marked with a *, carry out the diagnosis twice. After the first diagnosis is finished, stop the engine and carry out the diagnosis for the second time under same conditions.

2. DRIVE AT 80 KM/H (50 MPH) FOR 20 MINUTES AND THEN IDLE THE ENGINE FOR 1 MINUTE.

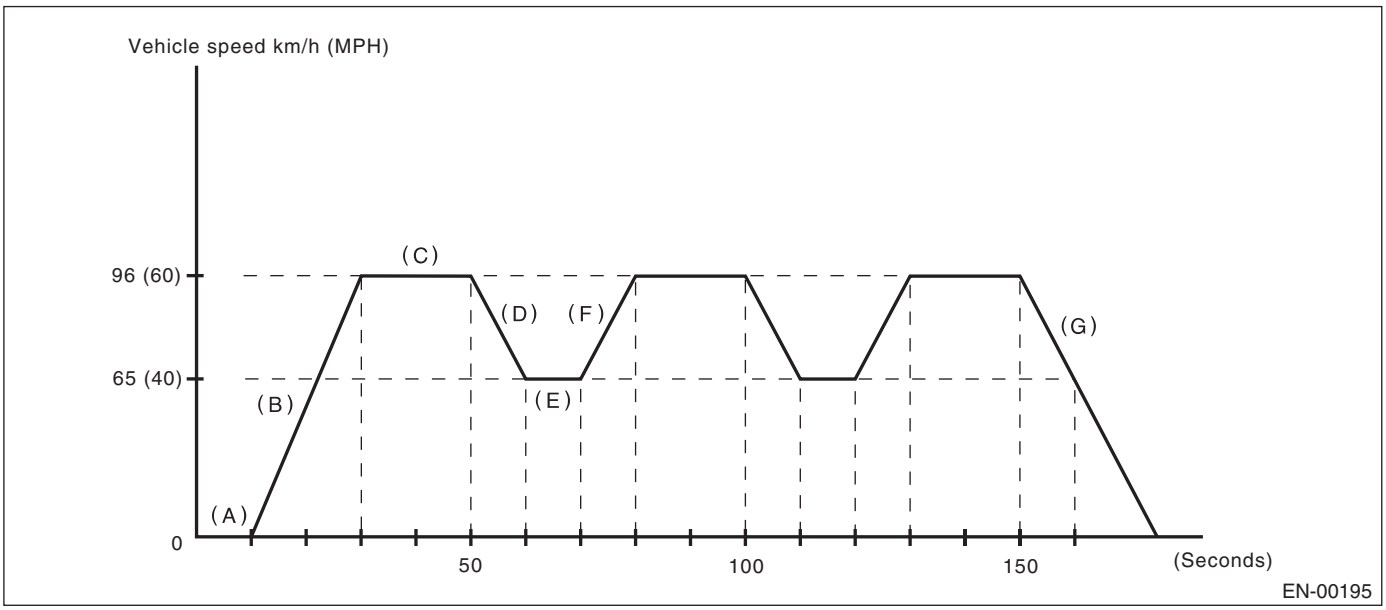
DTC No.	Designation	Condition
*P0030	HO_2S heater control circuit range/performance problem	—
*P0111	Intake air temperature circuit range/performance problem	Coolant temperature at start less than 30°C (86°F).
*P0125	Insufficient coolant temperature for closed loop fuel control	Coolant temperature at start less than 20°C (68°F).
*P0128	Coolant thermostat (coolant temperature below thermostat regulating temperature)	Coolant temperature at start 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)	—
*P0181	Fuel temperature sensor “A” circuit range/performance problem	—
*P0420	Catalytic converter system efficiency below threshold (bank 1)	—
*P0442	Evaporative emission control system leak detected (small leak)	—
*P0451	Evaporative emission control system pressure sensor range/performance problem	—
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 input	—
*P0461	Fuel level sensor performance problem (travel distance)	—
*P0464	Fuel level sensor circuit intermittent	—
*P1137	O_2 sensor circuit (bank 1 sensor 1)	—
P1443	Vent control solenoid valve function problem	—
*P1448	Fuel tank sensor control valve range/performance problem	—

3. IDLE FOR 10 MINUTES

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

DTC No.	Designation	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



(A) Idle engine for 1 minute.

(B) Accelerate to 96 km/h (60 MPH) within 20 seconds.

(C) Drive vehicle at 96 km/h (60 MPH) for 20 seconds.

(D) Decelerate with fully closed throttle to 65 km/h (40 MPH).

(E) Drive vehicle at 65 km/h (40 MPH) for 10 seconds.

(F) Accelerate to 96 km/h (60 MPH) within 10 seconds.

(G) Stop vehicle with throttle fully closed.

DTC No.	Designation	Condition
*P0065	Air assisted injector control range/performance problem	—
*P0121	Throttle/pedal position sensor/switch “A” circuit range/performance problem	—
*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	—