

12. 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 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 12 V or more.
- 2) After clearing the memory, check for any remaining trouble data unresolved. <Ref. to EN(H4DOTC)(diag)-43, Clear Memory Mode.>
- 3) Separate the test mode connector.

NOTE:

- Except for the engine coolant 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.

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

DTC	Item	Condition
*P0125	Insufficient Coolant Temperature for Closed Loop Fuel Control	Engine coolant temperature is less than 20°C (68°F) at engine start.
P0126	Insufficient Coolant Temperature for Stable Operation	—
*P0128	Coolant Thermostat	Engine coolant temperature is less than 55°C (131°F) at engine start.
*P0133	O2 Sensor Circuit Slow Response (Bank 1 Sensor 1)	—
*P0171	Fuel System 1 (Lean)	—
*P0172	Fuel System 2 (Rich)	—
*P0181	Fuel Temperature Sensor A Performance Problem	—
P0301	Cylinder 1 Misfire Detected	—
P0302	Cylinder 2 Misfire Detected	—
P0303	Cylinder 3 Misfire Detected	—
P0304	Cylinder 4 Misfire Detected	—
*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	—
*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	—
P0546	Exhaust Gas Temperature Sensor Circuit High-Bank1	—
P0692	Cooling Fan 1 Control Circuit High	—
P1301	Misfire Detected (High Temperature Exhaust Gas)	—
P1312	Exhaust Gas Temperature Sensor Malfunction	Engine coolant temperature is less than 30°C (86°F) at engine start.
P1443	Vent Control Solenoid Valve Function Problem	—
*P2096	Post Catalyst Fuel Trim System Too Lean Bank 1	—
*P2097	Post Catalyst Fuel Trim System Too Rich Bank 1	—

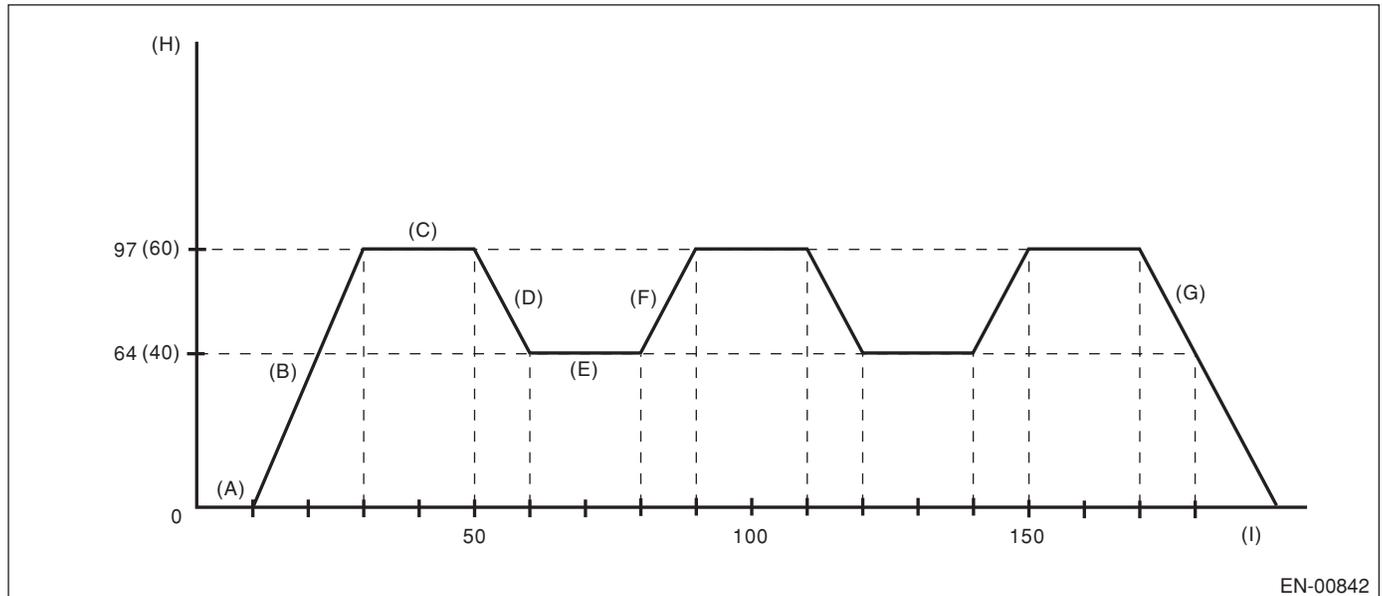
3. IDLE FOR 10 MINUTES

NOTE:

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

DTC	Item	Condition
*P0111	Intake Air Temperature Sensor Range/Performance Problem	Engine coolant temperature is less than 30°C (86°F) at engine start.
P0171	System too Lean (Bank 1)	—
P0172	System too Rich (Bank 1)	—
*P0181	Fuel Temperature Sensor "A" Circuit Range/Performance	—
P0301	Cylinder 1 Misfire Detected	—
P0302	Cylinder 2 Misfire Detected	—
P0303	Cylinder 3 Misfire Detected	—
P0304	Cylinder 4 Misfire Detected	—
*P0461	Fuel Level Sensor Property	—
*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	—
P1301	Misfire Detected (High Temperature Exhaust Gas)	—
*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)	—

4. DRIVE ACCORDING TO THE FOLLOWING DRIVE PATTERN



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|--|---|--|
| <p>(A) Idle engine for 10 seconds or more.</p> <p>(B) Accelerate to 97 km/h (60 MPH) within 20 seconds.</p> <p>(C) Drive vehicle at 97 km/h (60 MPH) for 20 seconds.</p> | <p>(D) Decelerate with fully closed throttle to 64 km/h (40 MPH).</p> <p>(E) Drive vehicle at 64 km/h (40 MPH) for 20 seconds.</p> <p>(F) Accelerate to 97 km/h (60 MPH) within 10 seconds.</p> | <p>(G) Stop vehicle with throttle fully closed.</p> <p>(H) Vehicle speed km/h (MPH)</p> <p>(I) (Seconds)</p> |
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Drive Cycle

ENGINE (DIAGNOSTICS)

DTC	Item	Condition
*P0030	HO ₂ S Heater Control Circuit (Bank 1 Sensor 1)	—
P0068	MAP/MAF - Throttle Position Correlation	—
*P0101	Mass or Volume Air Flow Circuit Range/Performance	—
P0134	O ₂ Sensor Circuit No Activity Detected (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)	—
*P0181	Fuel Temperature Sensor "A" Circuit Range/Performance	—
*P0244	Turbo/Supercharger Wastegate Solenoid "A" Range/Performance	—
P0246	Turbo/Supercharger Wastegate Solenoid "A" High	—
*P0301	Cylinder 1 Misfire Detected	In some cases, diagnosis may complete at once.
*P0302	Cylinder 2 Misfire Detected	In some cases, diagnosis may complete at once.
*P0303	Cylinder 3 Misfire Detected	In some cases, diagnosis may complete at once.
*P0304	Cylinder 4 Misfire Detected	In some cases, diagnosis may complete at once.
*P0461	Fuel Level Sensor Property	—
P1301	Misfire Detected (High Temperature Exhaust Gas)	—
P2004	Intake Manifold Runner Control Stuck Open (Bank 1)	—
P2005	Intake Manifold Runner Control Stuck Open (Bank 2)	—
*P2096	Post Catalyst Fuel Trim System Too Lean (Bank 1)	—
*P2097	Post Catalyst Fuel Trim System Too Rich (Bank 1)	—