

H - TESTS W/O CODES

1993 Toyota Celica

1993 ENGINE PERFORMANCE

Toyota Trouble Shooting - No Codes

Camry, Celica, Corolla, Land Cruiser, MR2, Paseo, Pickup, Previa, Supra, Tercel, T100 & 4Runner

INTRODUCTION

Before diagnosing symptoms or intermittent faults, perform steps in F - BASIC TESTING and appropriate information in applicable G - TESTS W/ CODES articles. Use this article to diagnose driveability problems existing when a hard fault code is not present or vehicle is not equipped with a self-diagnostic system.

NOTE: Some driveability problems may have been corrected by manufacturer with a revised computer calibration chip or computer control module. Check with manufacturer for latest chip or computer application.

Symptom checks can direct the technician to malfunctioning component(s) for further diagnosis. A symptom should lead to a specific component, system test or adjustment.

Use intermittent test procedures to locate driveability problems that DO NOT occur when the vehicle is being tested. These test procedures should also be used if a soft (intermittent) trouble code was present, but no problem was found during self-diagnostic testing.

NOTE: For specific testing procedures, see I - SYS/COMP TESTS article. For specifications, see D - ADJUSTMENTS or appropriate C - SPECIFICATIONS article.

SYMPTOMS

SYMPTOM DIAGNOSIS

Symptom checks cannot be used properly unless the problem occurs while the vehicle is being tested. To reduce diagnostic time, ensure steps in F - BASIC TESTING and appropriate G - TESTS W/ CODES article were performed before diagnosing a symptom. Symptoms available for diagnosis include:

- * Engine Cranking Or Starting Problems
- * Engine Idling Problems
- * Engine Driveability Problems
- * Engine Stalling Problems
- * Engine Has Poor Fuel Economy

ENGINE CRANKING OR STARTING PROBLEMS

Engine Fails To Crank

- * Check battery, cables, charging system and fusible links.
- * Check ignition switch.
- * Check starter and wiring connections.
- * Check clutch switch (M/T) or park/neutral switch (A/T).
- * Check starter relay (if equipped).
- * Check theft deterrent system (if equipped).

Engine Cranks But Fails To Start

- * Ensure proper spark exists from ignition system.
- * Ensure ignition timing is correct.
- * Ensure fuel system performs properly (fuel pump, fuel filter, fuel injector, fuel pressure regulator).
- * Check Engine Control Module (ECM) and wiring.
- * Check airflow meter or vacuum sensor and wiring.
- * Check idle air control valve (if equipped) and wiring.
- * Check circuit opening relay and EFI main relay.
- * Check engine compression, valve clearance, valve timing and timing belt (if equipped).

Engine Difficult To Start Under Normal Conditions

- * Ensure fuel system performs properly (fuel pump, fuel filter, fuel injector and fuel pressure regulator).
- * Ensure proper spark exists from ignition system.
- * Ensure ignition timing is correct.
- * Check engine compression, valve clearance, valve timing and timing belt (if equipped).
- * Check idle air control valve (if equipped) and wiring.
- * Check EGR system.
- * Check cold start injector system (if equipped).
- * Check coolant temperature sensor and wiring.
- * Check air temperature sensor and wiring.
- * Check Engine Control Module (ECM) and wiring.

Engine Difficult To Start Under Cold Conditions

- * Ensure fuel system performs properly (fuel pump, fuel filter, fuel injector and fuel pressure regulator).
- * Check coolant temperature sensor and wiring.
- * Check STA signal at Engine Control Module (ECM).
- * Check idle air control valve (if equipped) and wiring.
- * Check cold start injector system (if equipped).
- * Check air temperature sensor and wiring.
- * Check Engine Control Module (ECM) and wiring.

Engine Difficult To Start Under Hot Conditions

- * Ensure fuel system performs properly (fuel pump, fuel filter, fuel injector and fuel pressure regulator).
- * Ensure ignition timing is correct.
- * Check fuel pressure control vacuum switching valve (if equipped) and wiring.
- * Check coolant temperature sensor and wiring.
- * Check idle air control valve (if equipped) and wiring.
- * Check cold start injector system (if equipped).
- * Check air temperature sensor and wiring.
- * Check Engine Control Module (ECM) and wiring.

ENGINE IDLING PROBLEMS

Incorrect Idle At Engine Start-up

- * Check for defective throttle linkage or cable.
- * Check throttle opener or dashpot (if equipped).
- * Check idle-up vacuum switching valve (if equipped) and wiring.
- * Check idle air control valve (if equipped) and wiring.
- * Check coolant temperature sensor and wiring.

- * Check Engine Control Module (ECM) and wiring.

Engine Idle Speed Remains High

- * Check for defective throttle linkage or cable.
- * Check dashpot or throttle opener (if equipped).
- * Check idle-up vacuum switching valve (if equipped) and wiring.
- * Check idle air control valve (if equipped) and wiring.
- * Check coolant temperature sensor and wiring.
- * Check air temperature sensor and wiring.
- * Check Throttle Position Sensor (TPS) and wiring.
- * Check A/C signal circuit to Engine Control Module (ECM).
- * Check park/neutral switch signal to Engine Control Module (ECM).
- * Check cold start injector system (if equipped).
- * Check fuel injectors.
- * Check Engine Control Module (ECM) and wiring.

Engine Idle Speed Remains Low

- * Check coolant temperature sensor and wiring.
- * Check idle air control valve (if equipped) and wiring.
- * Check EGR system.
- * Check airflow meter or vacuum sensor and wiring.
- * Check fuel injectors.
- * Check Engine Control Module (ECM) and wiring.

Rough Engine Idle

- * Check for vacuum leaks.
- * Check EGR system.
- * Ensure proper spark exists from ignition system.
- * Ensure ignition timing is correct.
- * Ensure fuel system performs properly (fuel pump, fuel filter, fuel injector and fuel pressure regulator).
- * Check engine compression, valve clearance, valve timing and timing belt (if equipped).
- * Check coolant temperature sensor and wiring.
- * Check idle air control valve (if equipped) and wiring.
- * Check airflow meter or vacuum sensor and wiring.
- * Check Engine Control Module (ECM) and wiring.

Engine Misfires

- * Check EGR system.
- * Ensure proper spark exists from ignition system.
- * Ensure ignition timing is correct.
- * Check engine compression, valve clearance, valve timing and timing belt (if equipped).
- * Check fuel injectors and cold start injector (if equipped).
- * Check airflow meter or vacuum sensor and wiring.
- * Check Engine Control Module (ECM) and wiring.

ENGINE DRIVEABILITY PROBLEMS

Hesitation & Poor Acceleration

- * Ensure proper spark exists from ignition system.
- * Ensure ignition timing is correct.
- * Ensure fuel system performs properly (fuel pump, fuel filter, fuel injector and fuel pressure regulator).
- * Check EGR system.

- * Check engine compression, valve clearance, valve timing and timing belt (if equipped).
- * Check Throttle Position Sensor (TPS) and wiring.
- * Check airflow meter or vacuum sensor and wiring.
- * Check coolant temperature sensor and wiring.
- * Check air temperature sensor and wiring.
- * Check oxygen sensor and wiring.
- * Check cold start injector system (if equipped).
- * Check Engine Control Module (ECM) and wiring.

Engine Backfires

- * Ensure proper spark exists from ignition system.
- * Ensure ignition timing is correct.
- * Check valve timing and timing belt (if equipped).
- * Ensure fuel system performs properly (fuel pump, fuel filter, fuel injector and fuel pressure regulator).
- * Check EGR system.
- * Check Throttle Position Sensor (TPS) and wiring.
- * Check airflow meter or vacuum sensor and wiring.
- * Check coolant temperature sensor and wiring.
- * Check air temperature sensor and wiring.
- * Check oxygen sensor and wiring.

Engine Surges

- * Ensure fuel system performs properly (fuel pump, fuel filter, fuel injector and fuel pressure regulator).
- * Ensure proper spark exists from ignition system.
- * Ensure ignition timing is correct.
- * Check Engine Control Module (ECM) and wiring.

Engine Knocks

- * Ensure ignition timing is correct.
- * Check knock sensor (if equipped) and wiring.
- * Check EGR system.
- * Check valve timing and timing belt (if equipped).
- * Check Engine Control Module (ECM) and wiring.

Muffler Explosion

- * Ensure ignition timing is correct.
- * Check fuel-cut system.
- * Check cold start injector system (if equipped).
- * Ensure fuel injectors and fuel pressure regulator operate correctly.
- * Check coolant temperature sensor and wiring.
- * Check airflow meter or vacuum sensor and wiring.
- * Check Throttle Position Sensor (TPS) and wiring.
- * Check air temperature sensor and wiring.
- * Check oxygen sensor and wiring.
- * Check Engine Control Module (ECM) and wiring.

ENGINE STALLING PROBLEMS

Engine Stalls Soon After Start-up

- * Ensure fuel system performs properly (fuel pump, fuel filter, fuel injector and fuel pressure regulator).
- * Ensure proper spark exists from ignition system.
- * Check EGR system.
- * Check idle air control valve (if equipped) and wiring.

- * Check airflow meter or vacuum sensor and wiring.
- * Check coolant temperature sensor and wiring.
- * Check Engine Control Module (ECM) and wiring.

Engine Stalls After Accelerator Is Depressed

- * Ensure fuel system performs properly (fuel pump, fuel filter, fuel injector and fuel pressure regulator).
- * Ensure proper spark exists from ignition system.
- * Check airflow meter or vacuum sensor and wiring.
- * Check EGR system.
- * Check Throttle Position Sensor (TPS) and wiring.
- * Check Engine Control Module (ECM) and wiring.

Engine Stalls After Accelerator Is Released

- * Check idle air control valve (if equipped) and wiring.
- * Check EGR system.
- * Check airflow meter or vacuum sensor and wiring.
- * Check Engine Control Module (ECM) and wiring.

Engine Stalls During A/C Operation

- * Check A/C signal circuit to Engine Control Module (ECM).
- * Check idle air control valve (if equipped) and wiring.
- * Check Engine Control Module (ECM) and wiring.

Engine Stalls When Shifting From Neutral Into Drive (A/T)

- * Check idle air control valve (if equipped) and wiring.
- * Check park/neutral switch signal to Engine Control Module (ECM).

ENGINE HAS POOR FUEL ECONOMY

Check for vacuum leaks (oil filler cap, oil dipstick, hose connections, PCV hose, PCV valve and EGR system).

- * Check air filter.
- * Check idle speed.
- * Ensure proper spark exists from ignition system.
- * Ensure ignition timing is correct.
- * Check engine compression, valve clearance, valve timing and timing belt (if equipped).
- * Check EGR system.
- * Check dashpot or throttle opener (if equipped).
- * Check fuel-cut system.
- * Check fuel injectors.
- * Check cold start injector system (if equipped).
- * Check airflow meter or vacuum sensor and wiring.
- * Check coolant temperature sensor and wiring.
- * Check Throttle Position Sensor (TPS) and wiring.
- * Check oxygen sensor and wiring.
- * Check air temperature sensor and wiring.

INTERMITTENTS

INTERMITTENT PROBLEM DIAGNOSIS

Intermittent fault testing requires duplicating circuit or component failure to identify the problem. These procedures may lead to the computer setting a fault code, which may help in diagnosis.

If problem vehicle does not produce fault codes, use DVOM to help pinpoint faults. Monitor voltage or resistance values while attempting to reproduce conditions causing intermittent fault. A status change on DVOM indicates area of fault.

When monitoring voltage, ensure ignition switch is in ON position or engine is running. Ensure ignition switch is in OFF position or negative battery cable is disconnected when monitoring circuit resistance.

TEST PROCEDURES

Intermittent Simulation

To reproduce the conditions creating an intermittent fault, use the following methods:

- * Lightly vibrate component. See VIBRATION METHOD.
- * Heat component. See HEAT METHOD.
- * Wiggle or bend wiring harness. See VIBRATION METHOD.
- * Spray component with water. See HUMIDITY METHOD.
- * Remove/apply vacuum source.

Monitor circuit/component voltage or resistance while simulating intermittent. If engine is running, monitor for self-diagnostic trouble codes. Use test results to identify a faulty component or circuit.

VIBRATION METHOD

Wiring Harness Testing

Using DVOM, monitor suspected circuit or component. Lightly shake wiring harness while noting fluctuation in DVOM reading. Inspect component connector harness for stretched areas. Inspect wiring harness at area where it goes through the body.

Component, Relay & Sensor Testing

Using DVOM, monitor suspected circuit or component. Lightly vibrate suspect component, relay or sensor while noting fluctuation in DVOM reading.

Electrical Connector Testing

Using DVOM, monitor suspected circuit or component. Lightly shake electrical connector while noting fluctuation in DVOM reading. Visually inspect electrical connector for damage.

HEAT METHOD

CAUTION: DO NOT heat any component to temperature greater than 140°F (60°C). DO NOT apply heat directly to any part of the Engine Control Module (ECM).

Using hair dryer or similar device, apply heat to the component. Monitor suspected circuit or component while applying heat.

HUMIDITY METHOD

CAUTION: DO NOT apply water directly to any electrical component.

If humidity or moisture is suspected of causing intermittent failure, lightly spray water on the front of warm radiator to increase humidity in the engine compartment. Check for malfunction by monitoring suspected circuit or component with a DVOM.

If vehicle has interior water leakage, the water may have

damaged the Engine Control Module (ECM) or corroded the electrical connections. Carefully inspect ECM terminals and electrical connections for corrosion.

ELECTRICAL LOAD METHOD

To check if intermittent fault occurs under electrical load, turn on all electrical loads (heater blower, headlights, rear window defogger, wipers, etc.). Check for malfunction by monitoring suspected circuit or component with a DVOM.