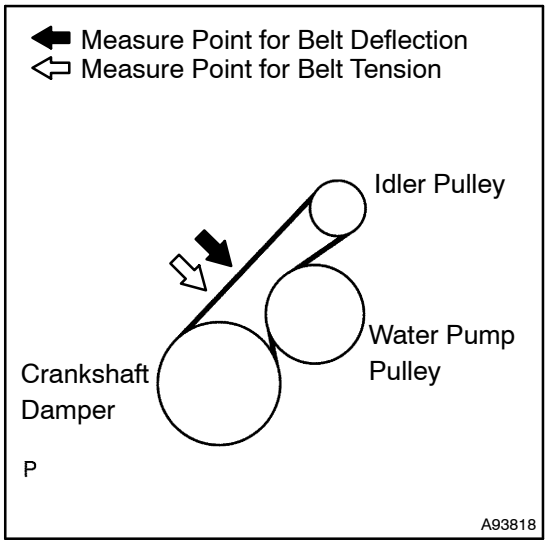
ENGINE (1NZ–FXE)

141O2–01

INSPECTION

1. INSPECT ENGINE COOLANT (See page 16–11)
2. INSPECT ENGINE OIL (See page 17–1)
3. INSPECT AIR CLEANER FILTER ELEMENT SUB–ASSY
4. INSPECT SPARK PLUG (See page 18–6)



5. INSPECT FAN AND GENERATOR V BELT

(a) Inspect the V–ribbed belt tension and deflection.

Belt deflection: (Pressing force 98 N {10 kgf, 22 lbf})

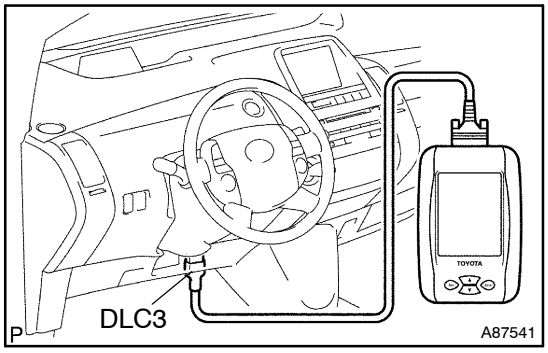
New Belt mm (in.)	Used Belt mm (in.)
9.0 to 12.0 (0.35 to 0.47)	11.0 to 15.0 (0.43 to 0.59)

Belt tension:

New Belt N (kg, lb)	Used Belt N (kg, lb)
392 to 588 (40 to 60, 88 to 132)	196 to 392 (20 to 40, 44 to 88)

NOTICE:

- **Inspect the belt deflection at the specified point of the pulley.**
- **When replacing the belt with a new one, adjust the belt deflection and tension to the intermediate values of the ”New Belt”.**
- **When inspecting the belt which have been used for over 5 minutes, apply the belt deflection and tension of the ”Used Belt”.**
- **When reinstalling the belt which have been used for over 5 minutes, adjust the belt deflection and tension to the inetermediate values of the ”Used Belt”.**



6. INSPECT ENGINE IDLE SPEED

(a) Set the vehicle to the "Inspection Mode–2WD Inspection" (see page 01–5).

(b) Warm up the engine.

(c) Connect the intelligent tester II to the DLC3.

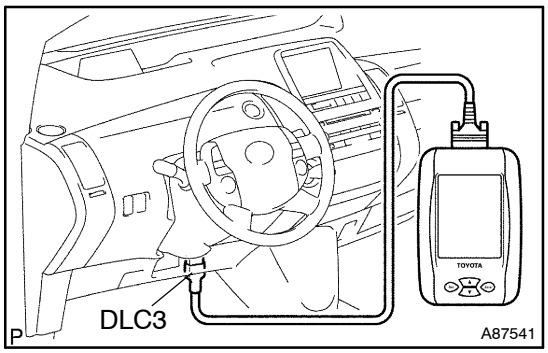
(d) Turn the power switch ON (IG).

(e) Select the item:
Power Train / Engine and ECT / Data List / Engine Speed
Idle speed: 950 to 1050 rpm (P range)

NOTICE:

- **Turn all the electrical systems OFF.**
- **Inspect the engine idle speed with the cooling fan OFF.**

HINT:
Refer to the intelligent tester II operator's manual if you need help to select Data List.



7. INSPECT IGNITION TIMING

(a) Set the vehicle to the "Inspection Mode–2WD Inspection" (see page 01–5).

(b) Warm up the engine.

(c) Connect the intelligent tester II to the DLC3.

(d) Select the item:
Power Train / Engine and ECT / Data List / IGN Advance
Ignition timing: 8 to 12°CA BTDC (at idle)

NOTICE:

- **Turn all the electrical systems OFF.**
- **Inspect the engine idle speed with the cooling fan OFF.**

HINT:
Refer to the intelligent tester operator's manual if you need help to select Data List.

(e) Check that the ignition timing advances immediately when the engine speed is increased.

8. INSPECT COMPRESSION

(a) Remove the windshield wiper link assembly (see page 66–16).

(b) Remove the cowl top panel outer front (see page 11–16).

(c) Set the vehicle to the "Inspection Mode–2WD Inspection" (see page 01–5).

(d) Warm up the engine.

(e) Remove the air cleaner assembly (see page 17–8).

(f) Disconnect all the fuel injector connectors.

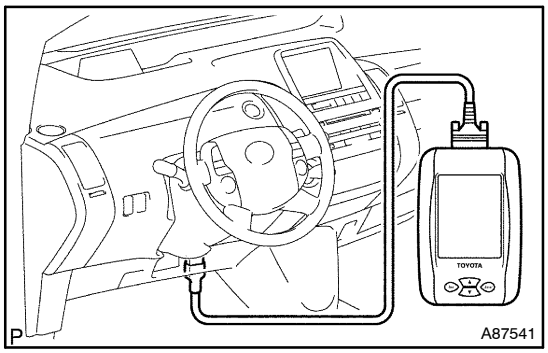
(g) Disconnect the 4 ignition coil connectors and remove the 4 bolts. Then remove the 4 ignition coils.

NOTICE:

If inspecting the compression with the ignition coil connector disconnected, a DTC will be detected. After the inspection, check the DTC.

(h) Remove all the spark plugs.

(i) Insert a compression gauge.



(j) Connect the intelligent tester II to the DLC3.

(k) Turn the power switch ON (IG).

(l) Select the item:
Power Train / Hybrid Control / Active Test / Cranking Request

(m) Turn the power switch ON with depressing the brake pedal. Then, measure the compression pressure of each cylinder.
Compression pressure:
882 kPa (9.0 kgf/cm^2, 128 psi)
Minimum pressure:
686 kPa (7.0 kgf/cm^2, 99 psi)
Difference between each cylinder:
98 kPa (1.0 kgf/cm^2, 14 psi)

NOTICE:

- **Measure the compression pressure as quickly as possible.**
- **After performing all the procedures, be sure to clear DTCs stored in the memory. Then check that the normal code is output.**

If the compression pressure is low, pour a light coat of engine oil into the cylinder block, then measure the compression pressure again.

HINT:

- If the compression increases after pouring engine oil, the piston ring may be damaged.
- If the compression does not change after pouring engine oil, defects may be occuring around the valve.

(n) Install all the spark plugs.
Torque: 18 N·m (184 kgf·cm, 13 ft·lbf)

(o) Install the 4 ignition coil connectors.
Torque: 9.0 N·m (92 kgf·cm, 80 in.·lbf)
(p) Connect the 4 ignition coil connectors.
(q) Connect all the fuel injector connectors.
(r) Install the air cleaner assembly (see page 17–8).
(s) Install the cowl top panel outer front (see page 11–16).
(t) Install the windshield wiper link assembly (see page 66–16).

9. INSPECT CO/HC

(a) Set the vehicle to the "Inspection Mode–2WD Inspection" (see page 01–5).
(b) Race the engine at 2,500 rpm for approximately 180 seconds.
(c) Insert at least 40 cm (1.3 ft) of the CO/HC meter testing probe into the tailpipe while idling.
(d) Check the CO/HC concentration at idle.
CO concentration: at idle 0 to 0.5 %
HC concentration: at idle Applicable local regulations

If the CO/HC concentration does not conform to the specifications, perform troubleshooting in the order given below.

- Check the heated oxygen sensor operation.
- See the table below for possible causes, then inspect the applicable causes and repair them if necessary.

CO	HC	Problems	Causes
Normal	High	Rough idle	1. Faulty ignitions: • Incorrect timing • Fouled, shorted or improperly gapped plugs 2. Incorrect valve clearance 3. Leaks in intake and exhaust valves 4. Leaks in cylinders
Low	High	Rough idle (Fluctuating HC reading)	1. Vacuum leaks: • PCV hoses • Intake manifold • Throttle body • ISC valve 2. Lean mixture causing misfire
High	High	Rough idle (Black smoke form exhaust)	1. Restricted air filter 2. Plugged PCV valve 3. Faulty SFI systems: • Faulty pressure regulator • Defective water temperature sensor • Defective mass air flow meter • Faulty ECM • Faulty injectors • Faulty throttle position sensor