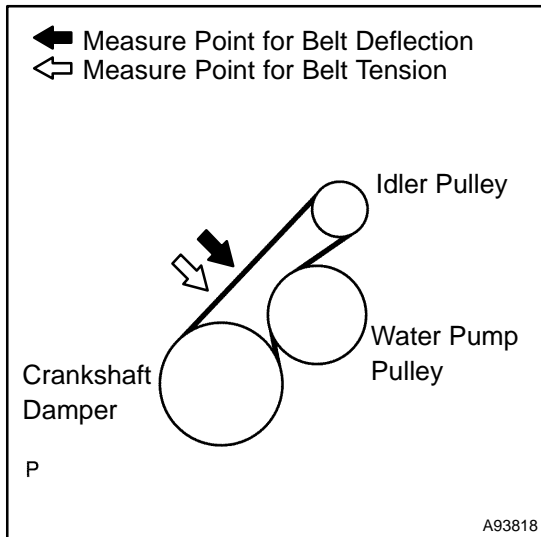


ENGINE (1NZ-FXE)

1410K-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:

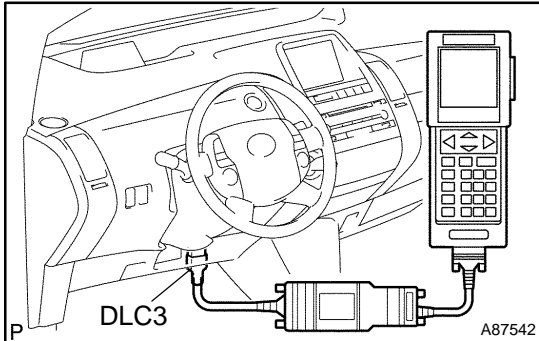
New Belt N (kg, lb)	Used Belt N (kg, lb)
392 to 588 (40 to 60, 88 to 132)	196 to 392 (20 to 40, 44 to 88)

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 MOD1" (see page 01-5).
- (b) Warm up the engine.



- (c) Connect the hand-held tester to the DLC3.
- (d) Turn the power switch ON (IG).
- (e) Select the item:
DIAGNOSIS / ENHANCED OBD II / DATA LIST / ENGINE SPD

Idle speed: 950 to 1050 rpm (P range)

NOTICE:

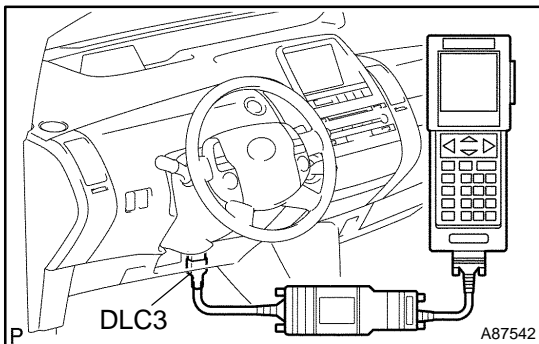
- Turn all the electrical systems OFF.
- Inspect the engine idle speed with the cooling fan OFF.

HINT:

Refer to the hand-held tester operator's manual if you need help to select DATA LIST.

7. INSPECT IGNITION TIMING

- (a) Set the vehicle to the "INSPECTION MOD1" (see page 01-5).
- (b) Warm up the engine.



- (c) Connect the hand-held tester to the DLC3.
- (d) Turn the power switch ON (IG).
- (e) Select the item:
DIAGNOSIS / ENHANCED OBD II / 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 hand-held tester operator's manual if you need help to select DATA LIST.

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

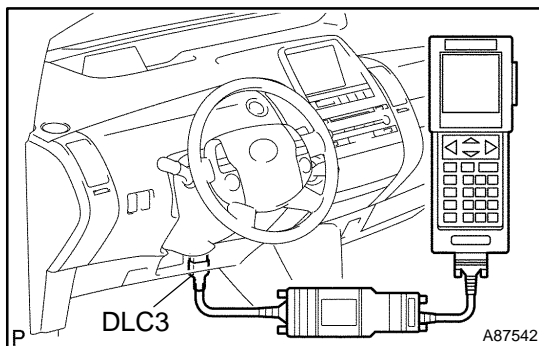
8. INSPECT COMPRESSION

- (a) Remove the windshield wiper link assembly (see page 66-14).
- (b) Remove the cowl top panel outer front (see page 11-15).
- (c) Set the vehicle to the "INSPECTION MOD1" (see page 01-5).
- (d) Warm up the engine.
- (e) Remove the air cleaner assembly (see page 17-7).
- (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 hand-held tester to the DLC3.
- (k) Turn the power switch ON (IG).
- (l) Select the item:
DIAGNOSIS / ENHANCED OBD II / HV ECU / ACTIVE TEST / CRANKING RQST
- (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/cm², 128 psi)

Minimum pressure:

686 kPa (7.0 kgf/cm², 99 psi)

Difference between each cylinder:

98 kPa (1.0 kgf/cm², 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 occurring 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 17-7).
- (s) Install the cowl top panel outer front (see page 11-15).
- (t) Install the windshield wipe link assembly (see page 66-14).

9. INSPECT CO/HC

- (a) Set the vehicle to the "INSPECTION MOD1" (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) Immediately check the CO/HC concentration at idle and 2,500 rpm.

HINT:

- Complete the measuring within 3 minutes.
- When doing the 2 mode (at idle and 2,500 rpm) test, the procedure may vary according to local regulations.
- (e) If the CO/HC concentration does not comply with regulations, perform troubleshooting in the order given below.
 - (1) Check the heated oxygen sensor operation (see page 12-9).
 - (2) See the table below for possible causes, then inspect the applicable causes and correct them if necessary.

CO	HC	Problems	Causes
Normal	High	Rough idle	3. Faulty ignitions: <ul style="list-style-type: none"> • Incorrect timing • Fouled, shorted or improperly gapped plugs 4. Incorrect valve clearance 5. Leaky intake and exhaust valves 6. Leaky cylinders
Low	High	Rough idle (Fluctuating HC reading)	1. Vacuum leaks: <ul style="list-style-type: none"> • PCV hoses • Intake manifold • Throttle body 2. Lean mixture causing misfire
High	High	Rough idle (Black smoke from exhaust)	1. Restricted air filter 2. Plugged PCV valve 3. Faulty SFI systems: <ul style="list-style-type: none"> • Faulty pressure regulator • Defective water temperature sensor • Defective mass air-flow meter • Faulty ECM • Faulty injectors • Faulty throttle position sensor