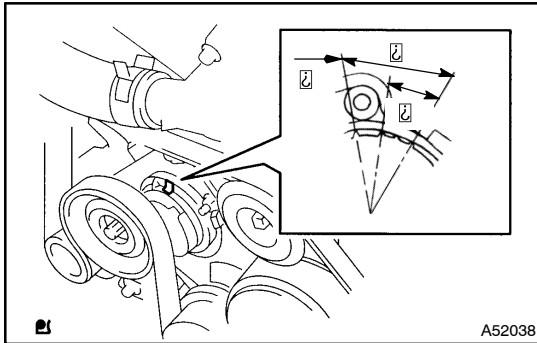


# ENGINE (2UZ-FE)

## ADJUSTMENT

1414S-03

1. INSPECT COOLANT (SEE PAGE 16-1)
2. INSPECT ENGINE OIL (SEE PAGE 17-1)
3. INSPECT BATTERY SPECIFIC GRAVITY (SEE PAGE 19-13)
4. INSPECT AIR CLEANER FILTER ELEMENT SUB-ASSY



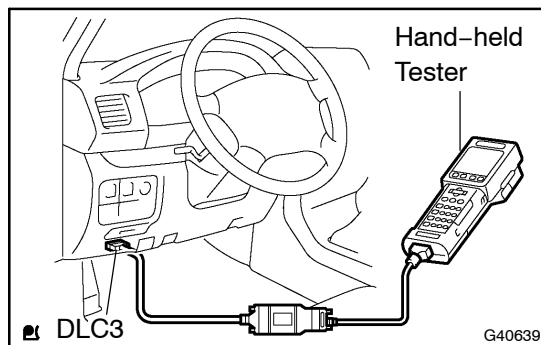
### 5. INSPECT FAN AND GENERATOR V BELT

#### HINT:

As the belt tensioner coordinates belt tension automatically by its mechanism, you do not need to adjust it by yourself.

- (a) Check that the indicator mark on the automatic tensioner is within the A range as shown in the illustration.
- (b) When the mark is out of the standard range, replace the V belt with a new one.

6. INSPECT V-RIBBED BELT TENSIONER ASSY (SEE PAGE 14-5)
7. WARM UP ENGINE



### 8. INSPECT IGNITION TIMING

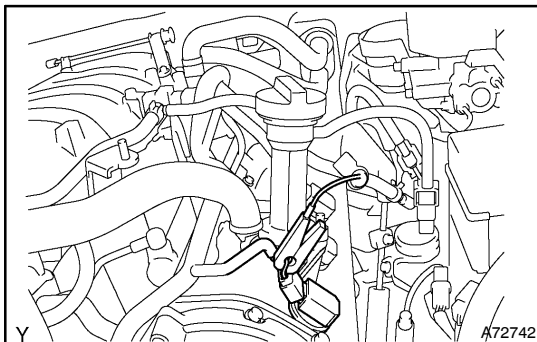
- (a) When using the hand-held tester or OBD II scan tool:
  - (1) Connect the hand-held tester or OBD II scan tool to the DLC3.

#### HINT:

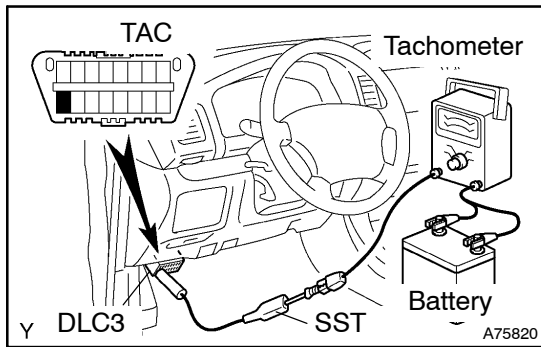
Refer to the hand-held tester or OBD II scan tool operator's manual for further details.

**Ignition timing: 5 to 15° BTDC at idle  
(Transmission in neutral)**

- (2) Disconnect the hand-held tester or OBD II scan tool from the DLC3.

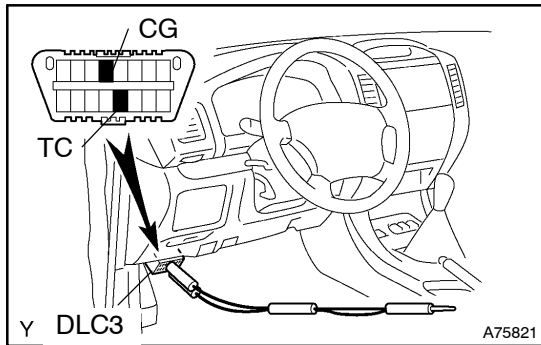


- (b) When not using the hand-held tester or OBD II scan tool:
  - (1) Remove the V-bank cover.
  - (2) Connect the tester probe of a timing light to the wire of the ignition coil connector for the No.1 cylinder.



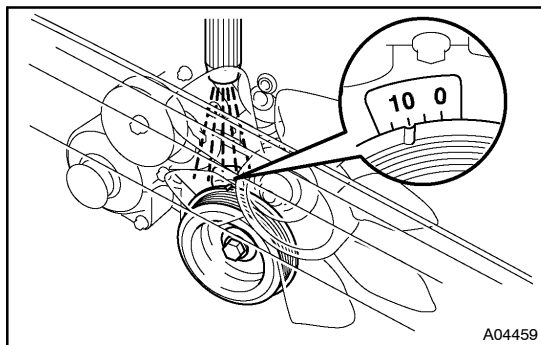
- (3) Using SST, connect the tachometer probe to terminal TAC of the DLC3.

SST 09843-18030



- (4) Using SST, connect terminals TC and CG of the DLC3.

SST 09843-18040

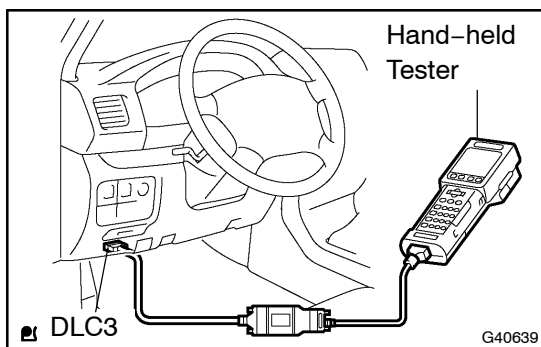


- (5) Using the timing light, check the ignition timing.

**Ignition timing: 5 to 15° BTDC at idle**

**(Transmission in neutral)**

- (6) Remove the SST from the DLC3.  
 (7) Disconnect the timing light from the engine.  
 (8) Install the V-bank cover.



## 9. INSPECT ENGINE IDLE SPEED

- (a) When using the hand-held tester or OBD II scan tool:  
 (1) Connect the hand-held tester or OBD II scan tool to the DLC3.

### HINT:

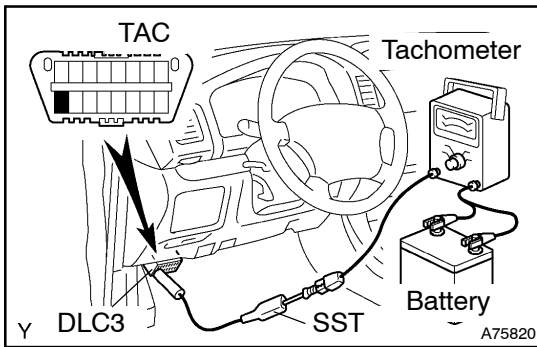
Refer to the hand-held tester or OBD II scan tool operator's manual for further details.

- (2) Run the engine at 2,500 rpm for approx. 90 seconds.  
 (3) Check the idle speed.

**Idle speed: 700 ± 50 rpm**

If the idle speed is not as specified, check the air intake system.

- (4) Disconnect the hand-held tester or OBD II scan tool from the DLC3.



- (b) When not using the hand-held tester or OBD II scan tool:
- (1) Using SST, connect the tachometer probe to terminal TAC of the DLC3.

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**HINT:**

Refer to the hand-held tester operator's manual for further details.

- (2) Run the engine at 2,500 rpm for approx. 90 seconds.

- (3) Check the idle speed.

**Idle speed: 700 ± 50 rpm**

- (4) Remove the SST from the DLC3.

- (5) Disconnect the tachometer from the DLC3.

**10. INSPECT COMPRESSION**

- (a) Remove the V-bank cover sub-assy.
- (b) Remove the air cleaner hose assy.
- (c) Disconnect the throttle control motor connector.
- (d) Remove the 8 ignition coils.
- (e) Remove the 8 spark plugs.
- (f) Disconnect the 8 injector connectors.
- (g) Inspect the cylinder compression pressure.

- (1) Insert a compression gauge into the spark plug hole.

- (2) Fully open the throttle forcibly by hand.

- (3) While cranking the engine, measure the compression pressure.

**HINT:**

Always use a fully charged battery to obtain an engine speed of 250 rpm or more.

- (4) Repeat steps (1) through (3) for each cylinder.

**NOTICE:**

**This measurement must be done as quickly as possible.**

**Compression pressure:**

**1,373 kPa (14.0 kgf/cm<sup>2</sup>, 199 psi) or more**

**Minimum pressure: 1,030 kPa (10.5 kgf/cm<sup>2</sup>, 149 psi)**

**Difference between each cylinder:**

**98 kPa (1.0 kgf/cm<sup>2</sup>, 14 psi) or less**

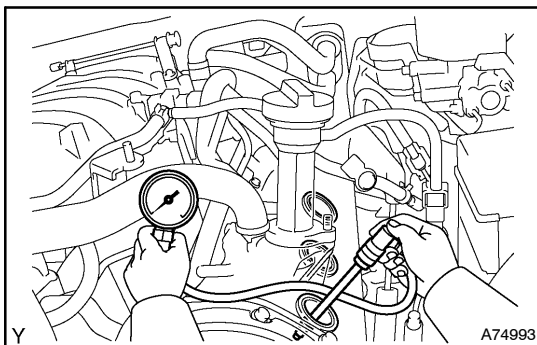
- (5) If the cylinder compression in one or more cylinders is low, pour a small amount of engine oil into the cylinder through the spark plug hole and repeat steps through (1) to (3) for the cylinders with low compression.

- If adding oil helps the compression, the piston rings and/or cylinder bore may be worn or damaged.
- If pressure stays low, a valve may be sticking, seating is improper, or there may be leakage past the gasket.

- (h) Connect the 8 injector connectors.

- (i) Install the 8 spark plugs.

- (j) Install the 8 ignition coils.



- (k) Connect the throttle control motor connector.
- (l) Install the air cleaner hose assy.
- (m) Install the V-bank cover sub-assy.

# 11. INSPECT CO/HC

## HINT:

This check is used only to determine whether or not the idle CO/HC complies with regulations.

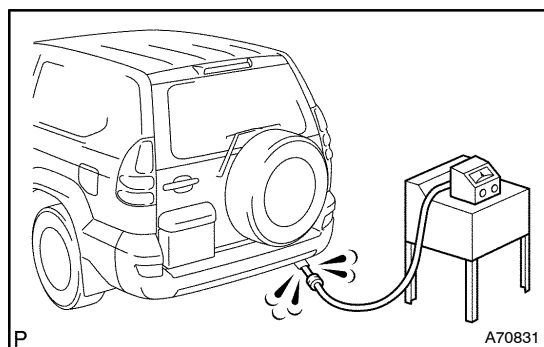
- (a) Start the engine.
- (b) Sustain the engine speed at 2,500 rpm for approx. 180 seconds.
- (c) Insert the CO/HC meter testing probe at least 40 cm (1.3 ft) into the tailpipe during idling.
- (d) Immediately check CO/HC concentration at idle and/or 2,500 rpm.

## HINT:

When performing the 2 mode (2,500 rpm and idle) test, follow the measurement order prescribed by the applicable local regulations.

If the CO/HC concentration does not comply with the regulations, troubleshoot in the order given below.

- (1) Check the heated oxygen sensor operation  
(See page 05-138 and 05-347).
- (2) See the table below for possible causes, then inspect and correct the applicable causes if necessary.



CO	HC	Symptom	Cause
Normal	High	Rough idle	1. Faulty ignitions: <ul style="list-style-type: none"> <li>• Incorrect timing</li> <li>• Fouled, shorted or improperly gapped plugs</li> </ul> 2. Incorrect valve clearance 3. Leaky intake and exhaust valves 4. Leaky cylinder
Low	High	Rough idle (Fluctuating HC reading)	1. Vacuum leaks: <ul style="list-style-type: none"> <li>• PCV hose</li> <li>• Intake manifold</li> <li>• Throttle body</li> </ul> 2. Lean mixture causing misfire
High	High	Rough idle (Black smoke from exhaust)	1. Restricted air filter 2. Faulty SFI system: <ul style="list-style-type: none"> <li>• Faulty pressure regulator</li> <li>• Defective ECT sensor</li> <li>• Faulty ECM</li> <li>• Faulty injector</li> <li>• Faulty throttle position sensor</li> <li>• Faulty MAF sensor</li> </ul>