ENGINE (1KD–FTV)

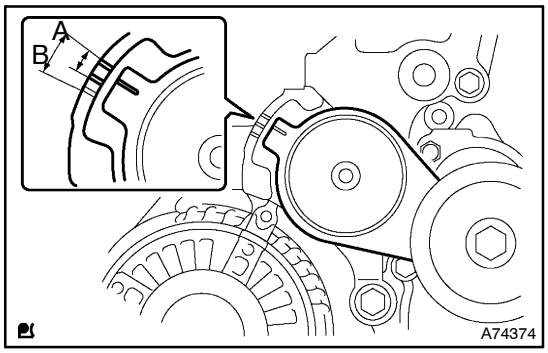
1411H–01

INSPECTION

1. **INSPECT ENGINE COOLANT (See page 16–38)**
2. **INSPECT ENGINE OIL (See page 17–55)**
3. **INSPECT BATTERY (See page 19–37)**
4. **INSPECT AIR CLEANER FILTER ELEMENT SUB–ASSY**

(a) Visually check how much dirt the filter is.

(b) Get the dirt and soot out of the filter element by compressed air. Sweep away from inside of the filter element first, and then outside as well.



5. **INSPECT FAN AND GENERATOR V BELT**

NOTICE:

It is unnecessary to measure its tension and flexibility of the V belt, due to the adoption of the V belt automatic tensioner.

(a) Make sure that the belt tensioner's indicator is within Range B. Otherwise, replace the V belt.

HINT:

After the replacement of the V belt, make sure that the bolt tensioner's indicator is with in Range A.

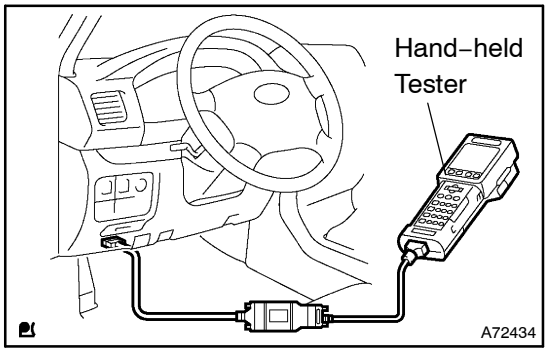
6. **CHECK ENGINE IDLE SPEED AND MAXIMUM SPEED**

NOTICE:

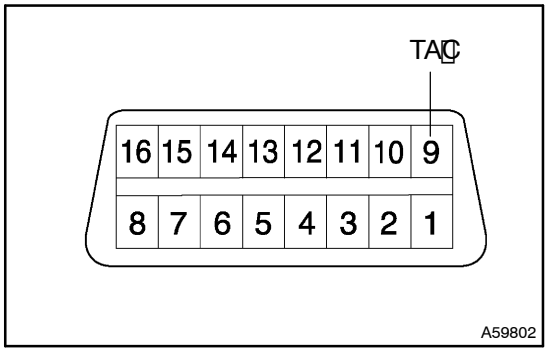
This checking procedure should be done under the following condition.

HINT:

- Regarding the details about Hand–Held Tester, refer to its operator's manual.
- In case of Hand–Held Tester is not available, tachometer's tester probe substitutes for it.



(a) Connect a hand–held tester to DLC3.



(b) In case of the tester is non–available connect a tester probe of a tachometer to terminal 9 (TAC) of DLC3 with SST.
SST 09843–18030

(c) Inspect the idle speed.
(1) Start the engine and check the idle speed.
Idle speed: 650 – 750 rpm

If the idle speed is not as specified, check the troubleshooting in diagnostics section.

(d) Inspect the maximum speed.
(1) Start the engine.
(2) Depress the accelerator pedal all the way in the limit.
(3) Check the maximum speed.
Maximum speed: 4500 – 4700 rpm

If the maximum speed is not as specified, check the troubleshooting in diagnostics section.

(e) In case of the tester probe of the tachometer is connected to DLC3 disconnect the tester probe from terminal 9 of DLC3 with SST.

(f) Disconnect the hand–held tester from DLC3.

7. INSPECT CYLINDER COMPRESSION PRESSURE

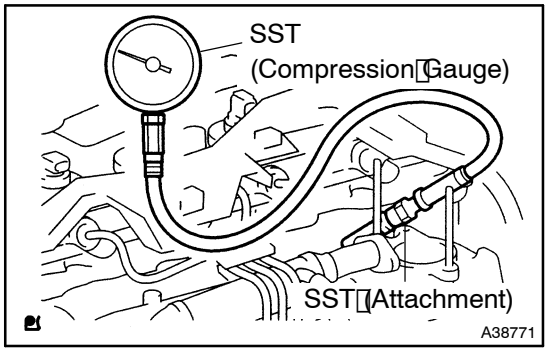
HINT:

Measure the compression pressure if the engine power is insufficient, oil is consumed excessively and/or fuel economy is poor.

(a) Remove the all the 4 glow plug assemblies.
(See page 19–45)

(b) Disconnect all the connectors from the 4 injectors.

(c) Evacuate extraneous stuff like soot in the cylinder by turning the starter.



(d) Set the SST (attachment) into the glow plug hole.
SST 09992–00025 (09992–00121)
Torque: 13 N·m (133 kgf·cm, 10 ft·lbf)

(e) Connect SST (compression gauge) to the SST (attachment).
SST 09992–00025 (09992–00211)

(f) Measure the compression pressure while cranking the engine.

HINT:

Always use a full–charged battery to obtain engine revolution of 250 rpm or more.

(g) Repeat steps (d) through (f) for each cylinder.

NOTICE:

This measurement must be done in as short a time as possible.

Compression pressure:
2,700 kPa (27.5 kgf/cm², 391 psi) or more
Minimum pressure:
2,200 kPa (22.5 kgf/cm², 320 psi) or more
Difference between each cylinder:
500 kPa (5.0 kgf/cm², 71 psi) or less

If the compression in one or more cylinders is low, supply a bit of engine oil into glow plug hole. Then, repeat the mentioned above steps, 1 through (d) to (f), for the low–compression cylinder.

HINT:

- If poor compression becomes good by suppling the engine oil, the piston rings and/or cylinder bore may have worn or damaged.
- If pressure stays low, it is possible that a valve is sticking or seating is improperly. Or, a pressure may be leaked through the gasket.

(h) Remove the SST. (attachment and compression gage)

(i) Connect all the connectors to the 4 injectors.

(j) Install all the 4 glow plug assemblies.
(See page 19–45)