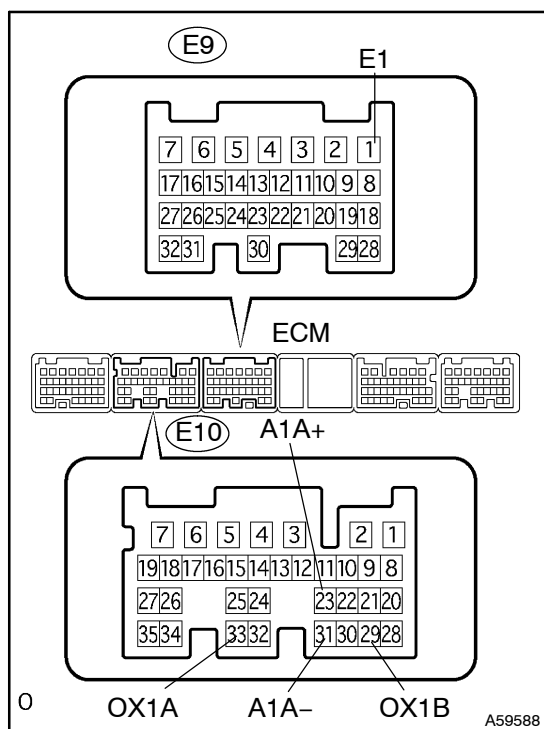


EMISSION CONTROL SYSTEM (1AZ-FE/2AZ-FE)

ON-VEHICLE INSPECTION

120EF-01



1. INSPECT AIR-FUEL RATIO COMPENSATION SYSTEM

(a) Inspect the voltage.

(1) Using a voltmeter, measure the voltage between the terminals.

Standard:

Tester Connection	Specified Condition
23 (A1A+) - 1 (E1)	3.3 V
31 (A1A-) - 1 (E1)	3.0 V

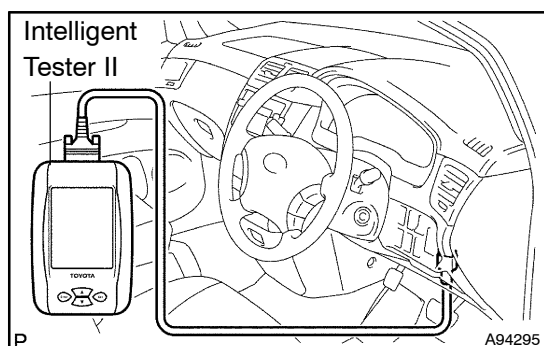
If the voltage is not as specified, replace the air fuel ratio sensor.

CAUTION:

Connect the test leads from the back side of the connector with the ECM connected.

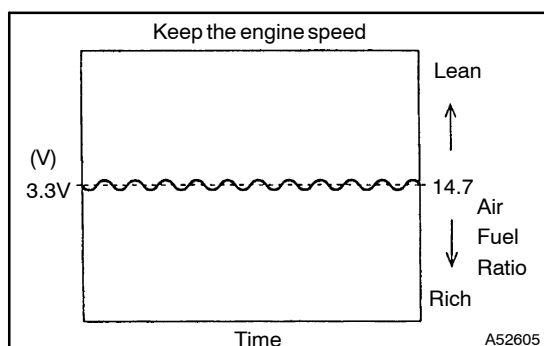
HINT:

Voltage between the terminals of the ECM is constant regardless of the voltage output from the air fuel ratio sensor.



(b) Check the output waveform.

- (1) Connect the intelligent tester II to the DLC3.
- (2) Turn the intelligent tester II ON.
- (3) Select the item: Power train / Engine and ECT / Data List / AFS B1 S1.
- (4) Warm up the air fuel ratio sensor with the engine speed at 2,500 rpm for approximately 2 minutes.



- (5) Keep the engine speed at 2,500 rpm, then confirm that the waveform of "AFS B1 S1" is similar to the illustration on the left.

HINT:

- The waveform in the illustration is a sample.
 - Only the intelligent tester II shows the waveform of air fuel ratio sensor.
- (6) Check the system by choosing "O2S B1 S2" on the monitor of the intelligent tester II.
 - (7) Connect the intelligent tester II to the following each pair of the ECM terminals:
 - (8) Terminals 29 (OX1B) and 1 (E1)

- (9) Terminals 33 (OX1A) and 1 (E1)

CAUTION:

Connect the test leads from the back side of the connector with the ECM connected.

- (c) Warm up the heated oxygen sensor with the engine speed at 2,500 rpm for approximately 2 minutes.
- (d) Confirm that the voltage output varies between 0 V and 1 V with the engine speed at 2,500 rpm.

OK:

The voltage output varies more than 8 times in 10 seconds.

CAUTION:

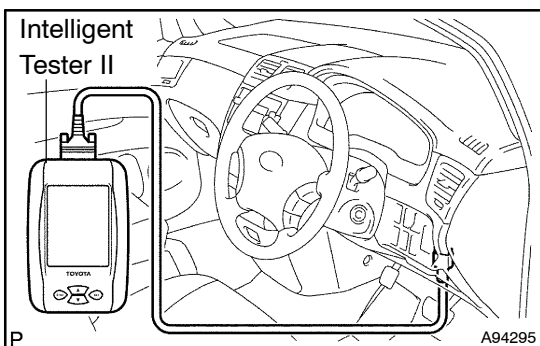
- **Perform the check immediately after the warming up.**
- **If the voltage variation could not be verified, warm up the heated oxygen sensor again.**

2. INSPECT FUEL CUT OFF RPM

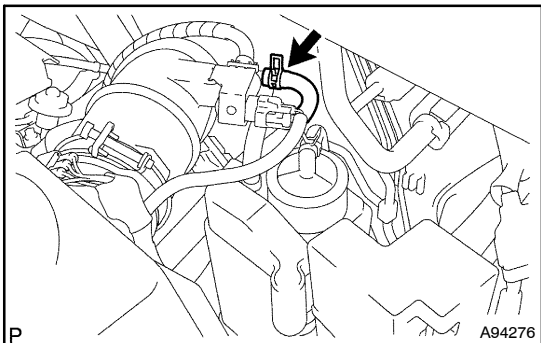
- (a) Check the operation.
 - (1) Increase the engine speed to at least 3,500 rpm.
 - (2) Use a sound scope to check the fuel injector operating noise.
 - (3) Check that when the accelerator pedal is released, the fuel injector operation noise stops momentarily at 2,500 rpm and then resumes at 1,200 rpm.

2,500 rpm: Fuel cut off rpm

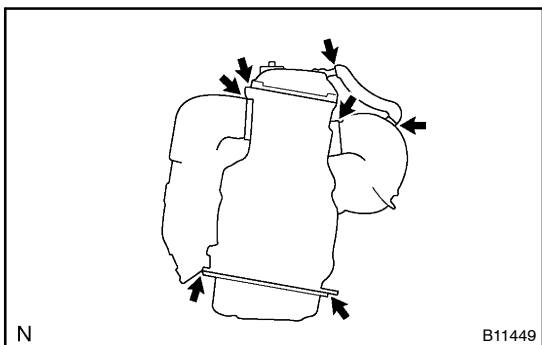
1,200 rpm: Fuel return rpm

**3. INSPECT EVAPORATIVE EMISSION CONTROL SYSTEM**

- (a) Check the operation.
 - (1) Connect the intelligent tester II to the DLC3.



- (2) After starting the engine, disconnect the vacuum hose shown in the illustration.
- (3) Select the item: Powertrain / Engine and ECT / Active Test / Activate VSV for EVAP Control.
- (4) Check that vacuum occurs in the VSV port.
- (5) Finish Active Test, then reconnect the vacuum hose.
- (6) Select the item: Powertrain / Engine and ECT / Data List / EVAP Purge VSV.
- (7) After driving the vehicle with a warm engine, confirm that the VSV turns from OFF to ON.



4. VISUALLY INSPECT HOSES, CONNECTIONS AND GASKETS

- (a) Check the appearance.
 - (1) Check the engine assembly if the portions indicated with the arrows are cracked, leaked or damaged.

HINT:

Separation of the engine oil level gauge, oil filler cap, PCV hose, etc. may cause the engine to run improperly. Disconnection, looseness or cracks in the parts of the air induction system between the throttle body and cylinder head will allow air suction and cause the engine to run improperly.

If necessary, repair the engine assembly.