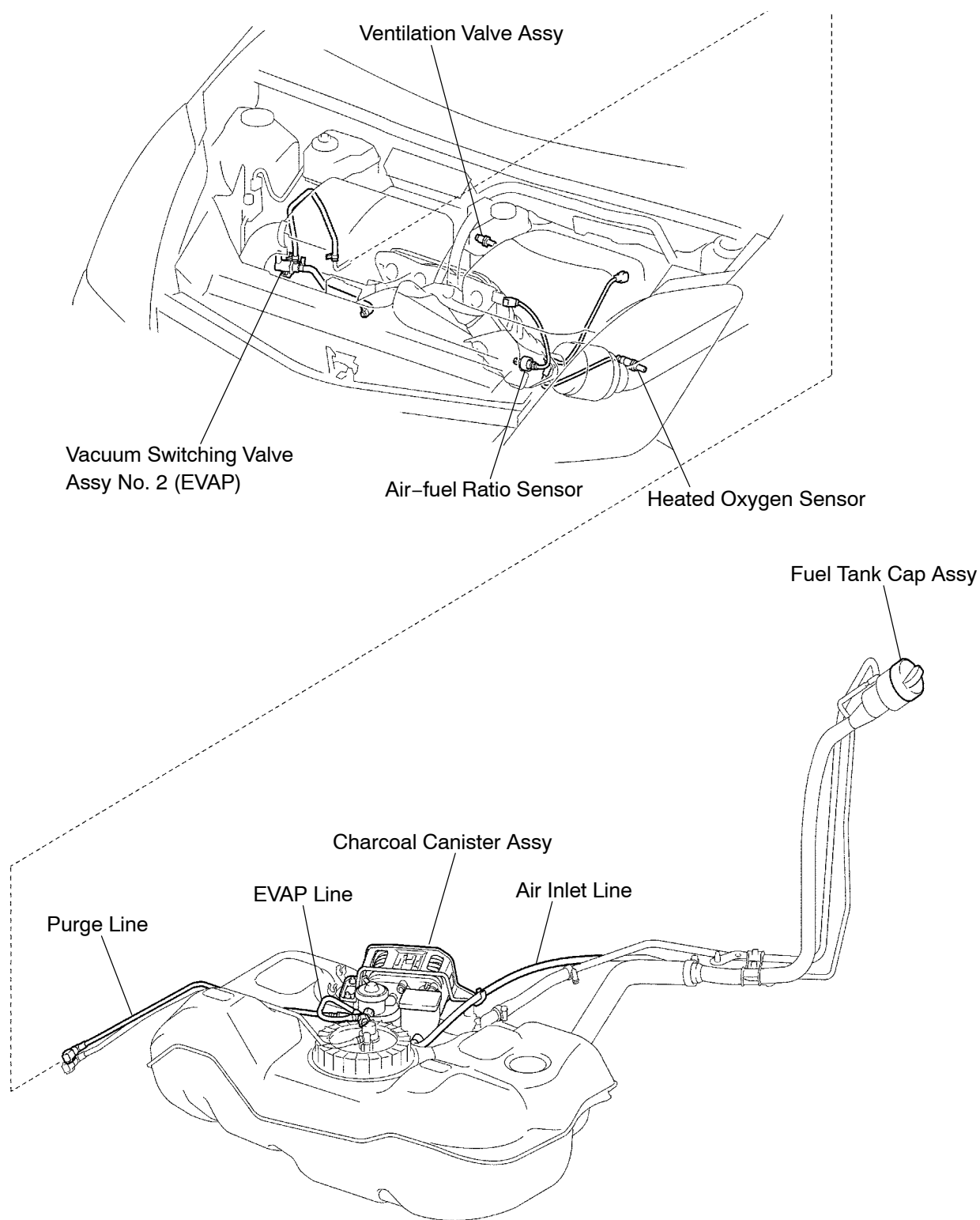


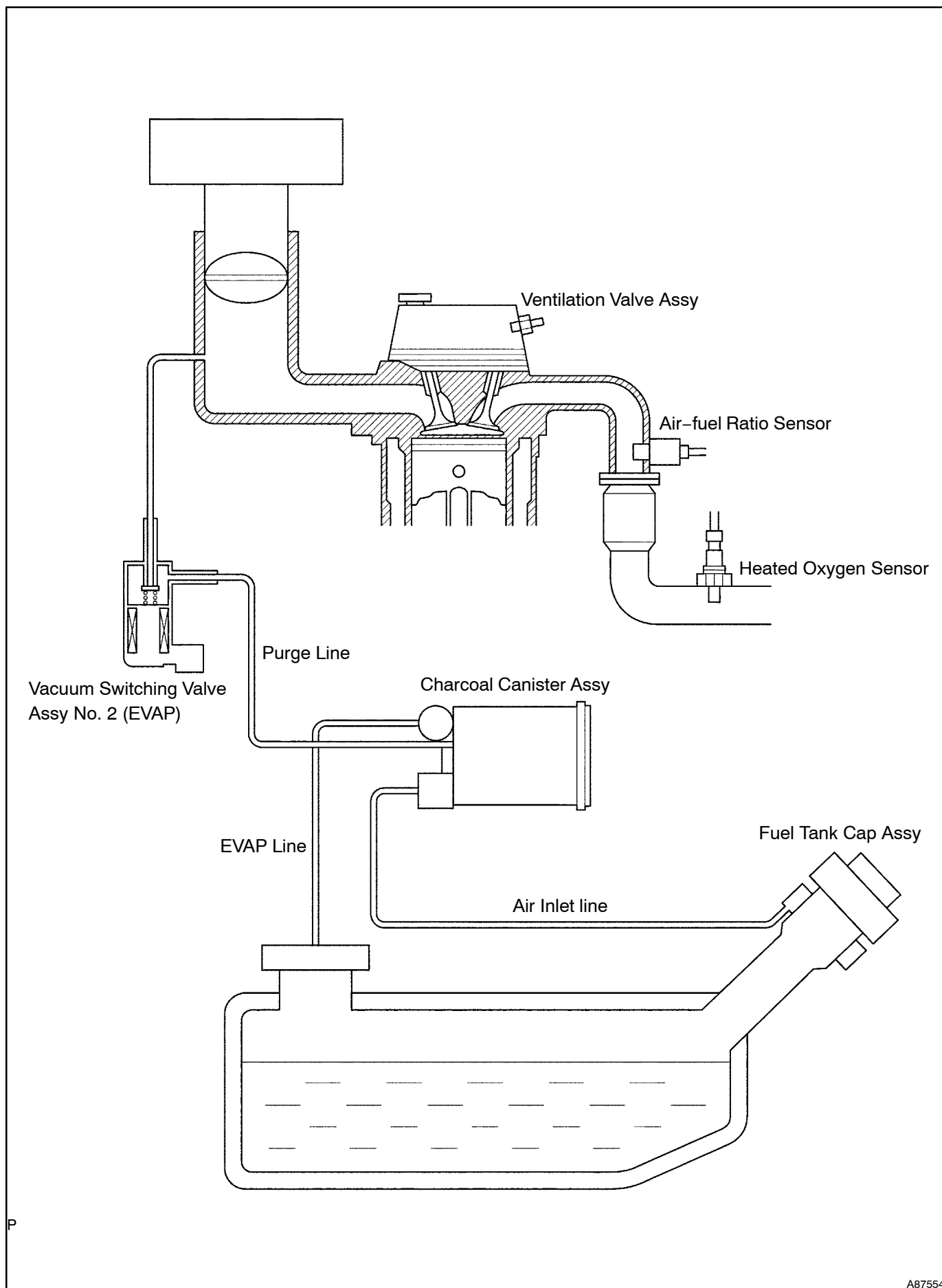
EMISSION CONTROL SYSTEM (1NZ-FXE)

LOCATION

120DF-01



A87555

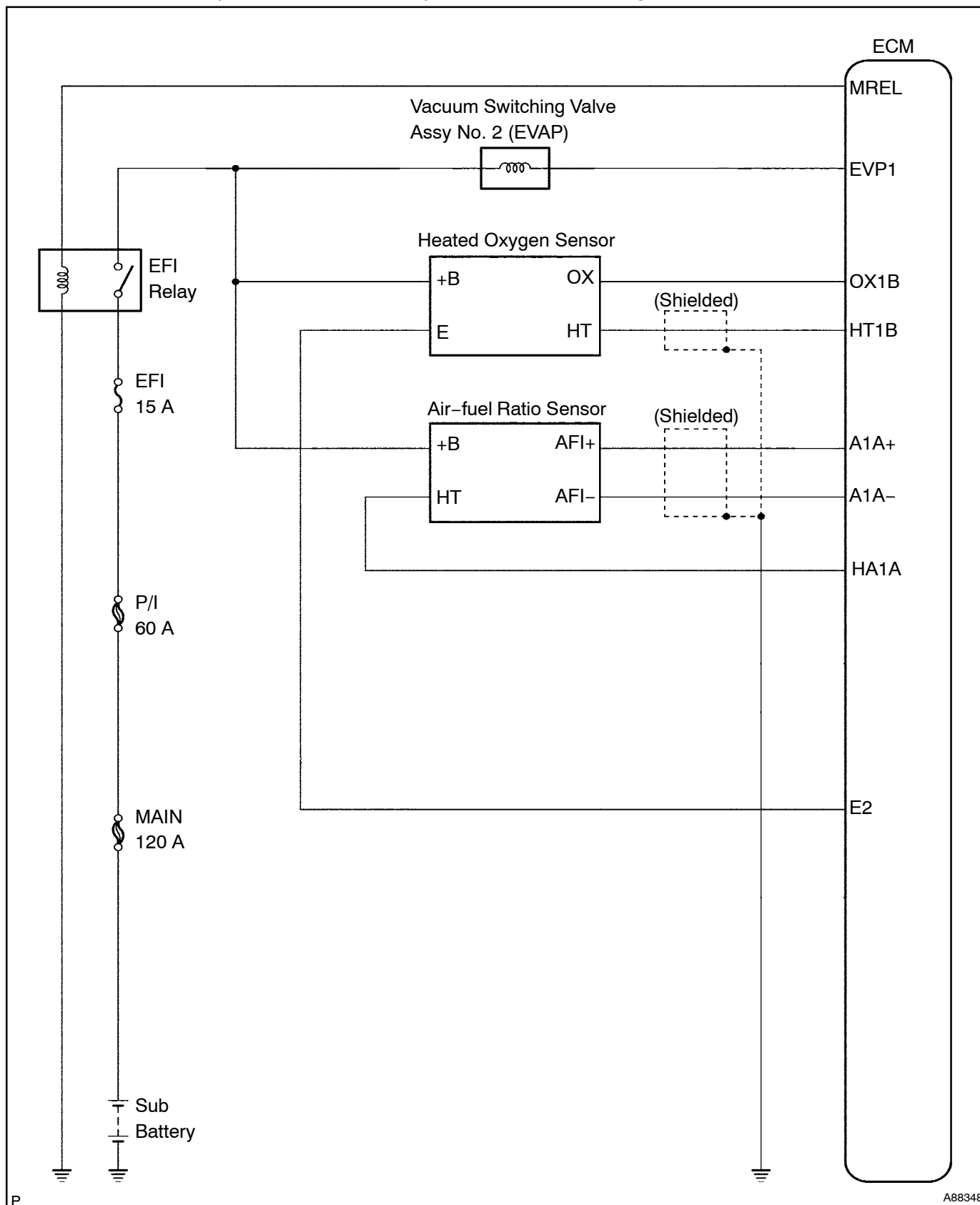


P

A87554

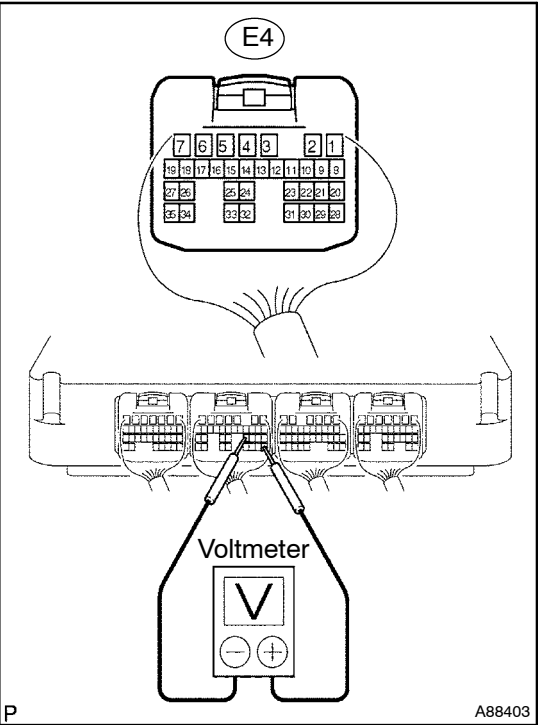
SYSTEM DIAGRAM

The emission control system is determined by the ECM based on signals from various sensors.



A88348

ON-VEHICLE INSPECTION



1. INSPECT AIR-FUEL RATIO SENSOR SYSTEM

- (a) Inspect the voltage.
- Turn the power switch ON (IG).
 - Using a voltmeter, measure the voltage between the ECM terminals.

Standard:

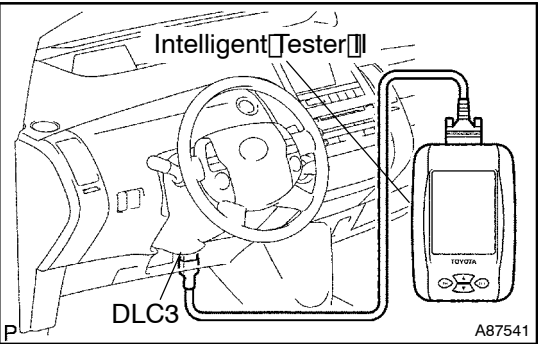
Tester Connection	Specified Condition
E4-23 (A1A+) - E4-28 (E1)	3.0 to 3.6 V
E4-22 (A1A-) - E4-28 (E1)	2.7 to 3.3 V

CAUTION:

Connect the test leads from the backside of the connector with the ECM connector connected.

HINT:

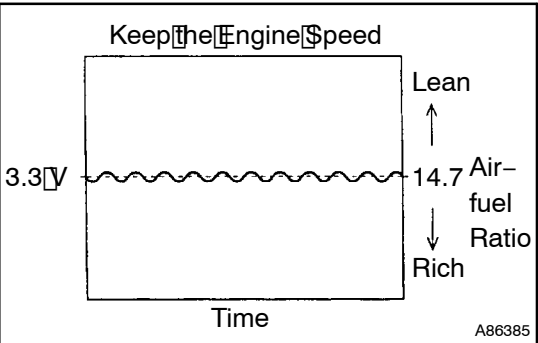
The voltage between the ECM terminals is constant regardless of the output voltage of the air-fuel ratio sensor. If the result is not as specified, check the air-fuel ratio sensor and wire harness.

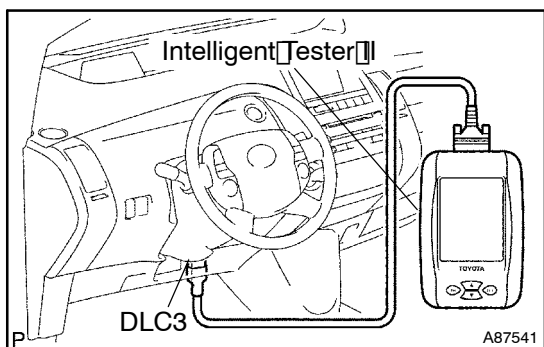


- (b) Check the output waveform.
- Set the vehicle to the "Inspection Mode-2WD inspection" (see page 01-5).
 - Connect the intelligent tester II to the DLC3.
 - Turn the power switch ON (READY ON).
 - Turn the intelligent tester II ON.
 - Select the item: Powertrain / Engine and ECT / Data List / AFS B1 S1.
 - Warm up the air fuel ratio sensor for approximately 2 minutes at 2,500 rpm of the engine speed.
 - Maintain the engine speed at 2,500 rpm, then check that the waveform of "AFS B1 S1" is output as illustrated.

HINT:

- The waveform of illustration is a sample.
 - Only the intelligent tester II shows the waveform of the air fuel ratio sensor.
- (8) Check that "O2S B1 S2" fluctuates between 1 and 0 V with the engine speed at 2,500 rpm.



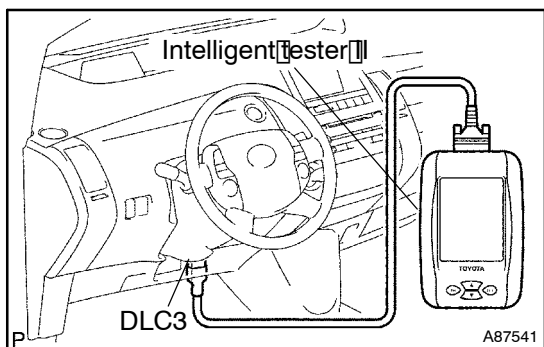


2. INSPECT FUEL CUT OFF RPM

(a) Check the operation.

- (1) Start the engine, then warm up.
- (2) Connect the Intelligent Tester II to the DLC3.
- (3) Turn the Intelligent Tester II ON.
- (4) Select the item: Powertrain / Engine and ECT / Data List / Injector.
- (5) Drive the vehicle. When releasing the accelerator pedal after the driving speed is 45 to 60 km/h (28 to 37 mph), read Injector of the Intelligent Tester.

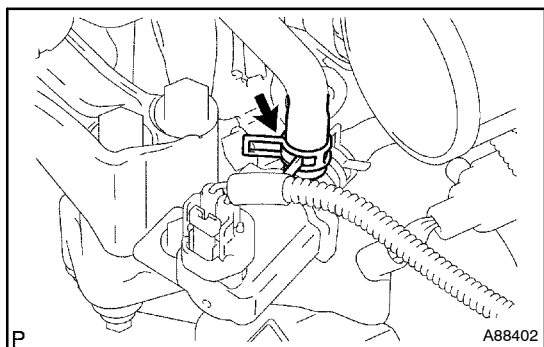
Standard: 0 ms

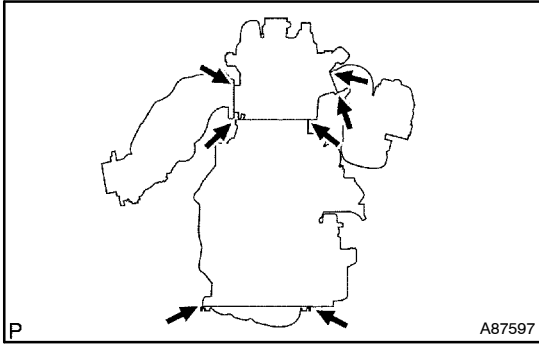


3. INSPECT EVAPORATIVE EMISSION CONTROL SYSTEM

(a) Check the operation.

- (1) Set the vehicle to the "Inspection Mode-2WD inspection" (see page 1-5)
- (2) Connect the intelligent tester II to the DLC3.
- (3) After starting the engine, disconnect the fuel vapor feed hose shown in the illustration.
- (4) Select the item: Power train / Engine and ECT / Active Test / Activate VSV for Evap Control.
- (5) Check that vacuum occurs in the VSV port.
- (6) Finish Active Test, then connect the fuel vapor feed hose.
- (7) Select the item: Powertrain / Engine and ECT / Data List / EVAP Purge VSV.
- (8) Drive the vehicle at the constant speed of the approximately 50 km/h (31 mph). then check that the VSV is turned from ON to OFF.





4. VISUALLY INSPECT HOSES, CONNECTIONS AND GASKETS

(a) Check the appearance.

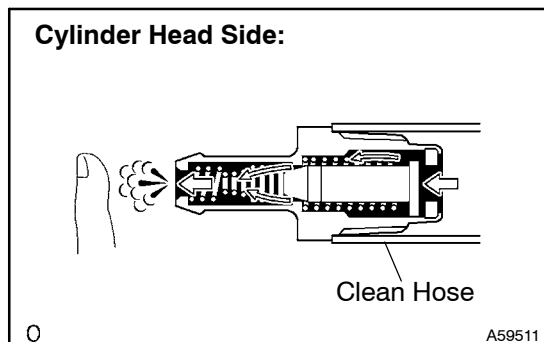
- (1) Visually check that there are no cracks, leaks or damage on the indicated portions in the illustration.

HINT:

- Removing the oil level gauge, oil filler cap or ventilation hoses may cause the engine malfunction or engine stall.
- If the parts between the mass air flow meter and cylinder head are disconnected, loose or cracked, secondary air may be sucked. It could cause the engine malfunction or engine stall.

INSPECTION

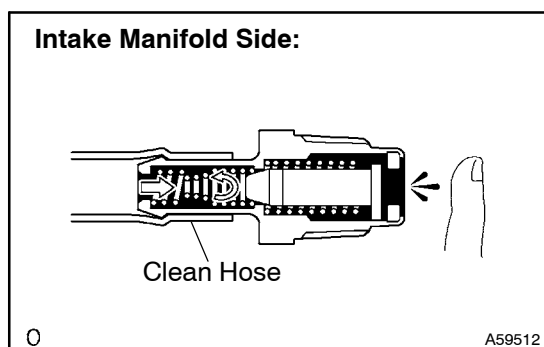
Cylinder Head Side:



0

A59511

Intake Manifold Side:



0

A59512

1. INSPECT VENTILATION VALVE SUB-ASSY

- (a) Check the ventilation.
 - (1) Install a clean hose to the ventilation valve as illustration.
 - (2) Check that there is ventilation when air is applied from the cylinder head side.

CAUTION:

Do not suck the air inside the ventilation valve because it is harmful.

If there is no ventilation, replace the ventilation valve.

- (3) Check that there no ventilation when air is applied from the intake manifold side.

If there is ventilation, replace the ventilation valve.

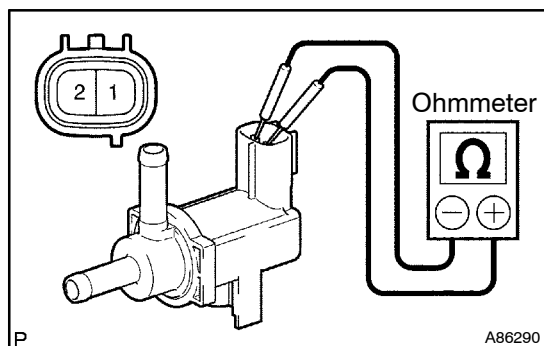
2. INSPECT VACUUM SWITCHING VALVE ASSY NO.2

- (a) Inspect the resistance.
 - (1) Using an ohmmeter, measure the resistance between the terminals.

Standard:

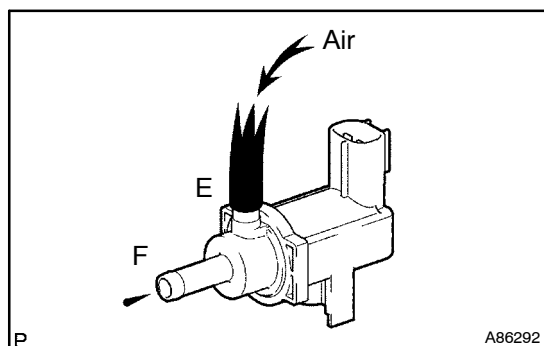
Tester Connection	Specified Condition
1 - 2	26 to 30 Ω at 20°C (68°F)

If the resistance is not as specified, replace the vacuum switching valve No. 2.



P

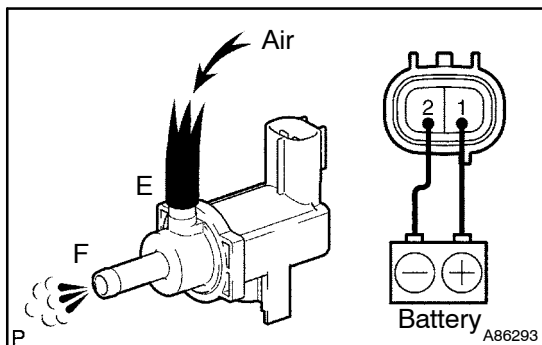
A86290



P

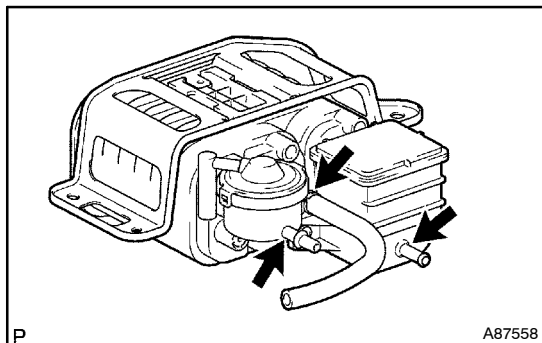
A86292

- (b) Check the ventilation.
 - (1) Check that there is no ventilation in port F when air is applied from port E.
- If there is ventilation, replace the vacuum switching valve No. 2.



- (2) Apply battery voltage across the terminals.
- (3) Check that there is ventilation in port F when air is applied from port E.

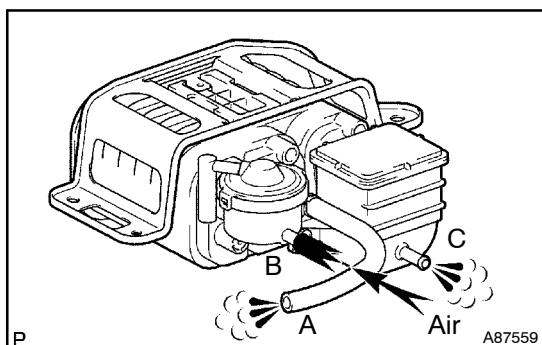
If there is no ventilation, replace the vacuum switching valve No. 2.



3. INSPECT CHARCOAL CANISTER ASSY

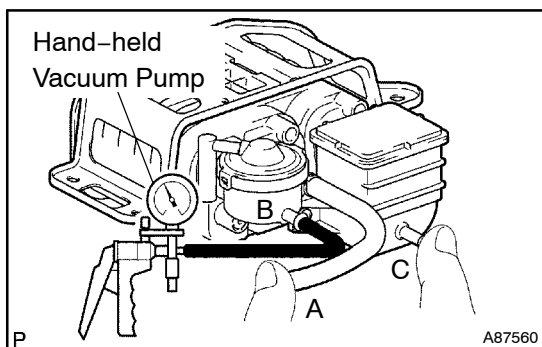
- (a) Check the appearance.
 - (1) Check that there are no cracks or damage on the indicated portions of the charcoal canister.

If there are any defects, replace the charcoal canister.



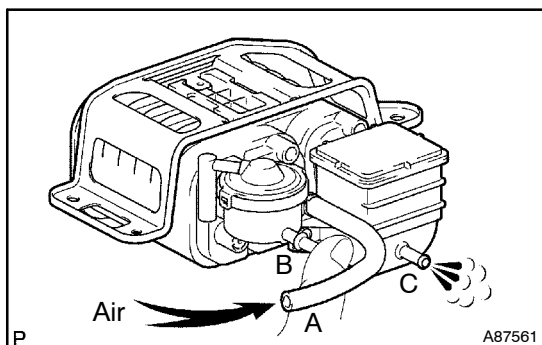
- (b) Check the ventilation.
 - (1) Check that there is ventilation in ports A and C when air (4.41 kPa (45 gf/cm², 0.64 psi)) is applied to port B.

If there is no ventilation, replace the charcoal canister.



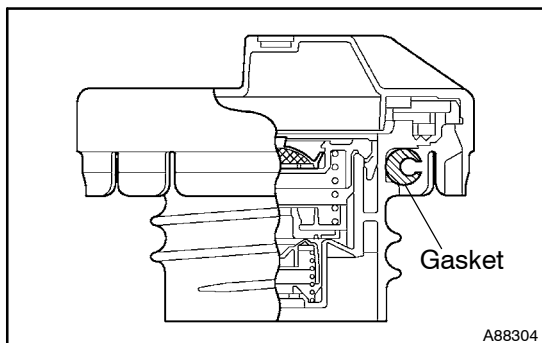
- (2) Plug port A and C with your finger.
- (3) Using a hand-held vacuum pump, apply vacuum (1.23 kPa (9.23 mmHg, 0.36 in Hg)) to port B, then check there are no air leaks in ports A and C.

If there are air leaks, replace the charcoal canister.



- (4) Plug port B with your finger.
- (5) Check that there is ventilation in port C when air (4.41 kPa (45 gf/cm², 0.64 psi)) is applied to port A.

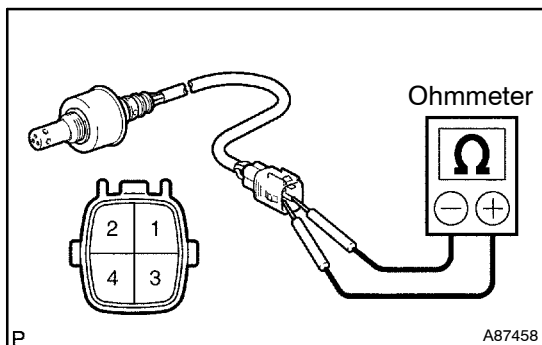
If there is no ventilation, replace the charcoal canister.



4. INSPECT FUEL TANK CAP ASSY

- (a) Check the appearance.
- (1) Check that there is no deformation or damage on the fuel tank cap and gasket.

If there are any defects, replace the fuel tank cap.



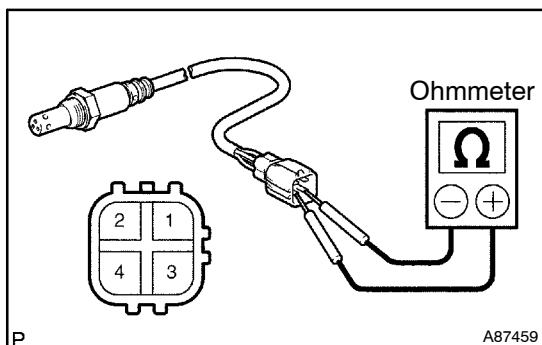
5. INSPECT AIR-FUEL RATIO SENSOR

- (a) Inspect the resistance.
- (1) Using an ohmmeter, measure the resistance between the terminals.

Standard:

Tester Connection	Specified Condition
1 (HT) - 2 (+B)	1.8 to 3.4 Ω at 20°C (68°F)
2 (+B) - 4 (AF-)	10 k Ω or higher

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



6. INSPECT HEATED OXYGEN SENSOR

- (a) Inspect the resistance.
- (1) Using an ohmmeter, measure the resistance between the terminals.

Standard:

Tester Connection	Specified Condition
1 (HT) - 2 (+B)	11 to 16 Ω at 20°C (68°F)
1 (HT) - 4 (E)	10 k Ω or higher

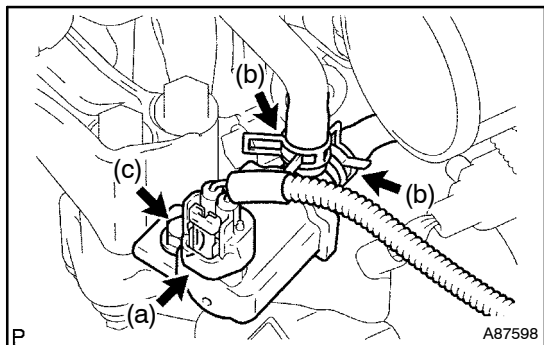
If the result is not as specified, replace the heated oxygen sensor.

VACUUM SWITCHING VALVE ASSY NO.2 (1NZ-FXE)

120DJ-01

REPLACEMENT

1. REMOVE REAR FLOOR BOARD NO.2 (See page 19-2)
2. REMOVE DECK FLOOR BOX REAR (See page 19-2)
3. REMOVE REAR FLOOR BOARD NO.3 (See page 19-2)
4. DISCONNECT ENGINE WIRE NO.3 (BATTERY NEGATIVE TERMINAL) (See page 19-2)



5. REMOVE VACUUM SWITCHING VALVE ASSY NO.2
 - (a) Disconnect the VSV connector.
 - (b) Disconnect the fuel vapor feed hose No. 1 from the vacuum switching valve No. 2.
 - (c) Disconnect the fuel vapor feed hose No. 2 from the vacuum switching valve No. 2.
 - (d) Remove the bolt, then remove the vacuum switching valve No. 2.

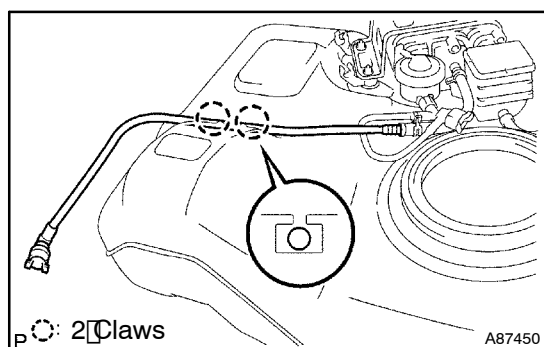
6. INSTALL VACUUM SWITCHING VALVE ASSY NO.2
Torque: 7.5 N·m (76 kgf·cm, 66 in. lbf)
7. CONNECT ENGINE WIRE NO.3 (BATTERY NEGATIVE TERMINAL) (See page 19-2)
8. INSTALL REAR FLOOR BOARD NO.3
9. INSTALL DECK FLOOR BOX REAR
10. INSTALL REAR FLOOR BOARD NO.2
11. POWER WINDOW CONTROL SYSTEM INITIALIZE (See page 01-29)

CHARCOAL CANISTER ASSY (1NZ-FXE)

REPLACEMENT

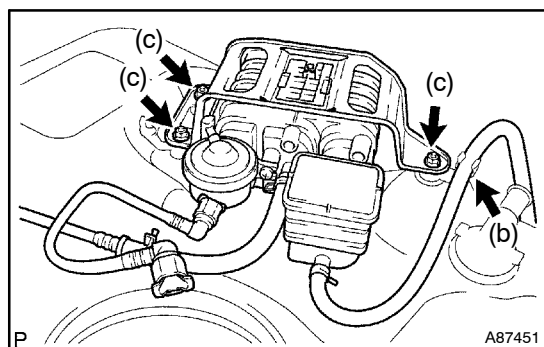
120DK-01

1. DISCHARGE FUEL SYSTEM PRESSURE (See page 11-3)
2. REMOVE REAR FLOOR BOARD NO.2 (See page 19-2)
3. REMOVE DECK FLOOR BOX REAR (See page 19-2)
4. REMOVE REAR FLOOR BOARD NO.3 (See page 19-2)
5. DISCONNECT ENGINE WIRE NO.3 (BATTERY NEGATIVE TERMINAL) (See page 19-2)
6. REMOVE REAR SEAT CUSHION ASSEMBLY (See page 72-9)
7. REMOVE REAR FLOOR SERVICE HOLE COVER (See page 11-25)
8. REMOVE FUEL SUCTION W/ PUMP & GAUGE TUBE ASSY (See page 11-25)
SST 09808-14020 (09808-01410, 09808-01420, 09808-01430)
9. DRAIN FUEL
10. REMOVE FLOOR PANEL BRACE FRONT (See page 15-2)
11. REMOVE FRONT FLOOR FOOTREST (RHD STEERING POSITION TYPE) (See page 76-25)
12. REMOVE INSTRUMENT PANEL FINISH PANEL LOWER CENTER (See page 71-13)
13. REMOVE EXHAUST PIPE ASSY FRONT (See page 11-36)
14. REMOVE FUEL TANK PROTECTOR NO.1 (See page 11-36)
15. REMOVE FUEL TANK ASSY (See page 11-36)

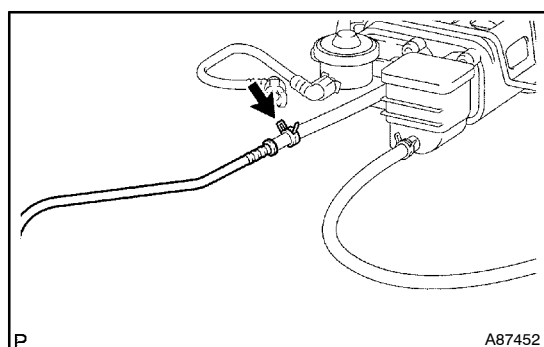


16. REMOVE CHARCOAL CANISTER ASSY

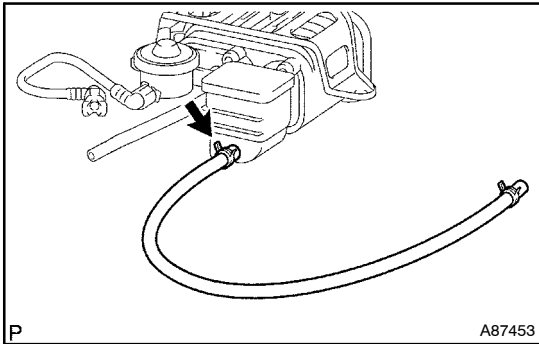
- (a) Separate the 2 claw fittings, then remove the tube of the fuel tank to canister tube rear.



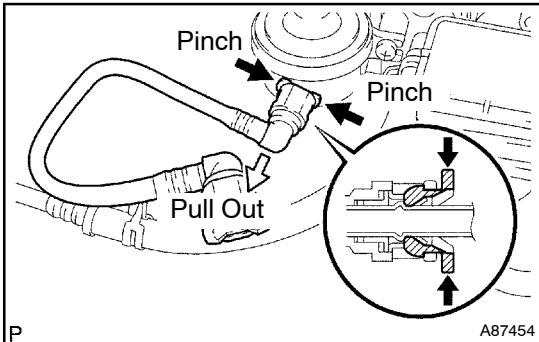
- (b) Remove the fuel hose No. 1 from the clamp.
- (c) Remove the 3 nuts, then remove the charcoal canister.



- (d) Remove the fuel tank to canister tube rear from the charcoal canister.



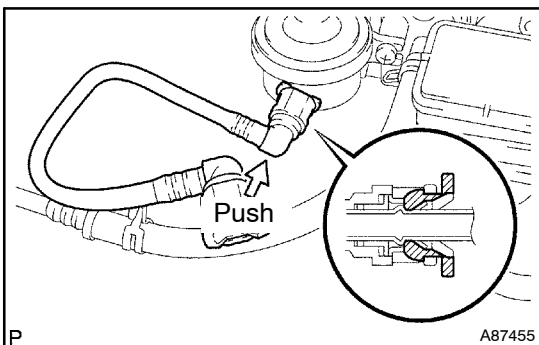
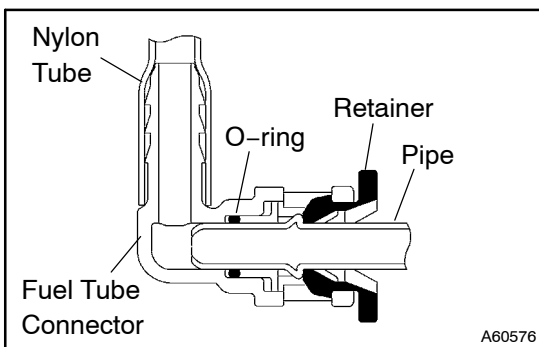
- (e) Remove the fuel hose No. 1 from the charcoal canister.



- (f) Remove the fuel evaporation tube No. 2.
 (1) Pinch the retainer of the fuel tube connector, then pull out the fuel tube connector to remove the fuel evaporation tube No. 2 from the charcoal canister.

NOTICE:

- Remove dirt or foreign objects on the fuel tube connector before this work.
- Do not allow scratches or foreign objects on the parts when disconnecting as the fuel tube connector has the O-ring that seals the pipe.
- Perform this work by hand. Do not use any tools.
- Do not forcibly bend, twist or turn the nylon tube.
- Protect the connected part by covering it with a vinyl bag after disconnecting the fuel evaporation tube No. 2.
- If the fuel tube connector and pipe are stuck, push and pull them to release.



17. INSTALL CHARCOAL CANISTER ASSY

- (a) Install the fuel evaporation tube No. 2.
 (1) Align the fuel tube connector with the pipe, then push in the fuel tube connector until the retainer makes a "click" sound to install the fuel evaporation tube No. 2 to the charcoal canister.

NOTICE:

- Check that there are no scratches or foreign objects around the connected part of the fuel tube connector and pipe before this work.
- After connecting the fuel evaporation tube No. 2, check that the fuel evaporation tube No. 2 is securely connected by pulling the fuel tube connector and pipe.

- (b) Install the fuel hose No. 1 to the charcoal canister.
 (c) Install the fuel tank to canister tube rear to the charcoal canister.
 (d) Install the charcoal canister with the 3 nuts.
Torque: 6.0 N·m (61 kgf·cm, 53 in.·lbf)
 (e) Install the fuel hose No. 1 to the clamp.

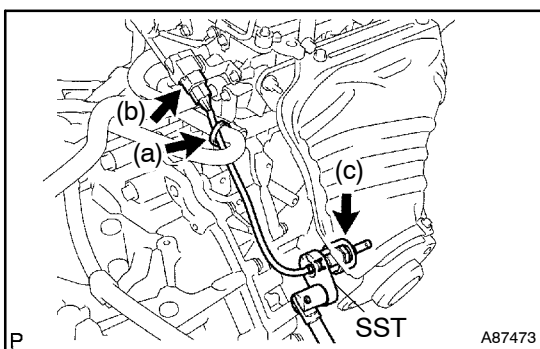
(f) Install the tube of the fuel tank to canister tube rear to the fuel tank.

18. INSTALL FUEL TANK ASSY (See page 11-36)
19. INSTALL FUEL TANK PROTECTOR NO.1 (See page 11-36)
20. INSTALL EXHAUST PIPE ASSY FRONT (See page 11-36)
21. INSTALL FRONT FLOOR FOOTREST (RHD STEERING POSITION TYPE) (See page 76-25)
22. INSTALL INSTRUMENT PANEL FINISH PANEL LOWER CENTER
23. ADD FUEL
24. INSTALL FUEL SUCTION W/ PUMP & GAUGE TUBE ASSY (See page 11-25)
SST 09808-14020 (09808-01410, 09808-01420, 09808-01430)
25. CONNECT ENGINE WIRE NO.3 (BATTERY NEGATIVE TERMINAL) (See page 9-2)
26. CHECK FOR FUEL LEAKS (See page 11-7)
27. CHECK FOR EXHAUST GAS LEAKS
28. INSTALL FLOOR PANEL BRACE FRONT (See page 5-2)
29. INSTALL REAR FLOOR SERVICE HOLE COVER (See page 11-25)
30. INSTALL REAR SEAT CUSHION ASSEMBLY (See page 72-9)
31. INSTALL REAR FLOOR BOARD NO.3
32. INSTALL DECK FLOOR BOX REAR
33. INSTALL REAR FLOOR BOARD NO.2
34. POWER WINDOW CONTROL SYSTEM INITIALIZE (See page 01-29)

AIR-FUEL RATIO SENSOR (1NZ-FXE)

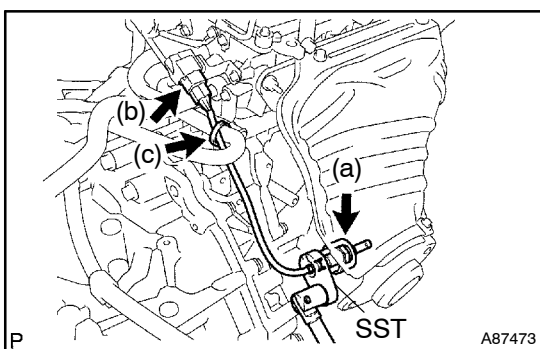
REPLACEMENT

1. PRECAUTION (See page 21-8)
2. REMOVE RADIATOR SUPPORT OPENING COVER (See page 10-15)
3. REMOVE ENGINE UNDER COVER LH
4. REMOVE ENGINE UNDER COVER RH
5. DRAIN HV COOLANT (See page 22-4)
6. REMOVE REAR FLOOR BOARD NO.2 (See page 19-2)
7. REMOVE DECK FLOOR BOX REAR (See page 19-2)
8. REMOVE REAR FLOOR BOARD NO.3 (See page 19-2)
9. DISCONNECT ENGINE WIRE NO.3 (BATTERY NEGATIVE TERMINAL) (See page 19-2)
10. REMOVE SERVICE PLUG GRIP (See page 21-120)
11. REMOVE WINDSHIELD WIPER ARM COVER
12. REMOVE FR WIPER ARM RH (See page 66-16)
13. REMOVE FR WIPER ARM LH (See page 66-16)
14. REMOVE HOOD TO COWL TOP SEAL (See page 66-16)
15. REMOVE COWL TOP VENTILATOR LOUVER LH (See page 66-16)
16. REMOVE COWL TOP VENTILATOR LOUVER RH (See page 66-16)
17. REMOVE WINDSHIELD WIPER LINK ASSY (See page 66-16)
18. REMOVE COWL TOP PANEL SUB-ASSY OUTER FRONT (See page 11-16)
19. REMOVE INVERTER COVER (See page 21-25)
20. VERIFY THAT VOLTAGE OF W/CONVERTER INVERTER ASSY IS 0V (See page 21-25)
21. DISCONNECT INVERTER COOLING HOSE NO.2 (See page 21-25)
22. DISCONNECT INVERTER COOLING HOSE NO.1 (See page 21-25)
23. DISCONNECT INVERTER COOLING HOSE NO.6 (See page 21-25)
24. SEPARATE CIRCUIT BREAKER SENSOR NO.1 (See page 21-25)
25. DISCONNECT FRAME WIRE NO.2 (See page 21-25)
26. REMOVE W/CONVERTER INVERTER ASSY (See page 21-25)



27. REMOVE AIR-FUEL RATIO SENSOR

- (a) Remove the wire harness clamp from the air-fuel ratio sensor.
- (b) Disconnect the air-fuel ratio sensor connector.
- (c) Using SST, remove the air-fuel ratio sensor.
SST 09224-00010



28. INSTALL AIR-FUEL RATIO SENSOR

- (a) Using SST, install the air-fuel ratio sensor.
SST 09224-00010
Torque: 44 N·m (450 kgf·cm, 33 in·lbf)
- (b) Connect the air-fuel ratio sensor connector.
- (c) Install the wire harness clamp to the air-fuel ratio sensor.

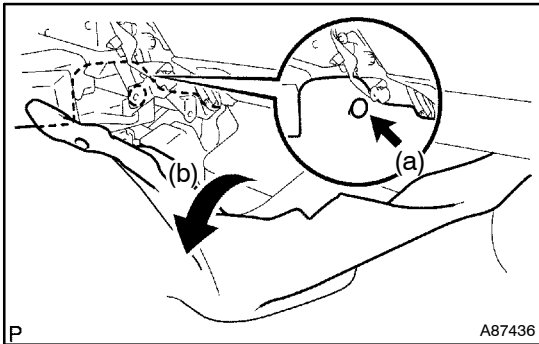
29. □ INSTALL W/CONVERTER INVERTER ASSY (See page 21-25)
30. □ CONNECT FRAME WIRE NO.2 (See page 21-25)
31. □ CONNECT CIRCUIT BREAKER SENSOR NO.1 (See page 21-25)
32. CONNECT INVERTER COOLING HOSE NO.6
33. CONNECT INVERTER COOLING HOSE NO.1
34. CONNECT INVERTER COOLING HOSE NO.2
35. □ INSTALL INVERTER COVER (See page 21-25)
36. □ INSTALL COWL TOP PANEL SUB-ASSY OUTER FRONT (See page 11-16)
37. □ INSTALL WINDSHIELD WIPER LINK ASSY (See page 66-16)
38. □ INSTALL SERVICE PLUG GRIP (See page 21-120)
39. □ CONNECT ENGINE WIRE NO.3 (BATTERY NEGATIVE TERMINAL) (See page 9-2)
40. □ ADD HV COOLANT (See page 22-4)
41. □ CHECK FOR HV COOLANT LEAKS (See page 22-1)
42. CHECK FOR EXHAUST GAS LEAKS
43. INSTALL COWL TOP VENTILATOR LOUVER RH
44. INSTALL COWL TOP VENTILATOR LOUVER LH
45. INSTALL HOOD TO COWL TOP SEAL
46. □ INSTALL FR WIPER ARM LH (See page 66-16)
47. □ INSTALL FR WIPER ARM RH (See page 66-16)
48. INSTALL WINDSHIELD WIPER ARM COVER
49. INSTALL REAR FLOOR BOARD NO.3
50. INSTALL DECK FLOOR BOX REAR
51. INSTALL REAR FLOOR BOARD NO.2
52. INSTALL ENGINE UNDER COVER RH
53. INSTALL ENGINE UNDER COVER LH
54. INSTALL RADIATOR SUPPORT OPENING COVER
55. □ POWER WINDOW CONTROL SYSTEM INITIALIZE (See page 01-29)

HEATED OXYGEN SENSOR (1NZ-FXE)

120DM-01

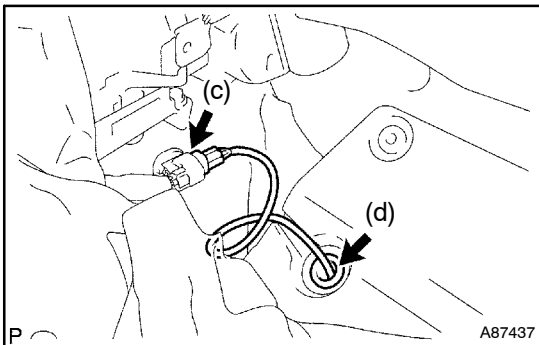
REPLACEMENT

1. REMOVE REAR FLOOR BOARD NO.2 (See page 19-2)
2. REMOVE DECK FLOOR BOX REAR (See page 19-2)
3. REMOVE REAR FLOOR BOARD NO.3 (See page 19-2)
4. DISCONNECT ENGINE WIRE NO.3 (BATTERY NEGATIVE TERMINAL) (See page 19-2)
5. REMOVE INSTRUMENT PANEL FINISH PANEL LOWER CENTER (See page 71-13)
6. REMOVE FRONT FLOOR FOOTREST (RHD STEERING POSITION TYPE) (See page 76-25)

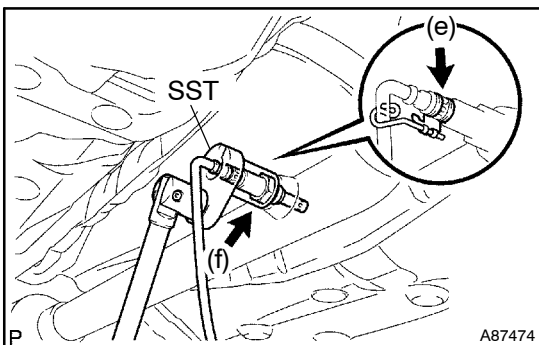


7. REMOVE HEATED OXYGEN SENSOR

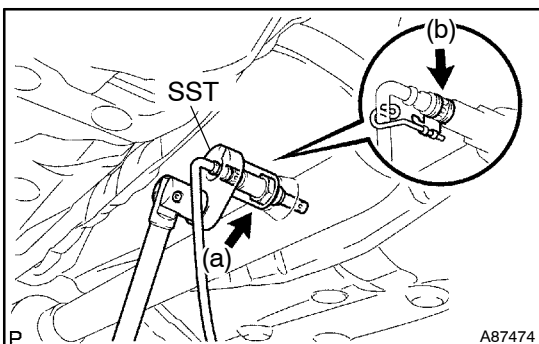
- (a) Using a clip remover, remove the clip.
- (b) Pull off the floor carpet front.



- (c) Disconnect the heated oxygen sensor connector.
- (d) Remove the grommet of the heated oxygen sensor from the vehicle.



- (e) Remove the wire harness clamp bracket from the heated oxygen sensor.
- (f) Using SST, remove the heated oxygen sensor.
SST 09224-00010



8. INSTALL HEATED OXYGEN SENSOR

- (a) Using SST, install the heated oxygen sensor.
SST 09224-00010
Torque: 44 N·m (450 kgf·cm, 33 in·lbf)
- (b) Install the wire harness clamp bracket to the heated oxygen sensor.
- (c) Install the grommet of the heated oxygen sensor to the vehicle.
- (d) Connect the heated oxygen sensor connector.
- (e) Install the floor carpet front with the clip.

9. **CONNECT ENGINE WIRE NO.3 (BATTERY NEGATIVE TERMINAL) (See page 9-2)**
10. **CHECK FOR EXHAUST GAS LEAKS**
11. **INSTALL FRONT FLOOR FOOTREST (RHD STEERING POSITION TYPE)**
12. **INSTALL INSTRUMENT PANEL FINISH PANEL LOWER CENTER**
13. **INSTALL REAR FLOOR BOARD NO.3**
14. **INSTALL DECK FLOOR BOX REAR**
15. **INSTALL REAR FLOOR BOARD NO.2**
16. **POWER WINDOW CONTROL SYSTEM INITIALIZE (See page 01-29)**