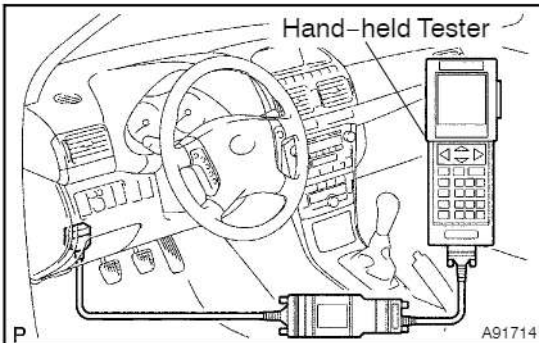


SFI SYSTEM (2AZ-FSE)

ON-VEHICLE INSPECTION

100LU-01



1. INSPECT CAMSHAFT TIMING OIL CONTROL VALVE ASSY

- Connect the hand-held tester to the DLC3.
- Turn the ignition switch ON.
- Start the engine and warm it up.
- Select the VVT from the ACTIVE TEST menu.
- Inspect the engine speed when the OCV is operated with the hand-held tester.

Standard:

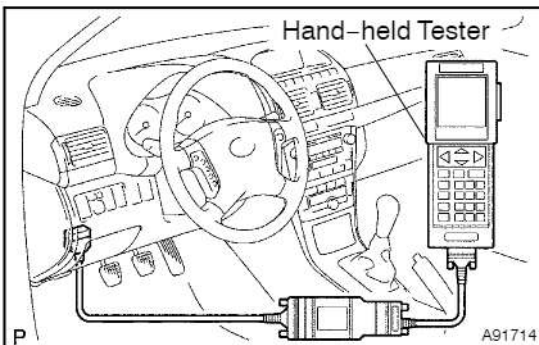
Condition	Specified Condition
VVT system is OFF (OCV is OFF)	Normal engine speed
VVT system is ON (OCV is ON)	Rough idle or engine stalled

If the result is not as specified, replace the camshaft timing oil control valve.

2. INSPECT THROTTLE BODY ASSY

- Listen to the throttle control motor operating sounds.
 - Turn the ignition switch ON.
 - When pressing the accelerator pedal position sensor lever, listen to the running sound of the motor. Make sure no friction noise comes from the motor.

If friction noise exists, replace the throttle body.



- Inspect the throttle position sensor.
 - Connect the hand-held tester to the DLC3.
 - Turn the ignition switch ON.
 - Check that the engine warning light does not light up.
 - Under CURRENT DATA, the throttle valve opening percentage (THROTTLE POS) should be within the standard value range below.

Standard throttle valve opening percentage:

60 % or more

NOTICE:

When checking the standard throttle valve opening percentage, the transmission should be in the neutral position.

If the percentage is less than 60 %, replace the throttle body.

3. INSPECT ACCELERATOR PEDAL ROD ASSY

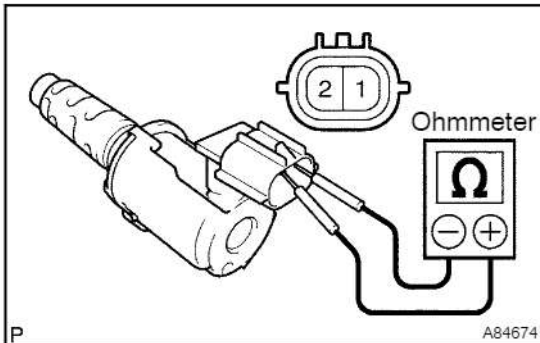
- Turn the ignition switch ON. Under CURRENT DATA, the voltage of the throttle position sensor should be within the standard value range below.

Standard: 0.6 to 1.0 V

If the voltage is not as specified, replace the accelerator pedal rod.

AVENSIS Supplement (RM1045E)

INSPECTION



1. INSPECT CAMSHAFT TIMING OIL CONTROL VALVE ASSY

(a) Inspect the resistance.

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

Standard:

Tester Connection	Specified Condition
1 (-) - 2 (+)	6.9 to 7.9 Ω at 20°C (68°F)

If the resistance is not as specified, replace the camshaft timing oil control valve.

(b) Check the operation.

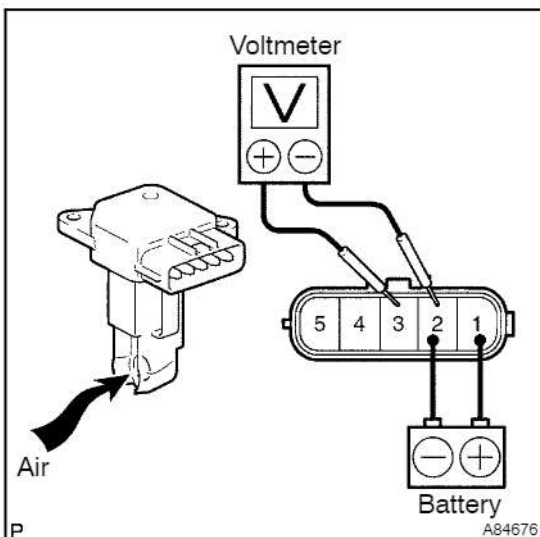
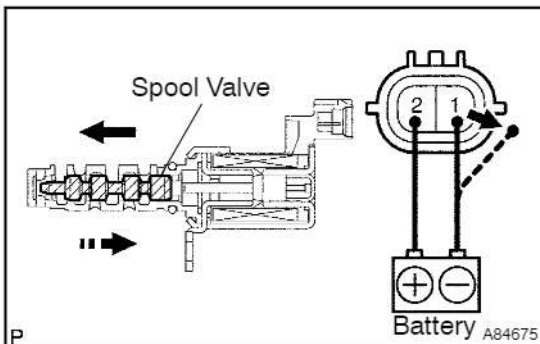
- (1) Connect the positive (+) lead from the battery to terminal 2 and negative (-) lead to terminal 1, then check the movement of the spool valve.

NOTICE:

Confirm that the spool valve moves freely and does not stick in any position.

HINT:

Bad returning of the spool valve resulted from catching foreign objects cause subtle leak to the advanced direction. In that case, DTC can be detected.

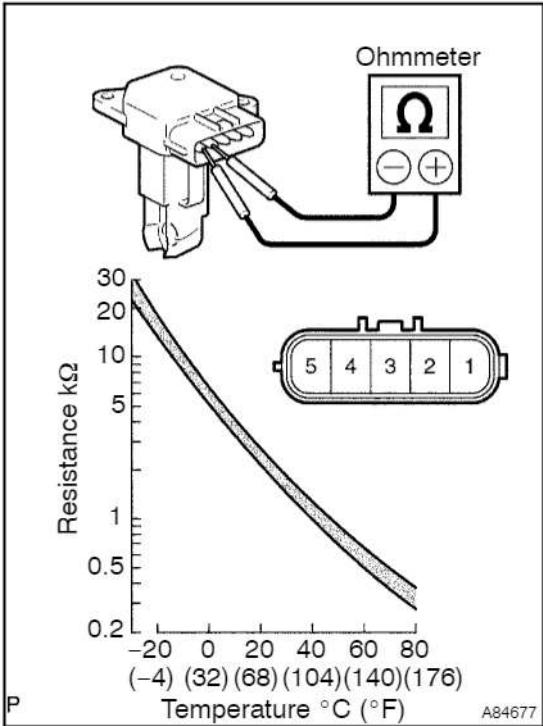


2. INSPECT MASS AIR FLOW METER

(a) Check the operation.

- (1) Apply battery voltage across terminals 1 (+B) and 2 (E2G).
- (2) Using a voltmeter, connect the positive (+) tester probe to terminal 3 (VG), and negative (-) tester probe to terminal 2 (E2G).
- (3) Blow air into the mass air flow meter, then check that the voltage fluctuates.

If the operation is not as specified, replace the mass air flow meter.

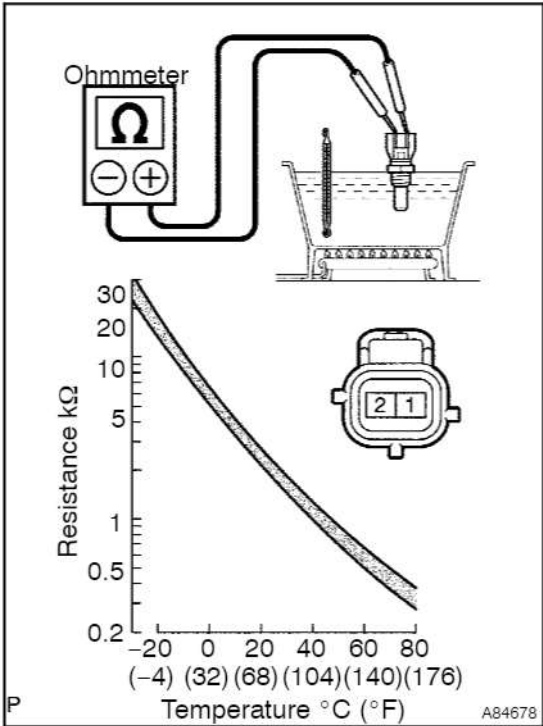


- (b) Inspect the resistance.
- (1) Using an ohmmeter, measure the resistance between the terminals.

Standard:

Tester connection	Specified Condition
4 (THA) - 5 (E2)	13.6 to 18.4 kΩ at -20°C (-4°F)
4 (THA) - 5 (E2)	2.21 to 2.69 kΩ at 20°C (68°F)
4 (THA) - 5 (E2)	0.493 to 0.667 kΩ at 60°C (140°F)

If the resistance is not as specified, replace the mass air flow meter.



3. INSPECT ENGINE COOLANT TEMPERATURE SENSOR

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

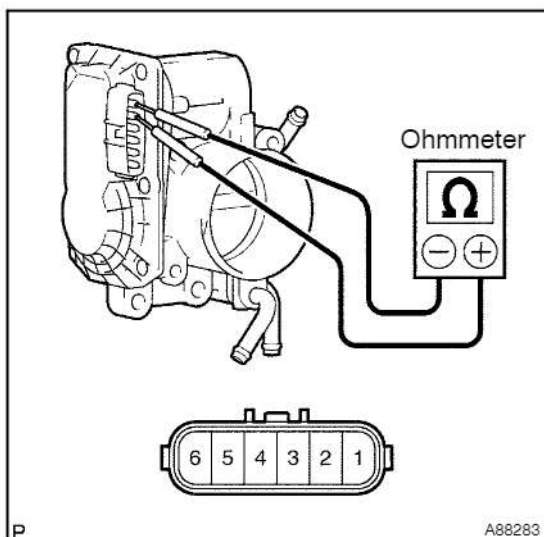
Standard:

Tester connection	Specified Condition
1 (E2) - 2 (THW)	2.32 to 2.59 kΩ at 20°C (68°F)
1 (E2) - 2 (THW)	0.310 to 0.326 kΩ at 80°C (176°F)

NOTICE:

In case of checking the engine coolant temperature sensor in water, be careful not to allow water to go into the terminals, and after checking, dry the engine coolant temperature sensor.

If the resistance is not as specified, replace the engine coolant temperature sensor.



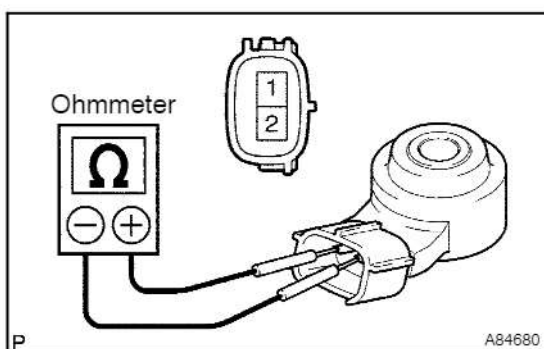
4. INSPECT THROTTLE BODY ASSY

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

Standard:

Tester Connection	Specified Condition
1 (M-) - 2 (M+)	0.3 to 100 Ω at 20°C (68°F)
3 (E2) - 5 (VC)	1.2 to 3.2 k Ω at 20°C (68°F)

If the resistance is not as specified, replace the throttle body.



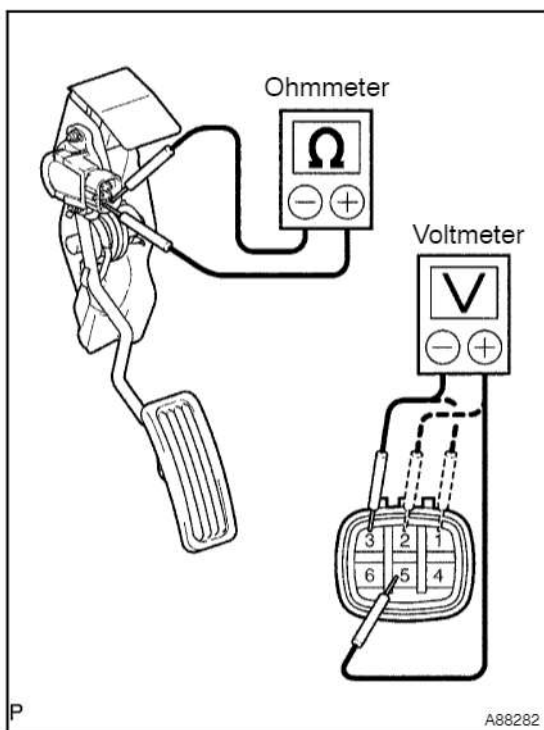
5. INSPECT KNOCK SENSOR

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

Standard:

Tester Connection	Specified Condition
1 (Ground) - 2 (Output)	120 to 280 k Ω at 20°C (68°F)

If the resistance is not specified, replace the knock sensor.



6. INSPECT ACCELERATOR PEDAL ROD ASSY

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

Standard:

Tester Connection	Specified Condition
3 (EP1) - 6 (VCP1)	2.25 to 4.75 k Ω
1 (EP2) - 4 (VCP2)	2.25 to 4.75 k Ω

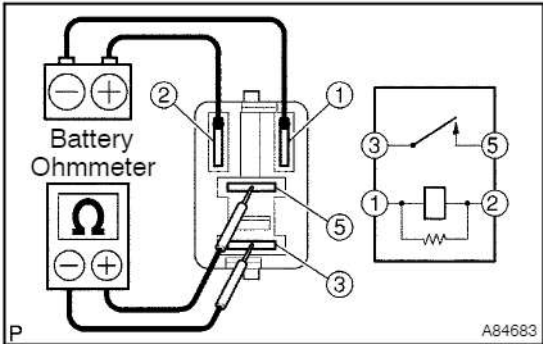
If the resistance is not as specified, replace the accelerator pedal rod.

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

Standard:

Tester Connection	Specified Condition
3 (EP1) - 5 (VPA1)	0.4 to 4.6 V
1 (EP2) - 2 (VPA2)	0.9 to 4.7 V

If the voltage is not as specified, replace the accelerator pedal rod.



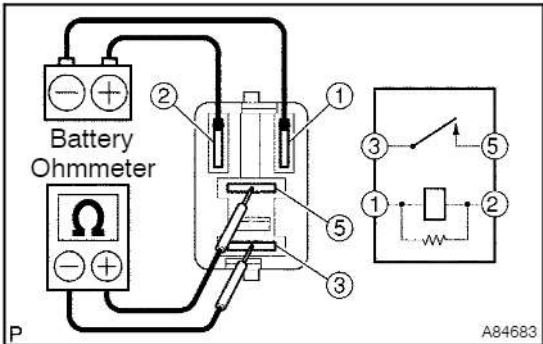
7. INSPECT MAIN RELAY

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

Standard:

Tester Connection	Specified Condition
3 - 5	10 kΩ or higher
3 - 5	Below 1Ω (Apply battery voltage to terminals 1 and 2)

If the result is not as specified, replace the main relay.



8. INSPECT CIRCUIT OPENING RELAY

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

Standard:

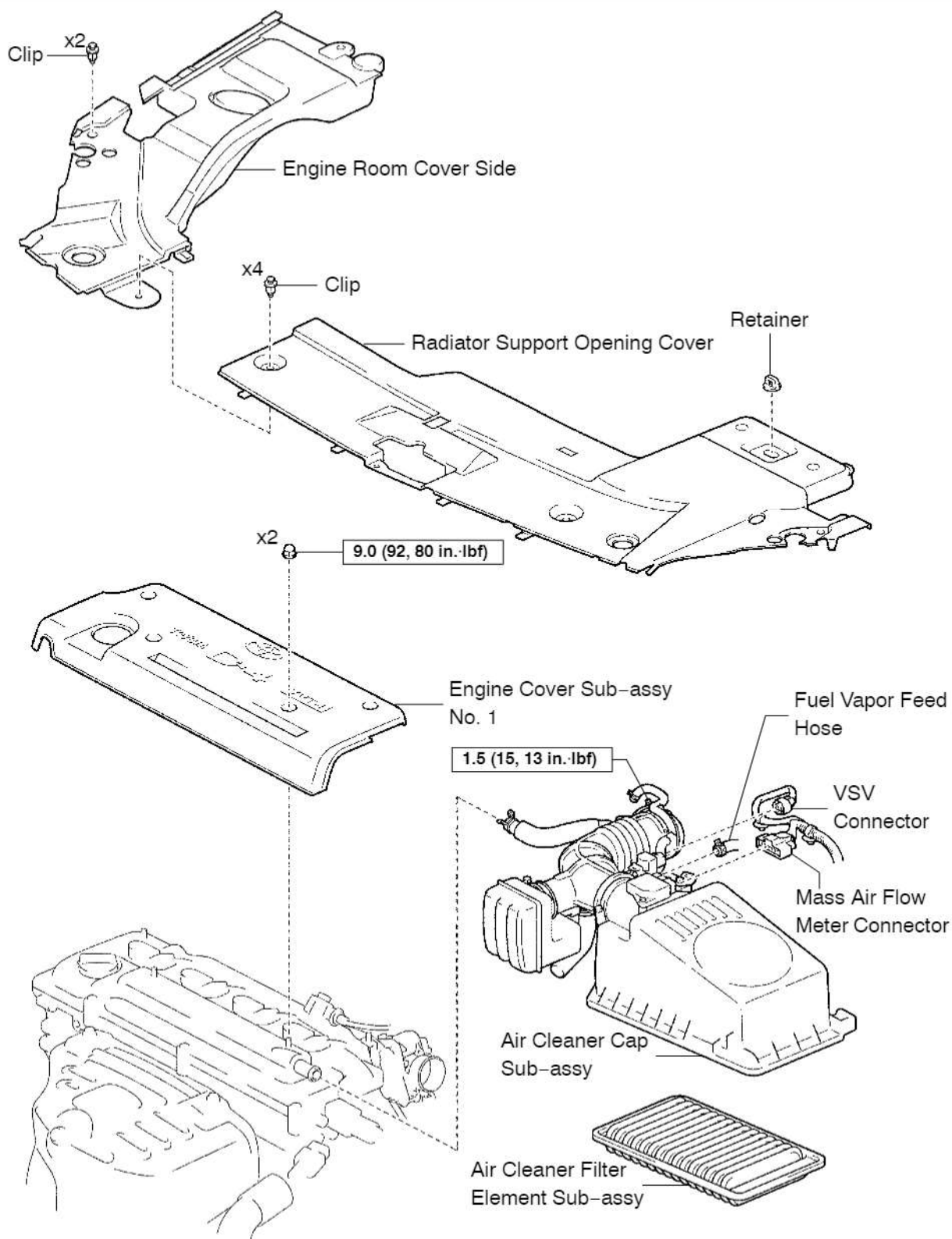
Tester Connection	Specified Condition
3 - 5	10 kΩ or higher
3 - 5	Below 1Ω (Apply battery voltage to terminals 1 and 2)

If the result is not as specified, replace the circuit opening relay.

THROTTLE BODY ASSY (2AZ-FSE)

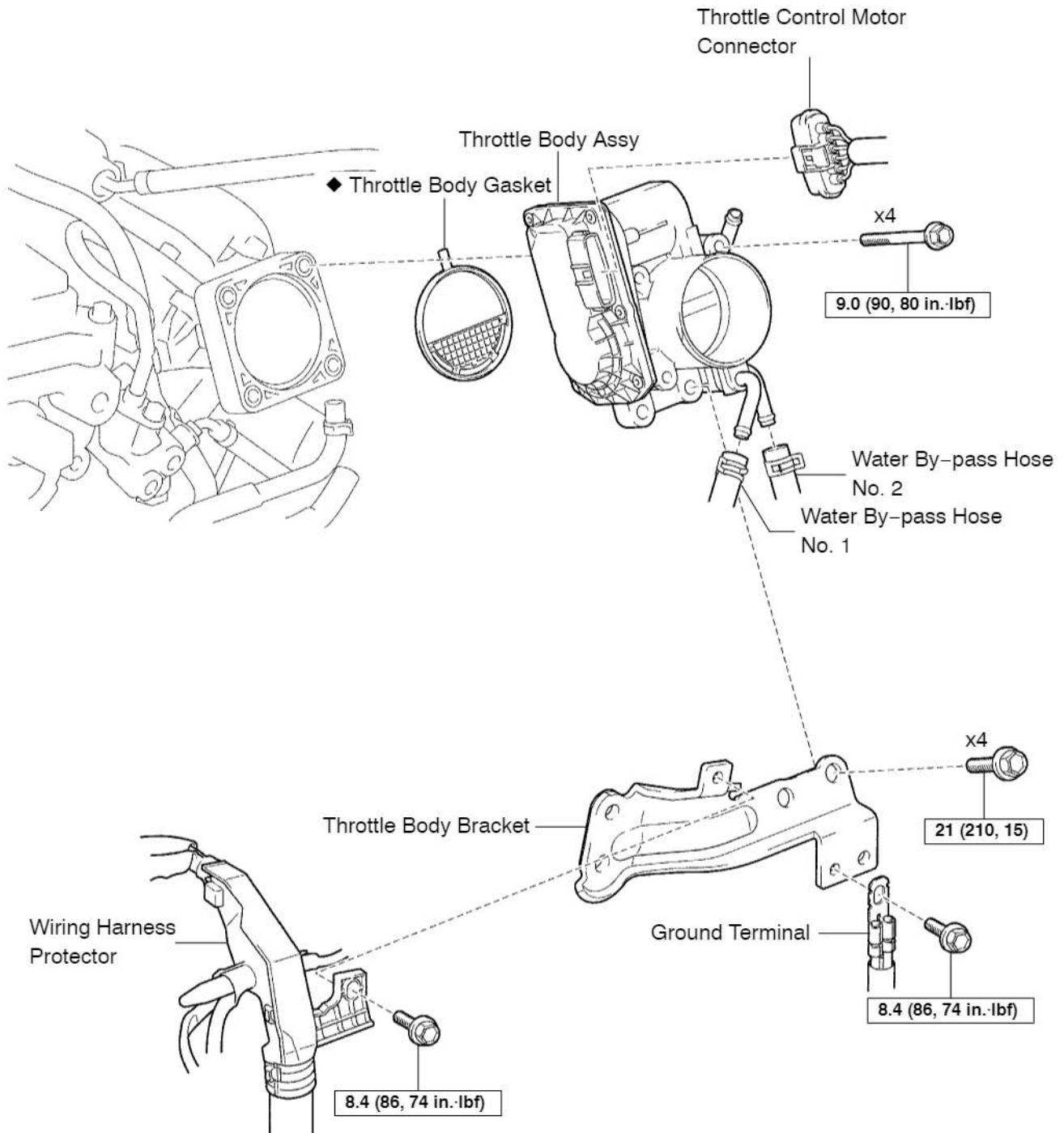
COMPONENTS

100LW-01



N·m (kgf·cm, ft·lbf) : Specified torque

A84695

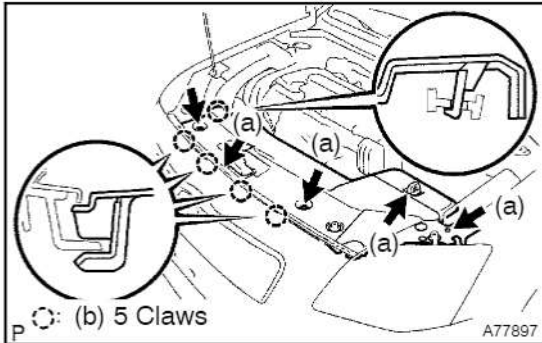


N·m (kgf·cm, ft·lbf) : Specified torque

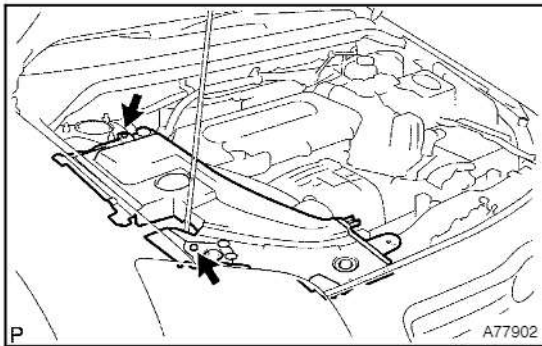
◆ Non-reusable part

A84696

REPLACEMENT

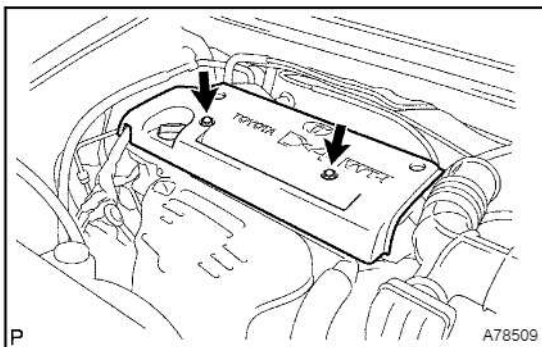


1. **REMOVE RADIATOR SUPPORT OPENING COVER**
 - (a) Remove the retainer and 4 clips.
 - (b) Unfasten the 5 claws, then remove the radiator support opening cover.

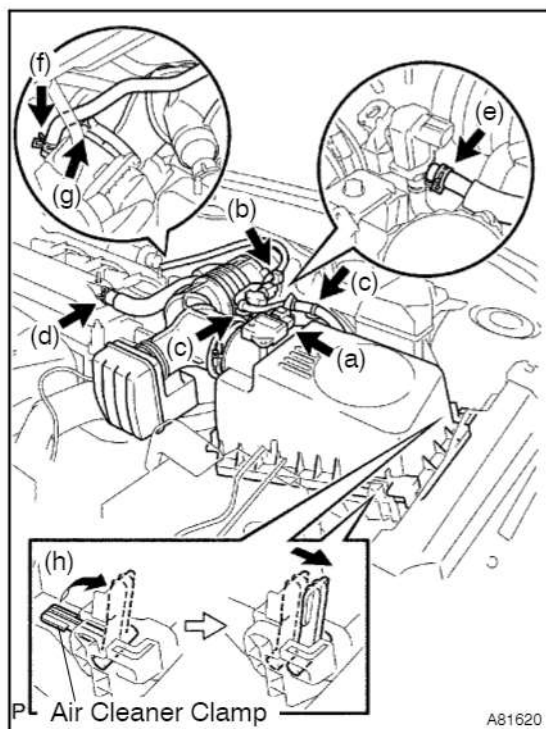


2. **REMOVE ENGINE ROOM COVER SIDE**
 - (a) Remove the 2 clips, then remove the engine room cover side.

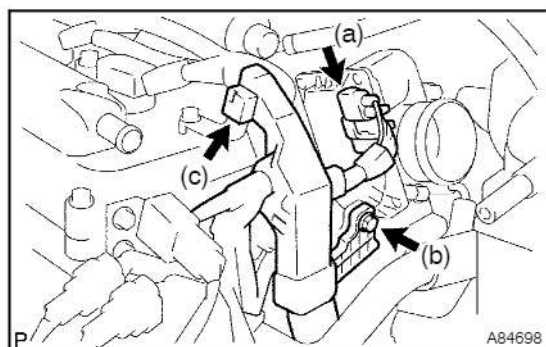
3. **DISCONNECT ENGINE WIRE NO.3 (BATTERY NEGATIVE TERMINAL)**
4. **DRAIN ENGINE COOLANT (See page 16-7)**



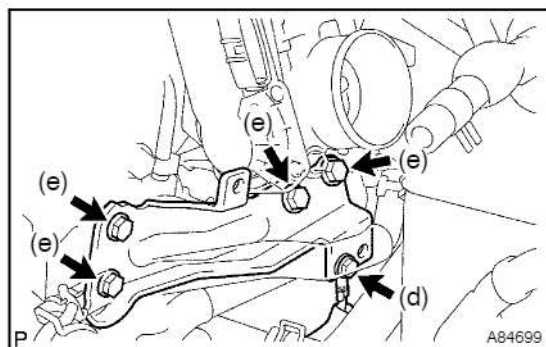
5. **REMOVE ENGINE COVER SUB-ASSY NO.1**
 - (a) Remove the 2 nuts, then remove the engine cover No. 1.

**6. REMOVE AIR CLEANER CAP SUB-ASSY**

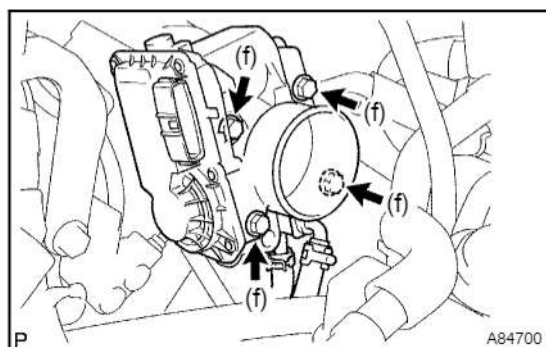
- (a) Disconnect the mass air flow meter connector.
- (b) Disconnect the VSV connector.
- (c) Remove the 2 wiring harness clamps.
- (d) Disconnect the ventilation hose.
- (e) Disconnect the fuel vapor feed hose No. 1.
- (f) Disconnect the fuel vapor feed hose No. 2.
- (g) Loosen the hose clamp bolt.
- (h) Raise the air cleaner clamp up, then the slide it to the air cleaner cap.
- (i) Remove the air cleaner cap together with the air cleaner hose No. 1.
- (j) Remove the air cleaner filter element.

**7. REMOVE THROTTLE BODY ASSY**

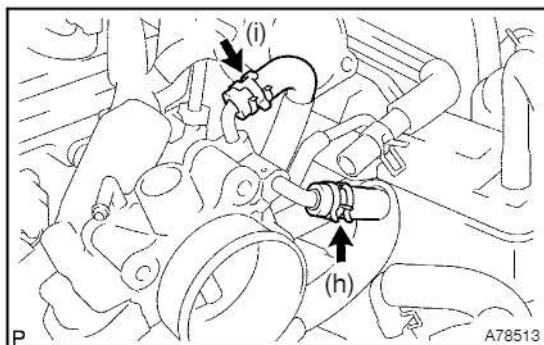
- (a) Disconnect the throttle control motor connector.
- (b) Remove the bolt.
- (c) Unfasten the clip, then remove the wiring harness protector.



- (d) Remove the bolt, then remove the ground terminal.
- (e) Remove the 4 bolts, then remove the throttle body bracket.



- (f) Remove the 4 bolts, then remove the throttle body.
- (g) Remove the gasket from the intake manifold.



- (h) Disconnect the water by-pass hose No. 1.
- (i) Disconnect the water by-pass hose No. 2.

8. INSTALL THROTTLE BODY ASSY

- (a) Connect the water by-pass hose No. 2.
- (b) Connect the water by-pass hose No. 1.
- (c) Install a new gasket to the intake manifold.
- (d) Install the throttle body with the 4 bolts.
Torque: 9.0 N·m (90 kgf·cm, 80 in·lbf)
- (e) Install the throttle body bracket with the 4 bolts.
Torque: 21 N·m (210 kgf·cm, 15 ft·lbf)
- (f) Install the ground terminal with the bolt.
Torque: 8.4 N·m (86 kgf·cm, 74 in·lbf)
- (g) Install the wiring harness protector with the clip.
- (h) Tighten the bolt.
Torque: 8.4 N·m (86 kgf·cm, 74 in·lbf)
- (i) Connect the throttle control motor connector.

9. INSTALL AIR CLEANER CAP SUB-ASSY

Torque: 1.5 N·m (15 kgf·cm, 13 in·lbf)

10. INSTALL ENGINE COVER SUB-ASSY NO.1

Torque: 9.0 N·m (92 kgf·cm, 80 in·lbf)

11. CONNECT ENGINE WIRE NO.3 (BATTERY NEGATIVE TERMINAL)

Torque: 5.4 N·m (55 kgf·cm, 48 in·lbf)

12. ADD ENGINE COOLANT (See page 16-7)

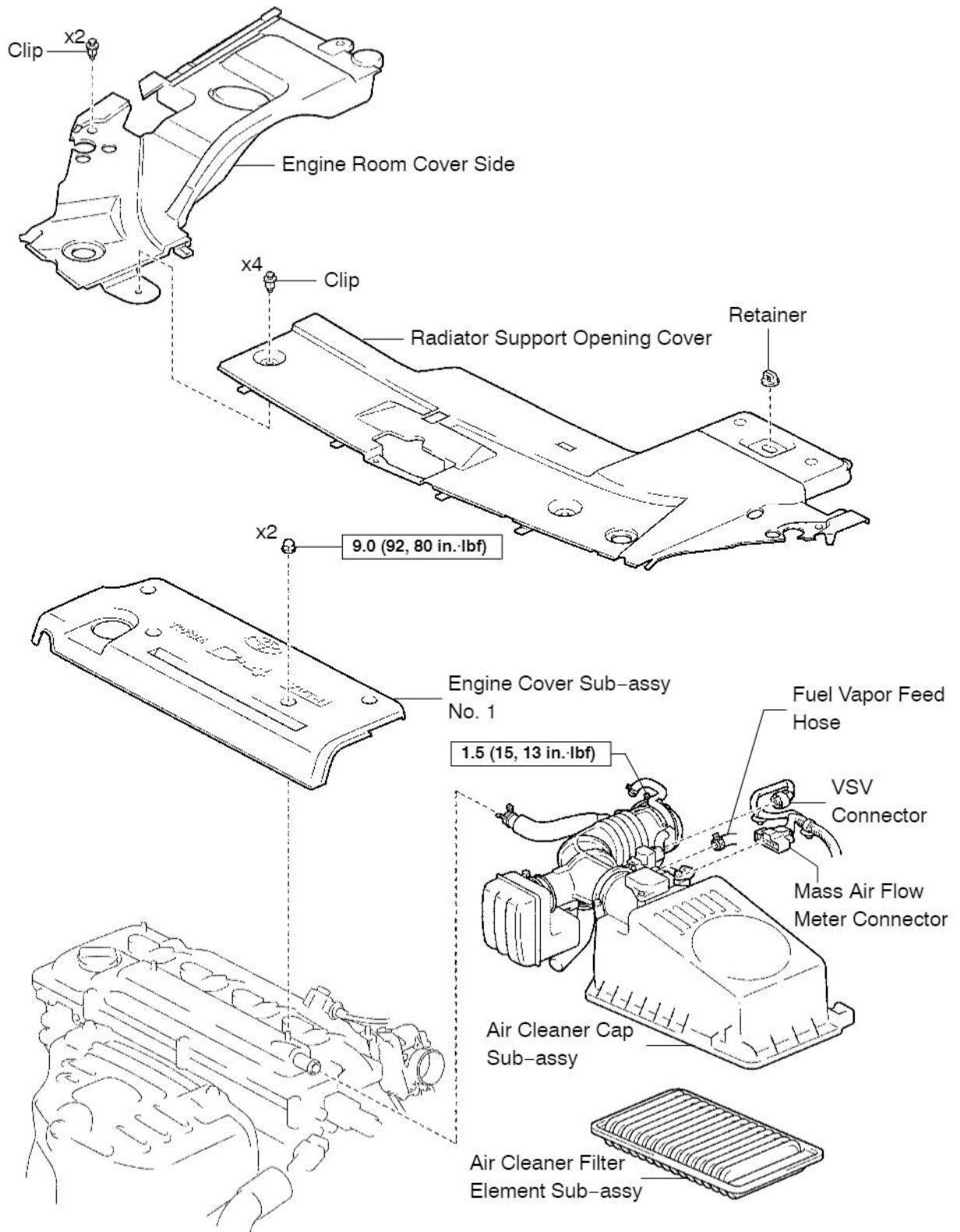
13. CHECK FOR ENGINE COOLANT LEAKS (See page 16-1)

14. INSTALL ENGINE ROOM COVER SIDE

15. INSTALL RADIATOR SUPPORT OPENING COVER

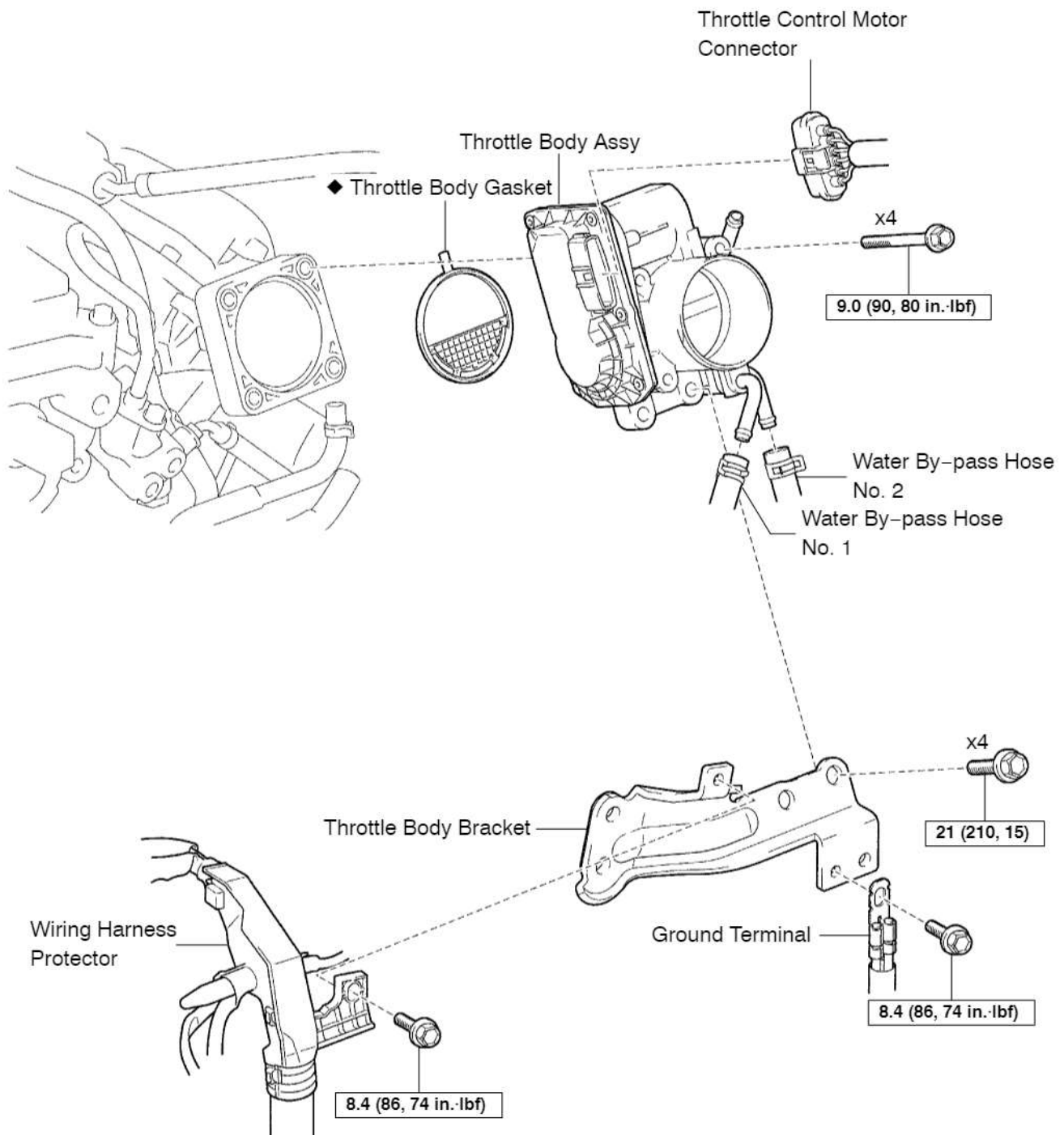
KNOCK SENSOR (2AZ-FSE) COMPONENTS

100LY-01



N·m (kgf·cm, ft·lbf) : Specified torque

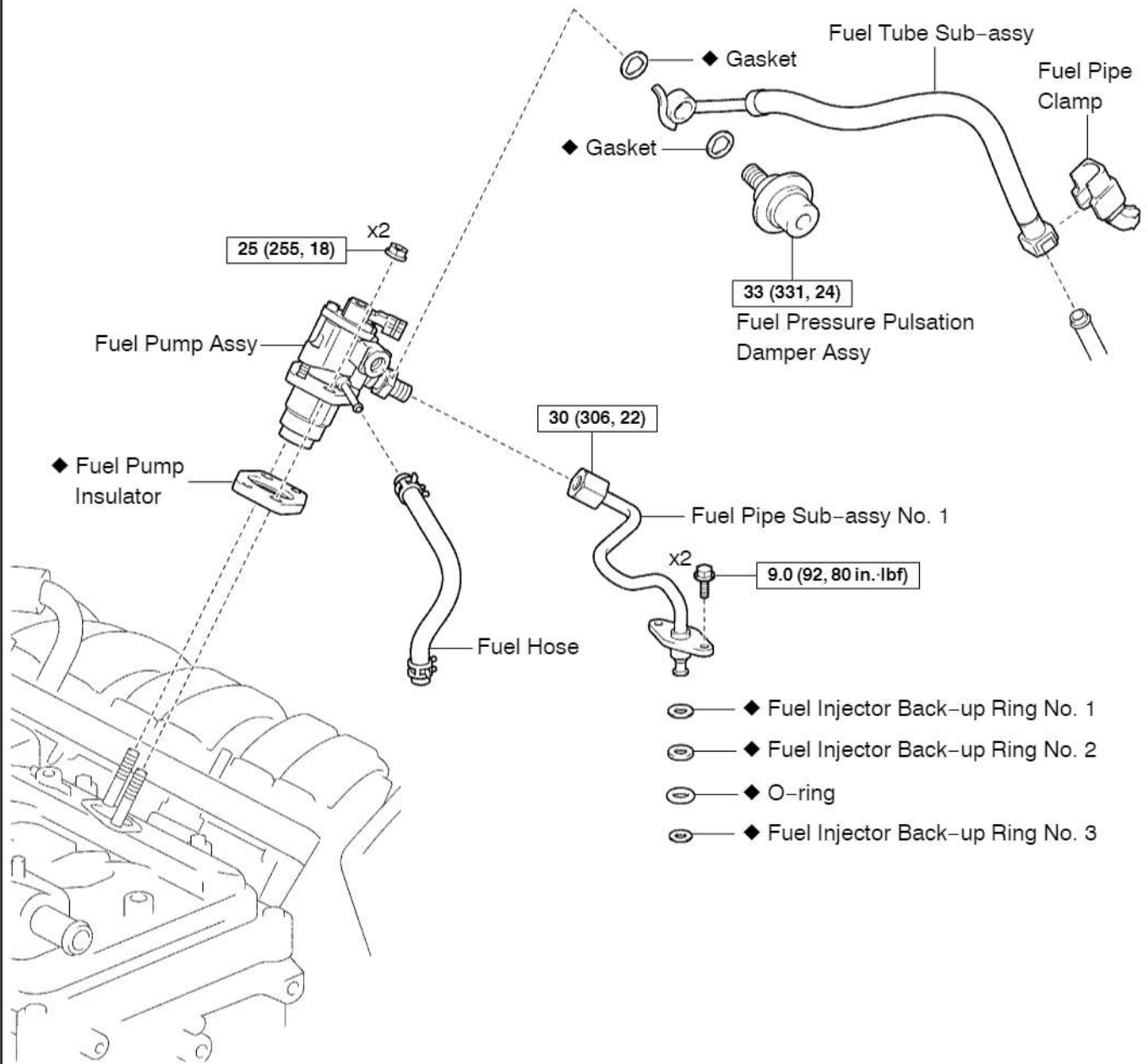
A84695



N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

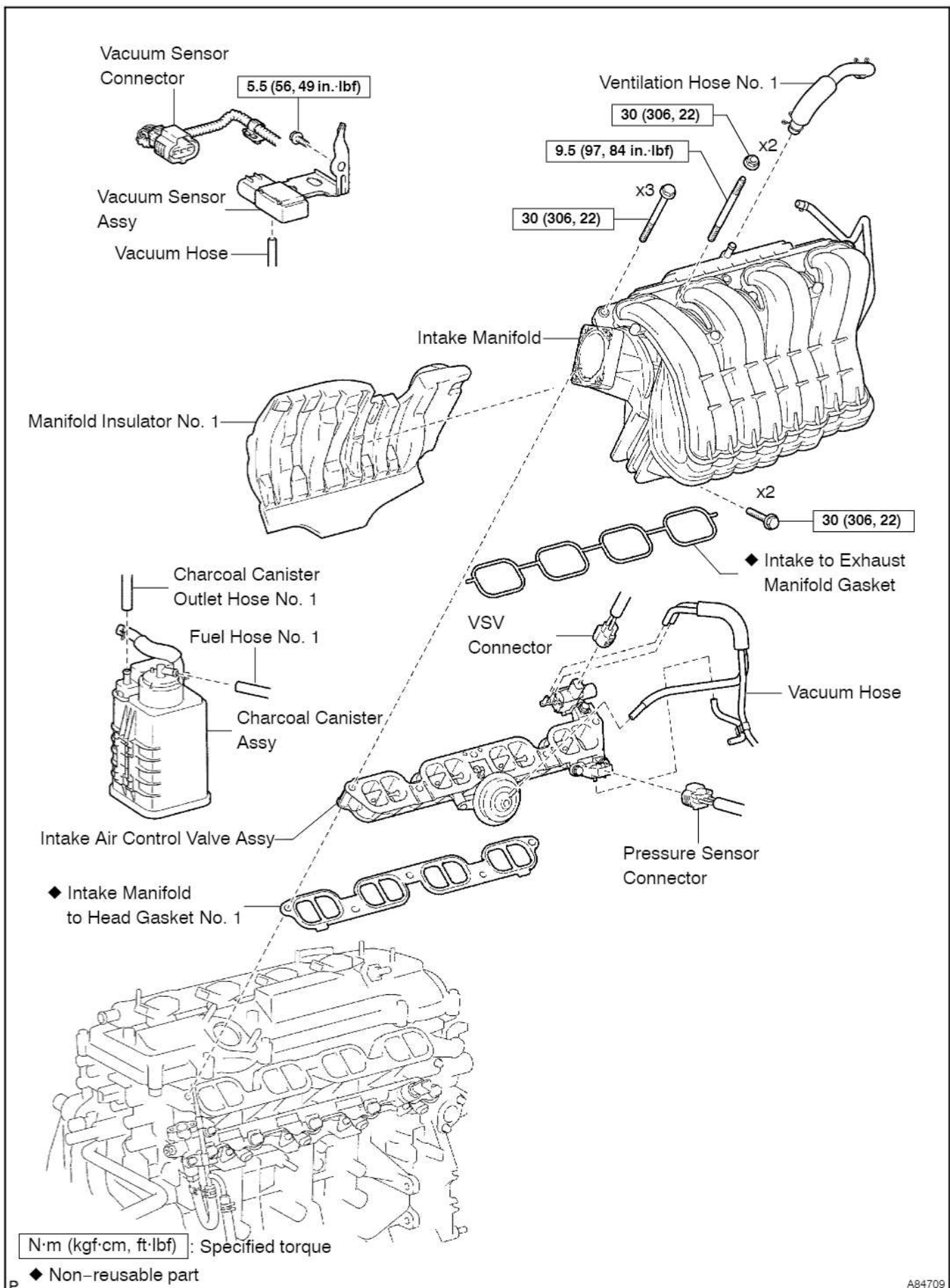
A84696

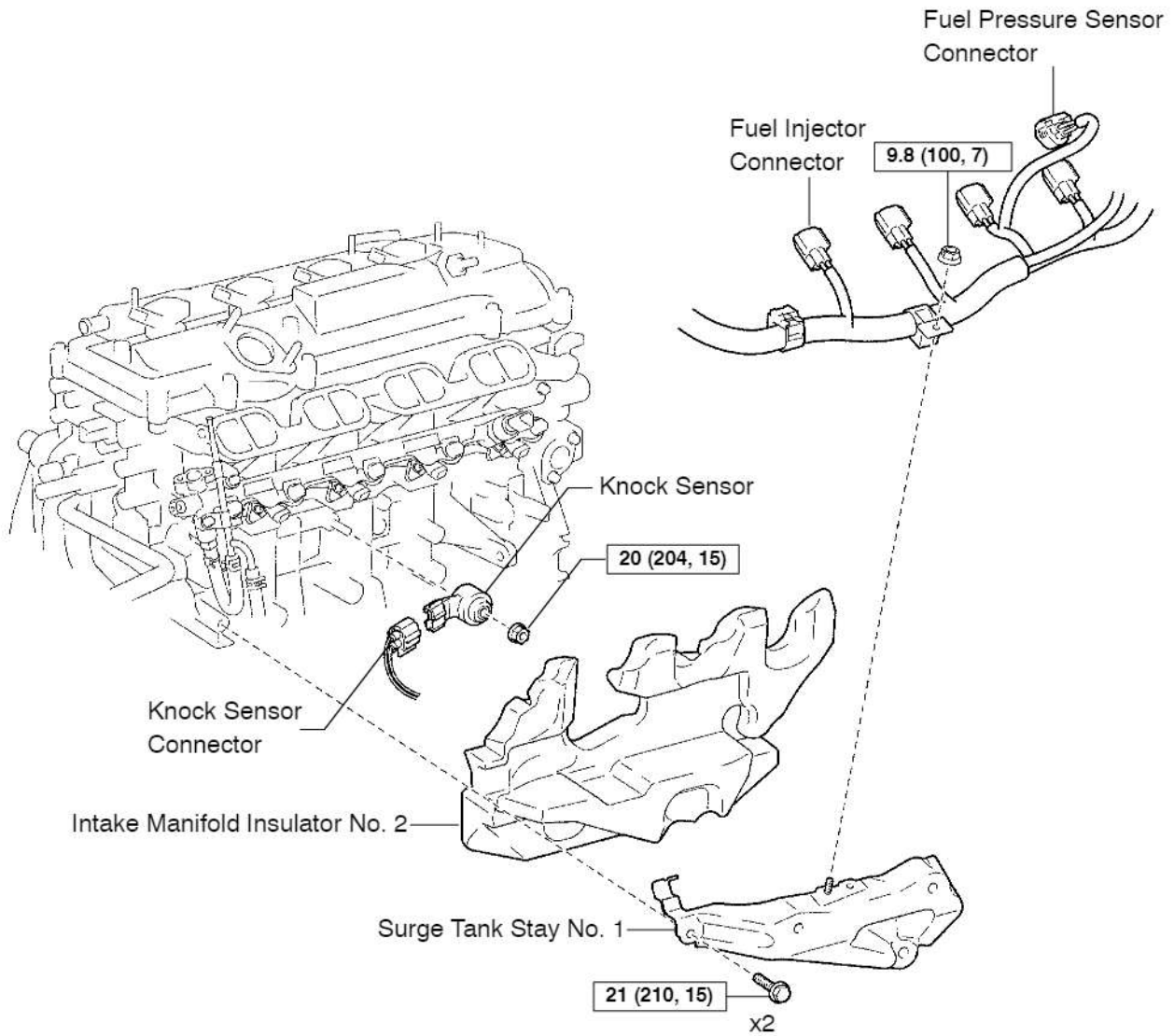


N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

A84701



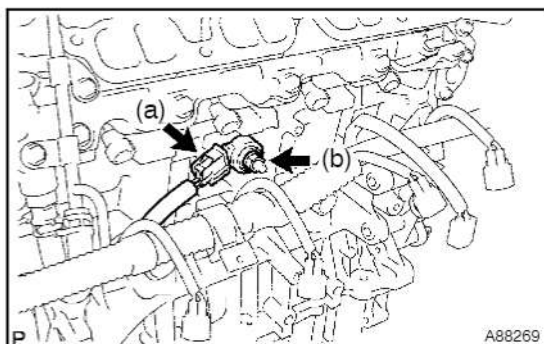


P N·m (kgf·cm, ft·lbf) : Specified torque

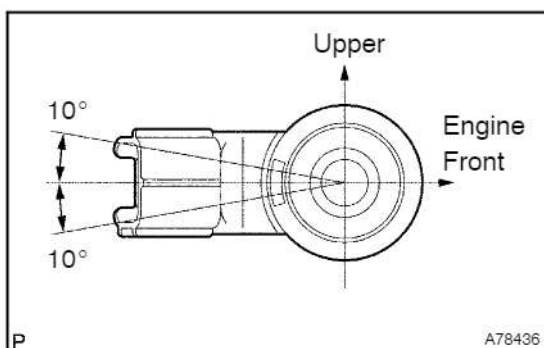
A88251

REPLACEMENT

1. DISCHARGE FUEL SYSTEM PRESSURE (See page 11-1)
2. REMOVE RADIATOR SUPPORT OPENING COVER (See page 10-8)
3. REMOVE ENGINE ROOM COVER SIDE (See page 10-8)
4. DISCONNECT ENGINE WIRE NO.3 (BATTERY NEGATIVE TERMINAL)
5. REMOVE ENGINE COVER SUB-ASSY NO.1 (See page 10-8)
6. DRAIN ENGINE COOLANT (See page 16-7)
7. REMOVE AIR CLEANER CAP SUB-ASSY (See page 10-8)
8. REMOVE THROTTLE BODY ASSY (See page 10-8)
9. REMOVE FUEL TUBE SUB-ASSY (See page 11-24)
SST 09617-24011
10. REMOVE FUEL HOSE (See page 11-24)
11. REMOVE FUEL PIPE SUB-ASSY NO.1 (See page 11-24)
SST 09023-12900
12. REMOVE FUEL PUMP ASSY (See page 11-24)
13. REMOVE CHARCOAL CANISTER ASSY (See page 11-13)
14. REMOVE VACUUM SENSOR ASSY (LHD STEERING POSITION TYPE) (See page 11-13)
15. REMOVE INTAKE MANIFOLD (See page 11-4)
16. REMOVE SURGE TANK STAY NO.1 (See page 11-13)
17. REMOVE INTAKE MANIFOLD INSULATOR NO.2 (See page 11-13)



18. REMOVE KNOCK SENSOR
 - (a) Disconnect the knock sensor connector.
 - (b) Remove the nut, then remove the knock sensor.



19. INSTALL KNOCK SENSOR
 - (a) Install the knock sensor with the nut as shown in the illustration.
Torque: 20 N·m (204 kgf·cm, 15 ft·lbf)
 - (b) Connect the knock sensor connector.

20. INSTALL INTAKE MANIFOLD INSULATOR NO.2
21. INSTALL SURGE TANK STAY NO.1 (See page 11-13)
22. INSTALL INTAKE MANIFOLD (See page 11-13)
23. INSTALL VACUUM SENSOR ASSY (LHD STEERING POSITION TYPE) (See page 11-13)
24. INSTALL CHARCOAL CANISTER ASSY

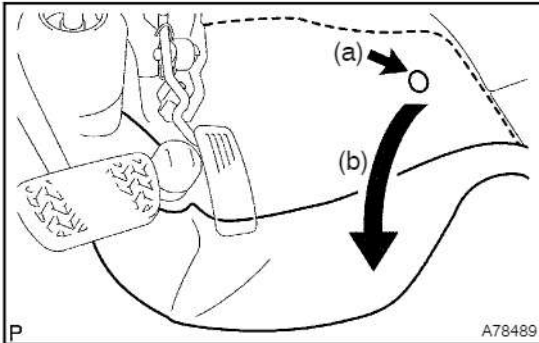
25. INSTALL FUEL PUMP ASSY ([See page 11-24](#))
26. INSTALL FUEL PIPE SUB-ASSY NO.1 ([See page 11-24](#))
SST 09023-12900
27. INSTALL FUEL HOSE
28. INSTALL FUEL TUBE SUB-ASSY ([See page 11-24](#))
SST 09617-24011
29. INSTALL THROTTLE BODY ASSY ([See page 10-8](#))
30. INSTALL AIR CLEANER CAP SUB-ASSY ([See page 10-8](#))
31. CONNECT ENGINE WIRE NO.3 (BATTERY NEGATIVE TERMINAL)
Torque: 5.4 N·m (55 kgf·cm, 48 in·lbf)
32. ADD ENGINE COOLANT ([See page 16-7](#))
33. CHECK FOR ENGINE COOLANT LEAKS ([See page 16-1](#))
34. CHECK FOR FUEL LEAKS ([See page 11-4](#))
35. CHECK FOR ENGINE OIL LEAKS
36. INSTALL ENGINE COVER SUB-ASSY NO.1 ([See page 10-8](#))
37. INSTALL ENGINE ROOM COVER SIDE
38. INSTALL RADIATOR SUPPORT OPENING COVER

ACCELERATOR PEDAL ASSY (2AZ-FSE)

REPLACEMENT

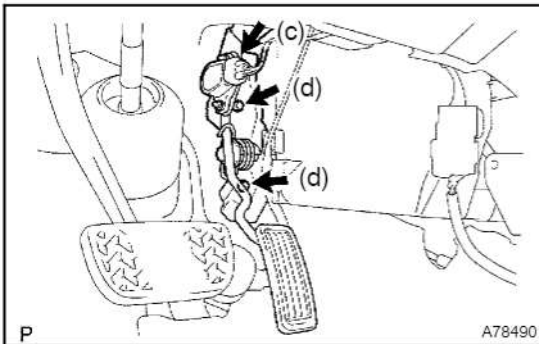
100MD-01

1. DISCONNECT ENGINE WIRE NO.3 (BATTERY NEGATIVE TERMINAL)



2. REMOVE ACCELERATOR PEDAL ASSY

- (a) Using a clip remover, remove the clip.
- (b) Open the floor carpet.



- (c) Disconnect the accelerator position sensor connector.
- (d) Remove the 2 bolts, then remove the accelerator pedal.

3. INSTALL ACCELERATOR PEDAL ASSY

Torque: 5.4 N·m (55 kgf·cm, 48 in·lbf)

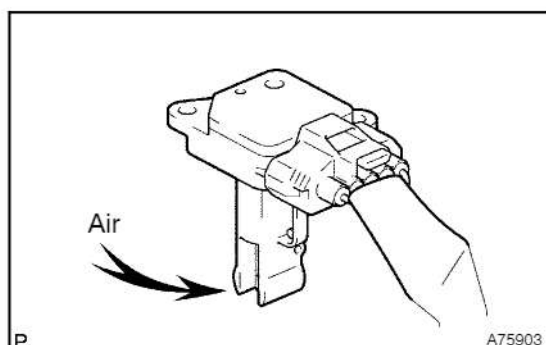
4. CONNECT ENGINE WIRE NO.3 (BATTERY NEGATIVE TERMINAL)

Torque: 5.4 N·m (55 kgf·cm, 48 in·lbf)

ECD SYSTEM (1CD-FTV)(From September, 2003)

ON-VEHICLE INSPECTION

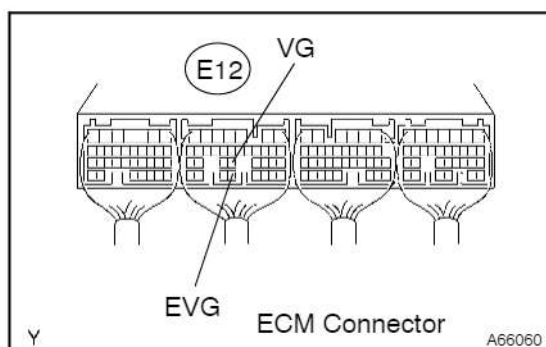
100M2-01



1. INSPECT MASS AIR FLOW METER

- (a) If you have the hand-held tester:
- Check the operation.
- (1) Connect the hand-held tester to the DLC3.
 - (2) Turn the ignition switch to ON.
 - (3) Select the item "DIAGNOSIS / OBD / MOBD / DATA LIST" on the hand-held tester.
 - (4) Blow air into the mass air flow (MAF) meter, then check that the MAF reading in DATA LIST fluctuates.

If the operation is not as specified, check the MAF meter (see page 10-22), wiring and ECM.



- (b) If you have no hand-held tester:
- Check the operation.
- (1) Turn the ignition switch to ON.
 - (2) Connect the positive tester probe of a voltmeter to terminal VG of the ECM, and the negative tester probe of the voltmeter to terminal EVG of the ECM.
 - (3) Blow air into the MAF meter, then check that the voltage fluctuates.

If the operation is not as specified, check the MAF meter (see page 10-22), wiring and ECM.

2. INSPECT INTAKE SHUTTER

- (a) Listen to the operating sounds of the throttle control motor.
- (1) Turn the ignition switch to ON.
 - (2) Listen to the operating sounds while turning the accelerator pedal position sensor lever.

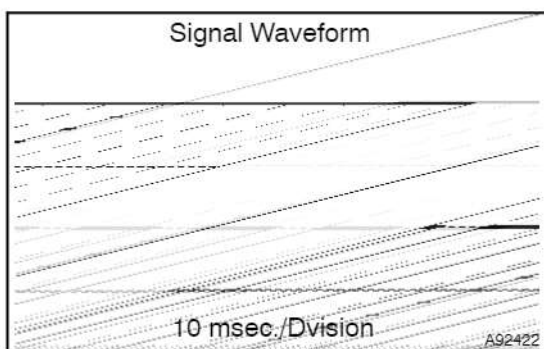
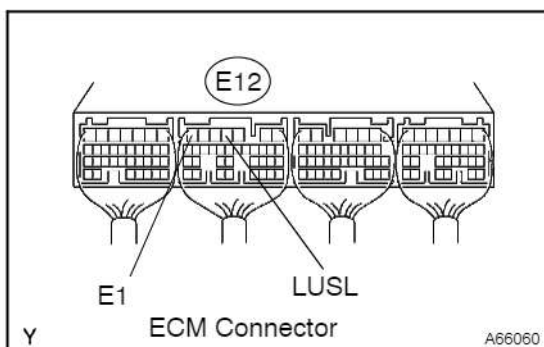
If a collision sound is heard, check the throttle control motor.
If no sound is heard, check the wire harness and ECM.

- (b) If you have the hand-held tester:
- Inspect the throttle position sensor.
- (1) Connect the hand-held tester to the DLC3.
 - (2) Turn the ignition switch to ON.
 - (3) Select the item "DIAGNOSIS / OBD / MOBD / DATE LIST" on the hand held-tester.

- (4) When turning the accelerator pedal position sensor lever to the full-open position, check that the throttle valve opening percentage (THROTTLE POS) of DATA LIST shows the standard value.

**Standard throttle valve opening percentage:
60 % or higher**

If the operation is not as specified, check the accelerator pedal position sensor ([see page 10-22](#)), wiring and ECM.



- (c) If you have no hand-held tester:
- (1) Inspect the throttle position sensor using an oscilloscope.
 - (2) During idling, check the waveform between the specified terminals of the E12 ECM connectors.

Standard:

Tester Connection	Specified Condition
LUSL (E12-4) – E1 (E12-7)	Correct waveform is as shown on the left

If the operation is not as specified, check the accelerator pedal position sensor ([see page 10-22](#)), wiring and ECM.

- (d) Inspect the air assist system.
- (1) Start the engine, then check that the check engine warning light does not light up.
 - (2) Allow the engine to warm up to the normal operating temperature.
 - (3) Turn the A/C compressor ON to OFF, then check the idle speed ([see page 14-87](#)).

Idle speed (transmission in neutral): 800 ± 50 rpm

If the result is not as specified, check the wiring and ECM.

NOTICE:

Perform the inspection under condition without electrical load.

- (e) After taking the above steps (b) to (c), perform the driving test.
- (f) Check that there is no sense of incongruity.

3. INSPECT ACCELERATOR PEDAL POSITION SENSOR

- (a) If you have the hand-held tester:
Inspect the accelerator pedal position sensor.
- (1) Connect the hand-held tester to the DLC3.
 - (2) Turn the ignition switch to ON.
- (b) Select the item "DIAGNOSIS / OBD / MOBD / DATE LIST" on the hand-held tester.
- (1) Check that the voltage (ACCEL POS) of DATA LIST shows the standard value.

Accelerator pedal released: 0.5 to 1.1 V

Accelerator pedal depressed: 3.0 to 4.6 V

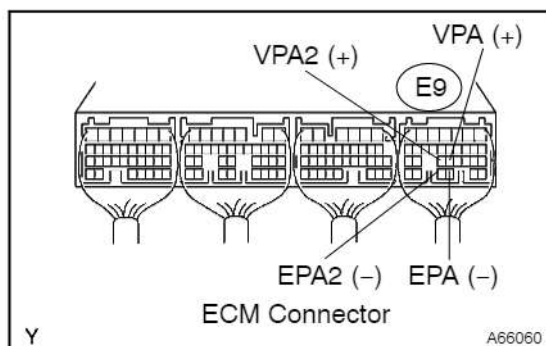
- (2) Check that the voltage (ACCEL POS #2) of DATA LIST shows the standard value.

Accelerator pedal released: 0.9 to 2.3 V

Accelerator pedal depressed: 3.4 to 5.0 V

If the result is not as specified, check the accelerator pedal position sensor ([see page 10-22](#)), wiring and ECM.

- (c) If you have no hand-held tester:
Inspect the accelerator pedal position sensor.

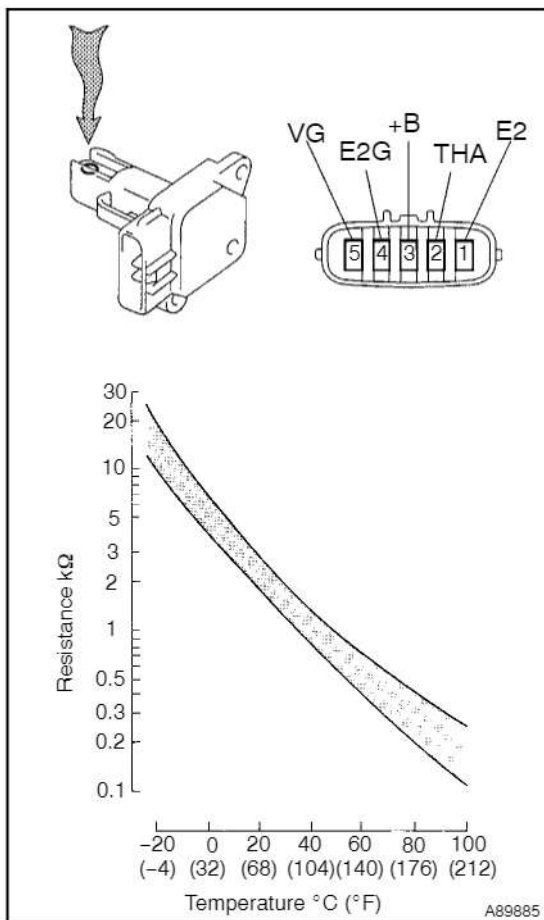


- (1) Turn the ignition switch to ON.
- (2) Measure the voltage between the specified terminals of the E9 ECM connector.

Accelerator Pedal Position	Tester Connection	Specified Condition	Tester Connection	Specified Condition
Released	VPA (E9-22) -EPA (E9-28)	0.5 to 1.1 V	VPA2 (E9-23) -EPA2 (E9-29)	0.9 to 2.3 V
Depressed	VPA (E9-22) -EPA (E9-28)	3.0 to 4.6 V	VPA2 (E9-23) -EPA2 (E9-29)	3.4 to 5.0 V

If the result is not as specified, check the accelerator pedal position sensor ([see page 10-22](#)), wiring and ECM.

INSPECTION



1. INSPECT MASS AIR FLOW METER

- Check the operation.
 - Apply battery voltage across terminals 3 (+B) and 4 (E2G).
 - Using a voltmeter, connect the positive (+) tester probe to terminal VG, and negative (-) tester probe to terminal E2G.
 - Blow air into the MAF meter, then check that the voltage fluctuates.
- Inspect the resistance.
 - Using an ohmmeter, measure the resistance between terminals 2 (THA) and 1 (E2).

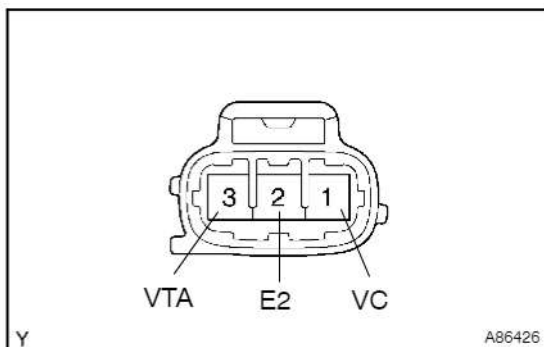
Resistance:

12.5 to 16.9 kΩ at -20°C (-4°F)

2.19 to 2.67 kΩ at 20°C (68°F)

0.50 to 0.68 kΩ at 60°C (140°F)

If the result is not as specified, replace the MAF meter.

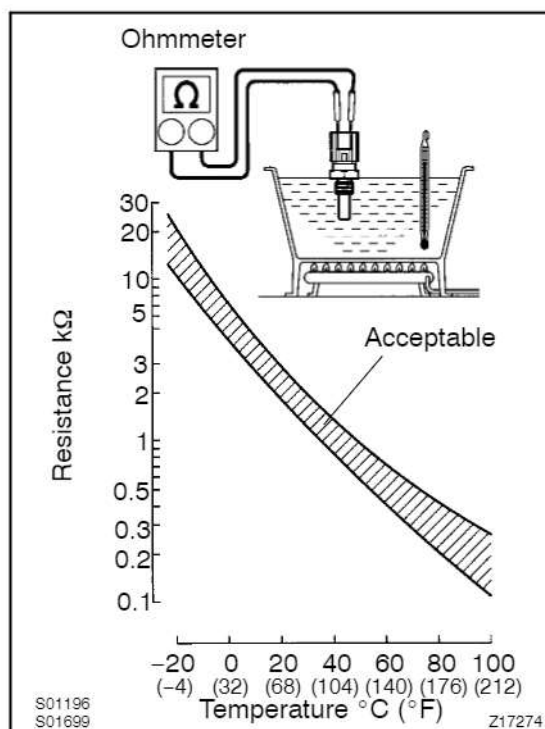


2. INSPECT INTAKE SHUTTER ASSY

- Inspect the resistance of the throttle position sensor.
 - Using an ohmmeter, measure the resistance between terminals 1 (VC) and 2 (E2).

Resistance: 4.0 to 8.0 kΩ

If the result is not as specified, replace the intake shutter.



3. INSPECT DIESEL ENGINE ENGINE COOLANT TEMPERATURE SENSOR

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

Resistance:

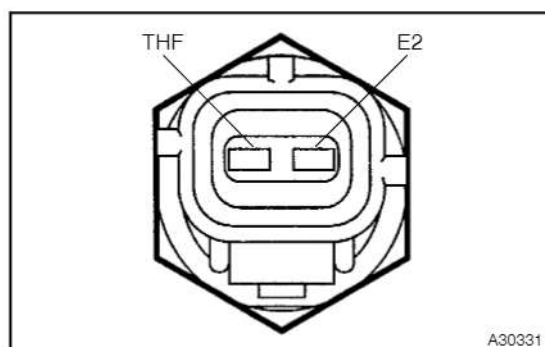
2.32 to 2.59 kΩ at 20°C (68°F)

0.310 to 0.326 kΩ at 80°C (176°F)

If the result is not as specified, replace the diesel engine engine coolant temperature sensor.

NOTICE:

In case of checking the water temperature sensor in the water, be careful not to allow water to go into the terminals. After checking, wipe out the sensor.



4. INSPECT FUEL TEMPERATURE SENSOR

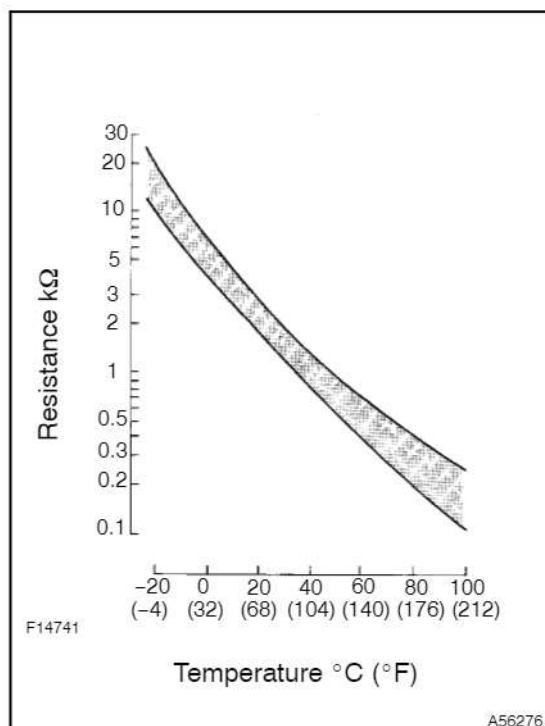
- (a) Inspect the resistance.
- (1) Using an ohmmeter, measure the resistance between the terminals.

Resistance:

2.21 to 2.69 kΩ at 20°C (68°F)

0.287 to 0.349 kΩ at 80°C (176°F)

If the result is not as specified, replace the fuel temperature sensor.



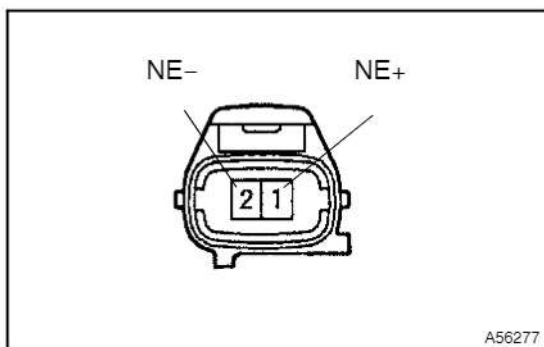
5. INSPECT DIESEL TURBO INLET AIR TEMPERATURE SENSOR

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

Resistance:

2.21 to 2.65 kΩ at 20°C (68°F)

If the result is not as specified, replace the diesel turbo inlet air temperature sensor.



6. INSPECT CRANKSHAFT POSITION SENSOR

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

Resistance:

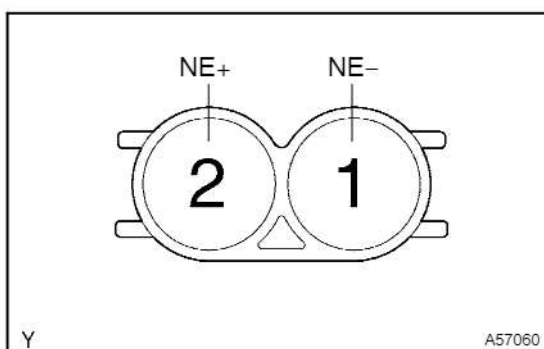
1630 to 2740 Ω at cold

2065 to 3225 Ω at hot

If the result is not as specified, replace the crankshaft position sensor.

NOTICE:

"Cold" and "Hot" in the above sentences mean the temperature of the sensor itself. "Cold" is from -10°C (14°F) to 50°C (122°F) and "Hot" is from 50°C (122°F) to 100°C (212°F).



7. INSPECT CAMSHAFT POSITION SENSOR

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

Resistance:

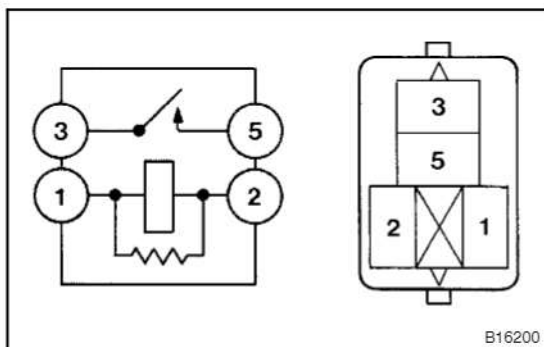
1630 to 2740 Ω at cold

2065 to 3225 Ω at hot

If the result is not as specified, replace the camshaft position sensor.

NOTICE:

"Cold" and "Hot" in the above sentences mean the temperature of the sensor itself. "Cold" is from -10°C (14°F) to 50°C (122°F) and "Hot" is from 50°C (122°F) to 100°C (212°F).



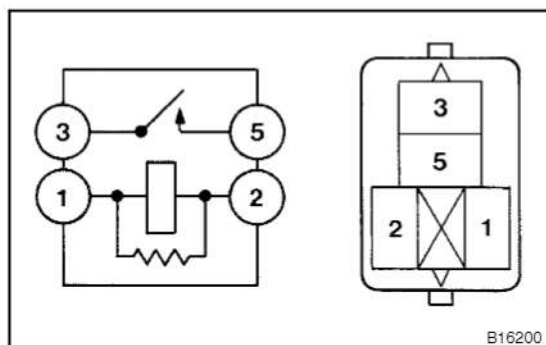
8. INSPECT ECU RELAY

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

Specified condition:

Tester Connection	Specified Condition
3 - 5	10 k Ω or Higher
3 - 5	Below 1 Ω (When battery voltage is applied to terminals 1 and 2)

If the result is not as specified, replace the ECU relay.



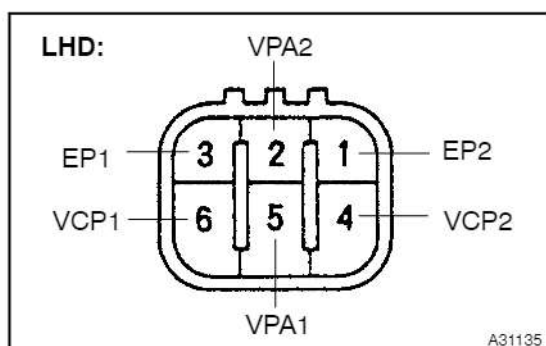
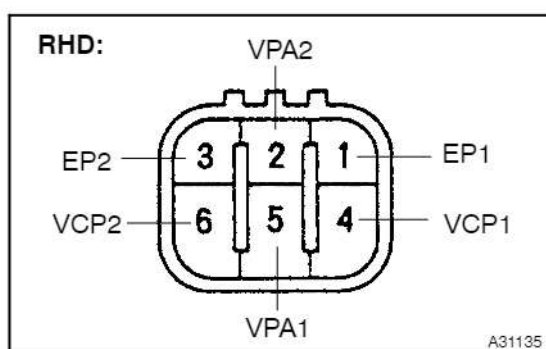
9. INSPECT EFI MAIN RELAY

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

Specified condition:

Tester Connection	Specified Condition
3 - 5	10 kΩ or Higher
3 - 5	Below 1 Ω (When battery voltage is applied to terminals 1 and 2)

If the result is not as specified, replace the EFI main relay.



10. INSPECT ACCELERATOR PEDAL ASSY

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

Resistance:

RHD:

Tester Connection	Specified Condition
5 (VPA1) - 1 (EP1)	5.0 kΩ or less
2 (VPA2) - 3 (EP2)	5.0 kΩ or less
4 (VCP1) - 1 (EP1)	1.5 to 6.0 kΩ
6 (VCP2) - 3 (EP2)	1.5 to 6.0 kΩ

LHD:

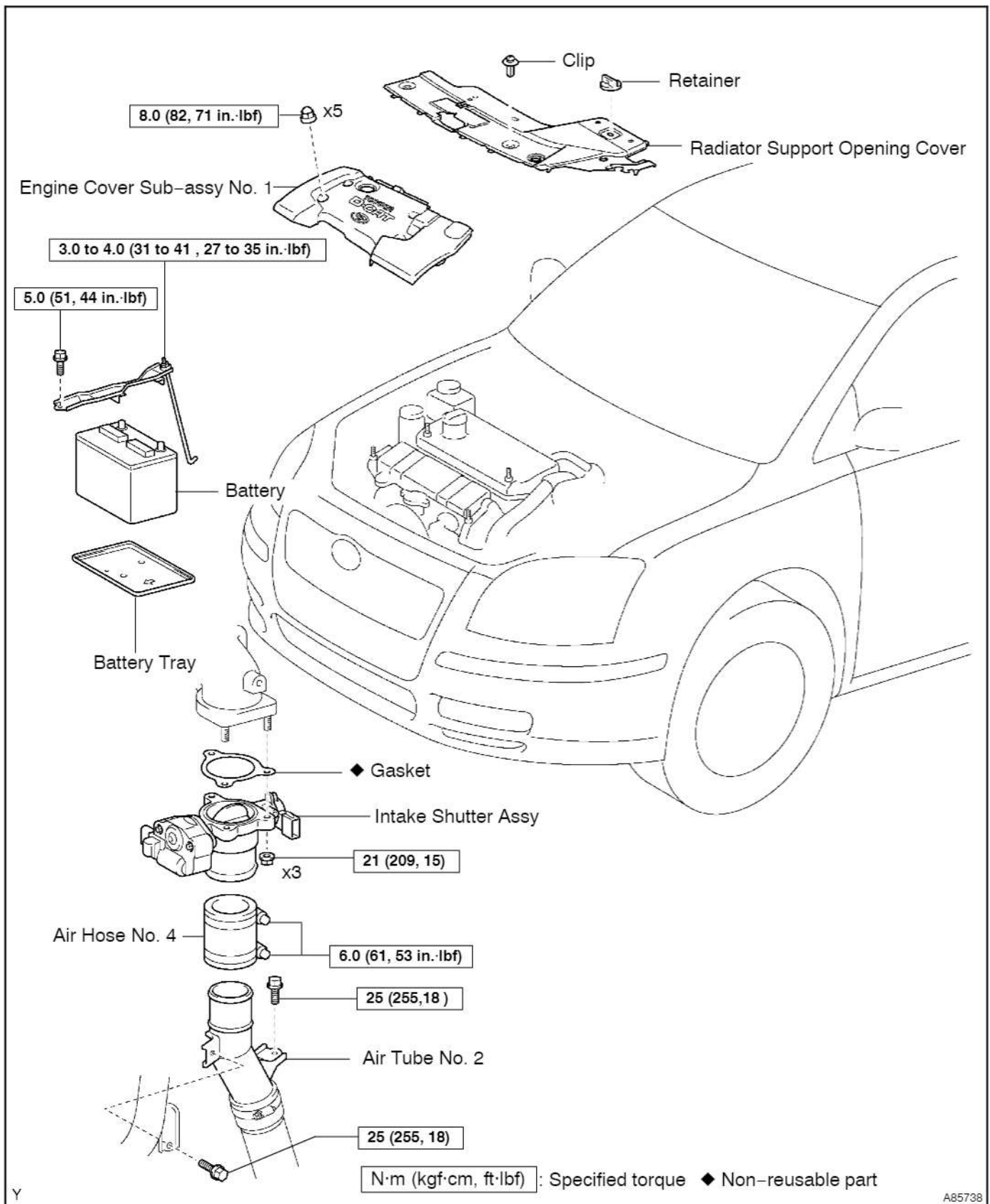
Tester Connection	Specified Condition
5 (VPA1) - 3 (EP1)	5.0 kΩ or less
2 (VPA2) - 1 (EP2)	5.0 kΩ or less
6 (VCP1) - 3 (EP1)	1.5 to 6.0 kΩ
4 (VCP2) - 1 (EP2)	1.5 to 6.0 kΩ

If the result is not as specified, replace the accelerator pedal assembly.

INTAKE SHUTTER ASSY (1CD-FTV)(From September, 2003)

COMPONENTS

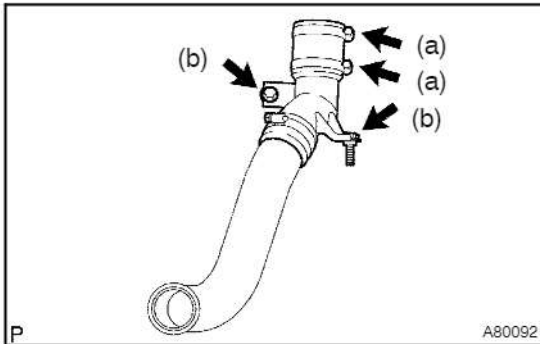
100FN-02



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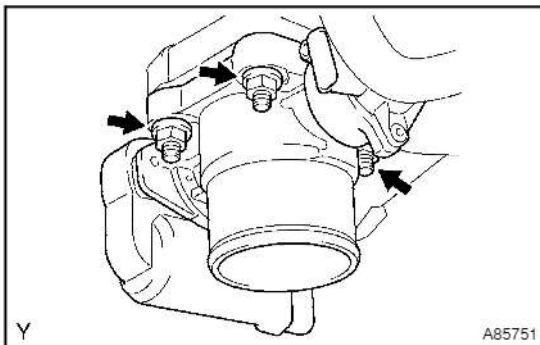
Removal & Installation and Disassembly & Reassembly

1. REMOVE RADIATOR SUPPORT OPENING COVER
2. REMOVE ENGINE COVER SUB-ASSY NO.1
 - (a) Remove the 5 nuts and engine cover.
3. REMOVE BATTERY



4. REMOVE AIR HOSE NO.4

- (a) Loosen the 2 hose clamps.
- (b) Remove the 2 bolts, then separate the air tube No. 2.
- (c) Remove the air hose No. 4.



5. REMOVE INTAKE SHUTTER ASSY

- (a) Disconnect the 2 connectors.
- (b) Remove the 3 nuts, then remove the intake shutter and gasket.

6. INSTALL INTAKE SHUTTER ASSY

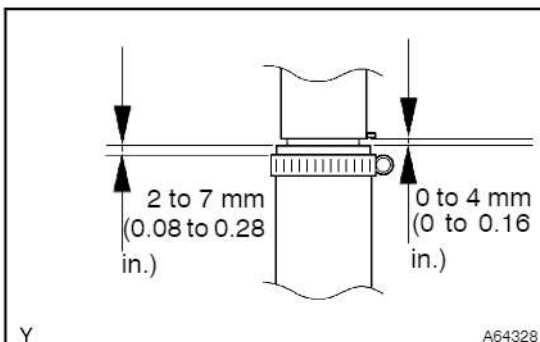
- (a) Install a new gasket and the intake shutter with the 3 nuts.

Torque: 21 N·m (209 kgf·cm, 15 ft·lbf)

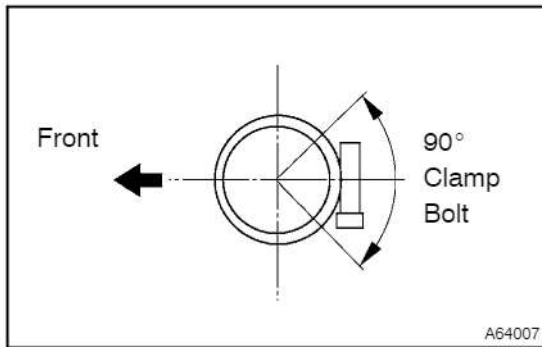
7. INSTALL AIR HOSE NO.4

- (a) Install the air hose No. 4 to the air tube No. 2.
- (b) Install the air tube No. 2 with the 2 bolts.

Torque: 25 N·m (255 kgf·cm, 18 ft·lbf)



- (c) Install the air hose and hose clamps as shown in the illustration.



- (d) Tighten the hose clamps as shown in the illustration.
Torque: 6.0 N·m (61 kgf·cm, 53 in·lbf)

8. INSTALL ENGINE COVER SUB-ASSY NO.1

- (a) Install the engine cover with the 5 nuts.

Torque: 8.0 N·m (82 kgf·cm, 71 in·lbf)

9. INSTALL BATTERY

Torque:

5.0 N·m (51 kgf·cm, 44 in·lbf) for bolt

3.0 to 4.0 N·m (31 to 41 kgf·cm, 27 to 35 in·lbf) for nut

ECM (From September, 2003)

REPLACEMENT

100LT-01

NOTICE:

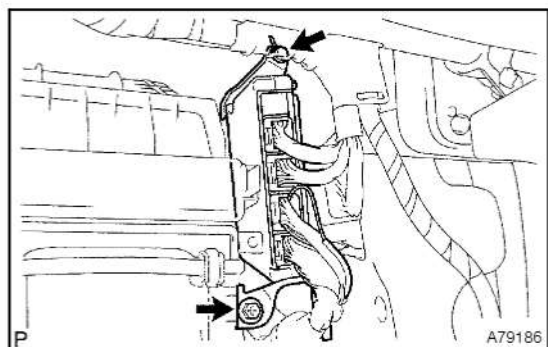
1CD-FTV Engine Type:

- If an incorrect injector compensation code was registered with the ECM, it may rattle the engine assembly or the engine idling may become rough. In addition, it may become a cause of engine failure or shorten the life of the engine.
 - If you replace the ECM with a new one, register all the injectors' injector compensation codes with the new ECM as follows:
- (a) Prior to replacing the ECM, read all the compensation codes stored in the existing ECM using the hand-held tester, then write them down (see page 05-273).
 - (b) After replacing the ECM, enter the written compensation codes into the ECM using the hand-held tester (see page 05-277).
 - (c) Turn the ignition switch to OFF, then wait for 30 seconds or more.
 - (d) Turn the ignition switch to ON, then clear DTC P1601 using the hand-held tester (see page 05-290).

HINT:

- In order to optimize the injector's fuel injection characteristic, the ECM compensates the injection duration by each cylinder. The ECM stores and uses compensating data in the form of a 30-digit-alphanumeric value that is imprinted on the head portion of each injector as the injector compensation code.
- If you installed a new injector, its own injector compensation code is needed to register with the ECM. Also, if you replaced the ECM, the compensation codes of all the injectors are needed to register because the new ECM does not have the codes until they are registered.
- Once the ECM is replaced, DTC P1601 will be present when turning the ignition switch to ON. This is to inform you that the injector compensation codes are required to register with the ECM. In order to clear the DTC, register the compensation codes first, then turn the ignition switch to OFF and wait for 30 seconds or longer.

1. REMOVE GLOVE COMPARTMENT DOOR ASSY (See Pub. No. RM1018E on page 71-11)



2. REMOVE ECM

- (a) Disconnect the 4 ECM connectors (1ZZ-FE, 3ZZ-FE, 1AZ-FE, 1CD-FTV).
- (b) Disconnect the 5 ECM connectors (1AZ-FSE, 2AZ-FSE).
- (c) Disconnect the wire harness clamp.
- (d) Remove the bolt and screw, then remove the ECM.
- (e) Remove the 2 screws and ECM bracket No. 1 from the ECM.
- (f) Remove the 2 screws and ECM bracket No. 2 from the ECM.

3. INSTALL ECM

Torque: 5.5 N·m (56 kgf·cm, 49 in·lbf)

4. INSTALL GLOVE COMPARTMENT DOOR ASSY (See Pub. No. RM1018E on page 71-11)

5. REGISTRATION OF INJECTOR COMPENSATION CODE (1CD-FTV ENGINE TYPE)

(See page 05-277)

6. CLEAR DTC (1CD-FTV ENGINE TYPE)

- (a) Turn the ignition switch to OFF, then wait for 30 seconds or longer.
- (b) Turn the ignition switch to ON, then clear DTC P1601 using the hand-held tester (see page 05-290).