

INTAKE AIR CONTROL SYSTEM (2AZ-FE (PZEV)) (From July, 2003)

13061-02

ON-VEHICLE INSPECTION

1. CHECK INTAKE MANIFOLD RUNNER VALVE ASSY

- (a) Connect the hand-held tester to the DLC3.
- (b) Turn the ignition switch ON.
- (c) Select IACV MOTOR from the ACTIVE TEST menu.
- (d) Check that the voltage output (IACV POSITION) in the DATA LIST indicates the standard value.

Standard:

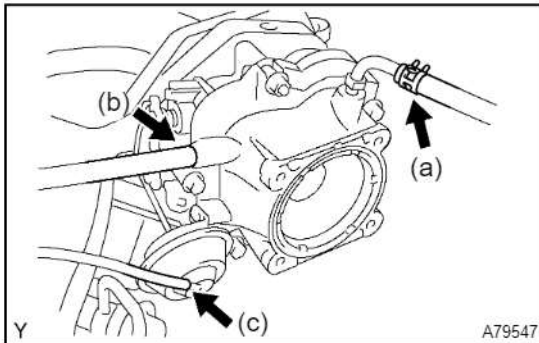
Condition	Specified Condition
IAC valve open	3.0 to 4.2 V
IAC valve close	0.3 to 1.0 V

INTAKE AIR CONTROL VALVE ASSY NO.1 (1MZ-FE)

REPLACEMENT

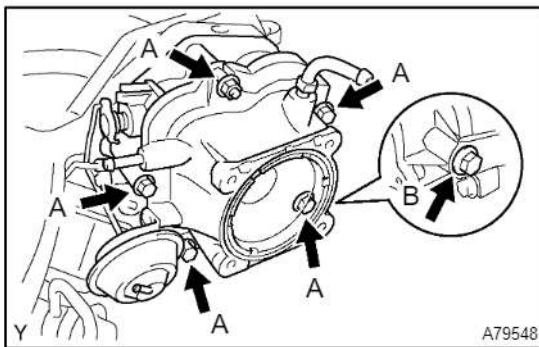
1307R-02

1. DRAIN ENGINE COOLANT (See page 16-27)
2. REMOVE FRONT SUSPENSION UPPER BRACE CENTER (W/ PERFORMANCE ROD)
3. REMOVE V-BANK COVER SUB-ASSY (See page 14-164)
4. REMOVE AIR CLEANER CAP SUB-ASSY
5. REMOVE THROTTLE BODY ASSY (See page 10-18)



6. REMOVE INTAKE AIR CONTROL VALVE ASSY

- (a) Disconnect the union to check valve hose.
- (b) Disconnect the fuel vapor feed hose No. 2.
- (c) Disconnect the vacuum hose.



- (d) Remove the 5 bolts, nut and IAC valve.
- (e) Remove the gasket from the intake air surge tank.

7. INSTALL INTAKE AIR CONTROL VALVE ASSY

- (a) Install a new gasket to the intake air surge tank.
- (b) Install the IAC valve with the 5 bolts and nut.

Torque:

21 N·m (214 kgf·cm, 15 ft·lbf) for bolt A and nut A

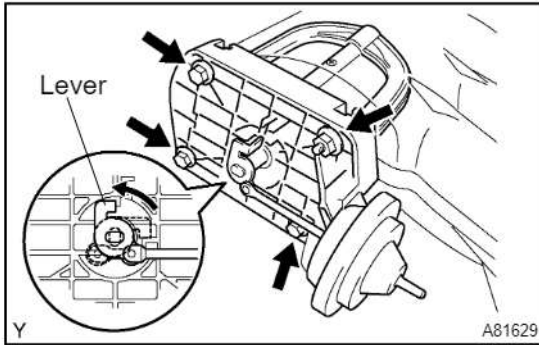
20 N·m (204 kgf·cm, 15 ft·lbf) for bolt B

- (c) Connect the vacuum hose.
- (d) Connect the fuel vapor feed hose No. 2.
- (e) Connect the union to check valve hose.

8. INSTALL THROTTLE BODY ASSY (See page 10-18)
 9. INSTALL AIR CLEANER CAP SUB-ASSY
 10. ADD ENGINE COOLANT (See page 16-27)
 11. CHECK FOR ENGINE COOLANT LEAKS (See page 16-21)
 12. INSTALL V-BANK COVER SUB-ASSY (See page 14-164)
 13. INSTALL FRONT SUSPENSION UPPER BRACE CENTER (W/ PERFORMANCE ROD)
- Torque: 80 N·m (815 kgf·cm, 59 ft·lbf)

INTAKE AIR CONTROL VALVE ASSY NO.2 (1MZ-FE/3MZ-FE) REPLACEMENT

1307P-02



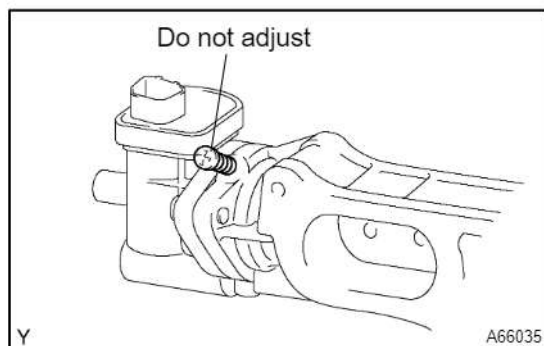
1. **REMOVE INTAKE AIR CONTROL VALVE ASSY NO.2**
 - (a) Remove the 3 bolts and nut.
 - (b) Rotate the lever to the closed position as shown in the illustration and pull out the IAC valve.
 - (c) Remove the gasket from the intake air surge tank.

2. **INSTALL INTAKE AIR CONTROL VALVE ASSY NO.2**

- (a) Install a new gasket to the intake air surge tank.
- (b) Install the IAC valve with the 3 bolts and nut.

Torque: 10 N·m (102 kgf·cm, 7 ft·lbf)

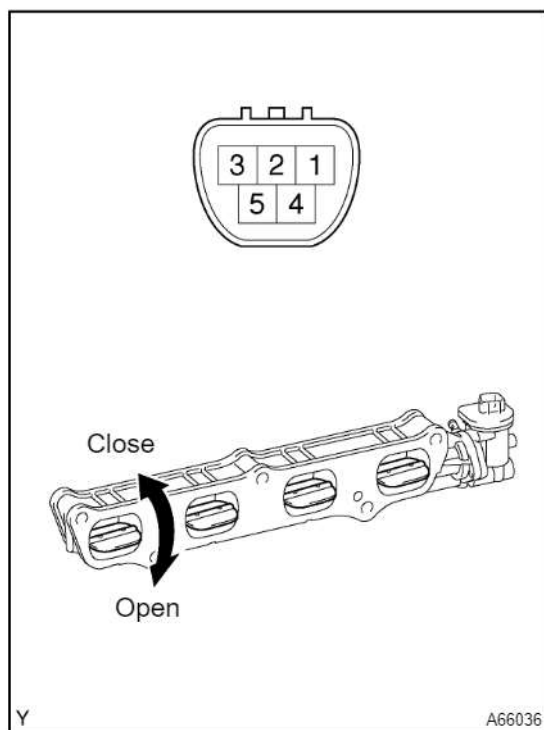
INSPECTION



1. INSPECT INTAKE MANIFOLD RUNNER VALVE ASSY

(a) Check the intake manifold runner valve.

- (1) Check that intake manifold runner valve shaft is not rickety.

NOTICE:**Do not adjust the screw.**

(b) Check the intake manifold runner valve operation.

- (1) Apply battery positive and negative voltages across the terminals.

Standard:

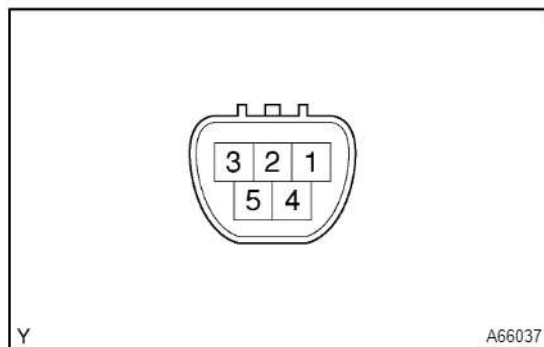
Measuring Condition	Operation
Battery positive - Terminal 4 Battery negative - Terminal 5	Close
Battery positive - Terminal 5 Battery negative - Terminal 4	Open

- (2) Check that the intake manifold runner valve opens and closes smoothly.

If the result is not as specified, replace the intake manifold runner valve assy.

NOTICE:

Do not apply the battery voltage to the intake manifold runner valve for more than 1 minute.



(c) Check the resistance.

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

Standard:

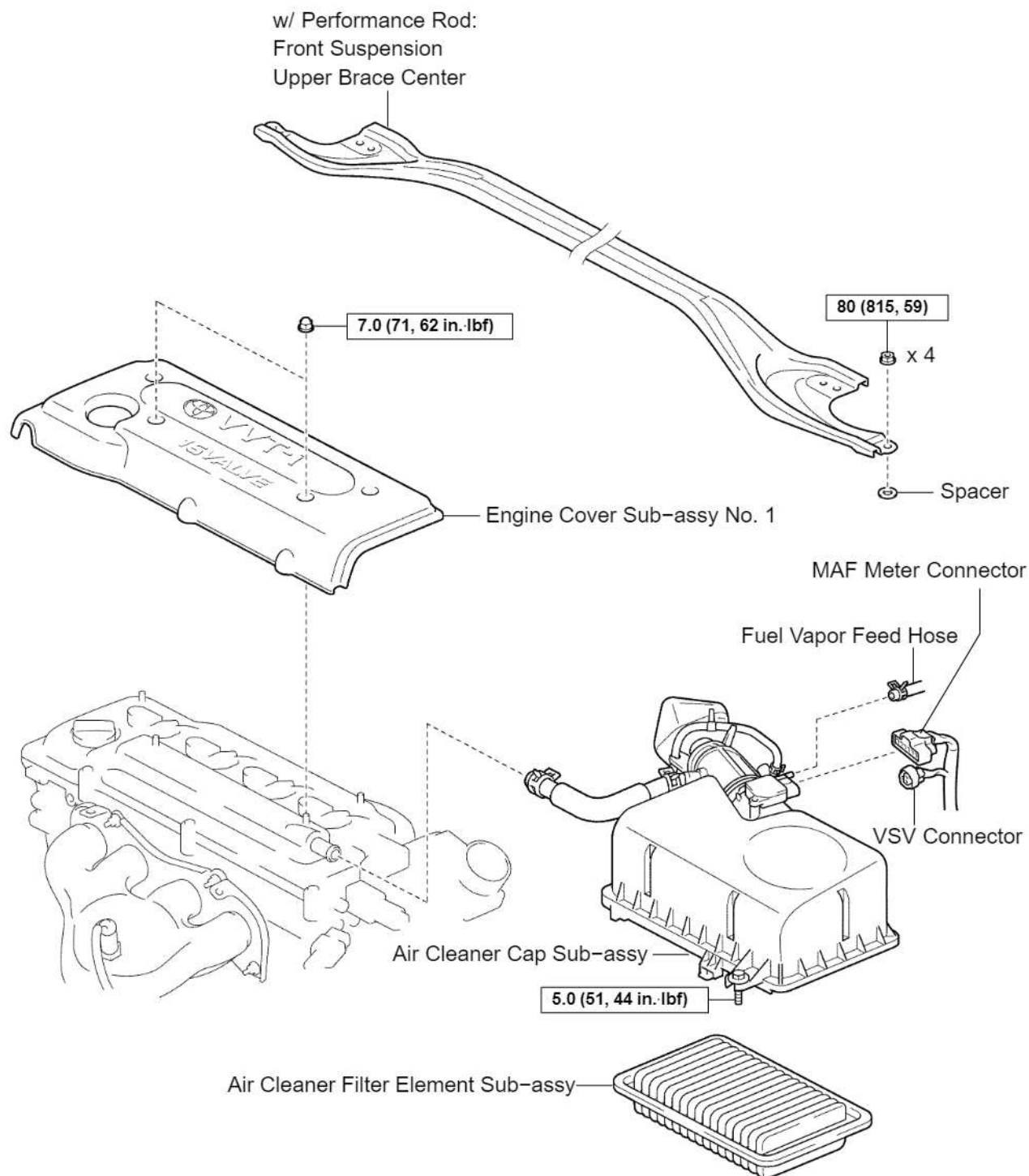
Tester Connection	Specified Condition
4 - 5	3.0 to 10 Ω at 20 $^{\circ}\text{C}$ (68 $^{\circ}\text{F}$)

If the result is not as specified, replace the intake manifold runner valve assy.

INTAKE MANIFOLD RUNNER VALVE ASSY (2AZ-FE (PZEV)) (From July, 2003)

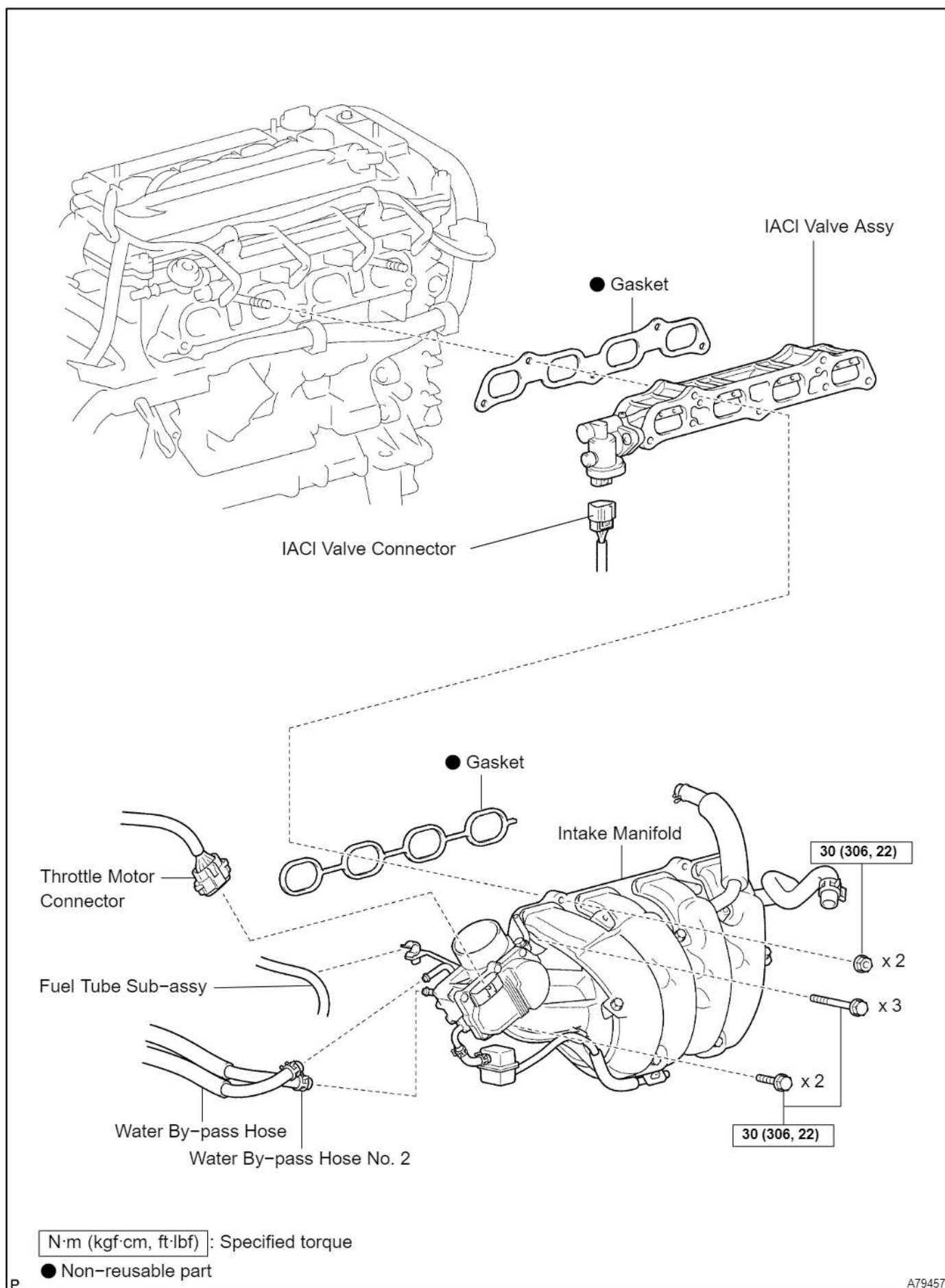
COMPONENTS

1306L-02



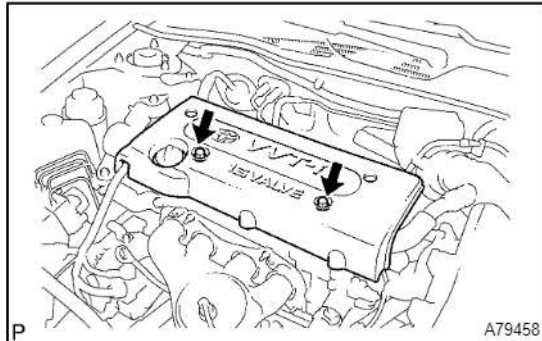
N·m (kgf·cm, ft·lbf) : Specified torque

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REPLACEMENT

1. DRAIN ENGINE COOLANT (See page 16-6)
2. REMOVE FRONT SUSPENSION UPPER BRACE CENTER (W/ PERFORMANCE ROD)

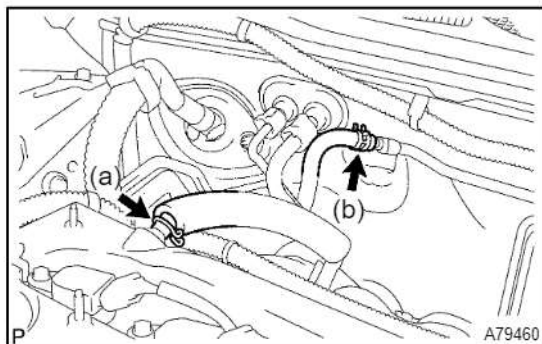
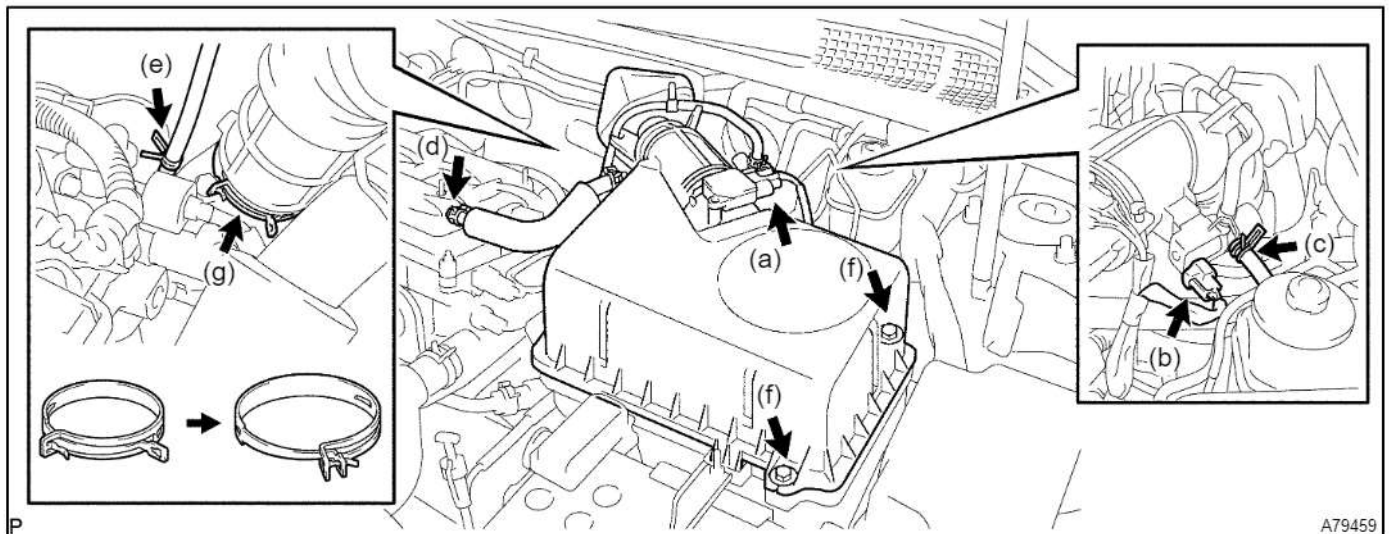


3. REMOVE ENGINE COVER SUB-ASSY NO.1

- (a) Remove the 2 nuts and engine cover.

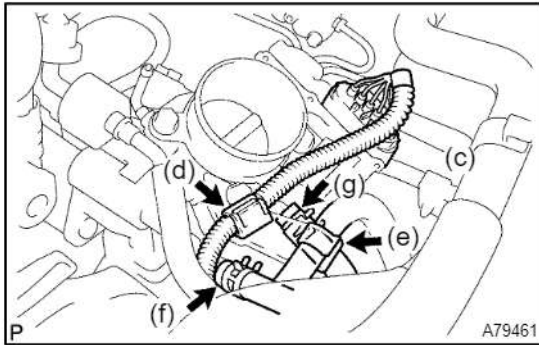
4. REMOVE AIR CLEANER CAP SUB-ASSY

- (a) Disconnect the MAF meter connector.
- (b) Disconnect the VSV connector.
- (c) Disconnect the fuel vapor feed hose No. 2.
- (d) Disconnect the ventilation hose.
- (e) Disconnect the fuel vapor feed hose No. 1.
- (f) Loosen the 2 air cleaner cap bolts.
- (g) Lock the air cleaner hose clamp and remove the air cleaner cap together with the air cleaner hose.

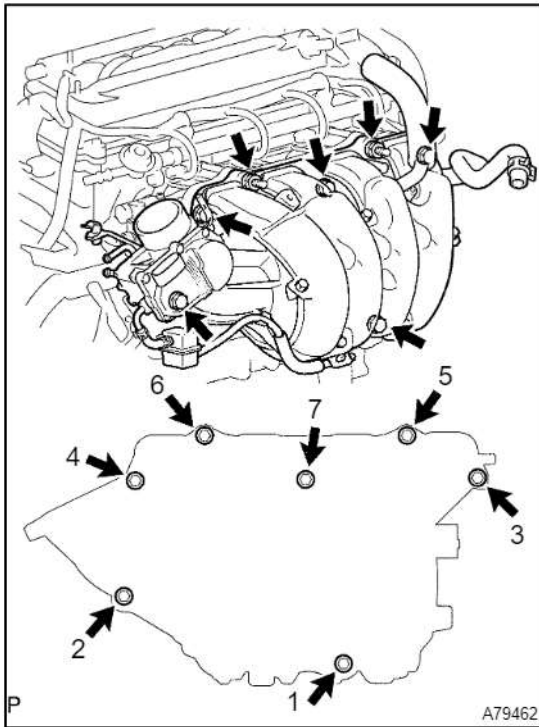


5. REMOVE INTAKE MANIFOLD

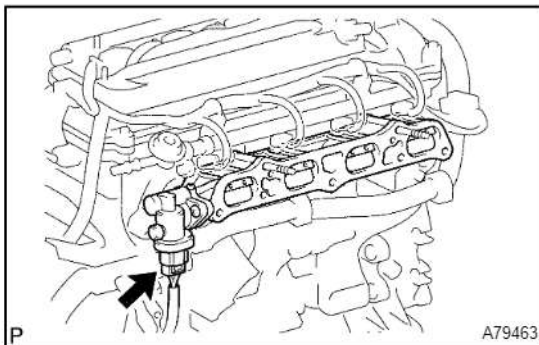
- (a) Disconnect the ventilation hose No. 2.
- (b) Disconnect the union to connector tube hose.



- (c) Disconnect the throttle motor connector.
- (d) Remove the wire harness from the wire harness clamp.
- (e) Remove the fuel tube from the fuel pipe support.
- (f) Disconnect the water by-pass hose No. 2
- (g) Disconnect the water by-pass hose.



- (h) In order to remove the intake manifold, Uniformly remove the 5 bolts and 2 nuts in the sequence shown in the illustration.
- (i) Remove the gasket from the intake manifold.

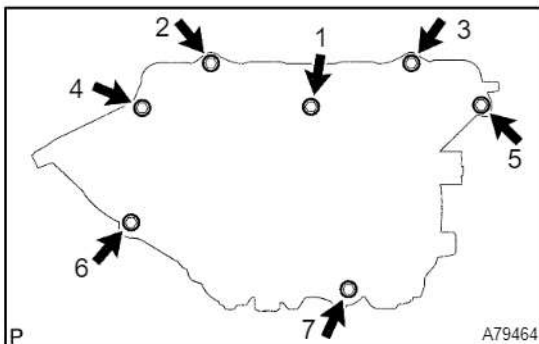


6. REMOVE INTAKE AIR CONTROL VALVE ASSY

- (a) Disconnect the IAC valve connector.
- (b) Remove the IAC valve and gasket from the cylinder head.

7. INSTALL INTAKE AIR CONTROL VALVE ASSY

- (a) Install a new gasket and the IAC valve to the cylinder head.
- (b) Connect the IAC valve connector.



8. INSTALL INTAKE MANIFOLD

- (a) Install a new gasket to the intake manifold.
- (b) Install the intake manifold with the 5 bolts and 2 nuts. Uniformly tighten the bolts and nuts in the sequence shown in the illustration.

Torque: 30 N·m (306 kgf·cm, 22 ft·lbf)

- (c) Connect the water by-pass hose.
- (d) Connect the water by-pass hose No. 2
- (e) Install the fuel tube to the fuel pipe support.
- (f) Install the wire harness to the wire harness clamp.

- (g) Connect the throttle motor connector.
- (h) Connect the union to connector tube hose.
- (i) Connect the ventilation hose No. 2.

9. INSTALL AIR CLEANER CAP SUB-ASSY

Torque: 5.0 N·m (51 kgf·cm, 44 in·lbf)

10. ADD ENGINE COOLANT (See page 16-6)

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

12. INSTALL ENGINE COVER SUB-ASSY NO.1

Torque: 7.0 N·m (71 kgf·cm, 62 in·lbf)

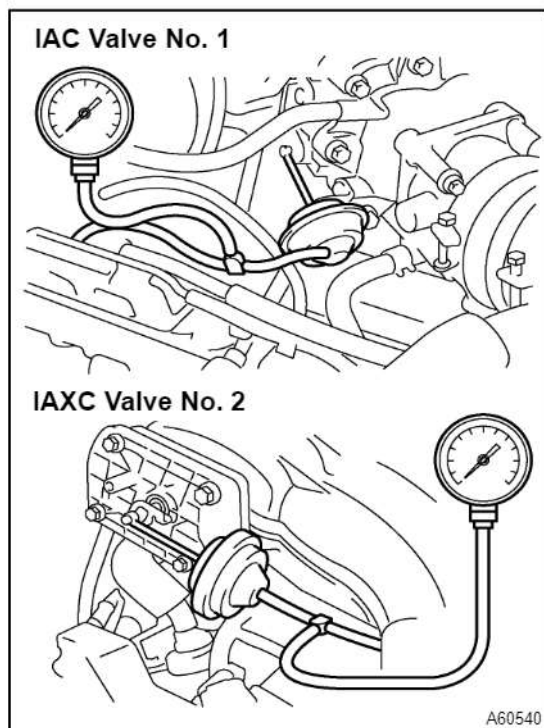
13. INSTALL FRONT SUSPENSION UPPER BRACE CENTER (W/ PERFORMANCE ROD)

Torque: 80 N·m (815 kgf·cm, 59 ft·lbf)

INTAKE AIR CONTROL SYSTEM (1MZ-FE/3MZ-FE)

ON-VEHICLE INSPECTION

13075-01

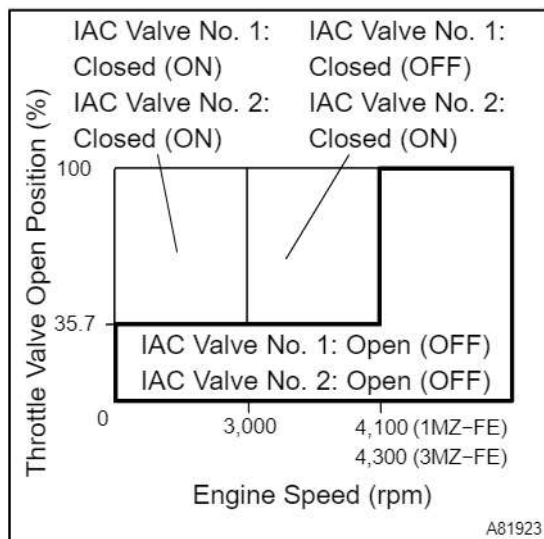


1. CHECK INTAKE AIR CONTROL SYSTEM

- Using a 3-way connector, connect a vacuum gauge to the actuator hose.
- Connect the hand-held tester to the DLC3.
- Start the engine.
- On the hand-held tester, enter the ACTIVE TEST mode.

Standard:

Switch Condition	Vacuum
VSV ON	Approx. 27.6 kPa (200 mmHg, 7.9 in.Hg)
VSV OFF	0 kPa (0 mmHg, 0 in.Hg)

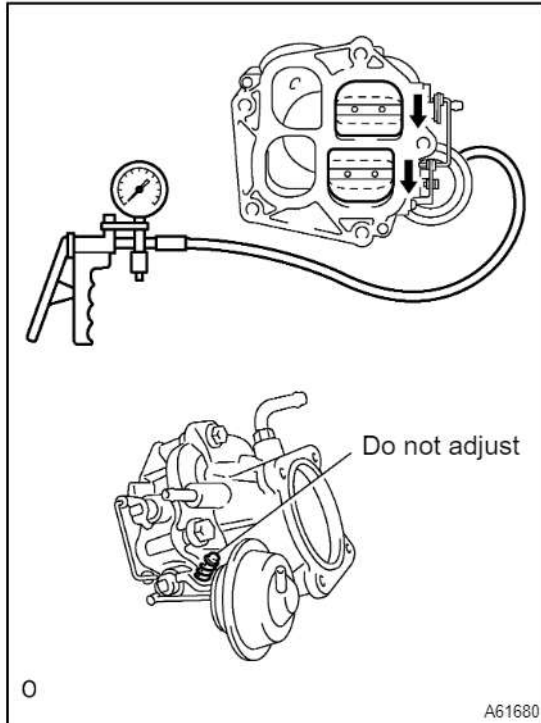


- Move the shift lever to the P position.
- While operating the accelerator pedal, check open and closed status of the IAC valve No. 1 (1MZ-FE only) and No. 2.

HINT:

Values indicated in the illustration are for reference only. The throttle valve open position varies by engine speed.

INSPECTION



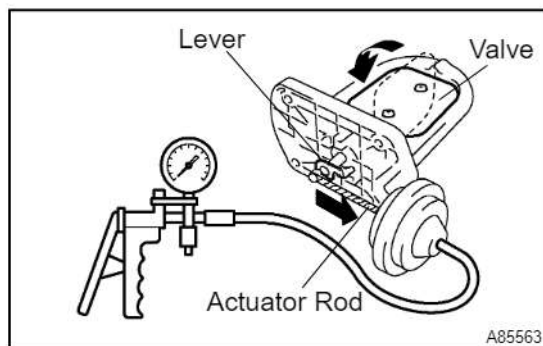
1. INSPECT INTAKE AIR CONTROL VALVE ASSY NO.1 (1MZ-FE ONLY)

- With vacuum of 26.7 kPa (200 mm Hg, 7.9 in. Hg) applied to the actuator, check that the IAC valve closes.
- 1 minute after applying the vacuum, check that the IAC valve remains closed.

If the result is not as specified, replace the IAC valve assy No. 1.

NOTICE:

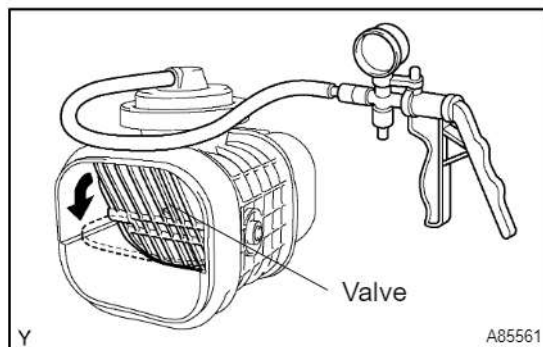
Do not adjust the screw.



2. INSPECT INTAKE AIR CONTROL VALVE ASSY NO.2

- Apply 26.7 kPa (200 mmHg, 7.9 in.Hg) of vacuum to the actuator. Check if the actuator rod pulls the lever and causes the valve to rotate open, as shown in the illustration.
- One minute after applying the vacuum, check that the actuator rod does not return.

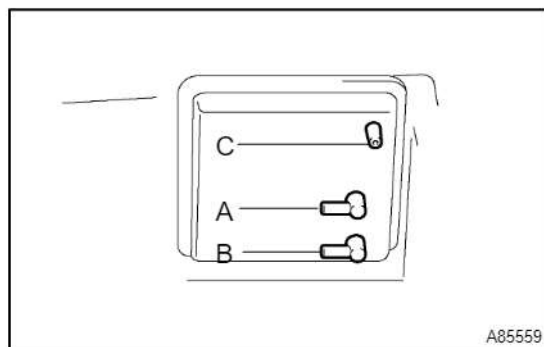
If the result is not as specified, replace the IAC valve assy No. 2.



3. INSPECT INTAKE AIR CONTROL VALVE ASSY NO.3

- Apply 26.7 kPa (200 mmHg, 7.9 in.Hg) of vacuum to the actuator. Check if the valve rotates open, as shown in the illustration.
- Apply the vacuum for one minute. The actuator should continue to be keeping the valve open.

If the result is not as specified, replace the IAC valve assy No. 3.



4. INSPECT VACUUM SWITCHING VALVE ASSY FOR ACIS

- Cover port C with your finger, and check that air flows from port B to port A.
- Cover ports C with your finger, and check that air does not flow from port A to port B.
- Cover port A and C with your fingers, and apply 60 kPa (450 mmHg, 18 in.Hg) of vacuum to port B. Check that there is no change in the vacuum after one minute.

If the result is not as specified, replace air cleaner cap.

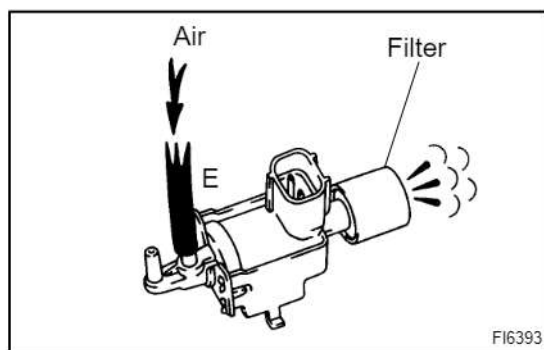
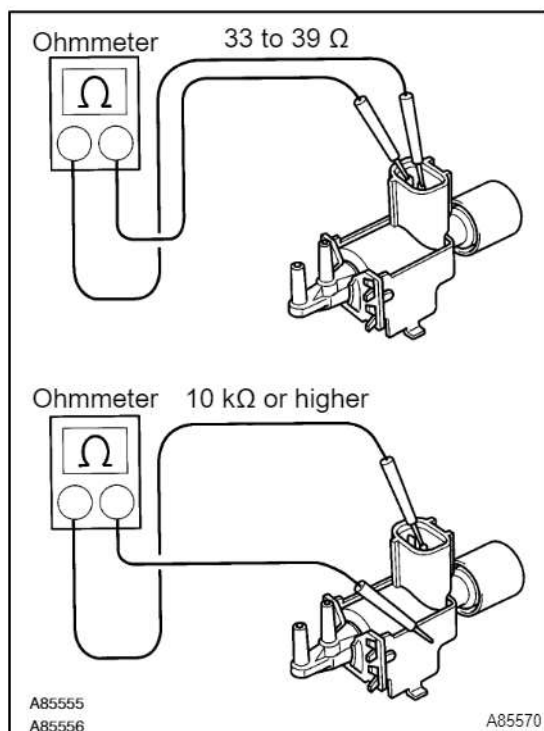
5. INSPECT VALVE ASSY, VACUUM SWITCHING FOR IAC VALVE NO.1 (1MZ-FE ONLY) AND NO.2

- Check the VSV resistance.

Standard:

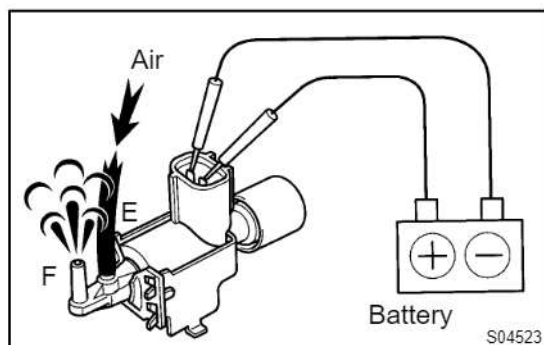
Tester Connection	Specified Condition
1 - 2	33 to 39 Ω at 20°C (68°F)
1 - Body ground 2 - Body ground	10 k Ω or higher

If the result is not as specified, replace the VSV assy.



- Check VSV operation.

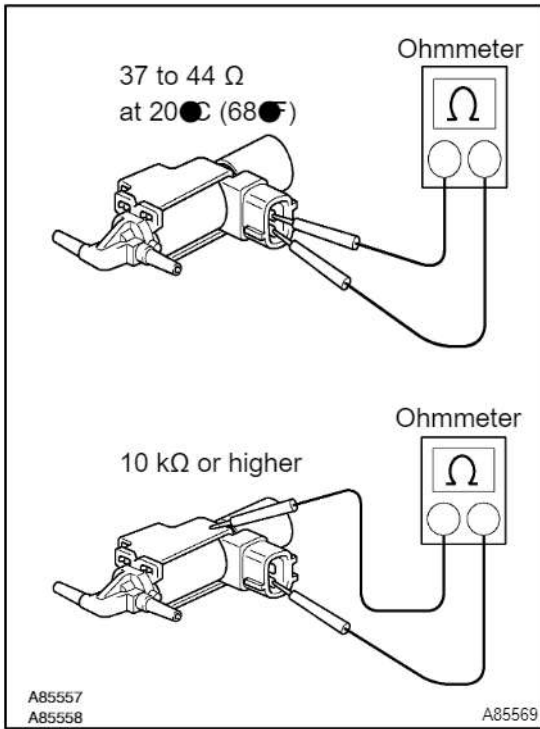
- Check that air flows from port E to the filter.



- Apply battery voltage across the terminals.

- Check that air flows from port E to port F.

If the result is not as specified, replace the VSV assy.



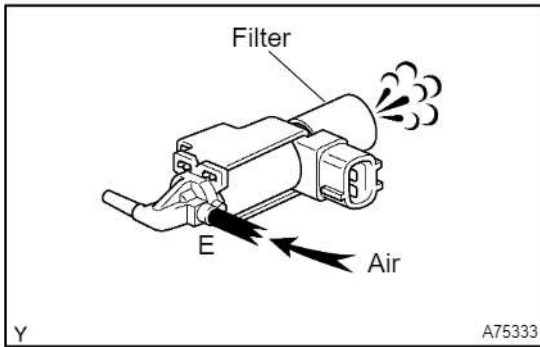
6. INSPECT VACUUM SWITCHING VALVE ASSY FOR IAC VALVE ASSY NO. 3

(a) Check the VSV resistance.

Standard:

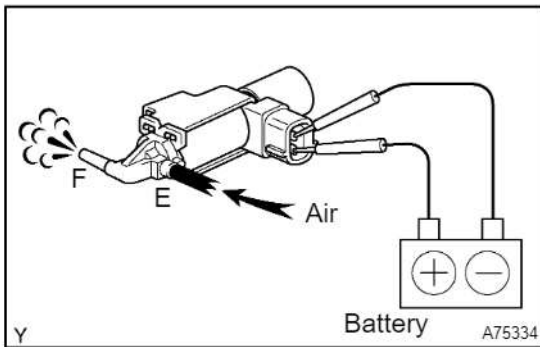
Tester Connection	Specified Condition
1 - 2	37 to 44 Ω at 20°C (68°F)
1 - Body ground 2 - Body ground	10 k Ω or higher

If the result is not as specified, replace the VSV assy No. 3.



(b) Check VSV operation.

(1) Check that air flows from port E to the filter.



(2) Apply battery voltage across the terminals. Check that air flows from port E to F.

If the result is not as specified, replace the VSV assy No. 3.