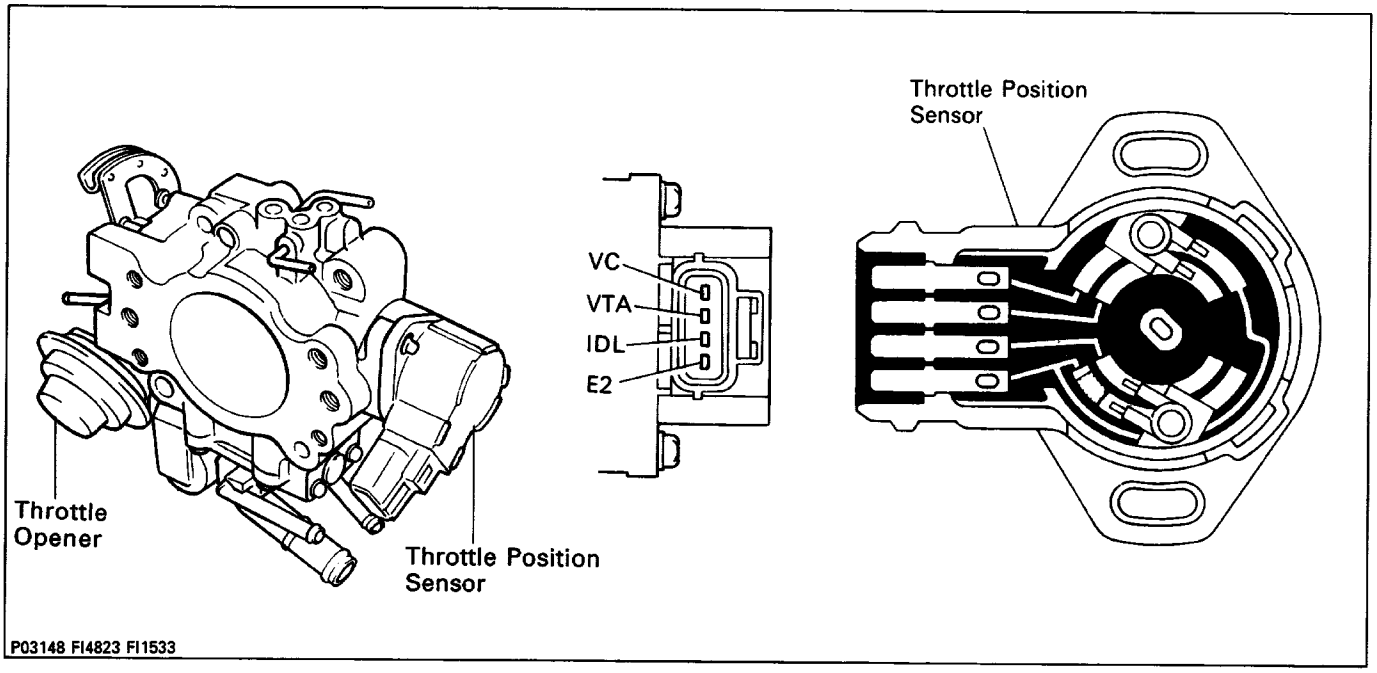
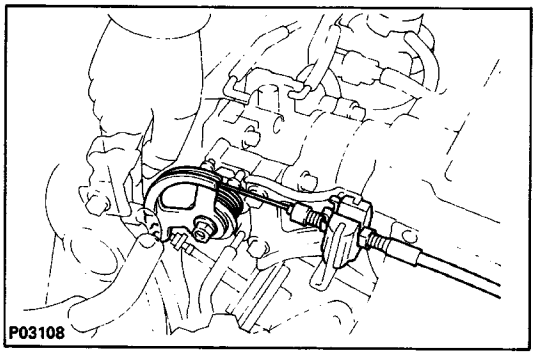
Throttle Body (3S–GTE)

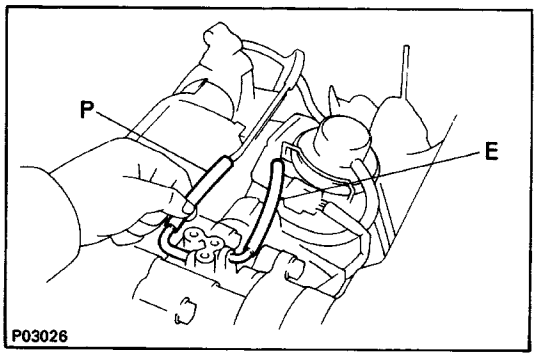




ON–VEHICLE INSPECTION

1 . INSPECT THROTTLE BODY

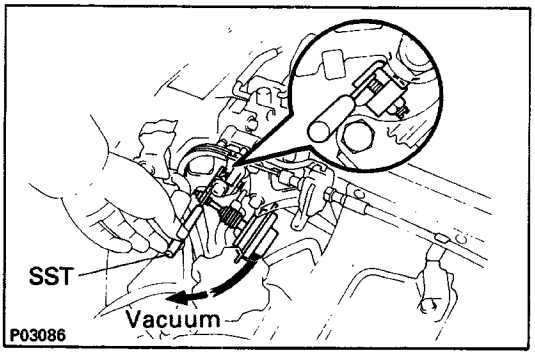
(a) Check that the throttle linkage moves smoothly.



(b) Check the vacuum at each port.

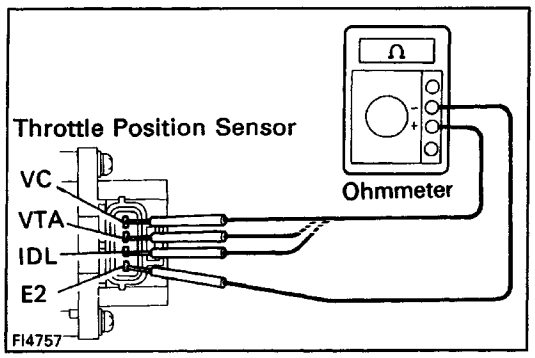
- Start the engine.
- Check the vacuum with your finger.

Port No.	At idle	Other than idle
E	No vacuum	Vacuum
P	No vacuum	Vacuum



2. INSPECT THROTTLE POSITION SENSOR

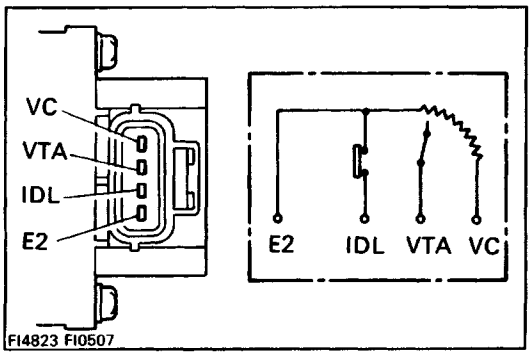
(a) Apply vacuum to the throttle opener.
(b) Disconnect the sensor connector.
(c) Insert SST between the throttle stop screw and stop lever.
SST 09240–00020



(d) Using an ohmmeter, measure the resistance between each terminal.

Clearance between lever and stop screw	Between terminals	Resistance
0 mm (0 in.)	VTA – E2	0.47 – 6.1 kΩ
0.50 mm (0.020 in.)	IDL – E2	2.3 kΩ or less
0.70 mm (0.028 in.)	IDL – E2	Infinity
Throttle valve fully open	VTA – E2	3.1 – 12.1 kΩ
–	VC – E2	3.9 – 9.0 kΩ

(e) Reconnect the sensor connector.



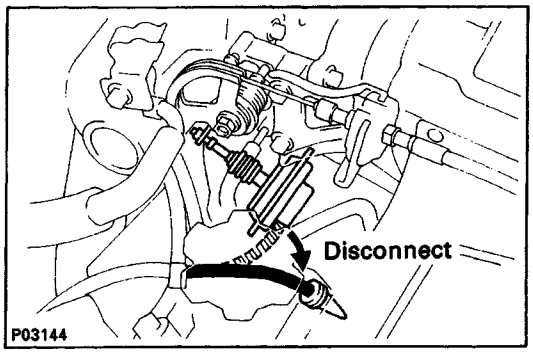
3. INSPECT THROTTLE OPENER

A. Warm up engine

Allow the engine to warm up to normal operating temperature.

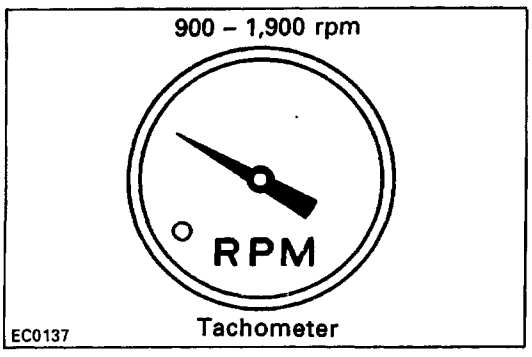
B. Check idle speed

Idle speed: 800 ± 50 rpm



C. Check throttle opener setting speed

(a) Disconnect the vacuum hose from the throttle opener, and plug the hose end.



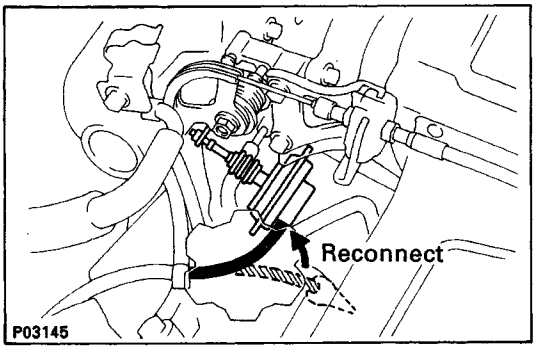
(b) Check the throttle opener setting speed.

Throttle opener setting speed:

900 – 1,900 rpm

If the throttle opener setting is not as specified, replace the throttle body.

(c) Stop the engine.



(d) Reconnect the vacuum hose to the throttle opener.
(e) Start the engine and check that the idle rpm re–turns to the correct speed.

REMOVAL OF THROTTLE BODY

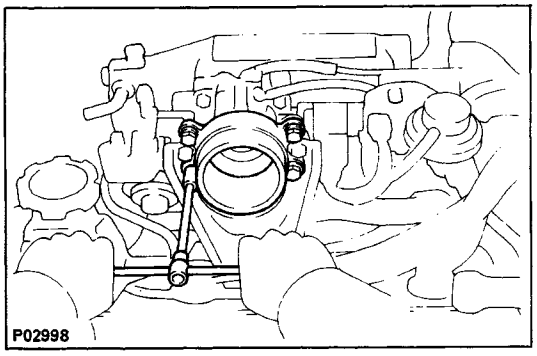
1. DISCONNECT CABLE FROM NEGATIVE TERMINAL OF BATTERY

CAUTION: Work must be started after approx. 20 seconds or longer from the time the ignition switch is turned to the "LOCK" position and the negative (–) ter–minal cable is disconnected from the battery.

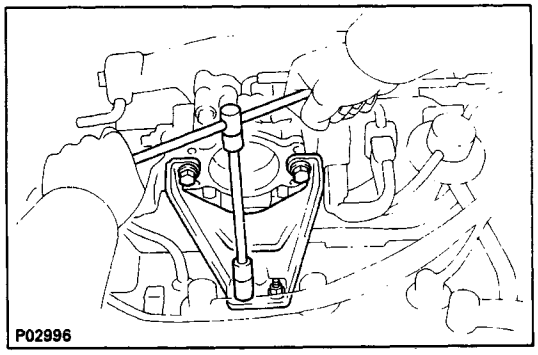
2. DRAIN ENGINE COOLANT (See page CO–6)

3. DISCONNECT ACCELERATOR CABLE FROM THROTTLE LINKAGE

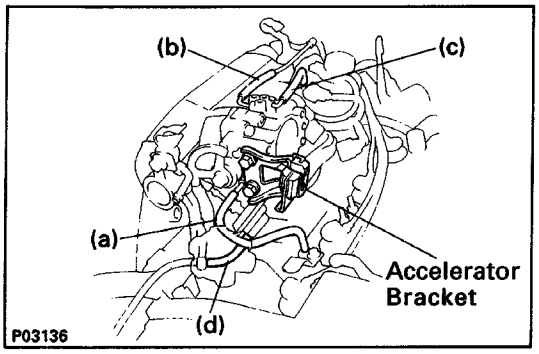
4. REMOVE CHARGE AIR COOLER
(See steps 13 to 15 on pages TC–9 and 10)



5. REMOVE INTAKE AIR CONNECTOR
Remove the four bolts and air connector.



6. REMOVE INTAKE AIR CONNECTOR STAY
Remove the two bolts, two nuts and air– connector stay.
7. DISCONNECT THROTTLE POSITION SENSOR CONNECTOR
8. DISCONNECT IAC VALVE CONNECTOR



9. REMOVE ACCELERATOR BRACKET

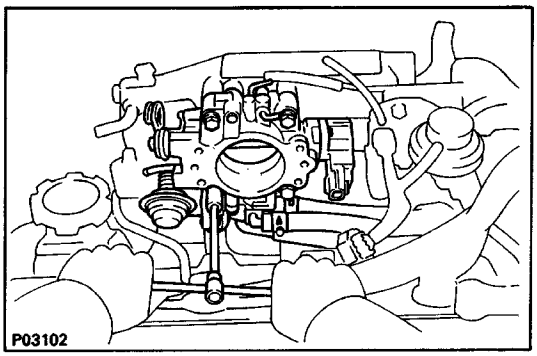
10. DISCONNECT HOSES FROM THROTTLE BODY

(a) PCV hose from cylinder head cover

(b) Vacuum hose (from throttle body P port) from vacuum pipe

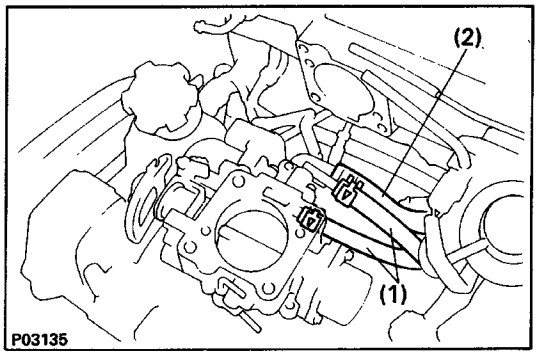
(c) Vacuum hose (from throttle body E port) from EGR VSV

(d) Vacuum hose from throttle opener



11. REMOVE THROTTLE BODY

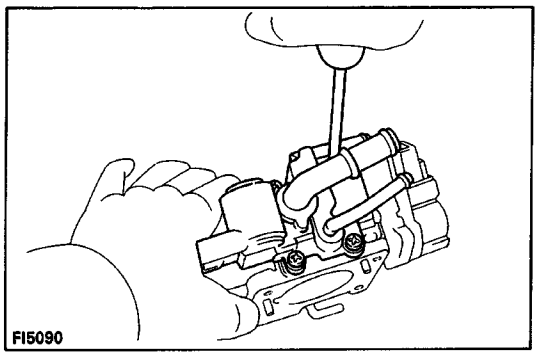
(a) Remove the four bolts, throttle body and gasket.



(b) Disconnect the hoses from the throttle body, and remove the throttle body.

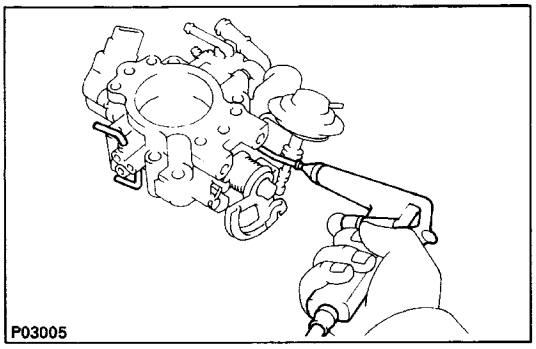
(1) Two water by–pass hoses from No.1 air tube

(2) Air hose from No.1 air tube



12. IF NECESSARY, REMOVE IAC VALVE FROM THROTTLE BODY

Remove the four screws, IAC valve and gasket.



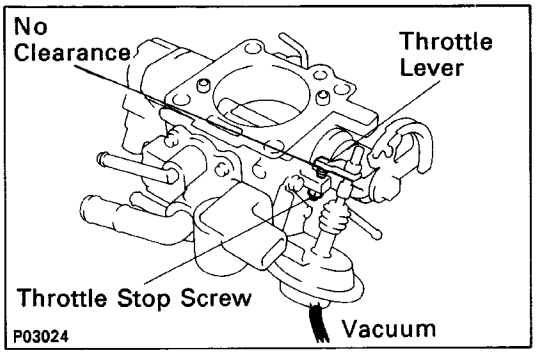
INSPECTION OF THROTTLE BODY

1. CLEAN THROTTLE BODY

(a) Using a soft brush and carburetor cleaner, clean the cast parts.

(b) Using compressed air, clean all the passages and apertures.

NOTICE: To prevent deterioration, do not clean the throttle position sensor.



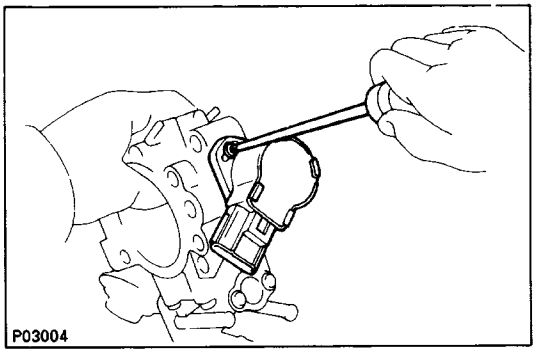
2. INSPECT THROTTLE VALVE

(a) Apply vacuum to the throttle opener.

(b) Check that there is no clearance between the throttle stop screw and throttle lever when the throttle valve is fully closed.

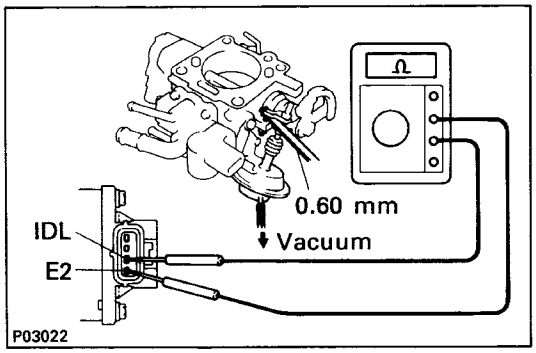
3. INSPECT THROTTLE POSITION SENSOR

(See step 2 on page FI–192)



4. IF NECESSARY, ADJUST THROTTLE POSITION SENSOR

(a) Loosen the two set screws of the sensor.

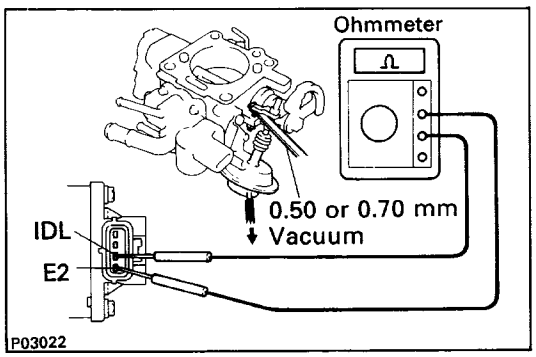


(b) Apply vacuum to the throttle opener.

(e) Insert a 0.60 mm (0.024 in.) thickness gauge, between the throttle stop screw and stop lever.

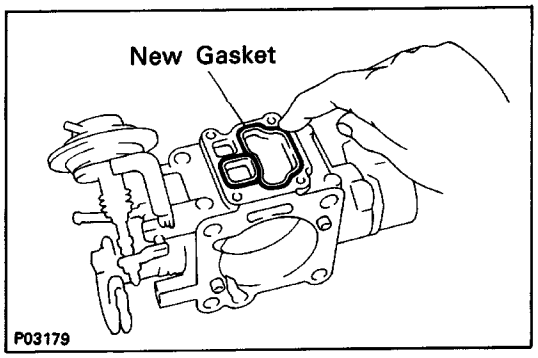
(d) Connect the test probe of an ohmmeter to the terminals IDL and E2 of the sensor.

(e) Gradually turn the sensor clockwise until the ohmmeter deflects, and secure it with the two set screws.



(f) Recheck the continuity between terminals IDL and E2.

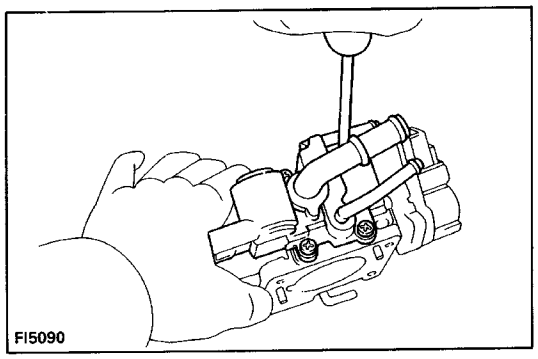
Clearance between lever and stop screw	Continuity (IDL – E2)
0.50 mm (0.020 in.)	Continuity
0.70 mm (0.028 in.)	No continuity



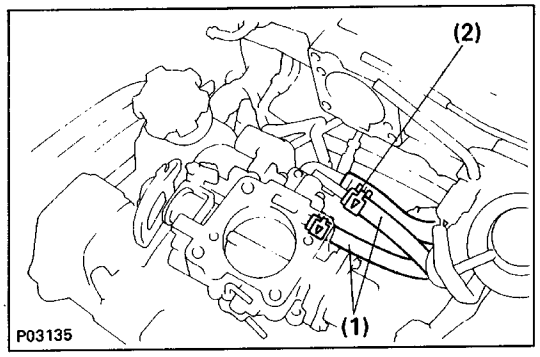
INSTALLATION OF THROTTLE BODY

1. INSTALL IAC VALVE TO THROTTLE BODY

(a) Place a new gasket on the throttle body.

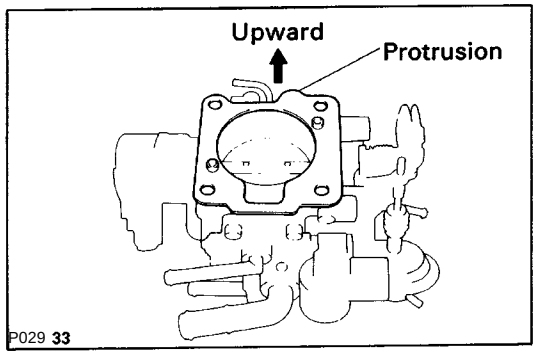


(b) Install the IAC valve with the four screws.

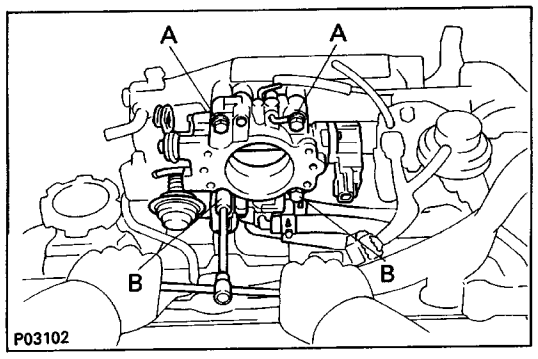


2. INSTALL THROTTLE BODY

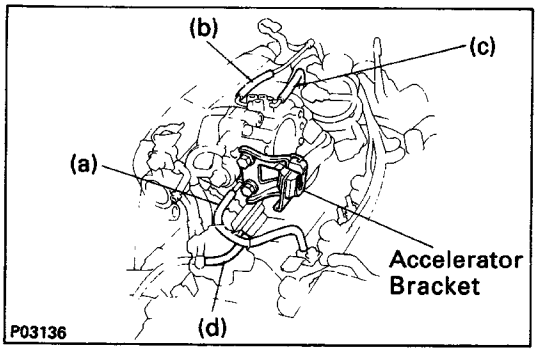
(a) Connect the following hoses to the throttle body:
(1) Two water by–pass hoses to No.1 air tube
(2) Air hose to No.1 air tube



(b) Place a new gasket on the throttle body, facing the protrusion upward.



(c) Install the throttle body with the four bolts.
Torque: 19 N–m (195 kgf–cm, 14 ft–lbf)
HINT: Each bolt is indicated in the illustration.
Bolt length: A 45 mm (1.77 in.)
B 70 mm (2.76 in.)



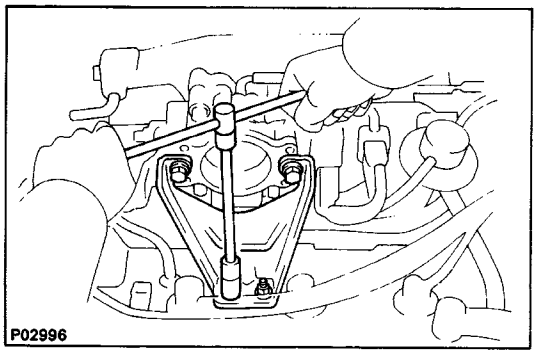
3. CONNECT HOSES TO THROTTLE BODY

(a) PCV hose to cylinder head cover
(b) Vacuum hose (from throttle body P port) to vacuum pipe
(c) Vacuum hose (from throttle body E port) to EGR VSV
(d) Vacuum hose from throttle opener

4. INSTALL ACCELERATOR BRACKET

5. CONNECT IAC VALVE CONNECTOR

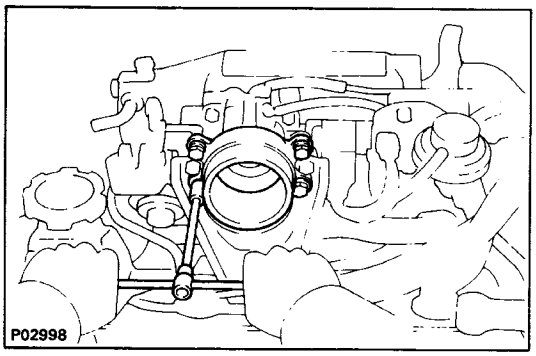
6. CONNECT THROTTLE POSITION SENSOR CONNECTOR



7. INSTALL INTAKE AIR CONNECTOR STAY

Install the air connector stay with the two bolts and two n uts.

Torque:
Bolt 19 N–m t195 kgf–cm, 14 ft–lbf)
Nut 7.8 N–m (80 kgf–cm, 69 in.–lbf)



8. INSTALL INTAKE AIR CONNECTOR

Install the air connector with the four bolts.

Torque: 19 N–m (195 kgf–cm, 14 ft–lbf)

9. INSTALL CHARGE AIR COOLER
(See steps 11 to 13 on page TC–17)

10. CONNECT ACCELERATOR CABLE, AND ADJUST IT

11. FILL WITH ENGINE COOLANT (See page CO–6)

12. CONNECT CABLE TO NEGATIVE TERMINAL OF BATTERY