

EMISSION CONTROL SYSTEM

EC05E-01

PURPOSE

The emission control systems are installed to reduce the amount of HC, CO and NOx exhausted from the engine ((3), (4) and (5)), to prevent the atmospheric release of blow-by gas-containing HC (1) and evaporated fuel containing HC being released from the fuel tank (2).

The function of each system is shown in the following table.

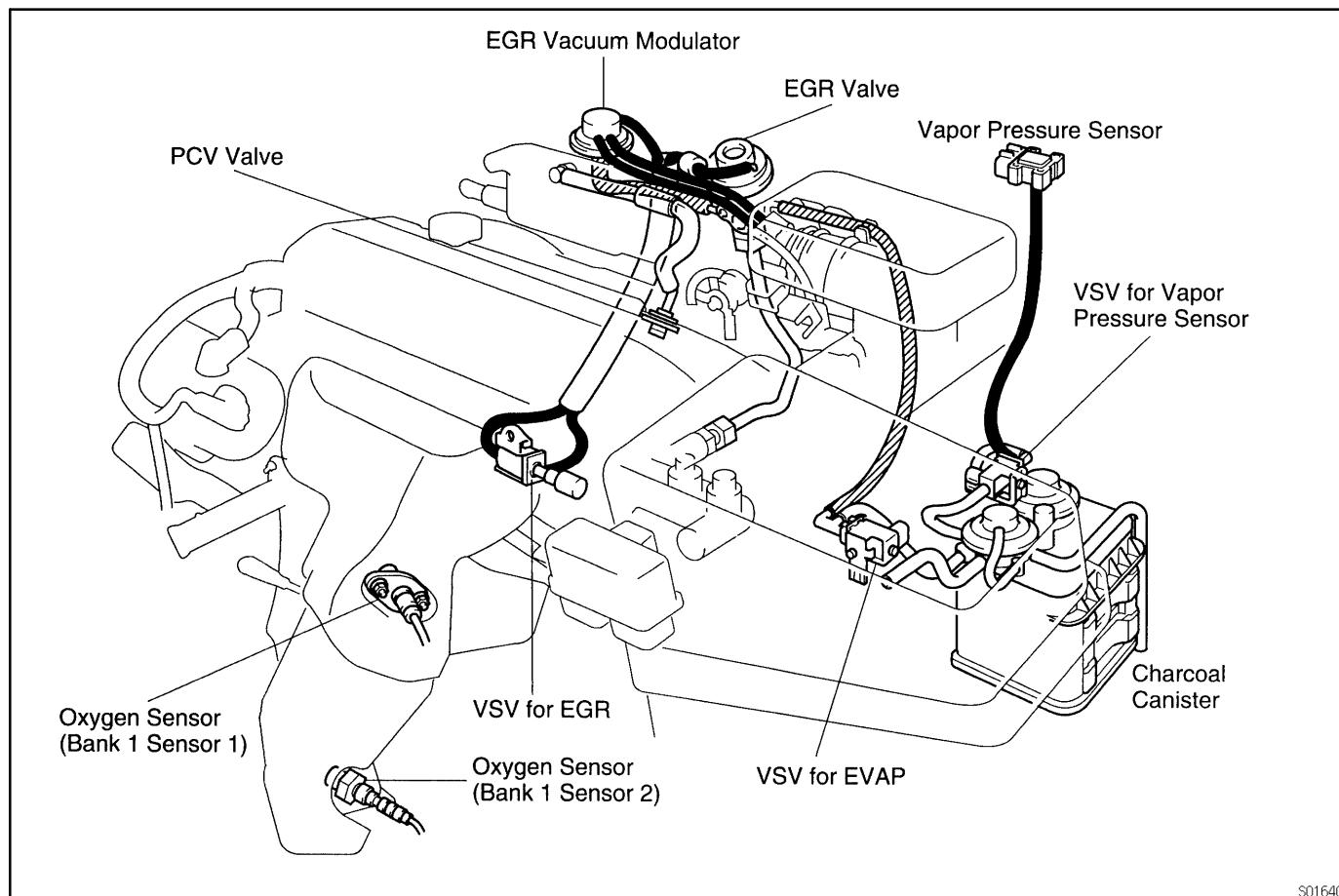
System	Abbreviation	Function
(1) Positive Crankcase Ventilation	PCV	Reduces HC
(2) Evaporative Emission Control	EVAP	Reduces evaporated HC
(3) Exhaust Gas Recirculation	EGR	Reduces NOx
(4) Three-Way Catalytic Converter	TWC	Reduces HC, CO and NOx
(5) Sequential Multiport Fuel Injection*	SFI	Injects a precisely timed, optimum amount of fuel for reduced exhaust emissions

Remark: * For inspection and repair of the SFI system, refer to the SFI section in this manual.

PARTS LAYOUT AND SCHEMATIC DRAWING

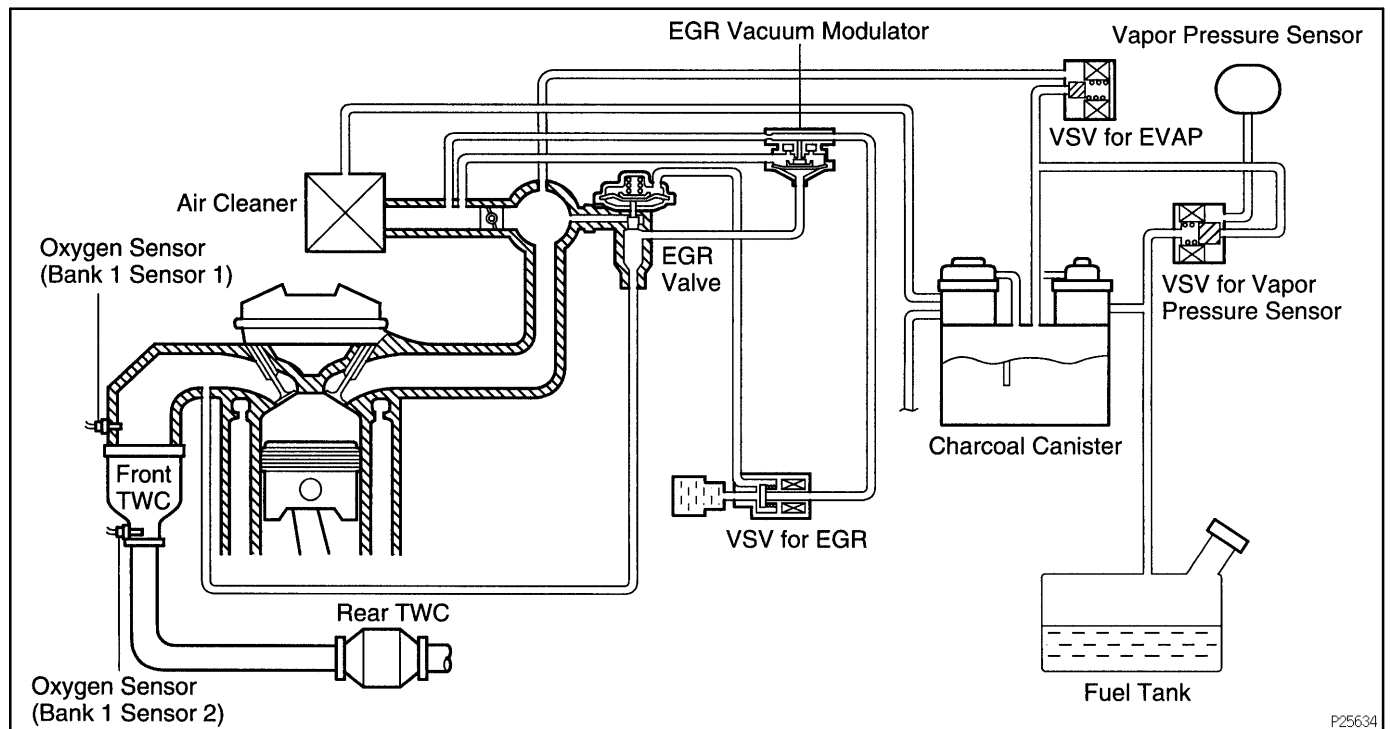
LOCATION

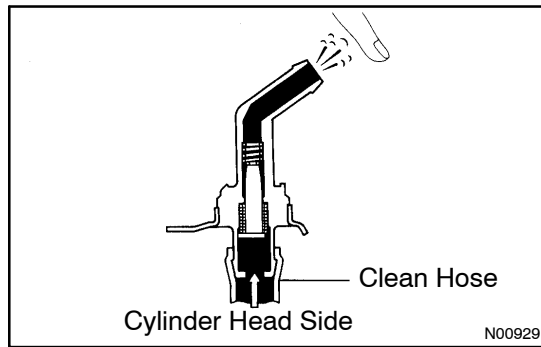
EC05F-04



S01640

DRAWING





POSITIVE CRANKCASE VENTILATION (PCV) SYSTEM INSPECTION

EC05H-04

1. REMOVE PCV VALVE
2. INSTALL CLEAN HOSE TO PCV VALVE
3. INSPECT PCV VALVE OPERATION
 - (a) Blow into the cylinder head side, and check that air passes through easily.

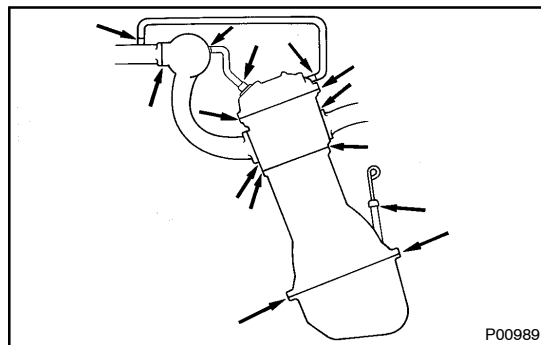
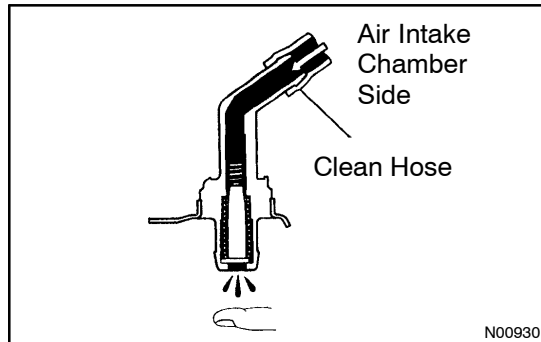
CAUTION:

Do not suck air through the valve. Petroleum substances inside the valve are harmful.

- (b) Blow air into the intake manifold side, and check that air passes through with difficulty.

If operation is not as specified, replace the PCV valve.

4. REMOVE CLEAN HOSE FROM PCV VALVE
5. REINSTALL PCV VALVE



6. VISUALLY INSPECT HOSES, CONNECTIONS AND GASKETS

Check for cracks, leaks or damage.

EVAPORATIVE EMISSION (EVAP) CONTROL SYSTEM INSPECTION

EC05I-03

1. VISUALLY INSPECT LINES AND CONNECTIONS

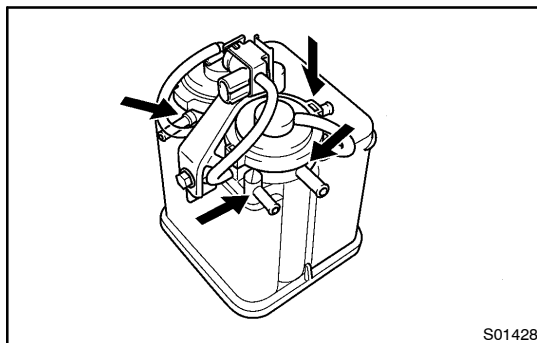
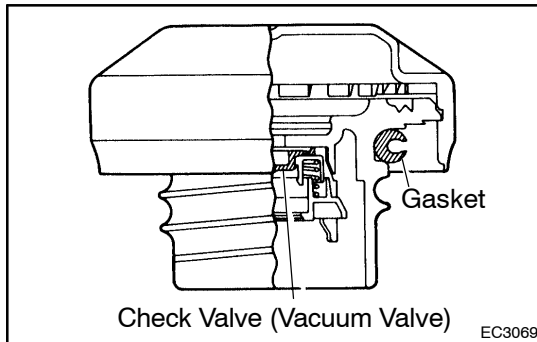
Look for loose connections, sharp bends or damage.

2. VISUALLY INSPECT FUEL TANK

Look for deformation, cracks or fuel leakage.

3. VISUALLY INSPECT FUEL TANK CAP

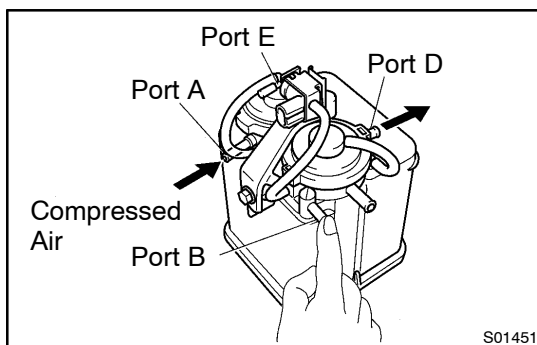
Check if the cap and/or gasket are deformed or damaged. If necessary, repair or replace the cap.



4. DISCONNECT EVAP HOSES FROM CHARCOAL CANISTER

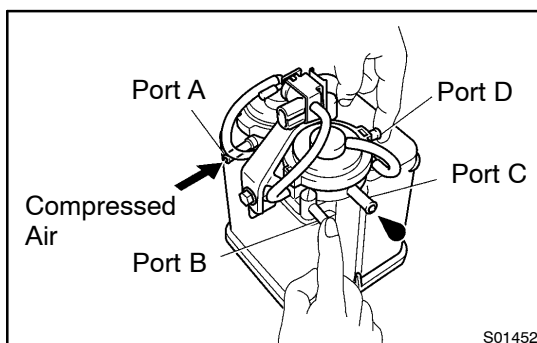
5. VISUALLY INSPECT CHARCOAL CANISTER

Look for cracks or damage.

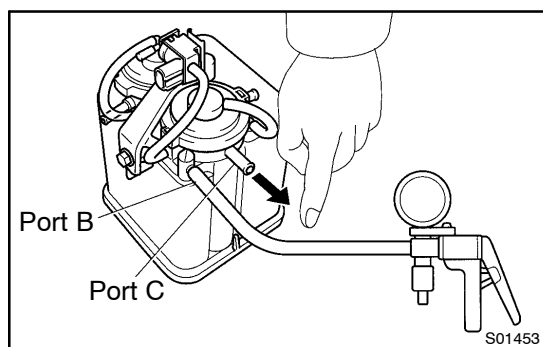


6. CHECK FOR CLOGGED FILTER, AND STUCK CHECK VALVE AND DIAPHRAGM

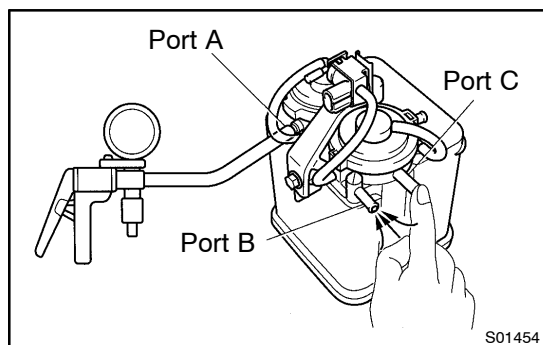
- Install a plug to port E.
- While holding port B closed, blow air (1.76 kPa, 18 gf/cm², 0.26 psi) into port A and check that air flows from port D.



- While holding port B and port D closed, blow air (1.76 kPa, 18 gf/cm², 0.26 psi) into port A and check that air does not flow from port C.



- (d) Apply vacuum (3.43 kPa, 26 mmHg, 1.01 in.Hg) to port B, check that the vacuum does not decrease when port C is closed, and check that the vacuum decreases when port C is released.



- (e) While holding port C closed, apply vacuum (1.23 kPa, 9.2 mmHg, 0.36 in.Hg) to port A and check that air flows into port B.

If a problem is found, replace the charcoal canister.

- (f) Remove the plug.

7. RECONNECT EVAP HOSES

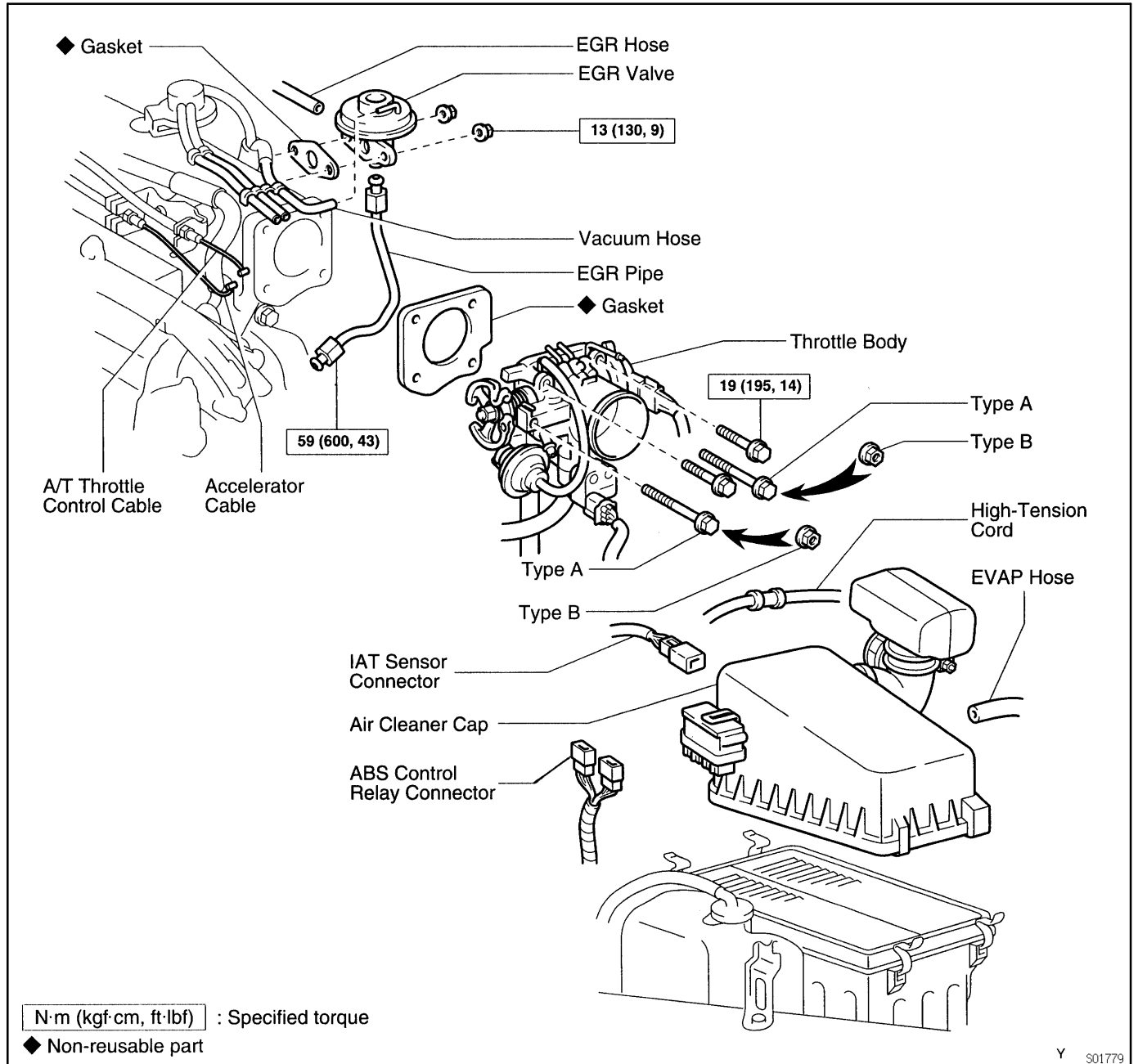
8. INSPECT VSV FOR EVAP (See page [SF-45](#))

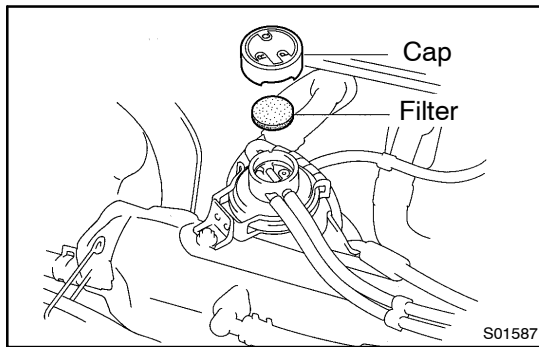
9. INSPECT VSV FOR VAPOR PRESSURE SENSOR (See page [SF-47](#))

10. INSPECT VAPOR PRESSURE SENSOR (See page [SF-55](#))

EXHAUST GAS RECIRCULATION (EGR) SYSTEM COMPONENTS

EC05J-03





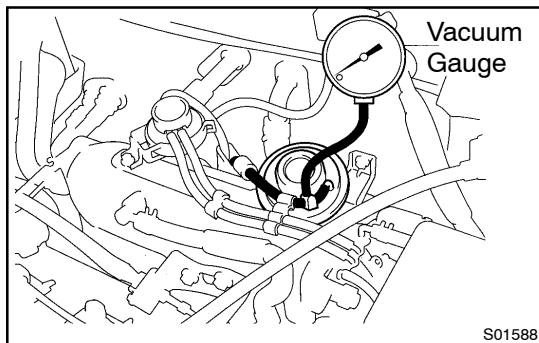
INSPECTION

1. INSPECT AND CLEAN FILTER IN EGR VACUUM MODULATOR

- Remove the cap and filter.
- Check the filter for contamination or damage.
- Using compressed air, clean the filter.
- Reinstall the filter and cap.

HINT:

Install the filter with the coarser surface facing the atmospheric side (outward).

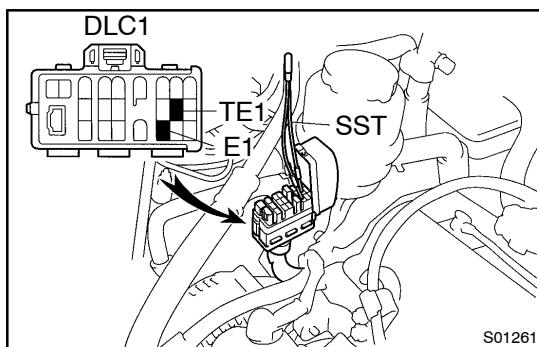


2. INSTALL VACUUM GAUGE

Using a 3-way connector, connect a vacuum gauge to the hose between the EGR valve and VSV.

3. INSPECT SEATING OF EGR VALVE

Start the engine and check that the engine starts and runs at idle.

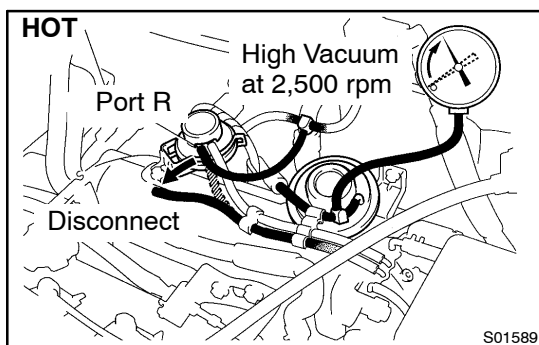


4. CONNECT TERMINALS TE1 AND E1 OF DLC1

Using SST, connect terminals TE1 and E1 of the DLC1
SST 09843-18020

5. INSPECT VSV OPERATION WITH COLD ENGINE

- The engine coolant temperature should be below 55°C (131°F).
- Check that the vacuum gauge indicates zero at 2,500 rpm.



6. INSPECT OPERATION OF VSV AND EGR VACUUM MODULATOR WITH HOT ENGINE

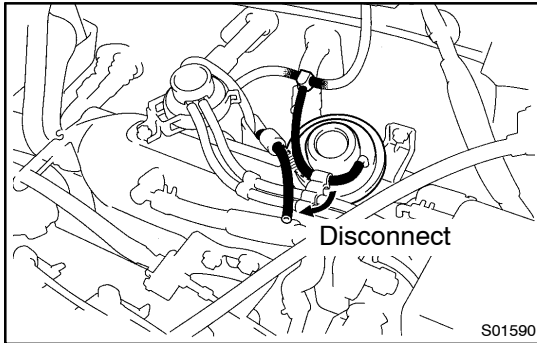
- Warm up the engine to above 60°C (140°F).
- Check that the vacuum gauge indicates low vacuum at 2,500 rpm.
- Disconnect the vacuum hose port R of the EGR vacuum modulator and connect port R directly to the intake manifold with another hose.
- Check that the vacuum gauge indicates high vacuum at 2,500 rpm.

HINT:

As a large amount of exhaust gas enters, the engine will misfire slightly.

7. REMOVE VACUUM GAUGE

Remove the vacuum gauge, and reconnect the vacuum hoses to the proper locations.

**8. INSPECT EGR VALVE**

- Apply vacuum directly to the EGR valve with the engine idling.
- Check that the engine runs rough or dies.
- Reconnect the vacuum hoses to the proper locations.

HINT:

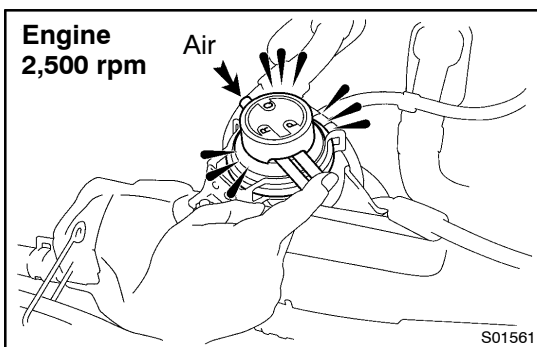
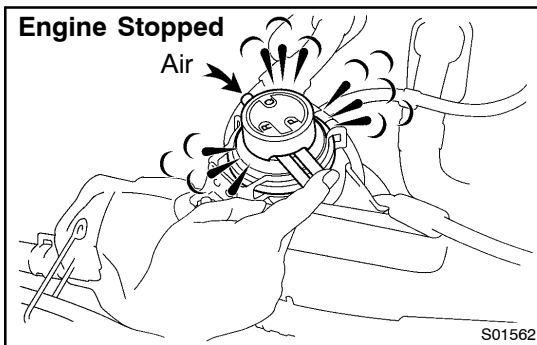
As exhaust gas is increasingly recirculated, the engine will start to misfire.

9. REMOVE SST FROM DLC1 (See page SF-1)

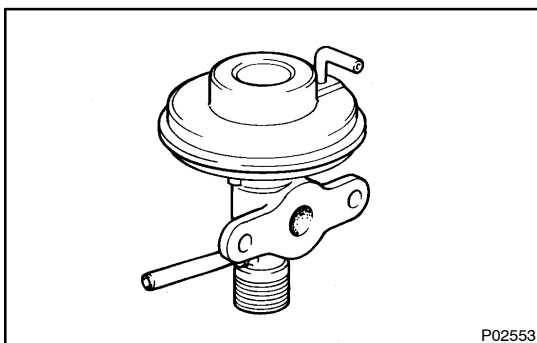
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10. INSPECT EGR VACUUM MODULATOR OPERATION

- Disconnect the vacuum hoses from ports P, Q and R of the EGR vacuum modulator.
- Block ports P and R with your finger.
- Blow air into port Q, and check that the air passes through to the air filter side freely.

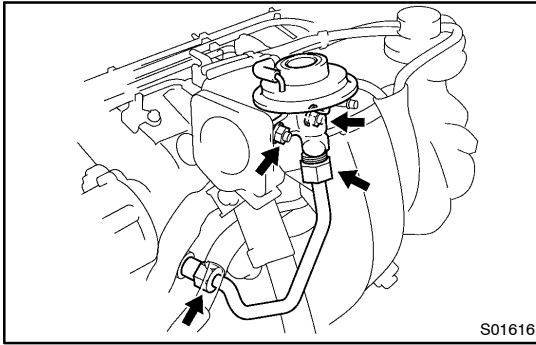


- Start the engine, and maintain speed at 2,500 rpm.
- Repeat the above test. Check that there is a strong resistance to air flow.
- Reconnect the vacuum hoses to the proper locations.

**11. REMOVE THROTTLE BODY (See page SF-30)****12. REMOVE EGR VALVE****13. INSPECT EGR VALVE**

Check for sticking and heavy carbon deposits.

If a problem is found, replace the valve.

**14. REINSTALL EGR VALVE**

- (a) Install a 2 new gaskets and the EGR valve with the 2 nuts.

Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)

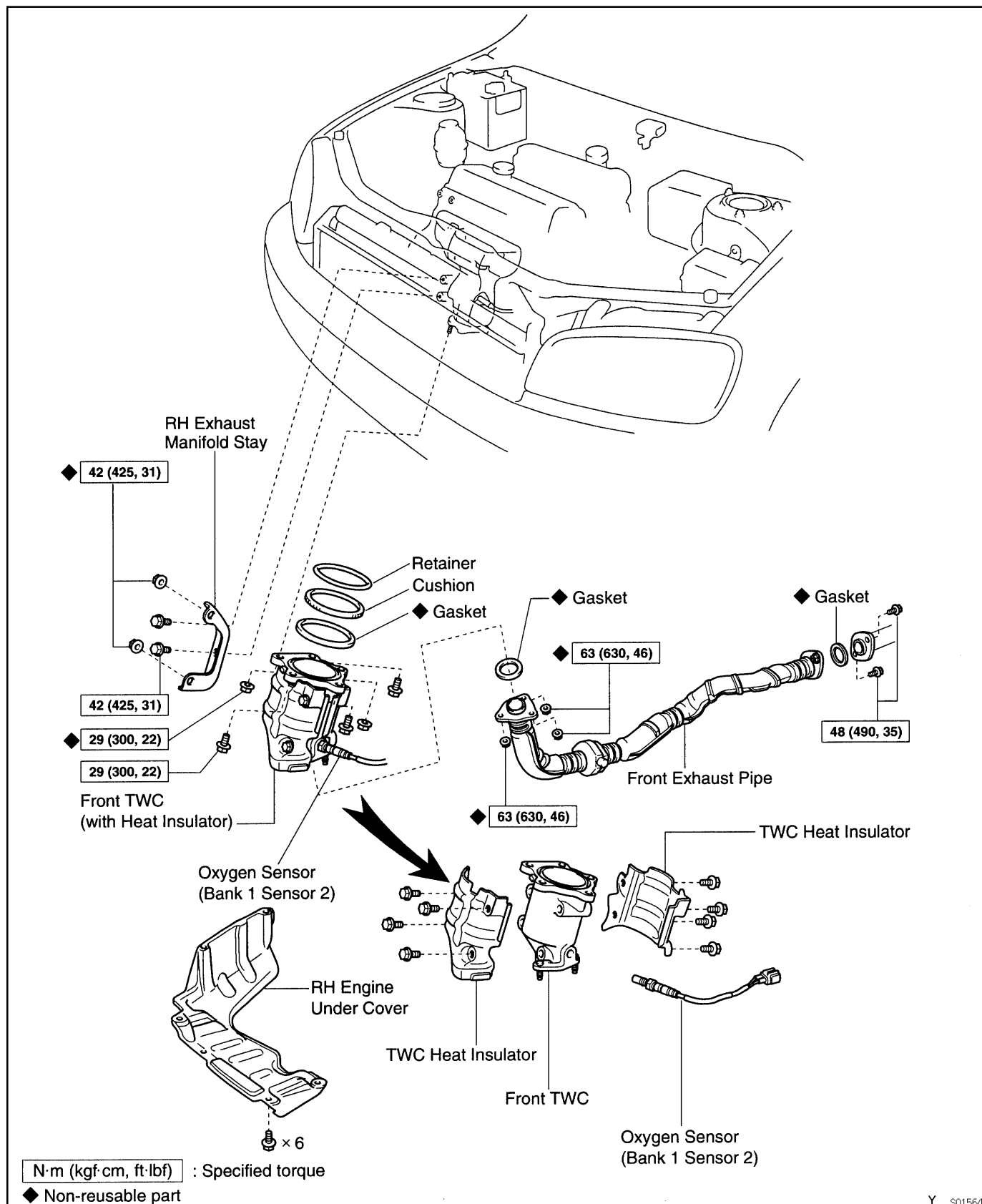
- (b) Install the EGR pipe with the 2 union nuts.

Torque: 59 N·m (600 kgf·cm, 43 ft·lbf)

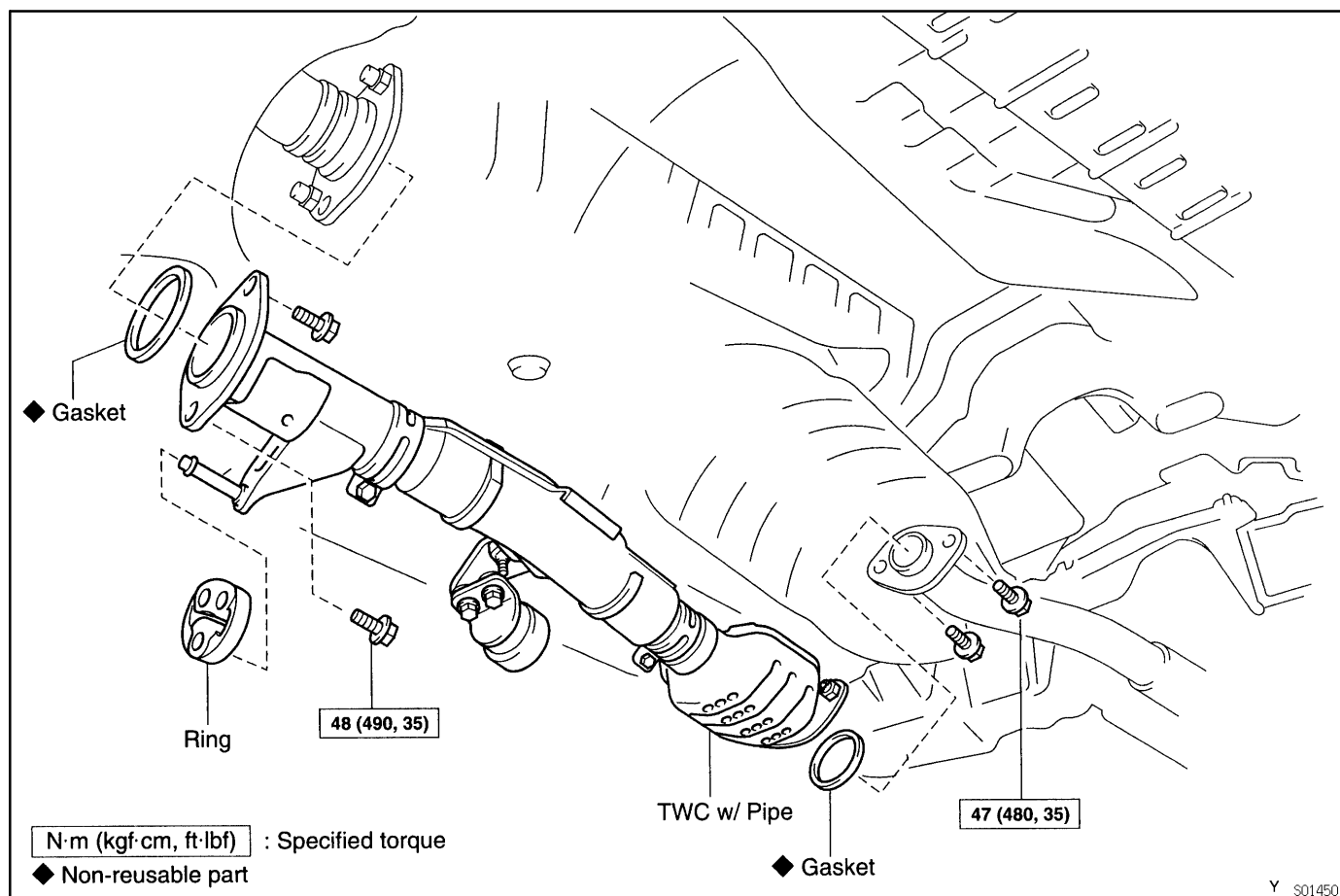
15. REINSTALL THROTTLE BODY (See page [SF-33](#))

THREE-WAY CATALYTIC CONVERTER (TWC) SYSTEM COMPONENTS

EC0FI-02



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INSPECTION

1. CHECK CONNECTIONS FOR LOOSENESS OR DAMAGE
2. CHECK CLAMPS FOR WEAKNESS, CRACKS OR DAMAGE
3. CHECK FOR DENTS OR DAMAGE

If any part of the protector is damaged or dented to the extent that it contacts the TWC, repair or replace it.

4. CHECK HEAT INSULATOR FOR DAMAGE
5. CHECK FOR ADEQUATE CLEARANCE BETWEEN CATALYTIC CONVERTER AND HEAT INSULATOR