

EMISSION CONTROL SYSTEMS

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EC

NOTE: TROUBLESHOOTING (See pages EM-4 to 7)

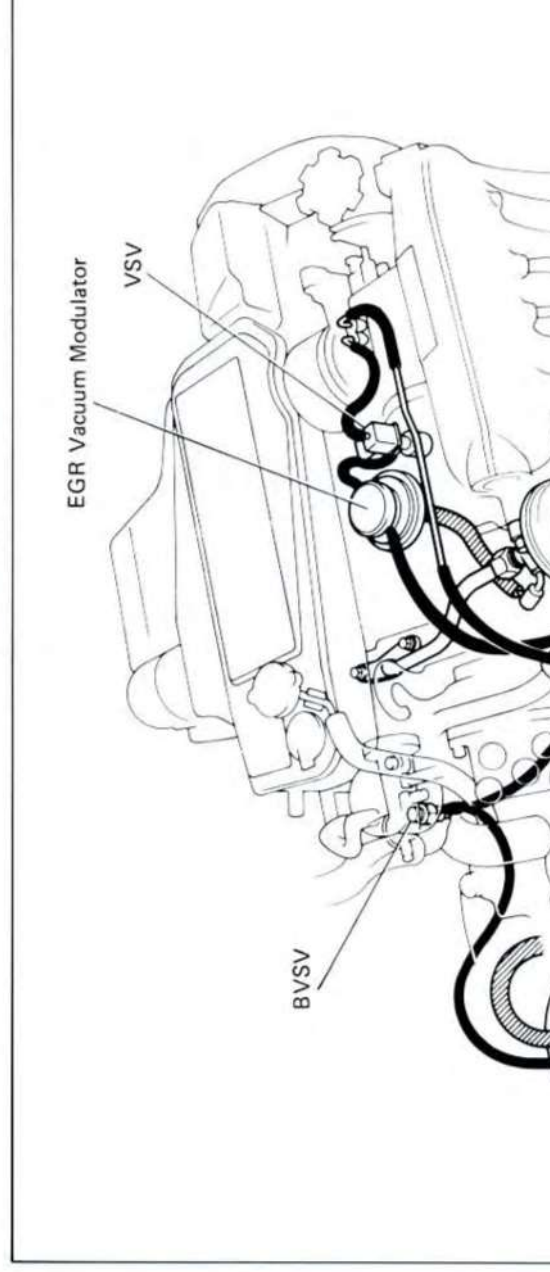
EC-2 EMISSION CONTROL SYSTEMS – System Purpose

SYSTEM PURPOSE

System	Abbreviation	Purpose
Positive crankcase ventilation	PCV	Reduced blow-by gas (HC)
Fuel evaporative emission control	EVAP	Reduced evaporative HC
Exhaust gas recirculation	EGR	Reduces NOx
Three-way catalyst	TWC	Reduces HC, CO and NOx
Electronic fuel injection*	EFI	Regulates all engine conditions for reduction of exhaust emissions.

Remarks * For inspection and repair of the EFI system, refer to the EFI section of this manual.

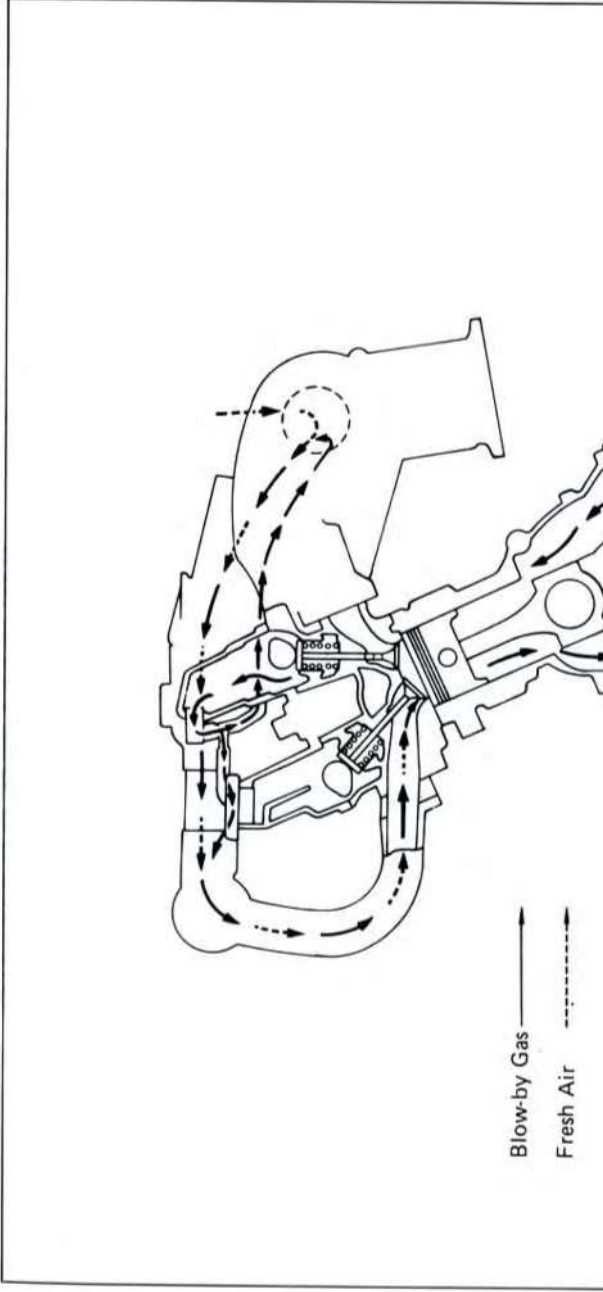
COMPONENT LAYOUT AND SCHEMATIC DRAWING



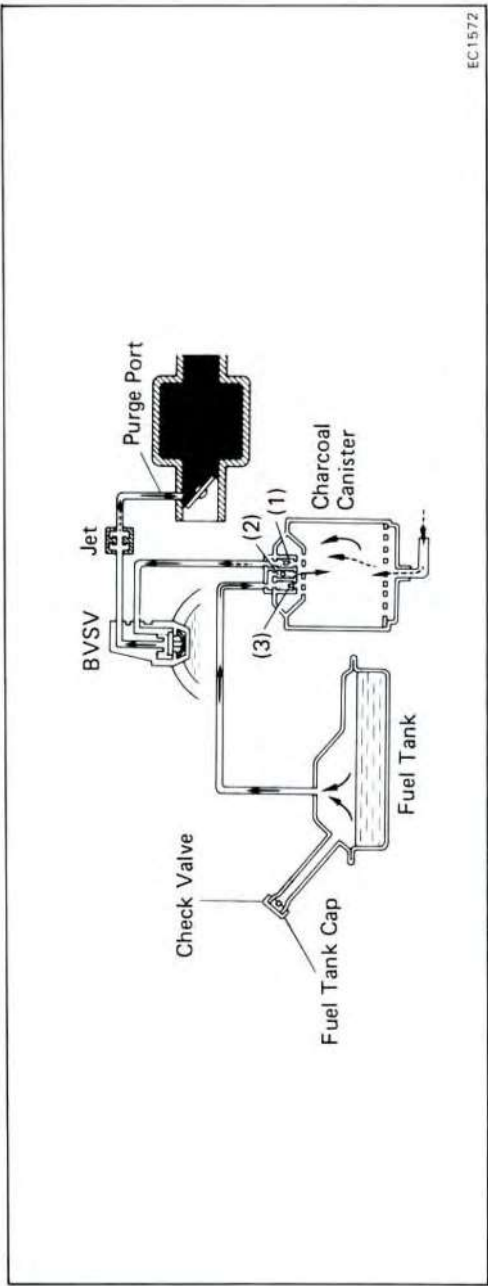
EC-4

EMISSION CONTROL SYSTEMS — Positive Crankcase Ventilation (PCV) System

POSITIVE CRANKCASE VENTILATION (PCV) SYSTEM

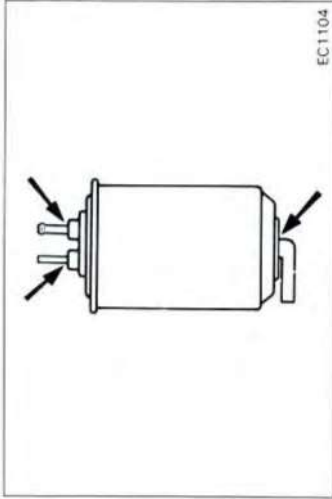


FUEL EVAPORATIVE EMISSION CONTROL (EVAP) SYSTEM



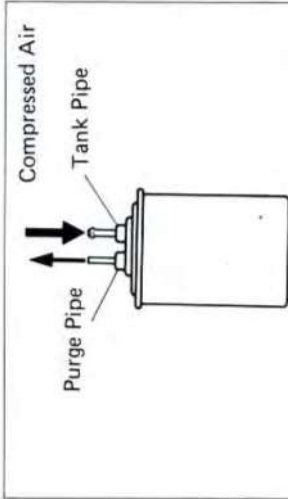
To reduce HC emission, evaporated fuel from the fuel tank is routed through the charcoal canister to the intake manifold

EC-6 EMISSION CONTROL SYSTEMS – Fuel Evaporative Emission Control (EVAP) System



INSPECTION OF CHARCOAL CANISTER

1. REMOVE CHARCOAL CANISTER
2. VISUALLY INSPECT CHARCOAL CANISTER
Look for cracks or damage.



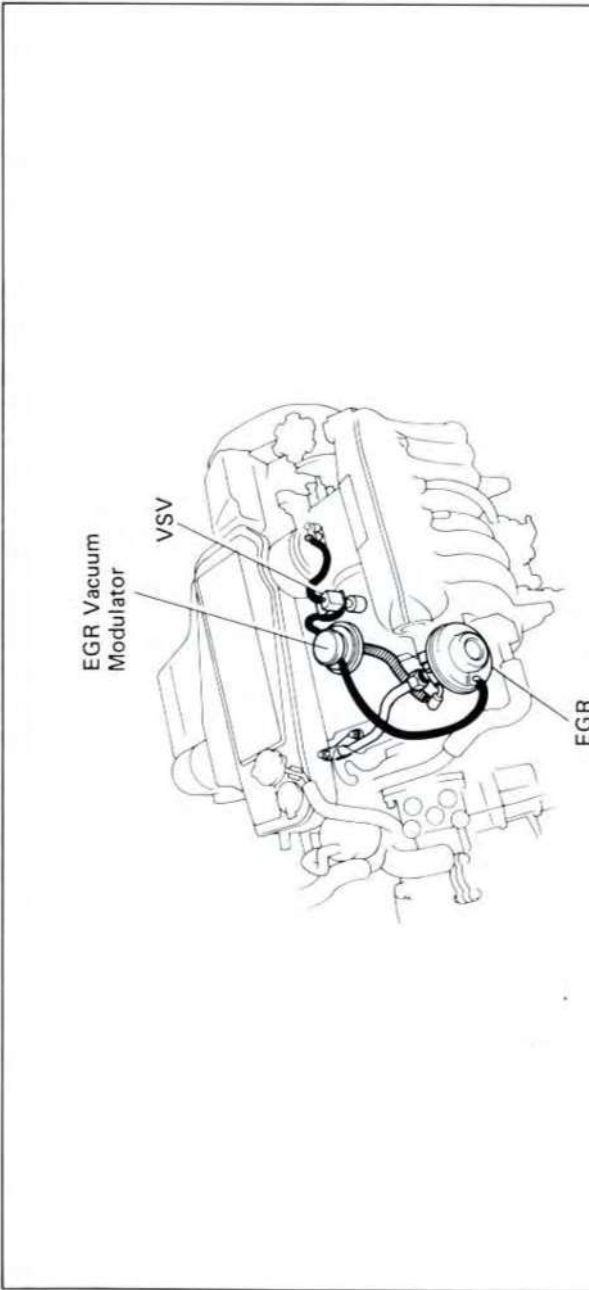
3. CHECK FOR CLOGGED FILTER AND STUCK CHECK VALVE

- (a) Using low pressure compressed air, blow into the tank pipe and check that air flows without resistance from the other pipes.
 - (b) Blow into the purge pipe and check that air does not flow from the other pipes.
- If a problem is found, replace the charcoal canister.

EC-8

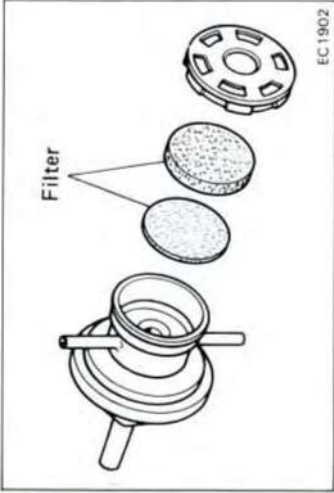
EMISSION CONTROL SYSTEMS — Exhaust Gas Recirculation (EGR) System

EXHAUST GAS RECIRCULATION (EGR) SYSTEM



EMISSION CONTROL SYSTEMS — Exhaust Gas Recirculation (EGR) System

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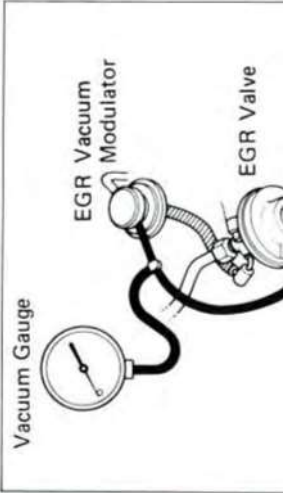


INSPECTION OF EGR SYSTEM

1. CHECK AND CLEAN FILTERS IN EGR VACUUM MODULATOR

(a) Check the filters for contamination or damage.

(b) Using compressed air, clean the filters.



2. PREPARATION

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

3. CHECK SEATING OF EGR VALVE

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

EC-10 EMISSION CONTROL SYSTEMS — Exhaust Gas Recirculation (EGR) System

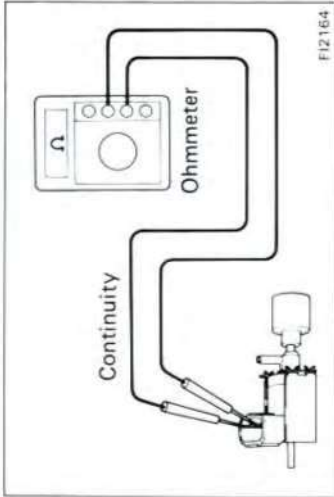
INSPECTION OF VSV

1. CHECK VSV FOR OPEN CIRCUIT

Using an ohmmeter, check that there is continuity between the terminals.

Resistance (Cold): 33 — 39 Ω

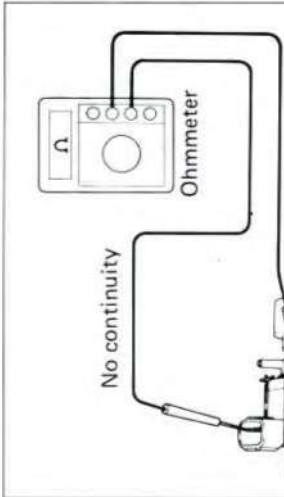
If there is no continuity, replace the VSV.



2. CHECK VSV FOR GROUND

Using an ohmmeter, check that there is no continuity between each terminal and the body.

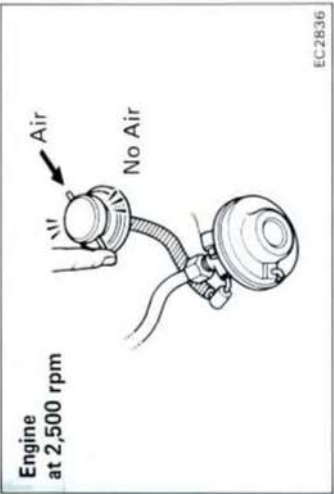
If there is continuity, replace the VSV.



EMISSION CONTROL SYSTEMS — Exhaust Gas Recirculation (EGR) System

EC-11

Engine
at 2,500 rpm



EC2836

(d) Start the engine and maintain speed at 2,500 rpm.

(e) Repeat the above test. Check that there is a strong resistance to air flow.

(f) Reconnect the vacuum hoses to the proper locations.

INSPECTION OF EGR VALVE

1. REMOVE EGR VALVE

Check for sticking and heavy carbon deposits.
If a problem is found, replace the valve.

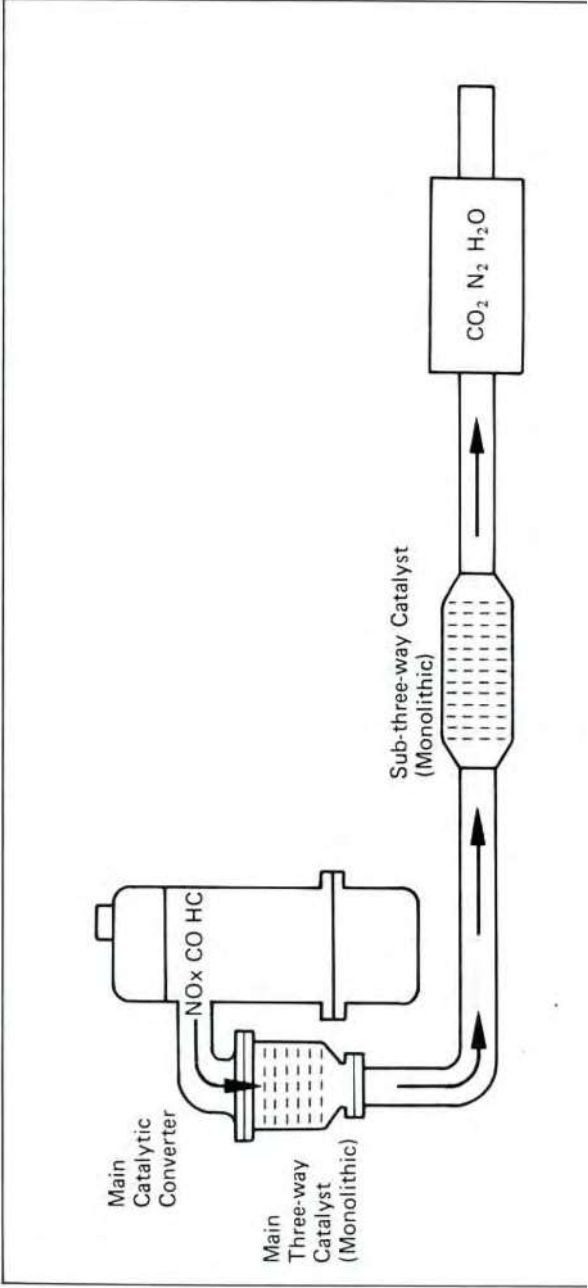
2. REINSTALL EGR VALVE

Install a new gasket.

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EMISSION CONTROL SYSTEMS — Three-way Catalyst (TWC) System

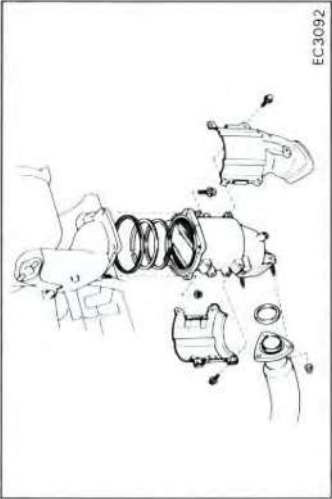
THREE-WAY CATALYST (TWC) SYSTEM



EC3127

To reduce HC, CO and NOx emissions, they are oxidized, reduced and converted to nitrogen (N₂), carbon dioxide (CO₂) and water (H₂O) by the catalyst.

Exhaust Port	Main TWC	Sub-TWC	Exhaust Gas
HC, CO AND NOx	OXIDATION AND REDUCTION	OXIDATION AND REDUCTION	CO ₂ H ₂ O N ₂



EC3092

INSPECTION OF EXHAUST PIPE ASSEMBLY

CHECK CONNECTIONS FOR LOOSENESS OR DAMAGE

REPLACEMENT OF CATALYTIC CONVERTERS

1. REMOVE CONVERTERS

(a) Jack up the vehicle.

(b) Check that the converter is cool.

(c) Remove the suspension lower crossmember.
(See page EM-44)

- (d) Remove the front exhaust pipe (Sub-converter).
- Loosen the bolt, and disconnect the clamp the exhaust pipe bracket.
 - Remove the three nuts, and remove the exhaust pipe. Remove the gasket.
- (e) Remove the six bolts, two nuts and two converter stays.
- (f) Remove the three bolts, two nuts, gasket, retainer, cushion and main converter.
- (g) Remove the nine bolts and two heat insulators from the main converter.