SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Emissions Control System	General

Return to Main Menu(s): Mechanical Manual Electrical Manual

TIGHTENING TORQUE

|	Nm	kg.cm	lb.ft
Positive crankcase ventilation valve	8-12	80-120	6-8

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Emissions Control System	General

Return to Main Menu(s): Mechanical Manual Electrical Manual

TROUBLESHOOTING

Symptom	Probable cause	Remedy
Engine will not start or hard to start	Vacuum hose disconnected or damaged	Repair or replace
	Malfunction of the EVAP Canister Purge Solenoid Valve	Repair or replace
Rough idle or engine stalls	Vacuum hose disconnected or damaged	Repair or replace
	Malfunction of the PCV valve	Replace
	Malfunction of the evaporative emission canister purge system	Check the system; if there is any problem, check its component parts
Excessive oil consumption	Positive crankcase ventilation line clogged	Check positive crankcase ventilation system

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Emissions Control System	General

Return to Main Menu(s): Mechanical Manual Electrical Manual

SPECIFICATIONS

Crankcase Emission System

Components	Function	Remarks
Positive crankcase ventilation (PCV) valve	HC reduction	Variable flow rate type

Evaporative Emission System

Components	Function	Remarks
Evaporative emission canister	HC reduction	
EVAP Canister Purge Solenoid Valve		Duty control solenoid valve
Fuel Tank Pressure Sensor	Monitoring EVAP	
Canister close valve	Monitoring EVAP	

Exhaust Emission System

Components	Function	Remarks
MFI system (air-fuel mixture control device)	CO, HC, NOx reduction	Heated oxygen sensor feedback type
Three-way catalytic converter	CO, HC, NOx reduction	Monolith type

MFI: Multiport Fuel Injection

EVAP: Evaporative Emission

SERVICE STANDARD

EVAP Canister Purge Solenoid Valve

Coil resistance	26 OHM [at 20°C (68°F)]

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Emissions Control System	Exhaust Emission Control System

Return to Main Menu(s): Mechanical Manual Electrical Manual

EXHAUST EMISSION CONTROL SYSTEM

Exhaust emissions (CO, HO, NOx) are controlled by a combination of engine modifications and the addition of special control components.

This system is to modificate to the combustion chamber, intake manifold, camshaft and ignition system form the basic control system.

These systems have been integrated into a highly effective system which controls exhaust emissions while maintaining good driveability and fuel economy.

AIR/FUEL MIXTURE RATIO CONTROL SYSTEM

MULTIPORT FUEL INJECTION (MFI) SYSTEM

The MFI system is a system which employs the signals from the heated oxygen sensor to activate and control the injector installed in the manifold for each cylinder, thus precisely regulating the air/fuel mixture ratio and reducing emissions.

This in turn allows the engine to produce exhaust gases of the proper composition to permit the use of a three way catalyst. The three way catalyst is designed to convert the three pollutants (1) hydrocarbons (HC), (2) carbon monoxide (CO), and (3) oxides of nitrogen (NOx) into harmless substances. There are two operating modes in the MFI system.

Open loop air/fuel ratio is controlled by information programmed into the ECM.

Closed loop air/fuel ratio is varied by the ECM based on information supplied by the oxygen sensor.

Return to Main Menu(s): Mechanical Manual Electrical Manual

PRECAUTIONS FOR A CATALYTIC CONVERTER

CAUTION

If large amounts of unburned gasoline flow into the converter, it may overheat and create a fire hazard. To prevent this, observe the following precautions and be sure to explain them to your customer.

Use only unleaded gasoline.

Avoid prolonged idling. Avoid running the engine at fast idle speed for more than 10 minutes and at idle speed for more than 20 minutes.

Avoid spark jump test. Spark jump only when absolutely necessary. Perform this test as rapidly as possible and, while testing, never race the engine.

Avoid prolonged engine compression measurement. Engine compression tests must be made as rapidly as possible.

Do not run engine when fuel tank is nearly empty. This may cause the engine to misfire and create an extra lead on the converter.

Avoid coasting with ignition turned off and prolonged braking.

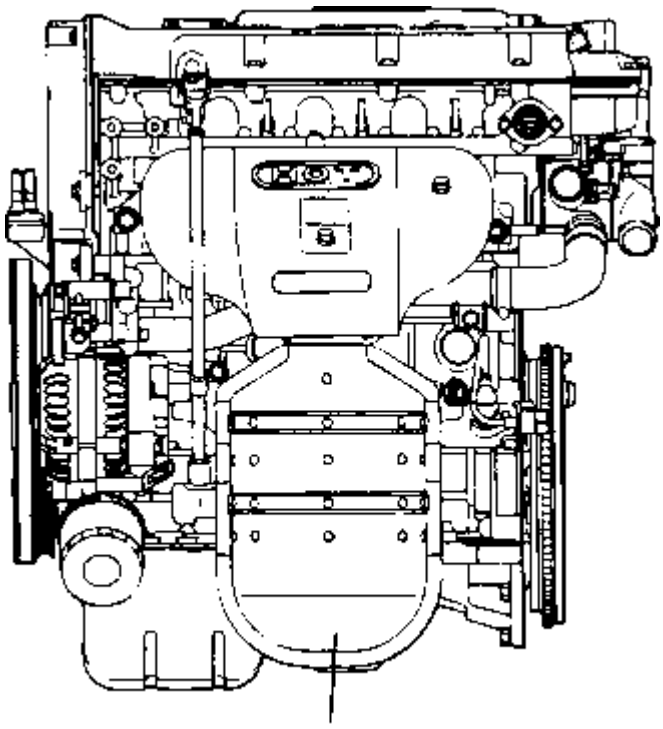
Do not dispose of used catalyst along with parts contaminated with gasoline or oil.

Return to Main Menu(s): Mechanical Manual Electrical Manual

CLOSE COUPLED CATALYTIC CONVERTER

INSPECTION

Inspect for damage, cracking or deterioration. Replace if faulty.



CAUTION

The catalytic converters require the use of unleaded gasoline only. Leaded gasoline will destroy the effectiveness of the catalysts as an emission control device.
Under normal operating conditions, the catalytic converters will not require maintenance. However, it is important to keep the engine properly tuned. Engine misfiring may cause overheating of the catalysts. This may cause heat damage to the converters or vehicle components. This situation can also occur during diagnostic testing if any spark plug cables are removed and the engine is allowed to idle for a prolonged period of time.

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Emissions Control System	Evaporative Emission Control System

Return to Main Menu(s): Mechanical Manual Electrical Manual

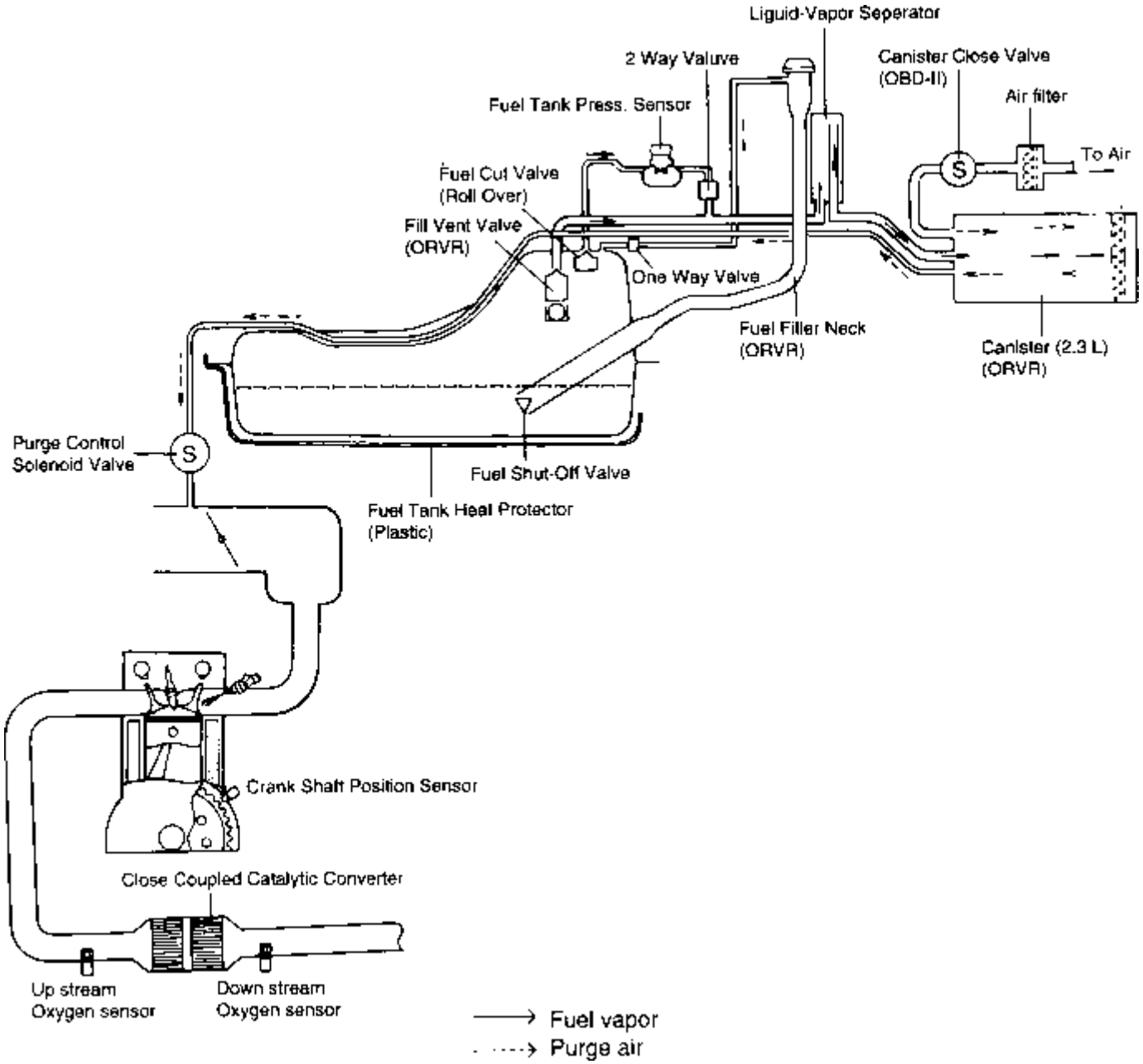
DESCRIPTION

The evaporative emission control system reduces HC gas by trapping fuel tank vapors until they can be burned as part of the incoming fuel charge. Evaporating fuel is stored in a charcoal canister until it can be flushed into the intake manifold and ORVR sytem is designed for the evaporative gas of the fuel tank to be trapped into the canister while refueling, so as not to escape the gas intothe atmosphere.

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Emissions Control System	Evaporative Emission Control System

Return to Main Menu(s): Mechanical Manual Electrical Manual

COMPONENTS

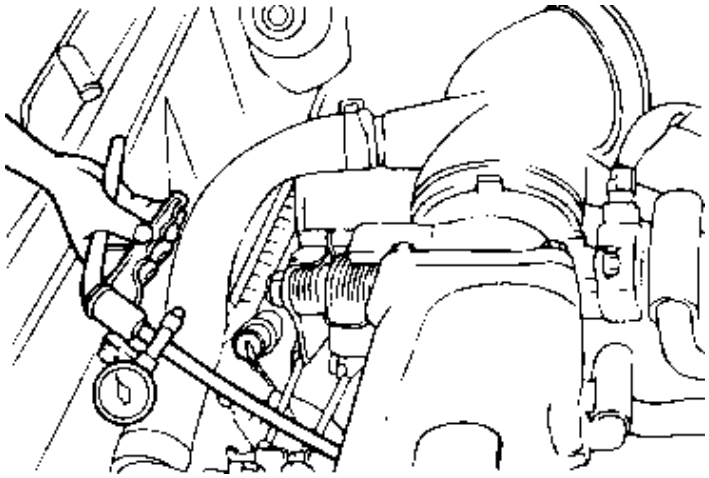


Return to Main Menu(s): Mechanical Manual Electrical Manual

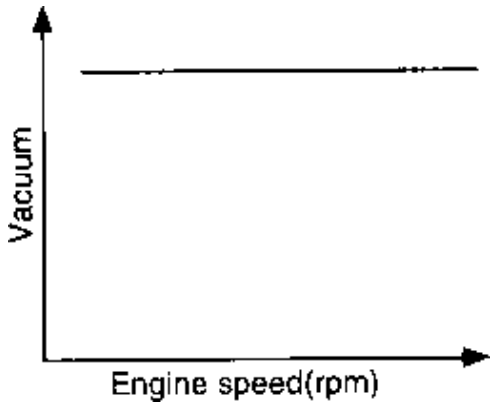
VACUUM HOSE

Engine coolant temperature: 80-95°C (176-205°F)

Disconnect the vacuum hose from the intake manifold purge hose nipple and connect a hand vacuum pump to the nipple.



Start the engine and check that, after raising the engine speed by racing the engine, vacuum remains fairly constant.



NOTE

If there is no vacuum created, it is possible that the intake manifold port may be clogged and require cleaning.

Return to Main Menu(s): Mechanical Manual Electrical Manual

INSPECTION

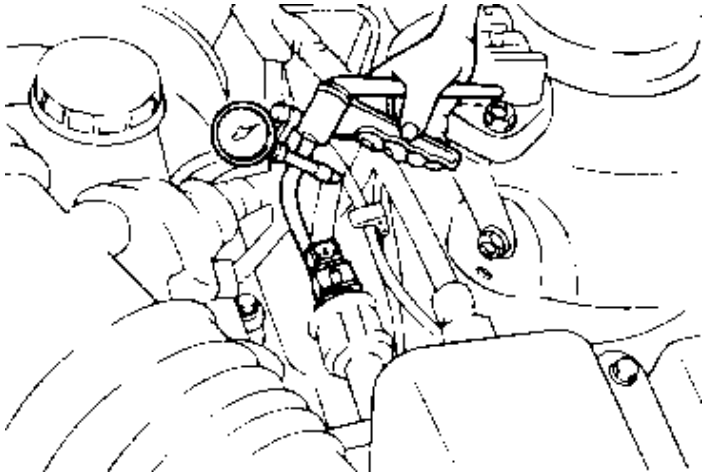
NOTE

When disconnecting the vacuum hose, make a mark on it so that it can be reconnected to its original position.

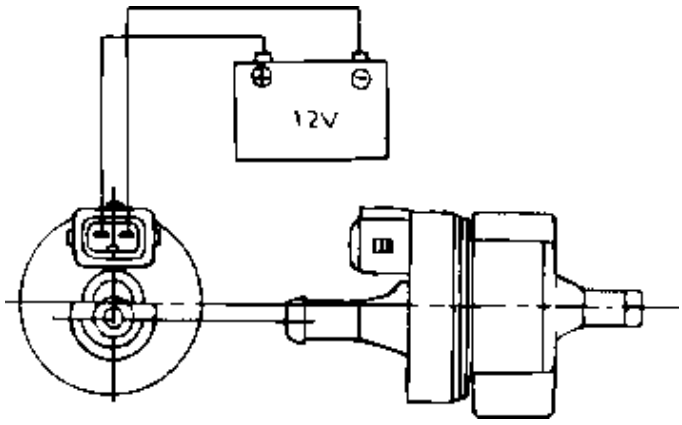
Disconnect the vacuum hose from the solenoid valve.

Detach the harness connector.

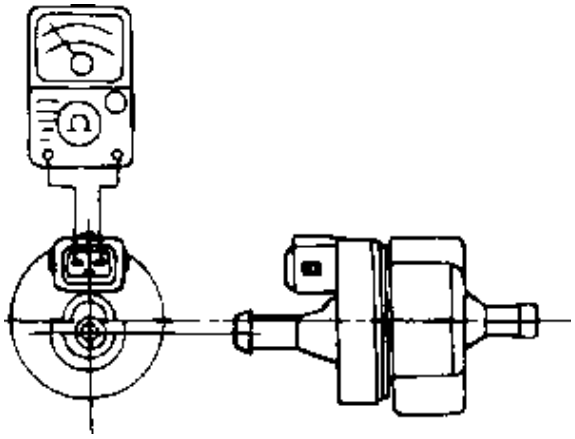
Connect a vacuum pump to the nipple to which the red-striped vacuum hose was connected.



Apply vacuum and check when voltage is applied to the evaporative emission canister purge solenoid valve and when the voltage is discontinued.



Battery voltage	Normal condition
When applied	Vacuum is released
When discontinued	Vacuum is maintained



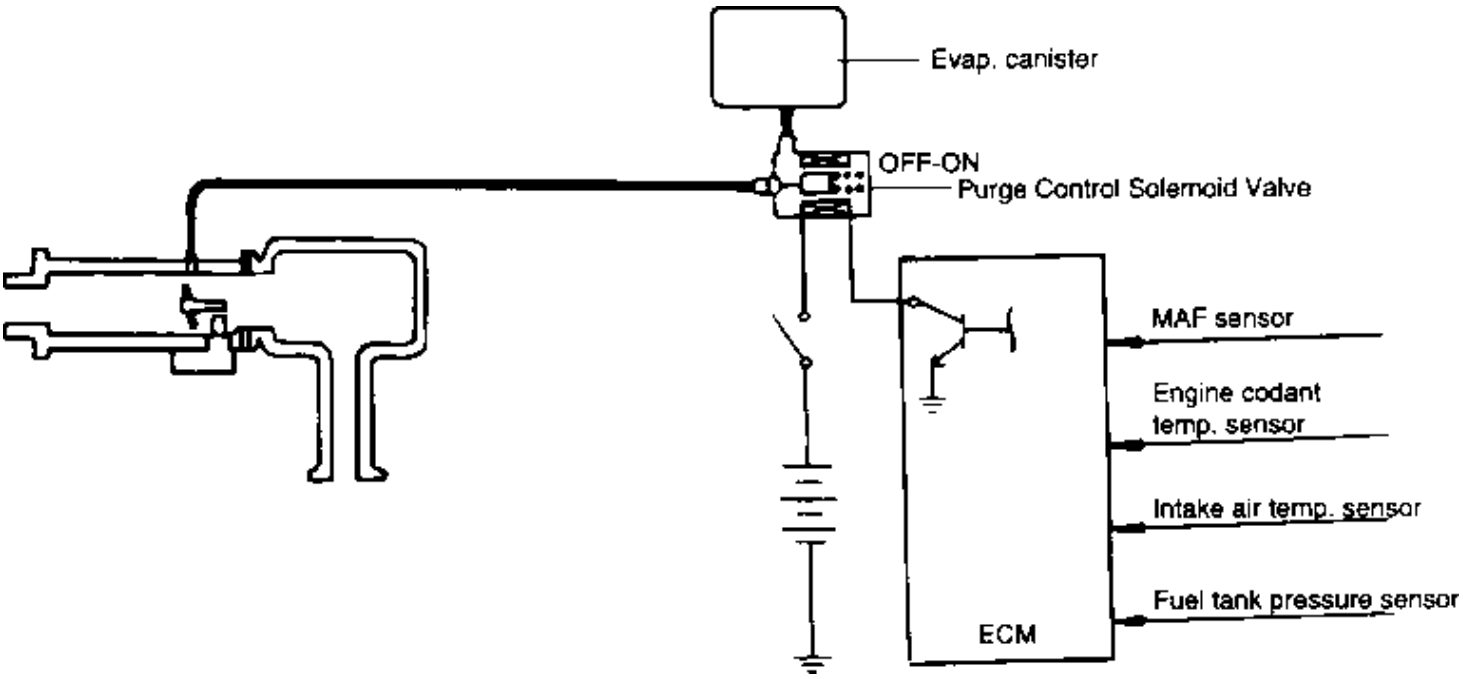
Measure the resistance between the terminals of the solenoid valve.

RESISTANCE SPECIFICATION	
EVAP Canister Purge	

Solenoid Valve: (Coil resistance)	26 [at 20°C (68°F) O

Return to Main Menu(s): Mechanical Manual Electrical Manual

CHECKING PURGE SYSTEM



SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Emissions Control System	Evaporative Emission Control System

Return to Main Menu(s): Mechanical Manual Electrical Manual

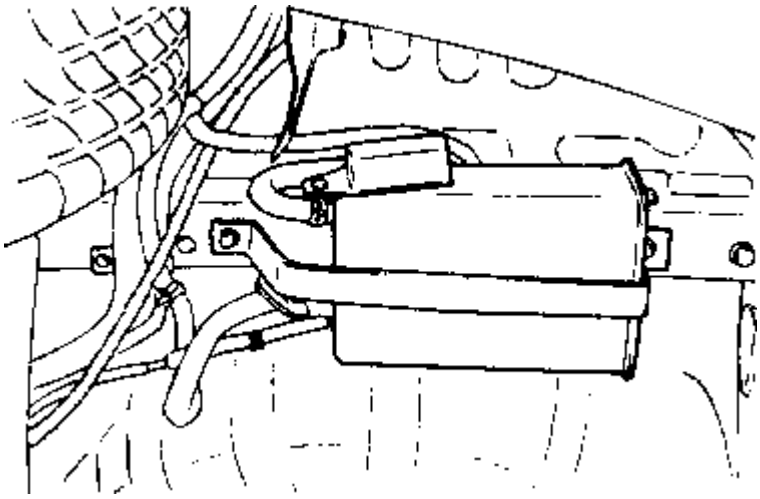
INSPECTION

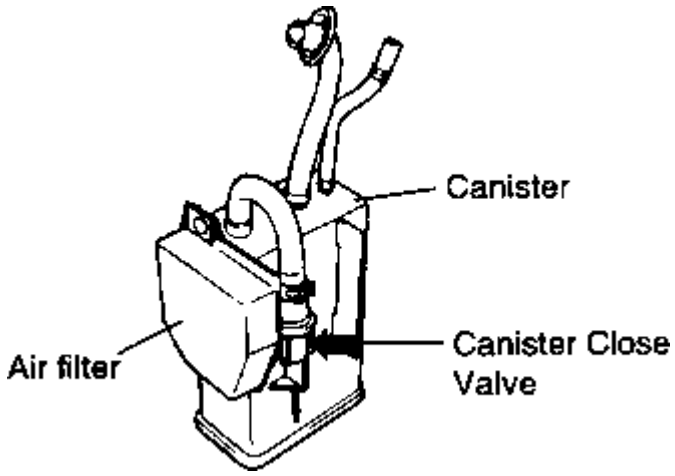
For evaporation monitoring, there are a CCV, and an air filter as the illustration.

Look for loose connections, sharp bends or damage to the fuel vapor lines.

Look for distortion, cracks or fuel leakage.

After removing the EVAP Canister, inspect for cracks or damage.

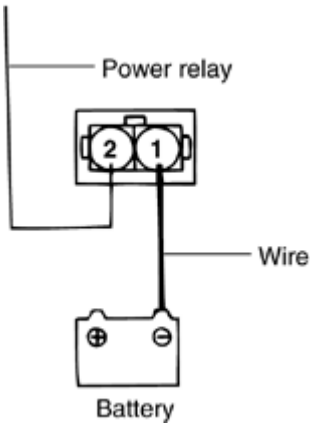




CHECK OF CANISTER CLOSE VALVE OPERATING

Connect the CCV pins to a wire as shown.

At idle, disconnect the CCV connector.



Inspect that CCV is close when attaching the wire to (-) of battery.

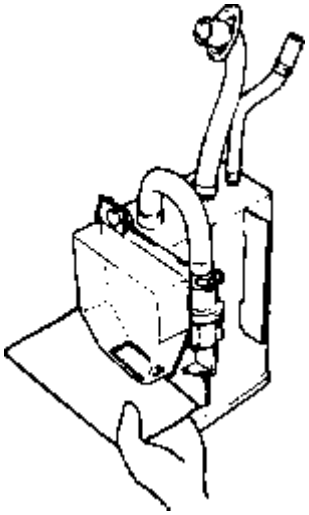
Inspect that CCV is open when detaching the wire from (-) of battery.

NOTE

In this case, if you use a very thin paper and attach it to hose to CCV, you can check easy the CCV condition.

1. If the paper is absorbed into or out, CCV is open.

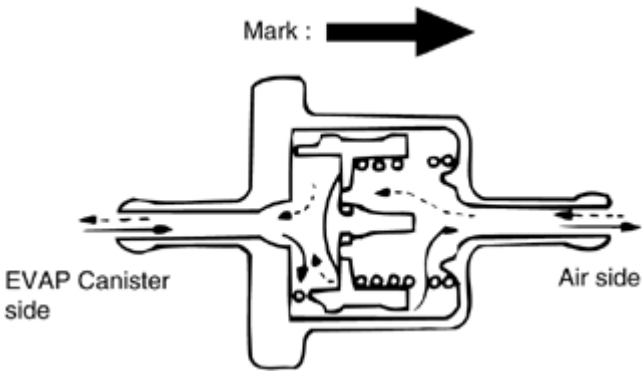
1. If not, CCV is close.



TWO-WAY VALVE

Inspect whether air flows as shown.

Check to connect correctly such as the arrow mark on the valve.



AIR FILTER

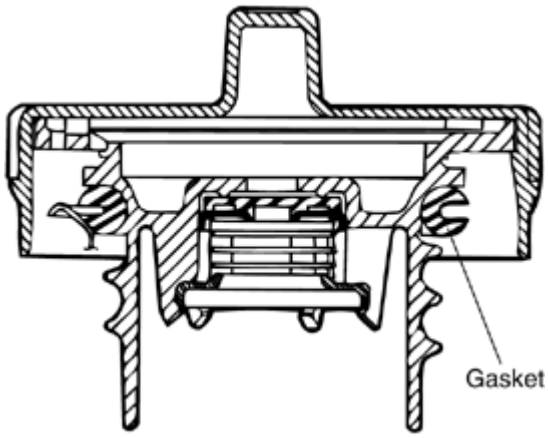
Look for distortion, cracks.

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Emissions Control System	Evaporative Emission Control System

Return to Main Menu(s): Mechanical Manual Electrical Manual

FUEL FILLER CAP

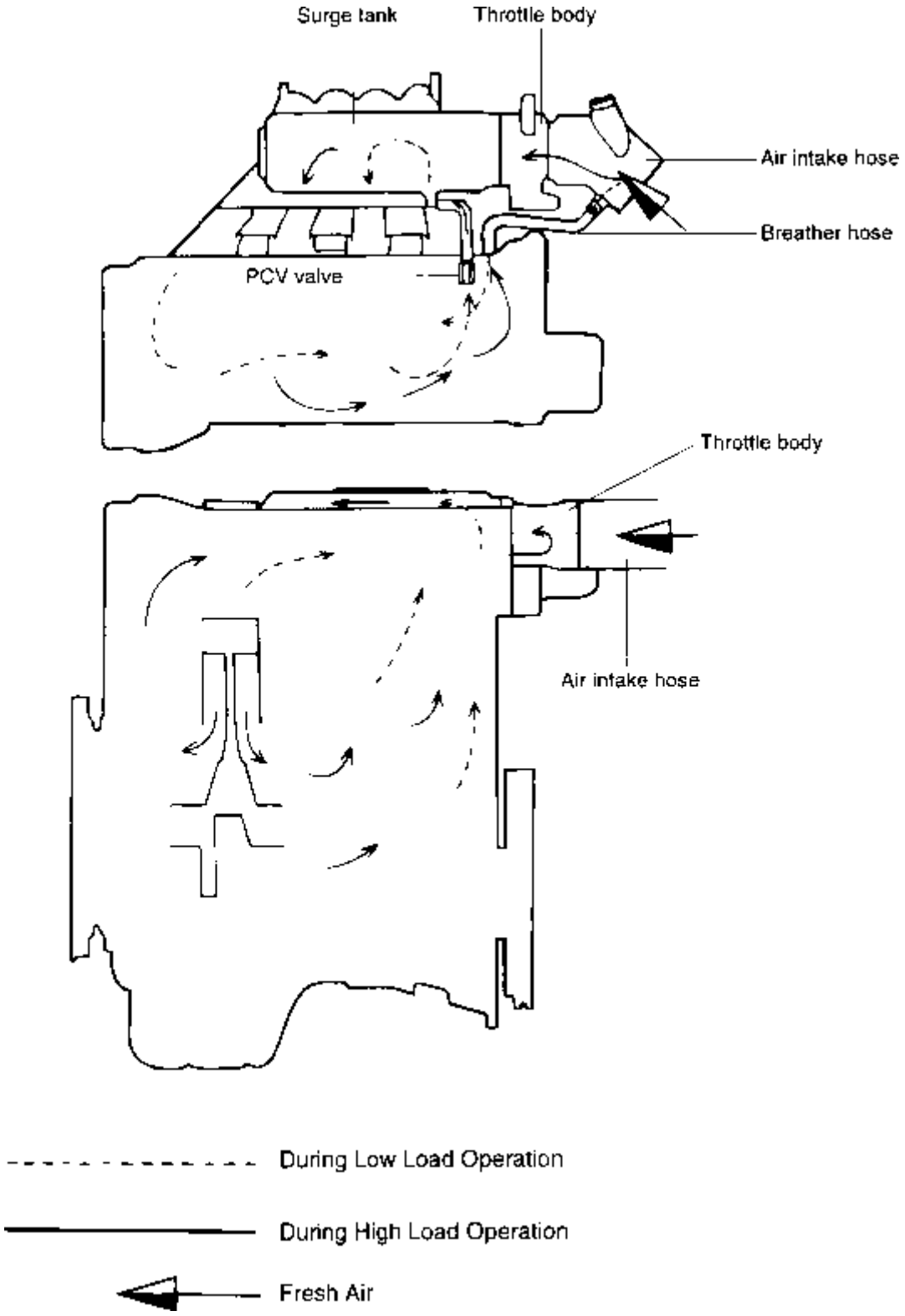
Check the gasket of the fuel filler cap, and the filler cap itself, for damage or deformation. Replace the cap if necessary.



SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Emissions Control System	Crankcase Emission Control System

Return to Main Menu(s): Mechanical Manual Electrical Manual

COMPONENTS

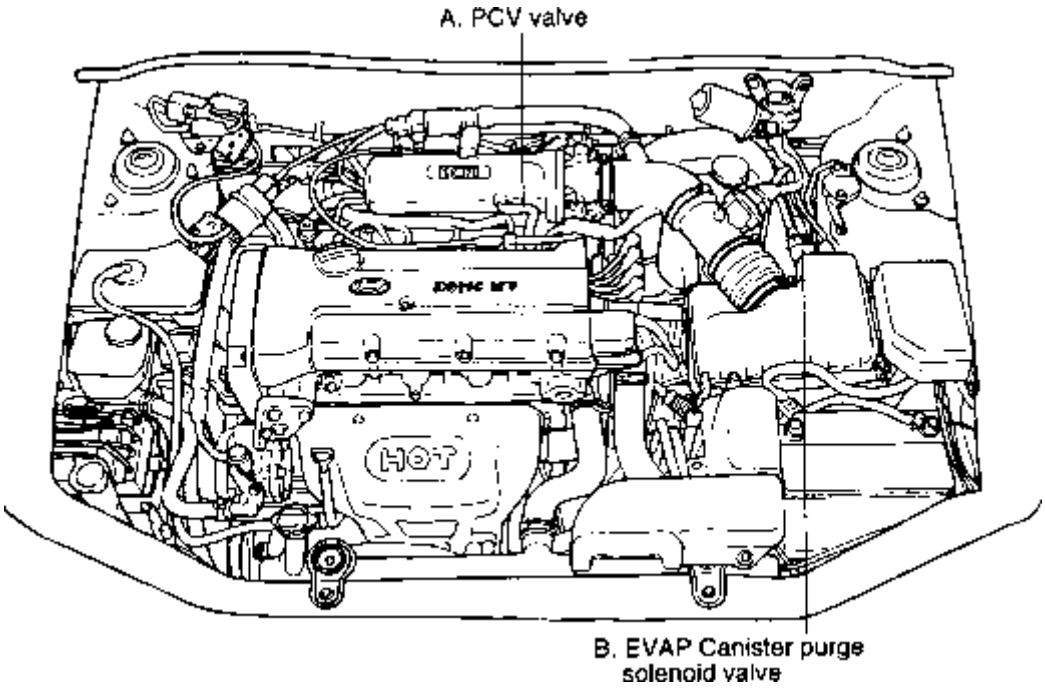


SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2000	
GROUP	
Emissions Control System	Crankcase Emission Control System

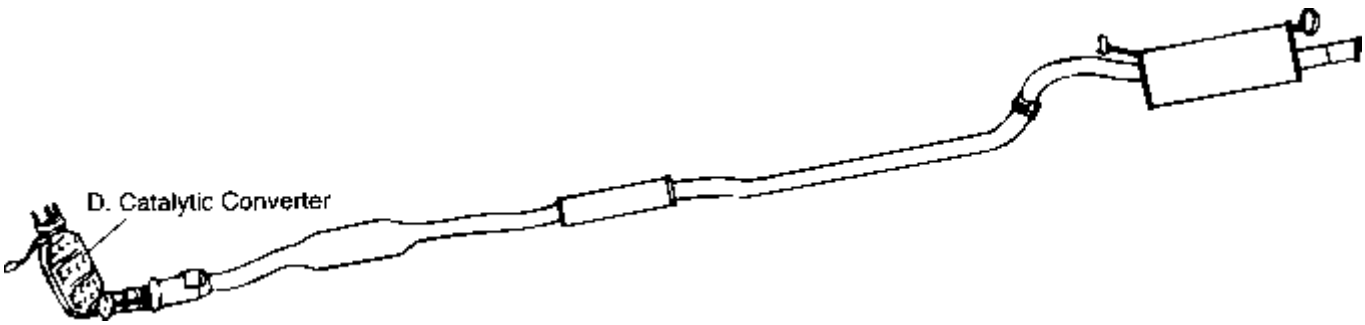
Return to Main Menu(s): Mechanical Manual Electrical Manual

EMISSION CONTROLS LOCATION

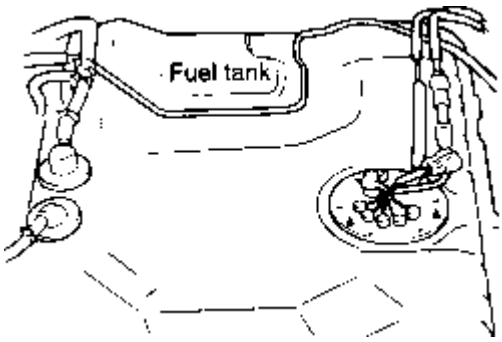
[ENGINE COMPARTMENT - Top view]

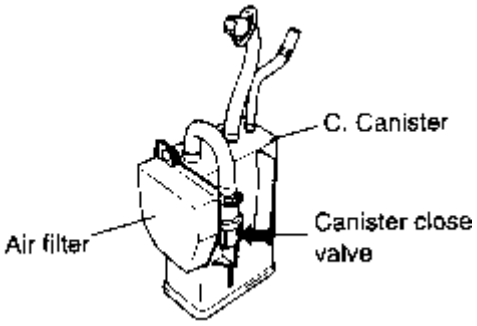


[MUFFLER ASSEMBLY - Side view]



[FUEL TANK AND CANISTER]

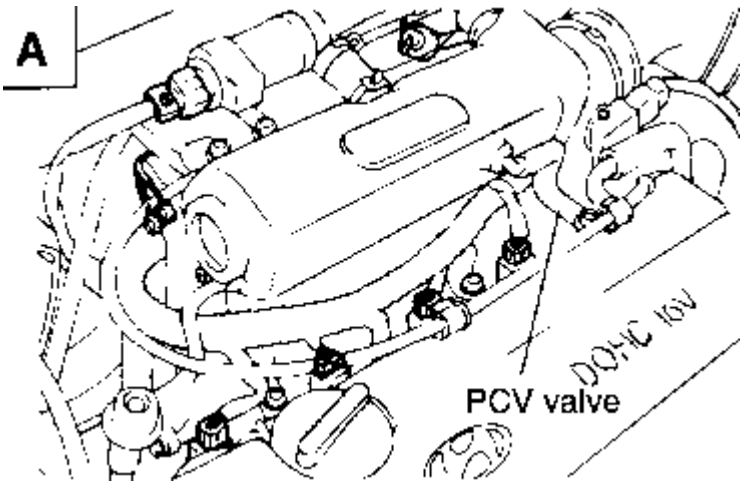




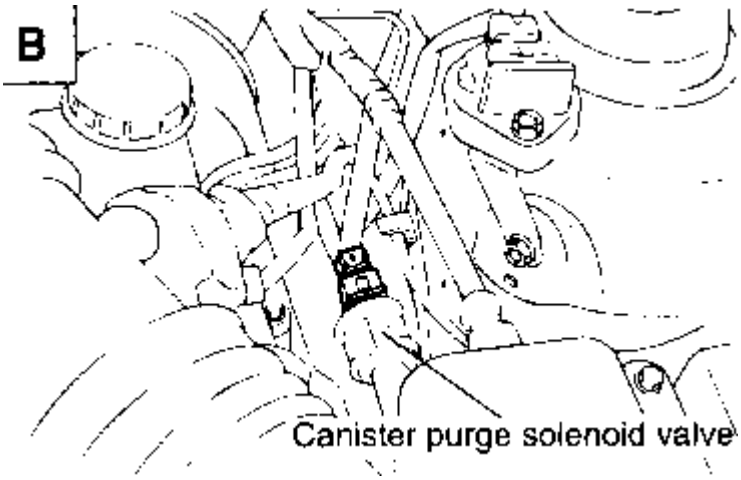
Return to Main Menu(s): Mechanical Manual Electrical Manual

EMISSION CONTROL

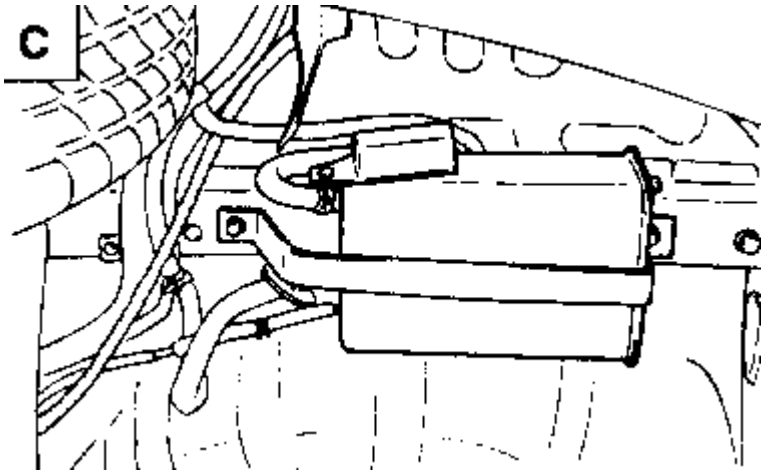
PCV Valve



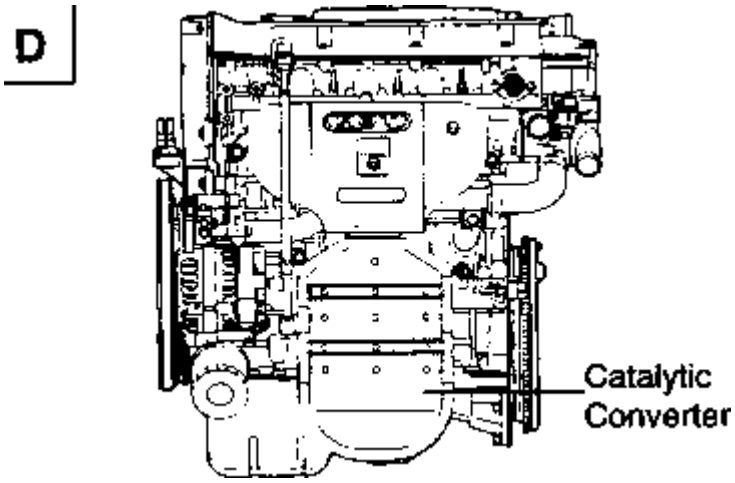
EVAP Canister Purge Solenoid Valve



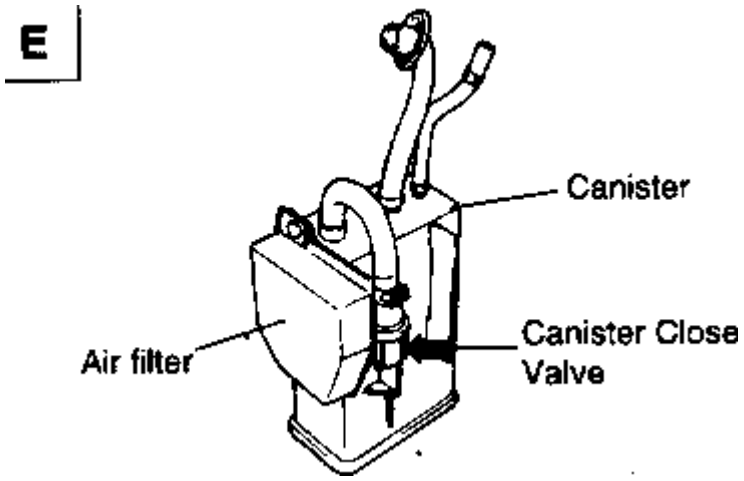
EVAP Canister



Catalytic Converter



Canister Close Valve



SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Emissions Control System	Crankcase Emission Control System

Return to Main Menu(s): Mechanical Manual Electrical Manual

SCHEMATIC

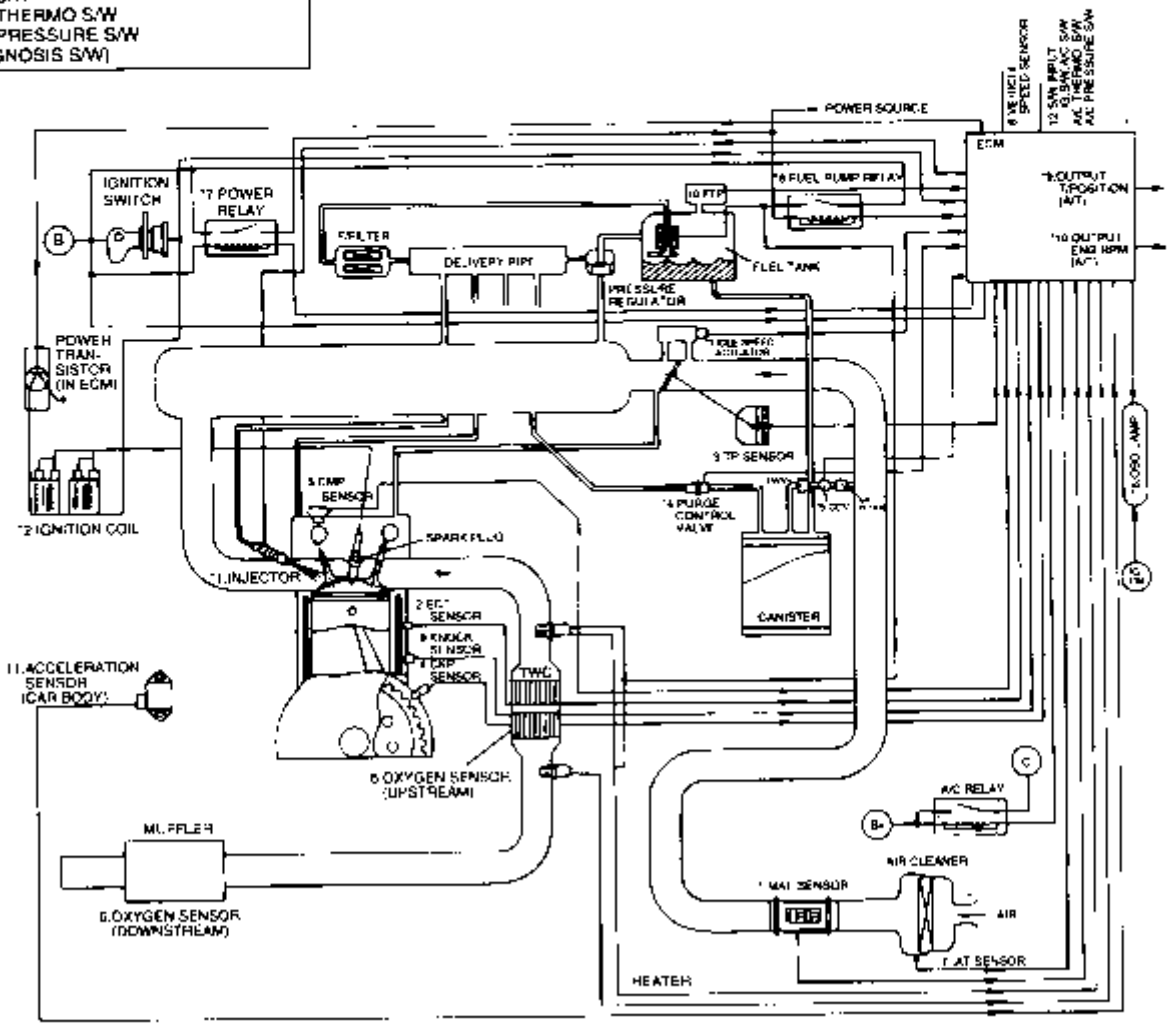
INPUT

1. MAF SENSOR
2. ENGINE COOLANT TEMPERATURE SENSOR
3. THROTTLE POSITION SENSOR
4. CRANKSHAFT POSITION SENSOR
5. CAMSHAFT POSITION SENSOR
6. OXYGEN SENSORS
7. INTAKE AIR TEMPERATURE SENSOR
8. VEHICLE SPEED SENSOR
9. KNOCK SENSOR
10. FUEL TANK PRESSURE SENSOR
11. ACCELERATION SENSOR
12. S/W INPUT
    (IGNITION S/W,
    A/C S/W
    A/C THERMO S/W
    A/C PRESSURE S/W
    DIAGNOSIS S/W)

ECM

OUTPUT

*1. FUEL INJECTOR
*2. IGNITION COIL (POWER TRANSISTOR)
*3. IDLE SPEED ACTUATOR
*4. PURGE CONTROL VALVE
*5. CANISTER CLOSE VALVE
*6. FUEL PUMP RELAY
*7. POWER RELAY
*8. OBD LAMP
*9 THROTTLE POSITION SENSOR OUTPUT (A/T)
*10. ENG RPM (A/T)



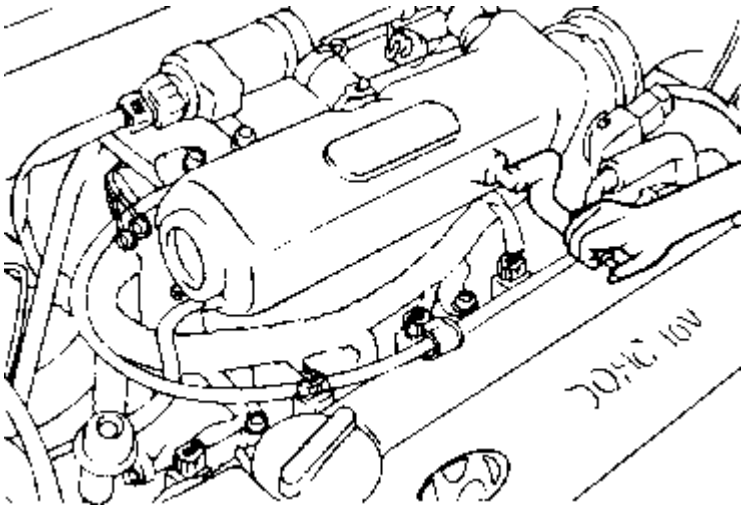
ECM : Engine Control Module
MAF : Mass Air Flow Sensor
OBD : On Board Diagnosis
A/C : Air Conditioning

SERVICE MANUAL	
Applies to: **Hyundai Coupe/Tiburon** 1998-2001	
GROUP	
Emissions Control System	Crankcase Emission Control System

Return to Main Menu(s): Mechanical Manual Electrical Manual

REMOVAL

Disconnect the ventilation hose from the positive crankcase ventilation (PCV) valve. Remove the PCV valve from the rocker cover and reconnect it to the ventilation hose.



Run the engine at idle and put a finger on the open end of the PCV valve and make sure that intake manifold vacuum is felt.

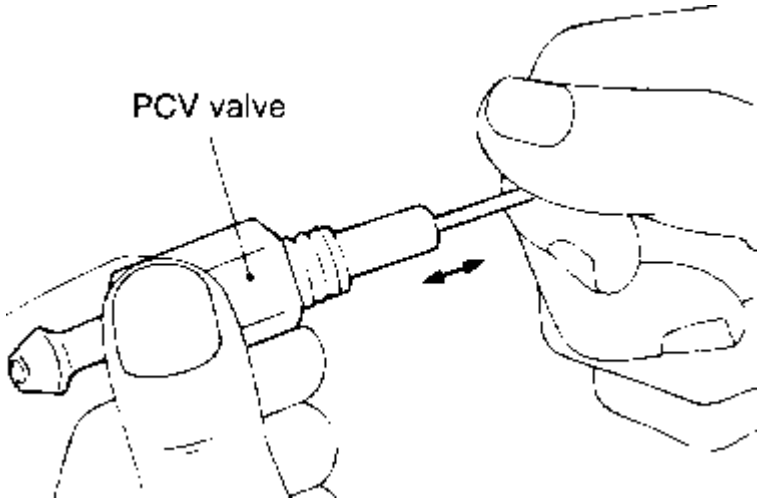
> **NOTE**
>
> **The plunger inside the PCV valve will move back and forth.**

If vacuum is not felt, clean the PCV valve and ventilation hose in cleaning solvent or replace if necessary.

INSPECTION

Remove the positive crankcase ventilation valve.

Insert a thin stick into the positive crankcase ventilation valve from the threaded side to check that the plunger moves.



If the plunger does not move, the positive crankcase ventilation valve is clogged. Clean it or replace.

INSTALLATION

Install the positive crankcase ventilation valve and tighten to specified torque.

TORQUE SPECIFICATION	
PCV valve	8-12 Nm (80-120 kg·cm, 5.8-8.7 lb·ft)