

SERVICE MANUAL	
Applies to:	Hyundai Coupe/Tiburon 1998-2001
GROUP	
Fuel System	General

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SEALANTS

Items	Specifications
Engine coolant temperature sensor ass'y	LOCTITE 962T or equivalent
Engine coolant temperature sender	Three bond No.2310 or equivalent

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BASIC TROUBLESHOOTING

When checking engine trouble, it is important to start with an inspection of the basic systems. If one of the following conditions exists, (A) engine start failure, (B) unstable idling or (C) poor acceleration, begin by checking the following basic systems.

Power supply

Battery

Fusible link

Fuse

ECM ground

Fuel supply

Fuel line

Fuel filter

Fuel pump

Ignition system

Spark plug

High-tension cable

Ignition coil

ECM

Emission control system

PCV system

Vacuum leak

Others

Ignition timing

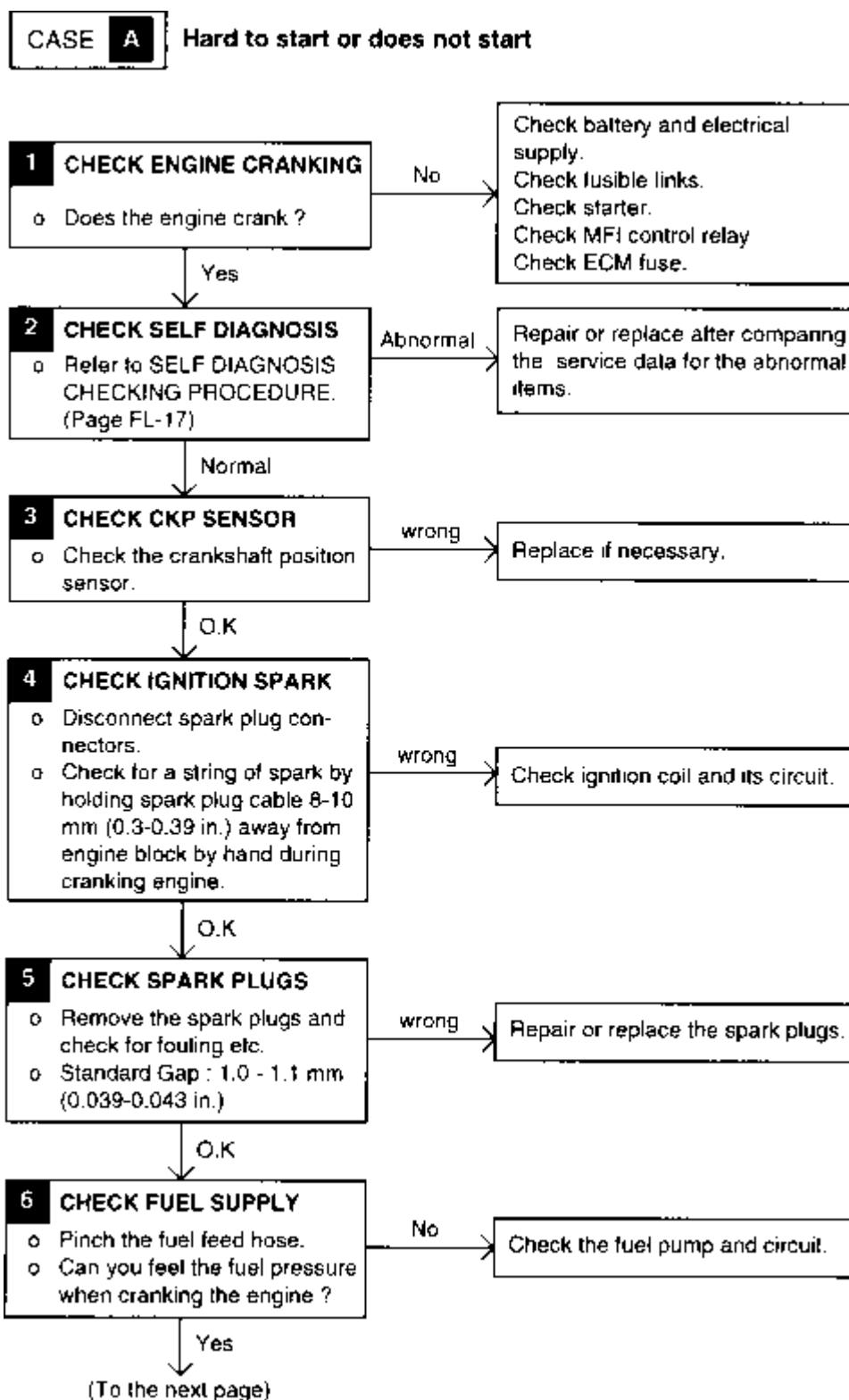
Idle speed

Trouble with the MFI system is often caused by poor contact of the harness connectors. It is important to check all harness connectors and verify that they are securely connected

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TROUBLESHOOTING (HARD TO START OR DOES NOT START)



{Frnm previous page}

O.K

CHECK FUEL LINE

- o Check for leak or delormnation at the fuel lines,
- o Check {he tuel pressure reg1,1-lawr.

wrong

Repair or replace abnormal parts,

O.K

8 CHECK INJECTORS

- o Check tor injector condition .

wrong

Replace it necessary.

O.K

CHECK ECM HARNESS CONNECTOR

- a Che-ck the ECM pin terminals lo, damage or poor connection ol ECM harness conne ctor.

wrong

Repair or ro-place.

O.K

10 CHECK IGNITION TIMING

- o Standard: BTDC 1-0 :t 5-

wrong

Adjust the ignition timing.

O.K

11 CHECK VACUUM LEAKS

- o Check vacuuro hose conn e-c-1ions.

wrong

Repaif or replace relative parts.

O.K

12 CHECK ECM POWER SUPPLY AND GROUND CIRCUIT

wrong

Repair or replace.

O.K

TRY ANEW ECM

- o ECM may be the cause ol a problem, but this is a rarB case.

END

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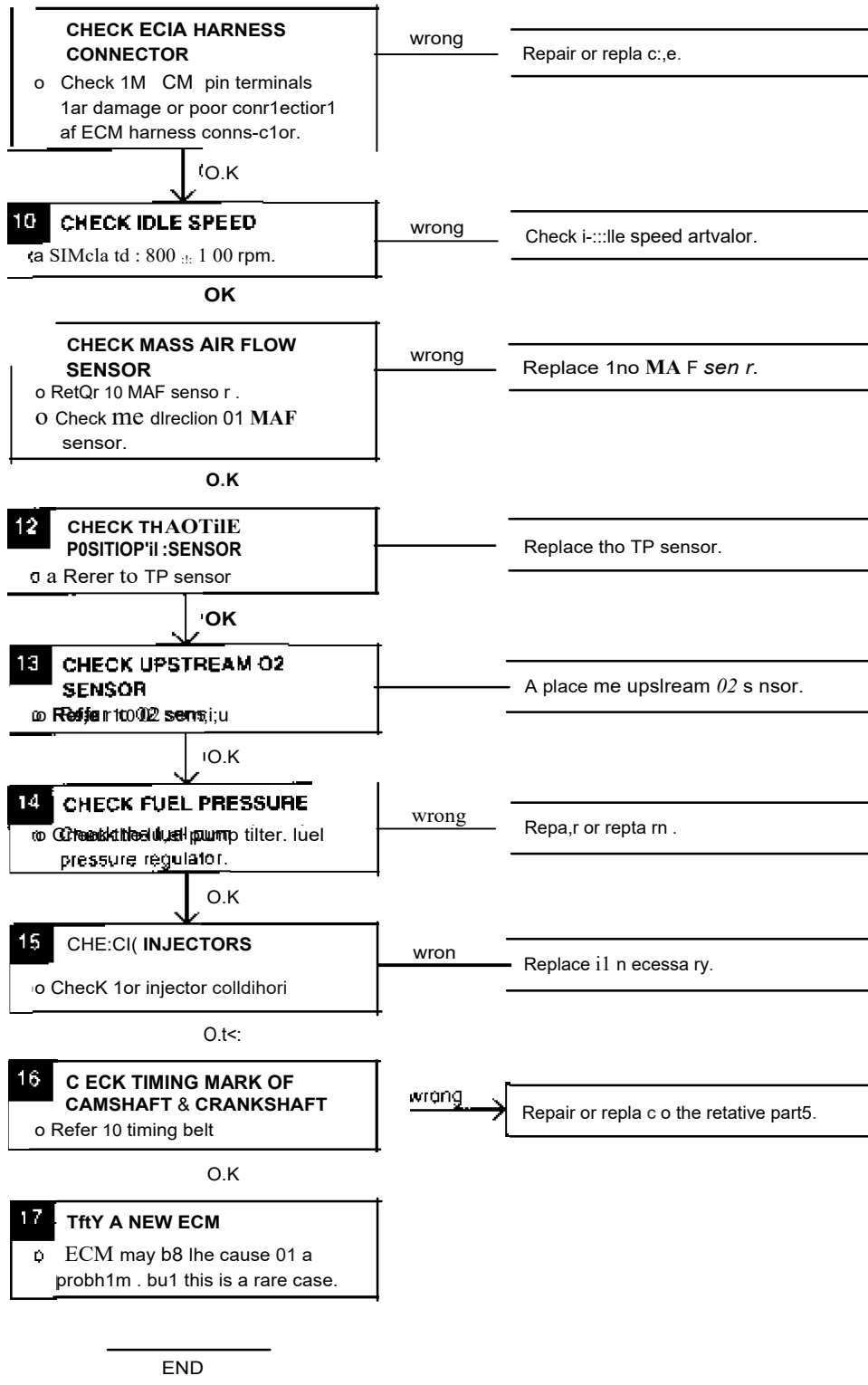
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TROUBLESHOOTING (ROUGH IDLE OR ENGINE STALLS)

CASE II J Rough Idle or engine- stalls

1 CHECK FUEL LEVEL 0 Check to see that there is enough fuel in the fuel tank	wrong	Fill the fuel tank with fuel.
Yes		
CHECK SELF DIAGNOSIS 0 Refer to SELF DIAGNOSIS CHECKING PROCEDURE. {Page FL-17}	wrong	Adjust or replace after checking the trouble codes for the abnormal items,
Normal		
3 CHECK ECM POWER SUPPLY AND GROUND CIRCUIT	wrong	Repair or replace.
O.K		
CHECK IGNITION SPARK a Disconnect spark plug connectors. 0 Check for a strong spark by holding spark plug cable B-10 mm {0.31-0.39 in.} away from engine block by hand during cranking.	wrong	Check ignition coil high tension cables and their circuit.
O.K		
5 CHECK SPARK PLUGS 0 Remove the spark plugs and check for fouling etc.	wrong	Clean or replace if necessary.
OK		
CHECK FUEL PUMP OPERATION 0 Check the fuel pump relay. 0 Pinch the fuel feed hose. 0 Can you feel the fuel pressure when cranking the engine?	wrong	Check the fuel pump relay and its circuit.
Yes		
7 CHECK ENGINE COOLANT TEMPERATURE SENSOR 0 Refer to ECT sensor.	wrong	Replace the ECT sensor.
Yes		
CHECK AIR LEAKS 0 Check vacuum hose connections and pressure connections.	wrong	Repair or replace the related parts.

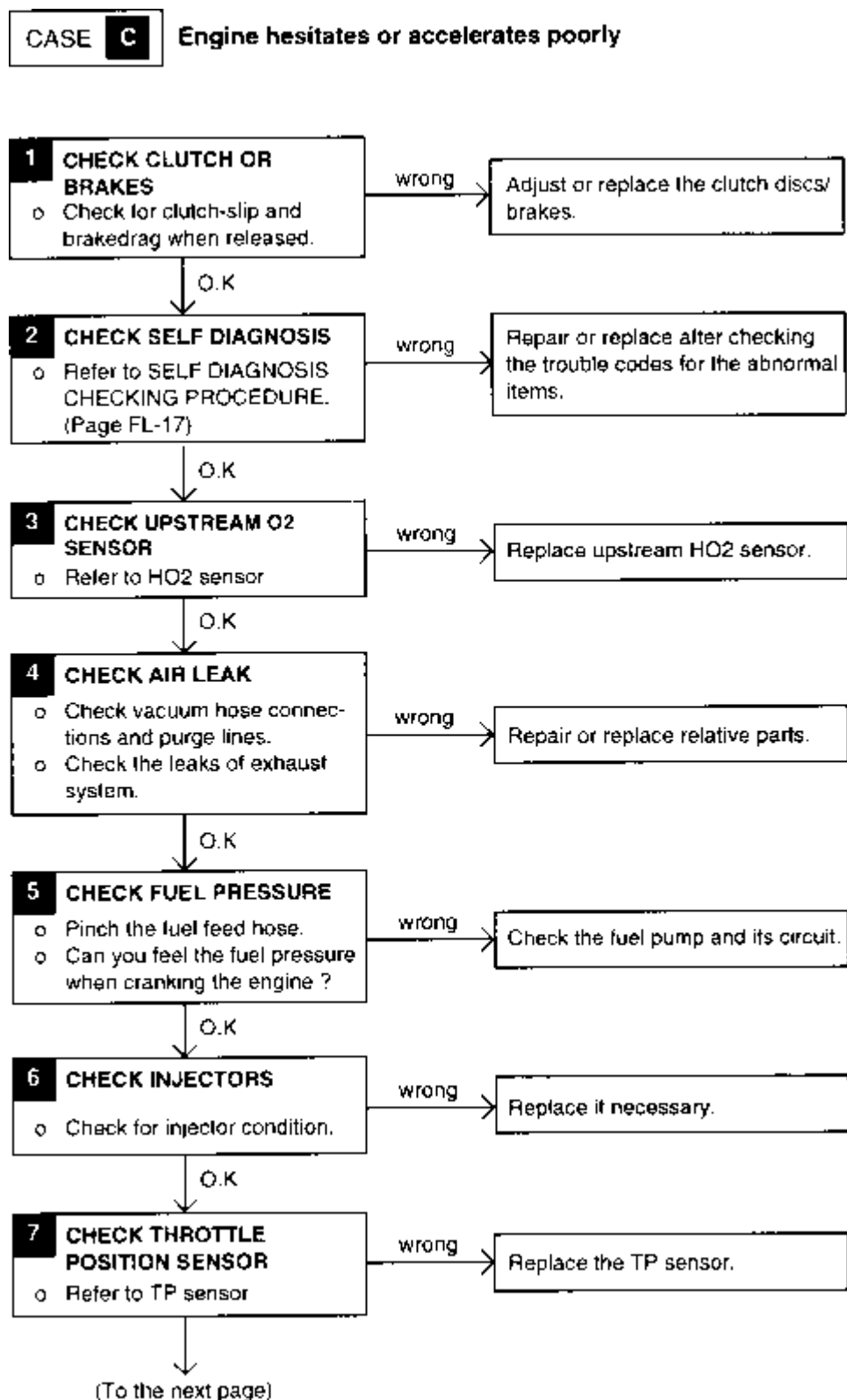
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TROUBLESHOOTING (ENGINE HESITATES OR ACCELERATES POORLY)



{From previous page}

O.K

8 CHECK ENGINE COOLANT TEMPERATURE SENSOR
o Refer to ECT sensor.

wrong

Repair or replace related parts.

O.K

9 CHECK AIR TEMPERATURE SENSOR
a Refer to IAT sensor

wrong

Repair or replace related parts.

O.K

10 CHECK MASS AIR FLOW SENSOR
o Refer to MAF sensor, or.

wrong

Repair or replace related parts.

O.K

11 CHECK KNOCK SENSOR
o Refer to knock sensor.

wrong

Repair or replace related parts.

O.K

12 CHECK ECM POWER SUPPLY AND GROUND CIRCUIT

wrong

Repair or replace.

O.K

13 CHECK FUEL PUMP AND RELAY

wrong

Repair or replace.

O.K

14 TRY A NEW ECM
o ECM may be the cause of a problem, but this is a rare case.

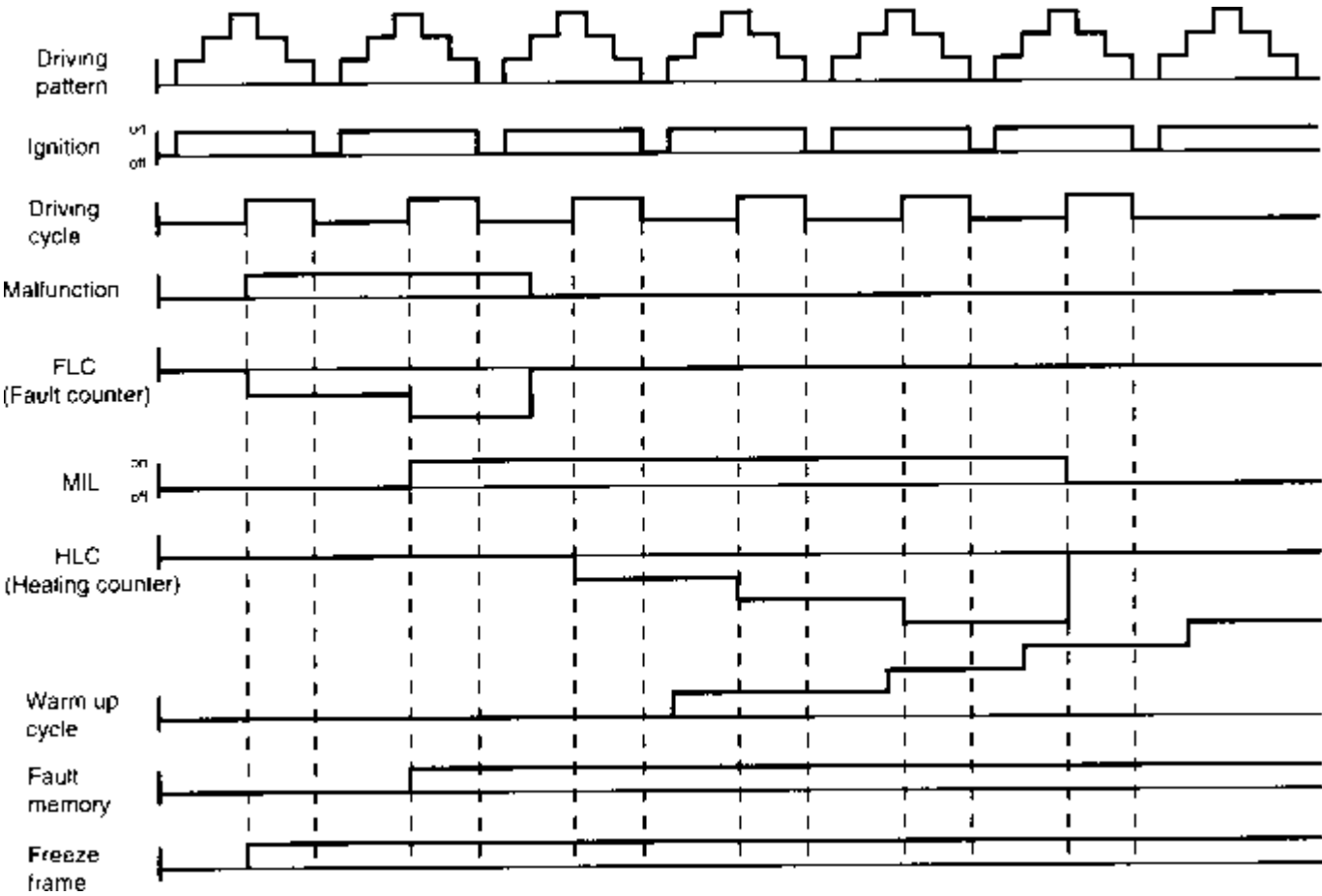
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OBD-II ON BOARD DIAGNOSIS-II SYSTEM

THE RELATIONSHIP BETWEEN DTC, MIL AND DRIVING PATTERN



When the same malfunction is detected and maintained during two sequential driving cycles, MIL will automatically light.

MIL will go off automatically after 3 sequential driving cycles without the same malfunctions.

After the ECM first detects a malfunction, a diagnostic trouble code is recorded when the engine is restarted and the same malfunction is re-detected. However, for misfire and CKP sensor, diagnostic trouble codes are recorded on the first detection of the malfunction.

After recording the diagnostic trouble code, if the ECM does not re-detect the malfunction for 80 warm-up cycles, the diagnostic trouble code will be erased automatically from the ECM memory.

NOTE

1. A "warm-up cycle" means sufficient vehicle operation such that the coolant temperature has risen by at least 40 degrees Fahrenheit from engine starting and reaches a minimum temperature of 160 degrees Fahrenheit.
2. A "driving cycle" consists of engine startup, vehicle operation beyond the

beginning of closed loop operation

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INSPECTION CHART FOR DIAGNOSTIC TROUBLE CODES

Fault Code No.	Comment	Component	MIL on
P0102	Mass air flow circuit low input	Mass Air Flow Sensor	YES
P0103	Mass air flow circuit high input		
P0112	Intake air temp. circuit low input	Intake Air Temperature Sensor	YES
P0113	Intake air temp. circuit high input		
P0116	Eng. coolant temp.circuit range	Engine Coolant Temperature Sensor	YES
P0117	Eng. coolant temp.circuit low input		
P0118	Eng. coolant temp.circuit high input		
P0121	Difference between load signal by MAF sensor and load signal calculated by TPS (MAF and TPS are not fault)		
P0122	TPS circuit low input	Throttle Position Sensor	YES
P0123	TPS circuit high input		
P0130	O2 sensor circuit malfunction	Upstream Oxygen Sensor	YES
P0131	O2 sensor circuit low voltage		
P0132	O2 sensor circuit high voltage		
P0133	O2 sensor circuit slow response		
P0134	O2 sensor circuit no activity detected		
P0135	O2 sensor heater circuit malfunction	Upstream Oxygen Sensor Heater	YES
P0136	O2 sensor circuit malfunction	Downstream Oxygen Sensor	YES
P0137	O2 sensor circuit low voltage		
P0138	O2 sensor circuit high voltage		
P0141	O2 sensor heater circuit	Downstream Oxygen Sensor	YES

	malfunction	Heater	
P0201	Injector cyl. 1, circuit malfunction	Injector	YES
P0202	Injector cyl. 2, circuit malfunction		
P0203	Injector cyl. 3, circuit malfunction		
P0204	Injector cyl. 4, circuit malfunction		

Fault Code No.	Comment	Component	MIL on
P0300	Random misfire detected	Non catalyst damage	Yes
P0301	Misfire at cylinder 1 detected		
P0302	Misfire at cylinder 2 detected	Catalyst damage (you should repair immediately)	Yes and Blinking
P0303	Misfire at cylinder 3 detected		
P0304	Misfire at cylinder 4 detected		
P0326	Knock sensor circuit range	Knock Sensor	No
P0335	Crankshaft position sensor circuit malfunction	Crankshaft Position Sensor	Yes
P0336	Crankshaft position sensor circuit range		
P0342	Camshaft position sensor circuit low input	Camshaft Position Sensor	Yes
P0343	Camshaft position sensor circuit high input		
P0422	Catalyst efficiency, below threshold	Catalyst	Yes
P0442	Evap. emission control system small leakage detected	Evaporative Emission Control System	Yes
P0441	Evap. emission control system purge valve permanently open		
P0444	Purge control valve circuit open	Evaporative Emission Control Valve	Yes
P0445	Purge control valve circuit shorted		
P0446	Evap. emission control system canister close valve permanently closed	Evaporative Emission Control System	Yes
P0447	Evap. emission control system, ventilation control valve, short circuit to ground	Canister Close Valve	Yes
P0448	Evap. emission control system, ventilation control valve, short circuit to battery		

	voltage		
P0452	Evap. emission control system, pressure sensor, signal low	Tank Pressure Sensor	Yes
P0453	Evap. emission control system, pressure sensor, signal high		
P0451	Evap. emission control system, pressure sensor, signal not plausible		
P0455	Evap. emission control system incorrect purge flow	Evaporative Emission Control System	Yes

Fault Code No.	Comment	Component	MIL on
P0501	Vehicle speed sensor range	Vehicle Speed Sensor	Yes
P0506	Idle rpm lower than expected	Idle Control Valve	Yes
P0507	Idle rpm higher than expected		
P0562	System voltage low	Power Supply	Yes
P0563	System voltage high		
P0605	Internal control module ROM error	ECM	Yes
P1123	Long term fuel trim additive, air system too rich	Fuel System	Yes
P1124	Long term fuel trim additive, air system too lean		
P1127	Long term fuel trim multiplicative, system too rich		
P1128	Long term fuel trim multiplicative, system too lean		
P1510	Idle control valve opening coil circuit shorted	Idle Control Valve	Yes
P1513	Idle control valve opening coil circuit open		
P1552	Idle control valve closing coil circuit shorted		
P1553	Idle control valve closing coil circuit open		
P1586	Encoding signal circuit not rationale	MT/AT Encoding	Yes
P1605	Rough road sensor circuit malfunction	Acceleration Sensor	Yes
P1606	Rough road sensor not rationale		
P1611	MIL request signal circuit low	MIL-on Request Line	Yes

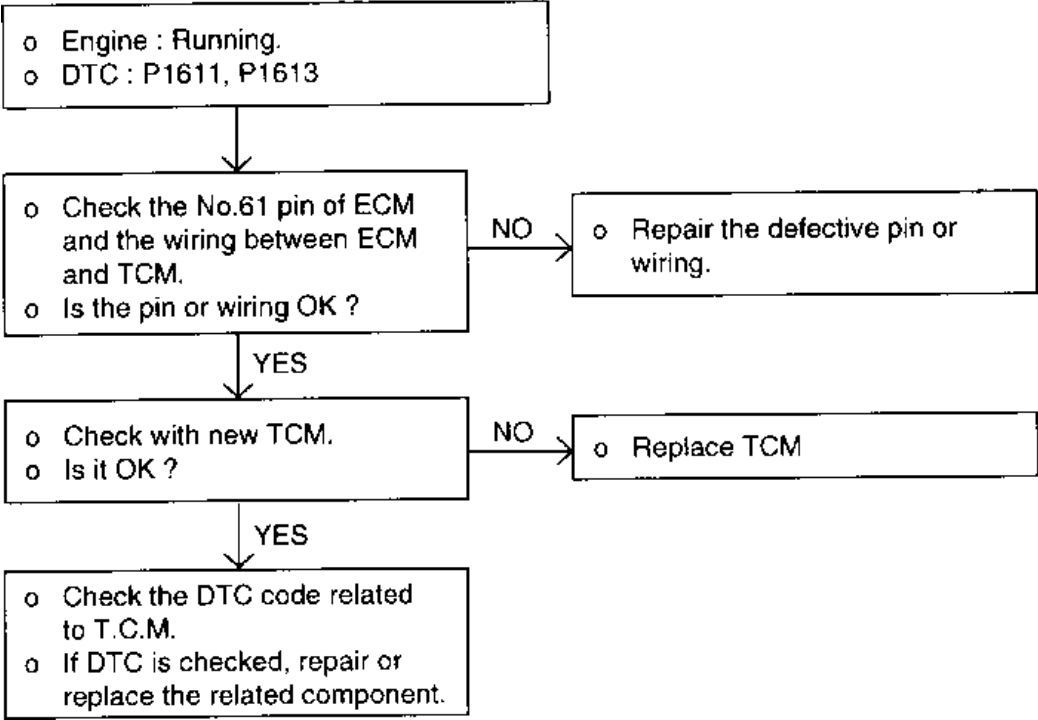
	input		
P1613	MIL request signal circuit high input		

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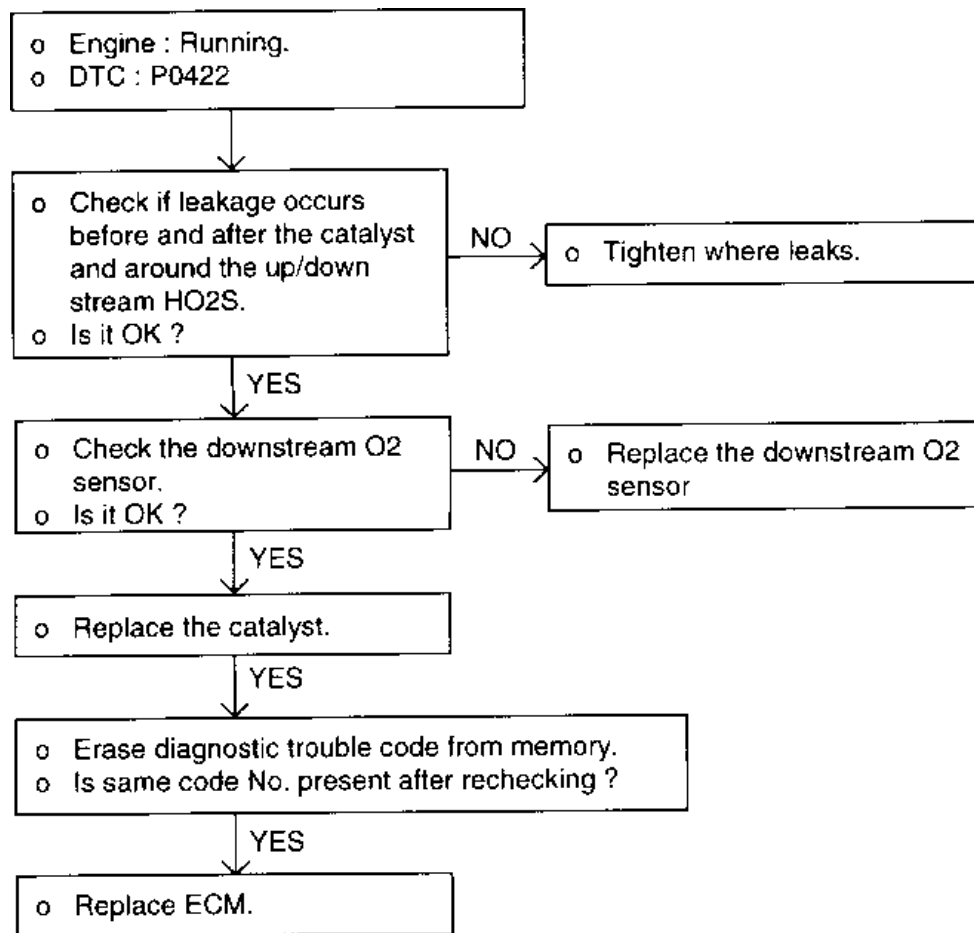
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TROUBLESHOOTING PROCEDURES

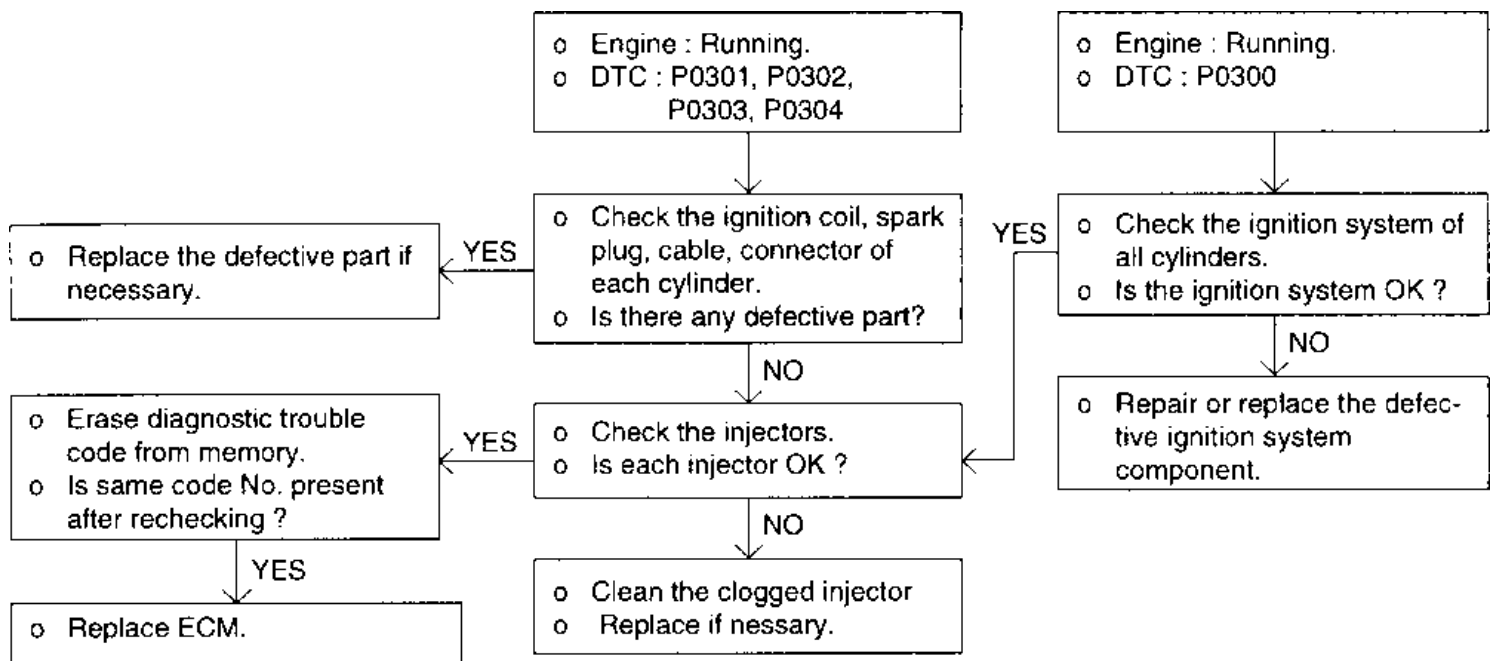
MIL (MALFUNCTION INDICATING LIGHT) - ON REQUEST SIGNAL



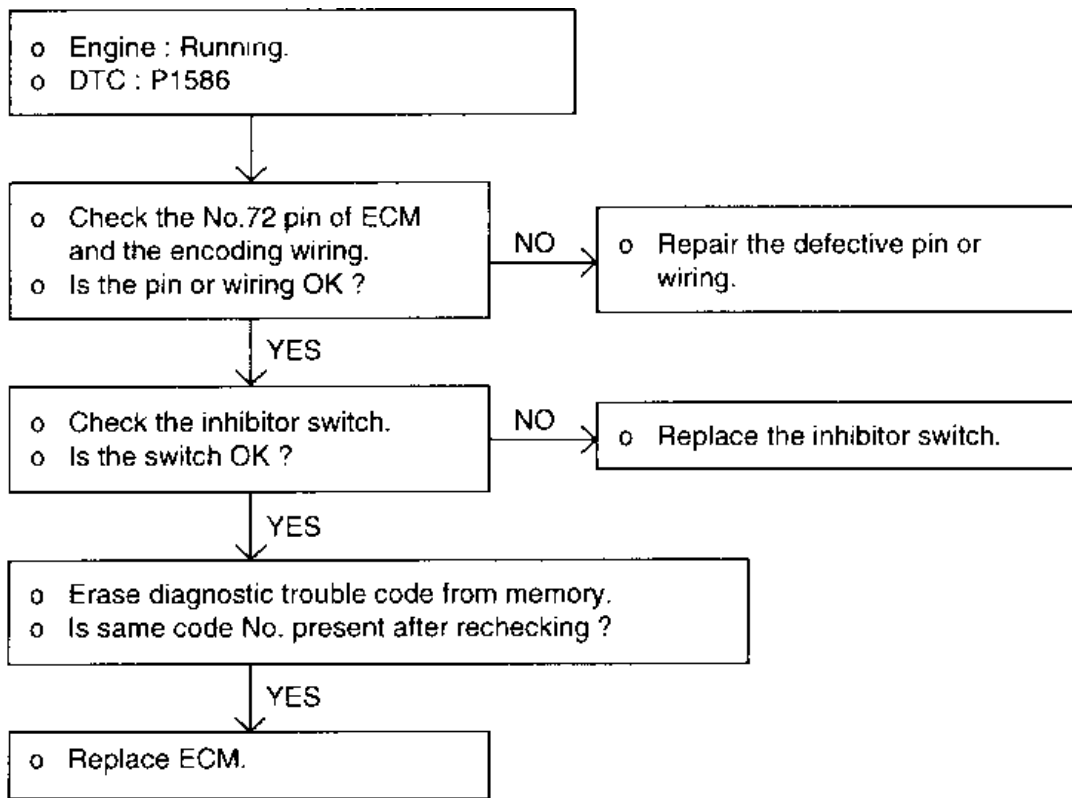
CATALYST



MISFIRE



MANUAL TRANSAXLE/AUTOMATIC TRANSAXLE ENCODING



DTC : Diagnosis Trouble Code

ECM : Engine Control Module

DTC: Diagnosis Trouble Code

ECM: Engine Control Module

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SPECIFICATIONS

Fuel

Items	Specifications
Tank capacity	55 lit. (14.5 U.S. gal., 12.1 Imp.gal.)
Return system	Equipped
Filter	High pressure type

Fuel pump

Items	Specifications
Type	Electrical, in-tank type
Driven by	Electrical motor

Throttle body

Items	Specifications
Throttle position sensor (TP Sensor)	Variable resistor type

Input sensors

Items	Specifications
Mass air flow sensor (MAF Sensor)	Hot film type
Knock sensor	Piezoelectric type
Intake air temperature sensor (IAT Sensor)	Thermistor type
Throttle position sensor (TPS)	Variable resistor type
Engine coolant temperature sensor (ECT Sensor)	Thermistor type
Heated oxygen sensor (HO2S)	Zirconia sensor type (Heated)
Vehicle speed sensor	Reed switch type
Camshaft position sensor (CMP Sensor)	Hall effect sensor type
Crankshaft position sensor (CKP Sensor)	Magnetic inductive coil type
Acceleration sensor	Piezoelectric type
Fuel tank pressure sensor	Piezo-Resistivity

Output actuator

Items	Specifications
Injector type and number	Electromagnetic type, 4
Ignition coil	Power transistor Molded coil type driven by power transistor built in ECM.
EVAP canister purge solenoid valve	Duty type
Fuel pump relay	
Power relay	
Idle speed control actuator (ISC Actuator)	Double coil rotary valve type
Canister close valve	ON/OFF type

Fuel pressure regulator pressure

Items	Specifications
Regulator pressure	300 kpa (3.06 kg/cm ² , 43.3 psi)

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SERVICE SPECIFICATIONS

Items	Specifications
Basic ignition timing	BTDC 10° ± 5°
Basic idle rpm	800 ± 100 rpm
Idle speed when air conditioning is on	850 ± 100 rpm
Throttle position sensor resistance	0.7 - 3.4 kOHM
Throttle position sensor output voltage at curb idle	0.1 - 0,875 V
Mass air flow sensor output voltage	0-5 V
Intake air temperature sensor resistance	2.0 - 3.0 kOHM at 20°C (68°F)
EVAP canister purge solenoid valve resistance	20 - 32 OHM
Engine coolant temperature sensor resistance	
20°C (68°F)	1.0 - 4.0 kOHM
80°C (176°F)	0.24 - 0.40 kOHM
Heated oxygen sensor output voltage	0-1V
Camshaft position sensor output voltage	0 - 5V
Crankshaft position sensor output frequency	
Idle rpm	600 - 1000 Hz
3000 rpm	2700-3300 Hz
Injector coil resistance	15.9 ± 0.35 OHM
Idle speed control actuator control frequency	100 Hz

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TIGHTENING TORQUE

Specifications

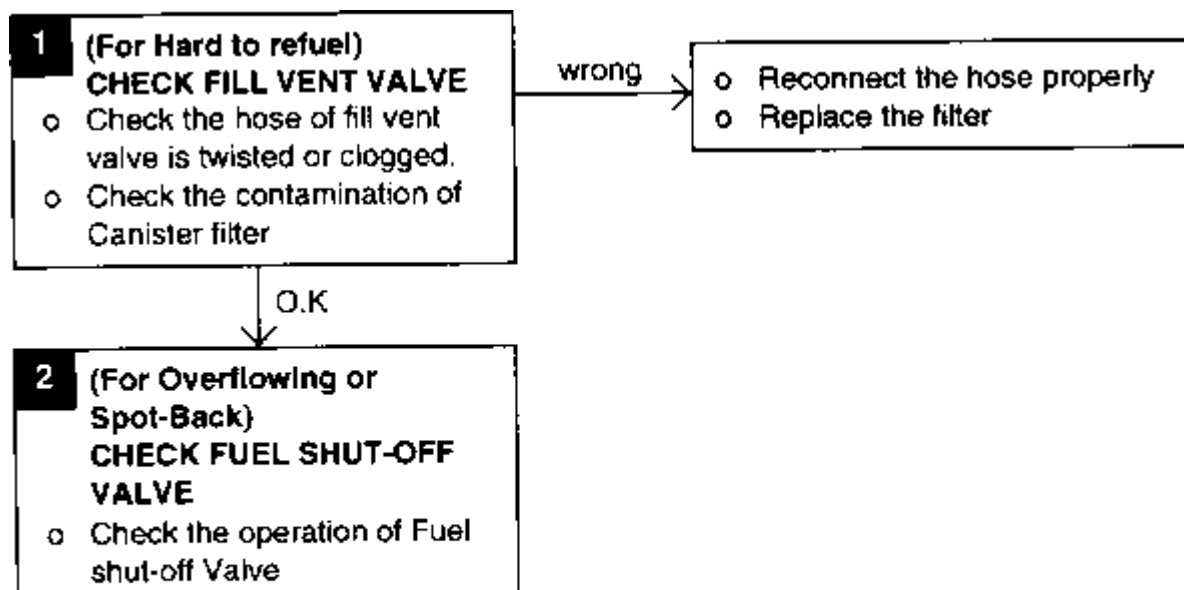
Items	Nm	Kg.cm	lb.ft
Delivery pipe installation bolts	10-15	100-150	7-11
Fuel pressure regulator bolts	4-6	40-60	3.0-4.4
Heated oxygen sensor	50-60	500-600	37-44
Crankshaft position sensor installation bolts	4-6	40-60	2.9-4.3
Knock sensor installation bolt	17-26	170-260	12-19
Engine coolant temperature sensor	15-20	150-200	11-15
Throttle position sensor installation bolts	1.5-2.5	15-25	1.1 -1.8
High pressure hose and fuel filter	25-35	250-350	18-25
High pressure hose and fuel tank	30-40	300-400	22-29
Throttle body to surge tank bolts	15-20	150-200	11-15
Fuel tank drain plug	15-25	150-250	11-18

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TROUBLESHOOTING (FOR ORVR SYSTEM)

HARD TO REFUEL/OVERFLOWING OR SPIT-BACK WHILE REFUELING



Note : The proper operating condition of fuel shut-off valve is at the nominal volum of fuel (app. 55 liter).


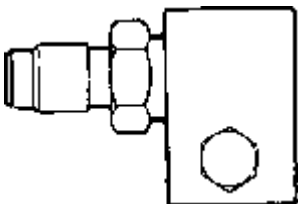

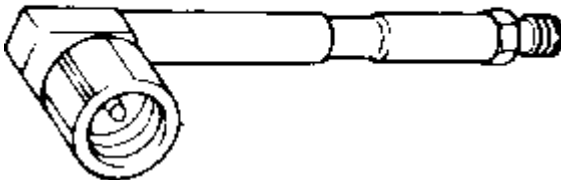
NOTE

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SPECIAL TOOLS

Tool (Number and name)	Illustration	Application
09273-24000 Harness connector		Engine r.p.m. check
09353-29000 Fuel pressure gauge adapter		Connection of fuel pressure gauge to delivery pipe for measurement of fuel pressure.
09353-24100 Fuel pressure gauge & hose		
09353-24000 Fuel pressure connector		

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MFI SYSTEM INSPECTION

If the MFI system components (sensors, ECM, injector, etc.) fail, interruption or failure to supply the proper amount of fuel for various engine operating conditions will result. The following situations may be encountered.

Engine is hard to start or does not start at all.

Unstable idle

Poor driveability

If any of the above conditions is noted, first perform an inspection by self-diagnosis and subsequent basic engine checks (ignition system malfunction, incorrect engine adjustment, etc.) and then inspect the MFI system components.

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IDLE SPEED CHECK PROCEDURES

NOTE

Before adjusting, check that the spark plugs, injectors, idle speed control actuator ISC actuator, compression etc. are normal.

Checking conditions;

- Engine coolant temperature is 80 to 95°C (176 to 205°F).
- Lights, electric cooling fan and all accessories are off.
- Transaxle is in neutral ["P" or N" range for NT vehicles].
- Steering wheel is in straight forward position (Vehicles with power steering).

Connect the GST (Generic Scan Tool) to the data link connector at lower crash pad.

Start and run the engine at curb idle speed.

Run the engine for more than 5 seconds at an engine speed of 2,000 to 3,000 rpm.

Run the engine at idle for 2 minutes.

Read the idling rpm.

Idle speed: 800 ± 100 rpm

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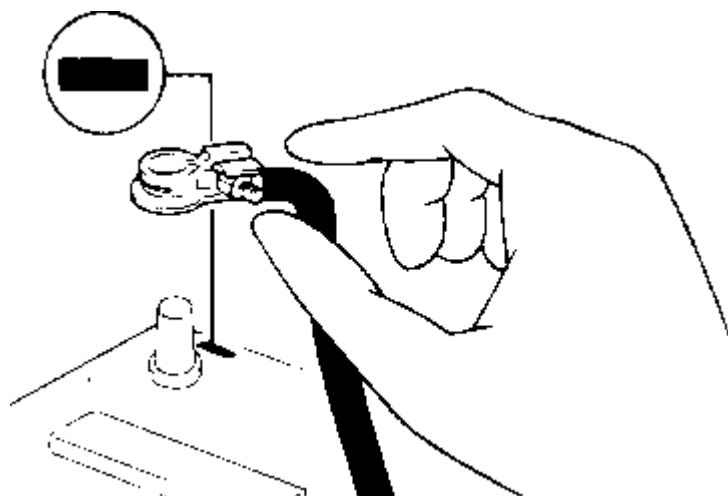
FUEL FILTER REPLACEMENT

Reduce the internal pressure of the fuel pipes and hoses by completing the following operations.

Disconnect the fuel pump harness after removing the rear seat cushion.

Start the engine and after it stalls, turn the ignition switch OFF.

Disconnect the battery negative (-) terminal.



Connect the fuel pump harness connector.

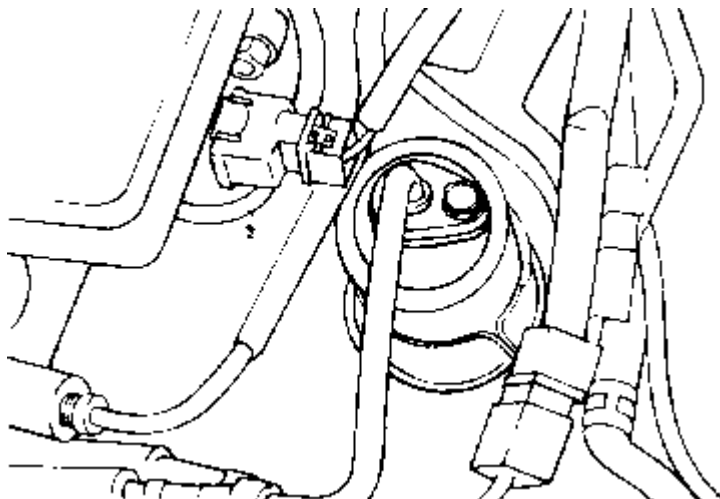
Remove the bolt connecting the fuel line with the fuel filter.

CAUTION

Cover with a shop towel to avoid gasoline from splashing.

Remove the fuel filter mounting bolt, then remove the fuel filter from the fuel filter clamp.

After replacing the fuel filter, check for fuel leaks.



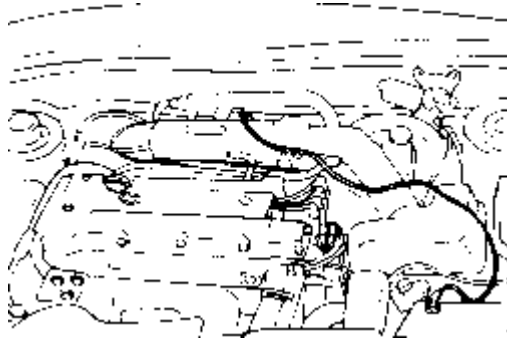
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FUEL PUMP OPERATING CHECK

Turn the ignition switch OFF.

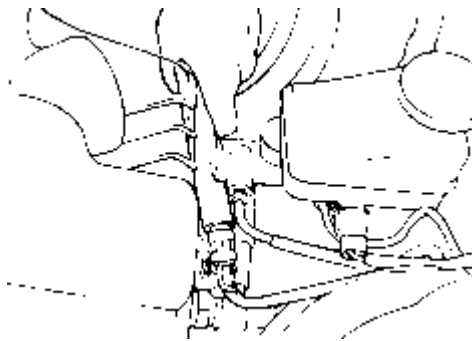
Apply battery voltage to the fuel pump drive connector to check that the pump operates.



NOTE

The fuel pump is the in-tank type and its operating sound is hard to hear without removing the fuel tank cap.

Pinch the hose to check that fuel pressure is felt.



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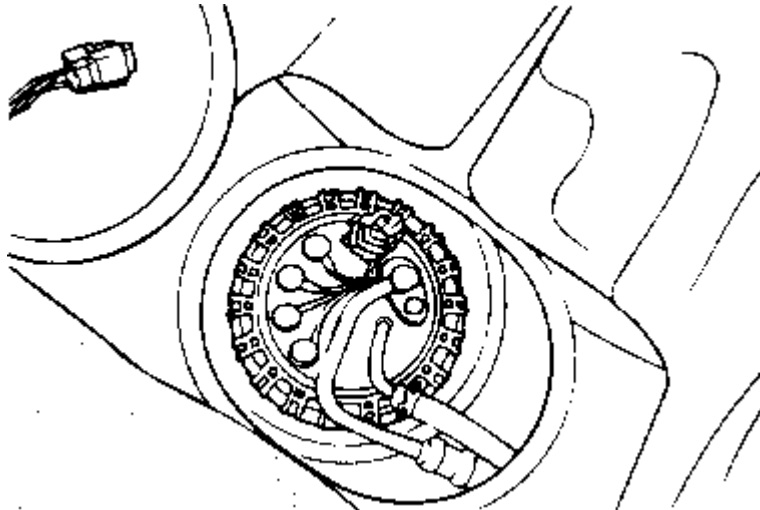
FUEL PRESSURE TEST

CAUTION

Safety glasses must be worn when performing the service as follows.

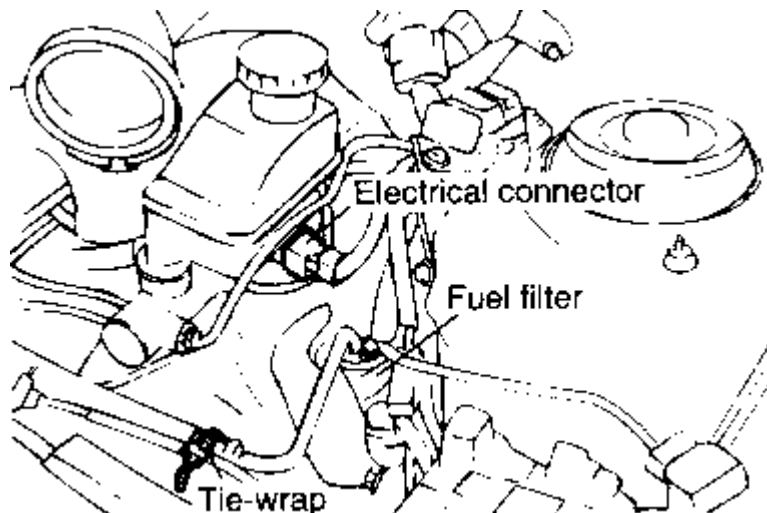
Reduce the internal pressure of the fuel pipes and hoses by the following procedures.

- Disconnect the fuel pump harness connector after removing the rear seat cushion.
- Start the engine and after it stalls, turn the ignition switch to the OFF position.
- Disconnect the battery negative (-) terminal.
- Connect the fuel pump harness connector.



The fuel filter is located in the left side of the rear quarter of the engine compartment.

Remove the single tie-wrap that secures the fuel pressure line to the fuel return line.

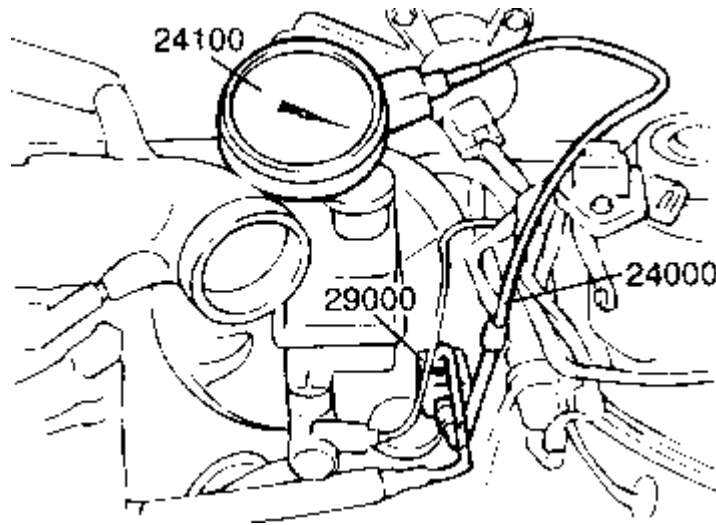


Remove the electrical connector from the master cylinder reservoir below.

CAUTION

Before proceeding to next step, place shop rag over fuel filter to capture fuel spray.

Move shop rag enough to expose bolt on top of fuel filter, remove bolt and line from filter.



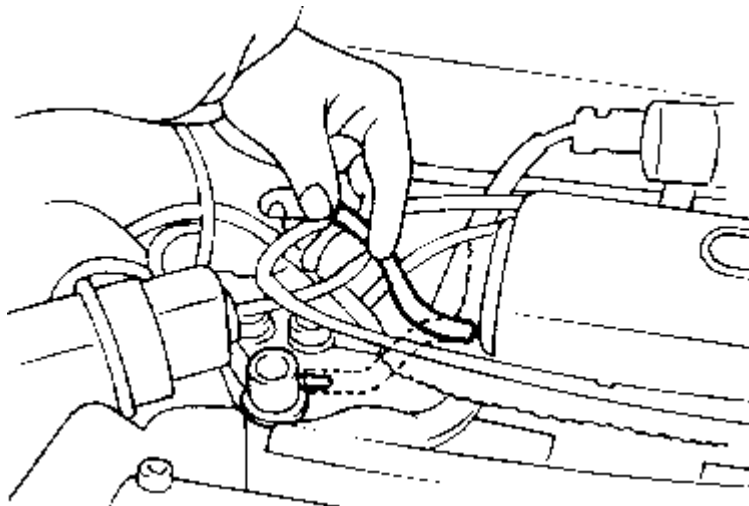
Using the fuel pressure gauge, gauge connector & gauge adapter (09353-24000, 29000), install the fuel-pressure gauge to the fuel filter. Tighten the bolt to the specified torque.

TORQUE SPECIFICATION

Fuel pressure gauge to fuel filter	25-35 Nm (250-350 kg·cm, 18-26 lb·ft)
------------------------------------	---

Connect the battery negative (-) terminal.

Start engine and check for leaks. If no leaks are present, continue with fuel pressure test (at curb idle speed).



Connect (Disconnect) the vacuum hose from the pressure regulator, (and plug the hose end). Measure the fuel pressure.

Standard value

SPECIFICATION

Disconnected hose	300 kPa (3.06 kg/cm ² , 44.37 psi)
Connected hose	Approx. 255 kPa (2.57 kg/cm ² , 37 psi)

If the results of the measurements made in steps (9) are not within the standard value, use the table below to determine the probable cause, and make the necessary repairs.

Condition	Probable cause	Remedy
Fuel pressure is too low	<ul style="list-style-type: none"> • Clogged fuel filter 	<ul style="list-style-type: none"> • Replace fuel filter
	<ul style="list-style-type: none"> • Fuel leakage to the return side, caused by poor seating of the fuel-pressure regulator 	<ul style="list-style-type: none"> • Replace fuel pressure regulator
	<ul style="list-style-type: none"> • Low discharge pressure of the fuel pump 	<ul style="list-style-type: none"> • Check the in-tank fuel hose for leakage or replace the fuel pump
Fuel pressure is too high	<ul style="list-style-type: none"> • Sticking fuel-pressure regulator 	<ul style="list-style-type: none"> • Replace fuel pressure regulator
	<ul style="list-style-type: none"> • Clogged or bent fuel return hose or pipe 	<ul style="list-style-type: none"> • Repair or replace hose or pipe
There is no difference in fuel pressure when the vacuum hose is connected and when it is not.	<ul style="list-style-type: none"> • Clogging, or damaged vacuum hose or the nipple 	<ul style="list-style-type: none"> • Repair or replace the vacuum hose or the nipple
	<ul style="list-style-type: none"> • Sticking or poor seating of the fuel pressure regulator 	<ul style="list-style-type: none"> • Repair or replace hose or pipe

Stop the engine and check for a change in the fuel pressure gauge reading, which should hold for approximately 5 minutes. If the gauge indication drops, observe the rate of drop. Determine and remove the causes according to the following table.

Condition	Probable cause	Remedy
Fuel pressure drops slowly after engine is stopped	<ul style="list-style-type: none"> • Injector leakage 	<ul style="list-style-type: none"> • Replace injector
Fuel pressure drops immediately after engine is stopped	<ul style="list-style-type: none"> • The check valve within the fuel pump is not working 	<ul style="list-style-type: none"> • Replace fuel pump

Reduce the pressure in the fuel line.

Disconnect the hose and the gauge.

CAUTION

Cover the hose connection with a shop towel to prevent splashing of fuel caused by fuel residual pressure in the fuel line.

Replace the O-ring of the end of the hose.

Connect the fuel hose to the delivery pipe and tighten with the specified torque.

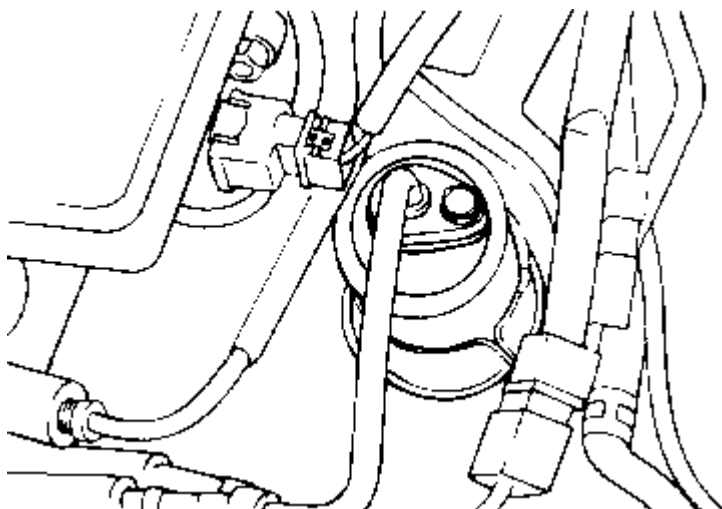
Check for fuel leakage.

SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2001	
GROUP	
Fuel System	Fuel Delivery System

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

REMOVAL

Remove the upper bolt and the high pressure fuel hose.



CAUTION

1. Be sure to reduce the fuel pressure before disconnecting the fuel line and hose, otherwise fuel will spill out.
2. Cover the hose connection with a shop towel to prevent splashing of fuel that could be caused by residual pressure in the fuel line.

Remove the lower bolt.

Remove the fuel filter mounting bolts, then remove the fuel filter from the bracket.

Remove the fuel return hose and line.

Remove the fuel vapor hose and line.

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

INSPECTION

Check the hoses and pipes for cracking, bending, deformation or restrictions.

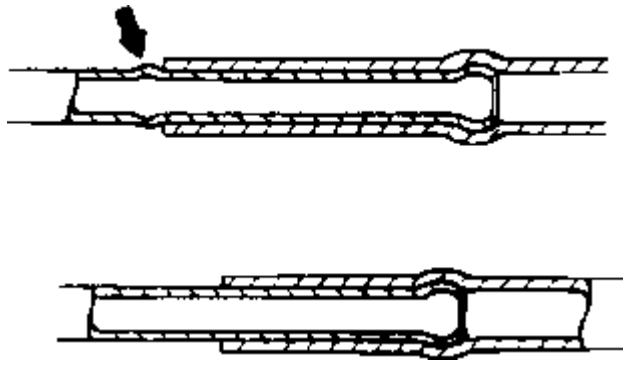
Check the canister for restrictions.

Check the fuel filter for restrictions and damage. If a problem is found, repair or replace parts as necessary

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

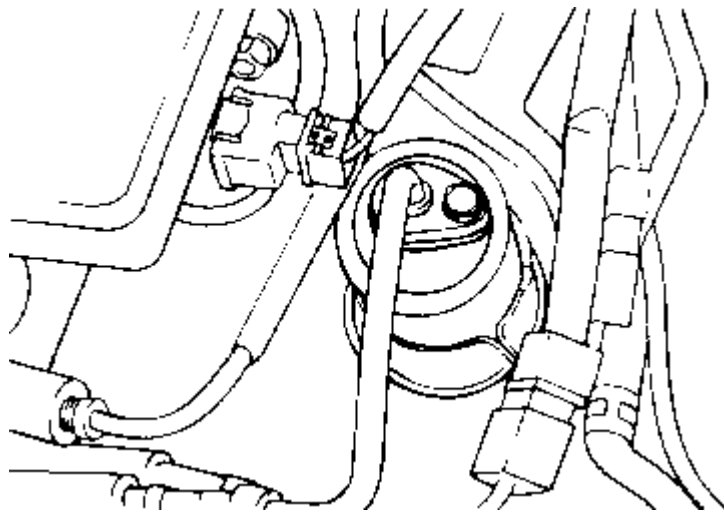
INSTALLATION

Install the fuel vapor hose and return hoses.



- If the fuel line has a stepped section, connect the fuel hose to the line securely, as shown in the illustration.
- If the fuel line does not have a stepped section, connect the fuel hose to the line securely.

Install the fuel filter, and tighten the fuel filter bracket.

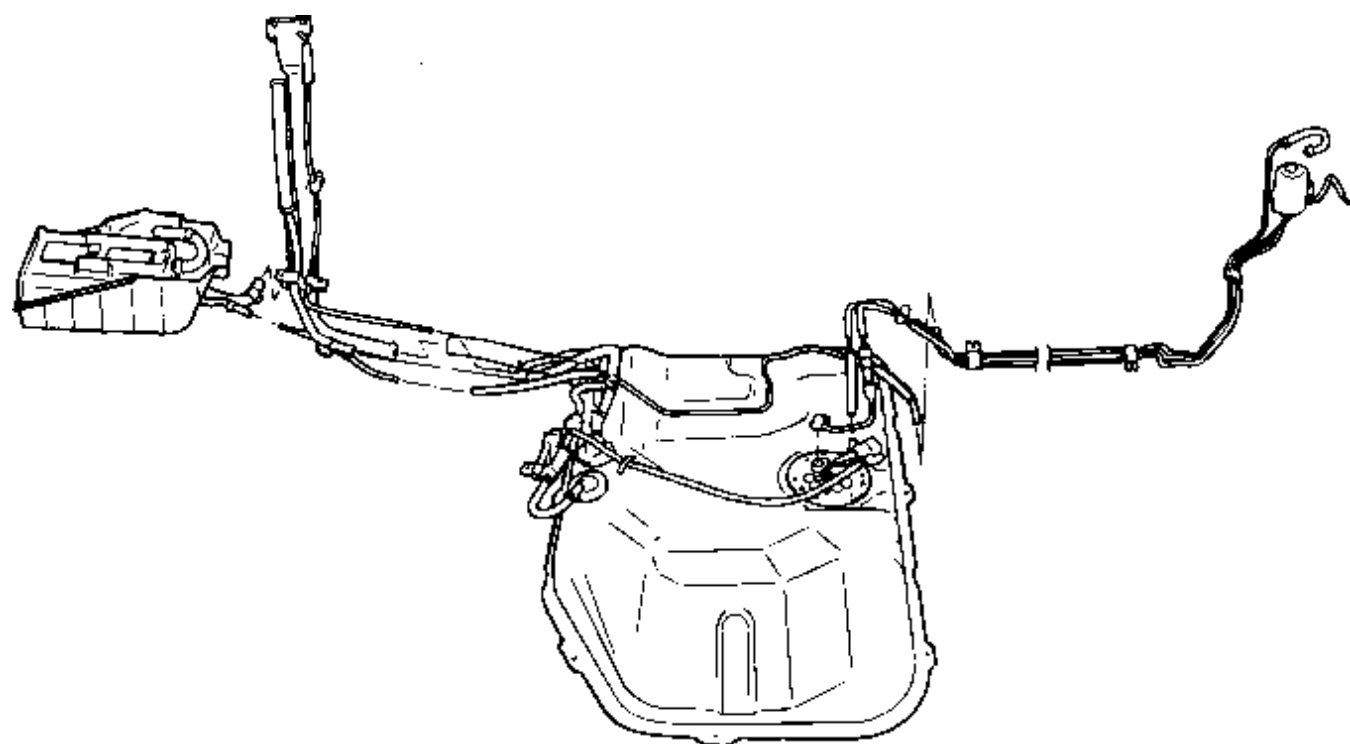


Insert the main line on the filter and tighten the bolts.

Install the clips and make sure that they do not interfere with other components.

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

COMPONENTS



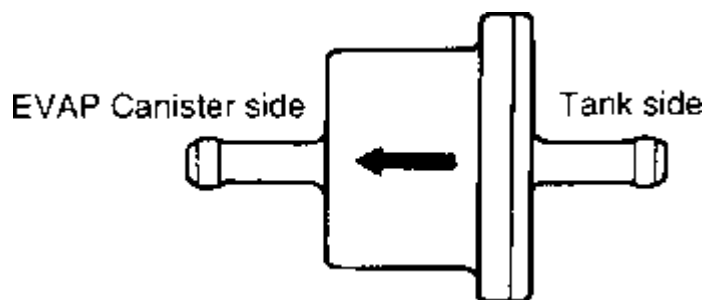
SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2000	
GROUP	
Fuel System	Fuel Delivery System

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

OVERFILL LIMITER (TWO-WAY VALVE) REPLACEMENT

Disconnect the vapor hoses, and then remove the overfill limiter.

Connect the overfill limiter in the correct direction.

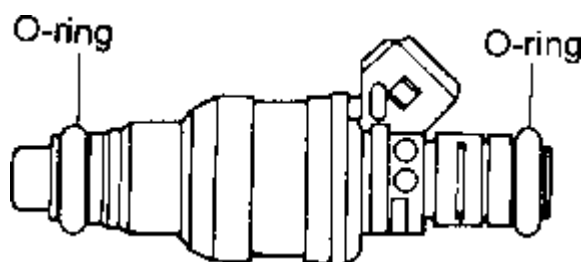


SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2001	
GROUP	
Fuel System	Fuel Delivery System

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

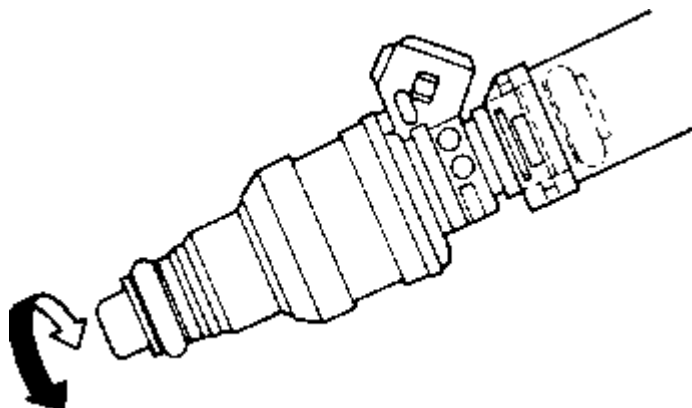
INSTALLATION

Install a new grommet and O-ring to the injector.



Apply a coating of solvent, spindle oil gasoline to the O-ring of the injector.

While twisting the injector left and right, install it on to the delivery pipe.



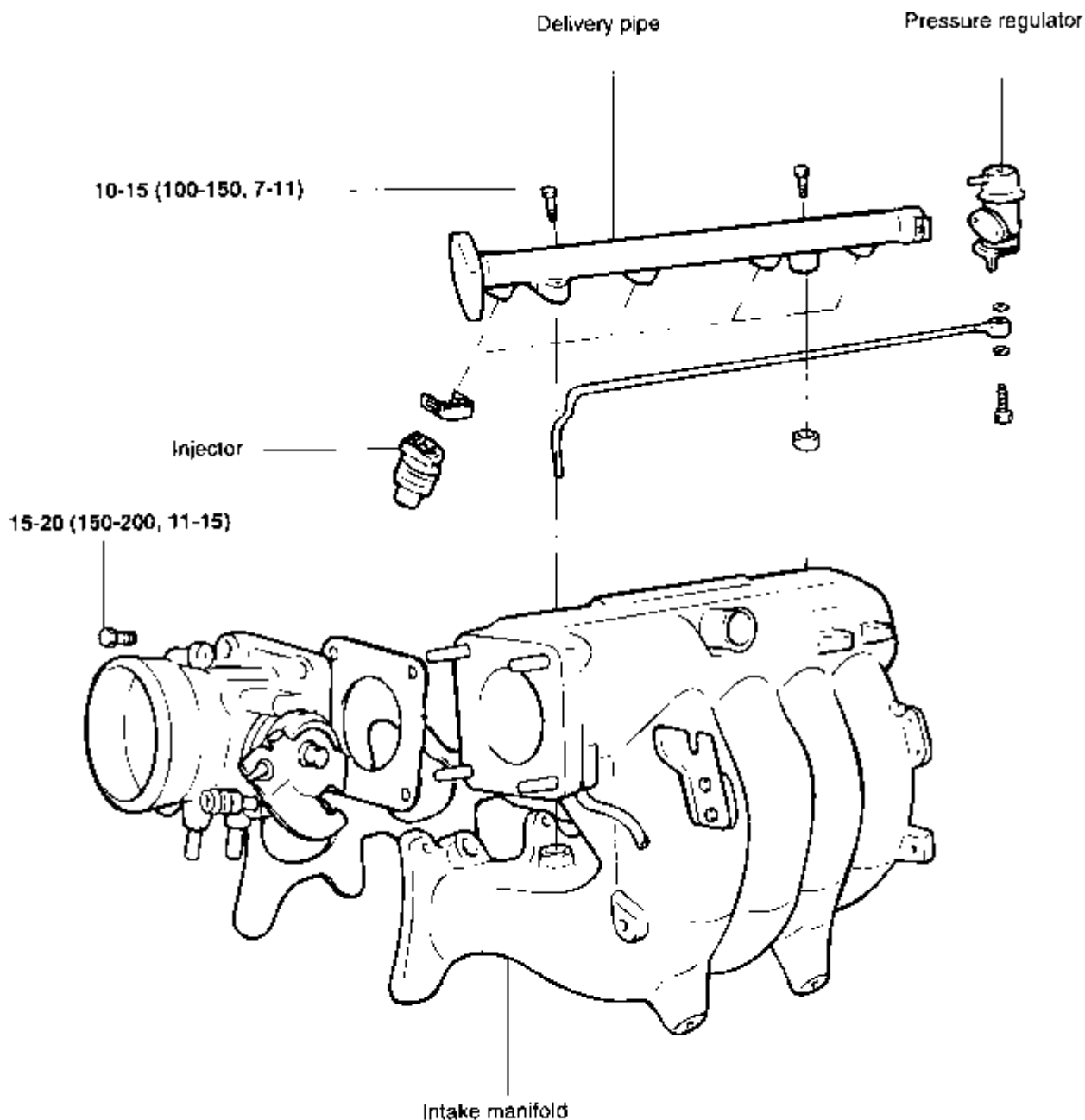
Be sure the injector turns smoothly.

NOTE

If it does not turn smoothly, the O-ring may be jammed; remove the injector, re-insert it into the delivery pipe and re-check.

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

COMPONENTS

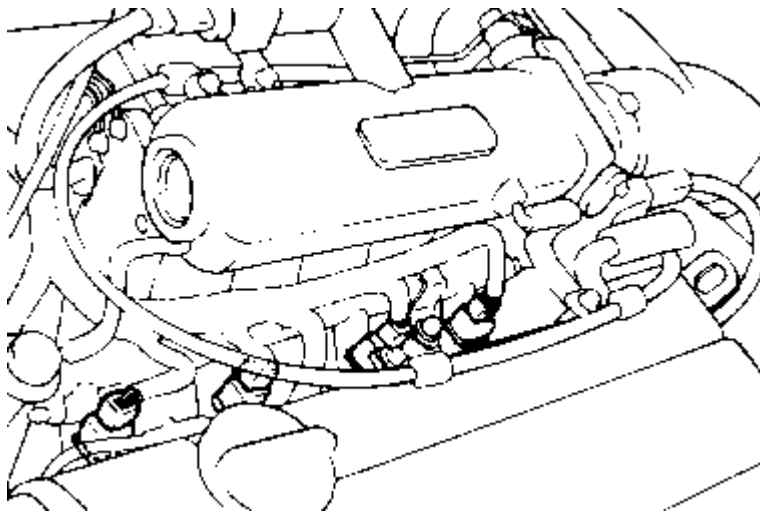


TORQUE : Nm (kg.cm, lb.ft)

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

REMOVAL

Release residual pressure from the fuel line to prevent fuel from spilling.



CAUTION

Cover the hose connection with a rag to prevent splashing of fuel that could be caused by residual pressure in the fuel line.

Remove the delivery pipe with the fuel injector and pressure regulator.

CAUTION

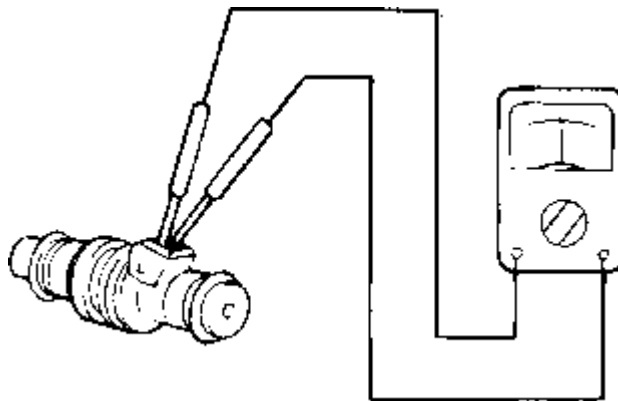
1. Be careful not to drop any injectors when removing the delivery pipe.
2. Be aware that fuel may flow out when removing the injector.

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

INSPECTION

Measure the resistance of the injectors between the terminals using an ohmmeter.

RESISTANCE SPECIFICATION	
Resistance [at20°C(68°F)]	15.9±0.35 Ω



If the resistance is not within specifications, replace the injector.

SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2001	
GROUP	
Fuel System	Fuel Delivery System

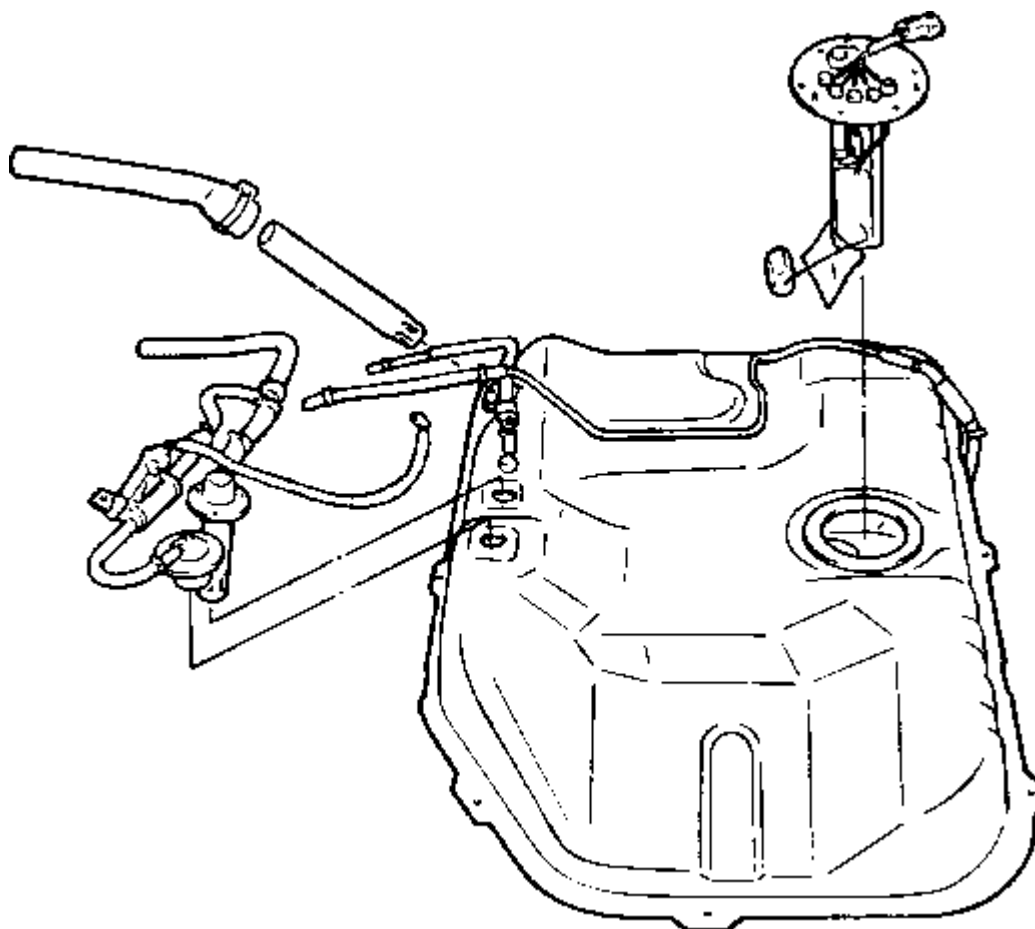
Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

INSTALLATION

Installation is reverse order of the removal.

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

COMPONENTS



Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

REMOVAL

Remove the rear seat cushion.

To reduce the internal pressure of the fuel lines and hoses, first start the engine and then disconnect the electrical fuel pump connector.

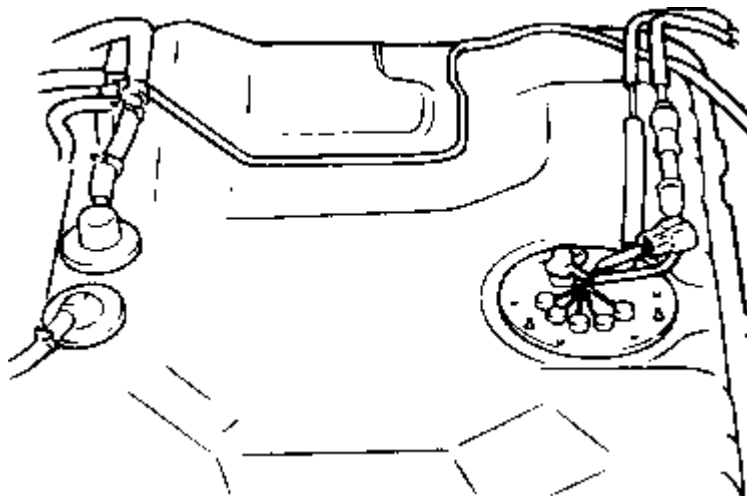
NOTE

Be sure to reduce the fuel pressure before disconnecting the fuel main pipe and hose otherwise fuel will spill out.

Disconnect the battery cable from the negative terminal of the battery.

Remove the high pressure hose and fuel return hose.

Remove the fuel pump assembly.



SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2001	
GROUP	
Fuel System	Fuel Delivery System

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

INSPECTION

Check the hoses and the pipes for cracks or damage.

Check the fuel tank cap for proper operation.

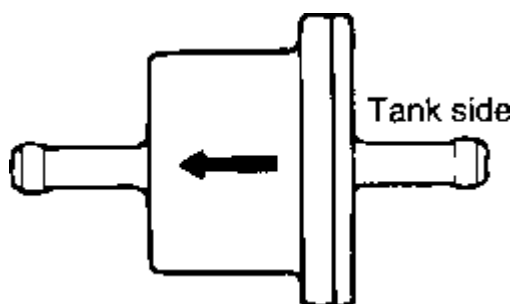
Check the fuel tank for deformation, corrosion or cracking.

Check the inside of the fuel tank for dirt or foreign material.

Check the in-tank fuel filter for damage or restriction.

Test the one-way valve for proper operation.

To check the one-way valve, lightly breathe into the inlet and outlet. If air passes one-way only, then the valve is good.



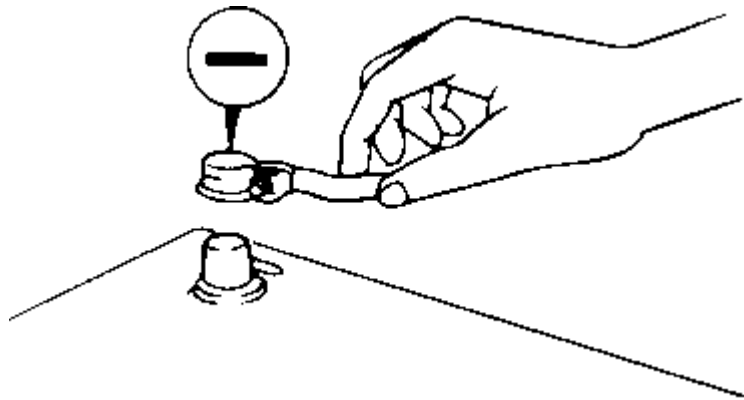
Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

COMPONENTS

After the engine is stopped, turn OFF the ignition key, then connect the fuel pump connector again.

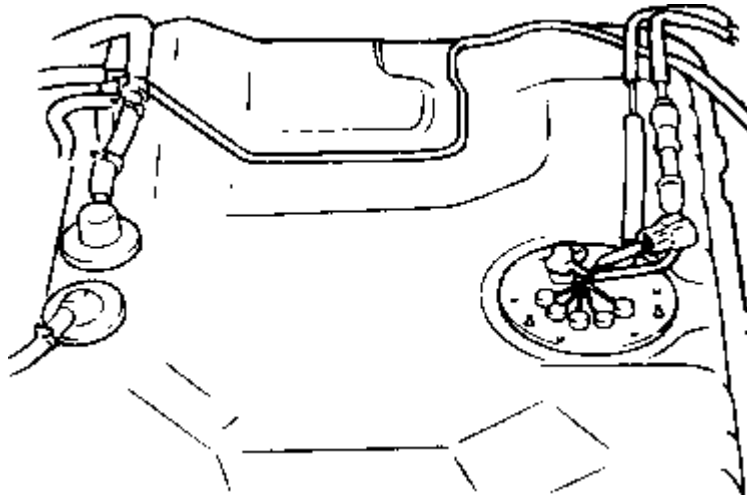
After disconnecting the high pressure hose and the return hose, connect the proper hose to the fuel pump and drain the fuel about 1/2 of the fuel tank.

Disconnect the battery cable from the negative terminal of the battery.



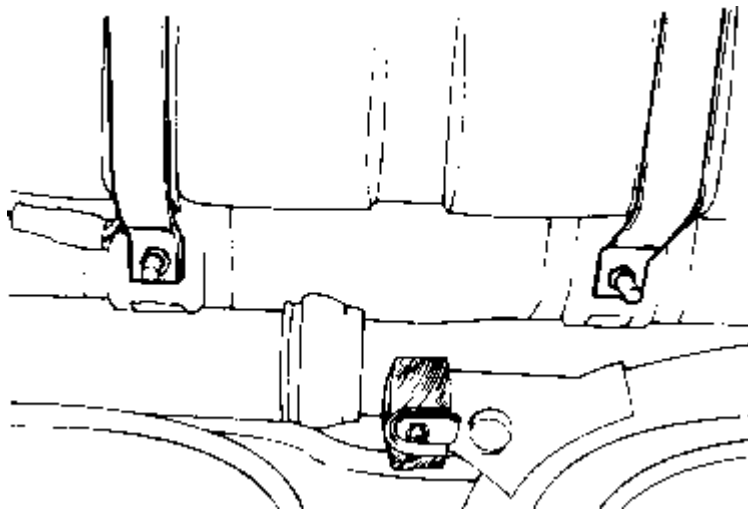
Lift up the vehicle.

Detach the fuel filler hose and leveling hose.



Support the fuel tank with a jack.

Remove the fuel tank bands.

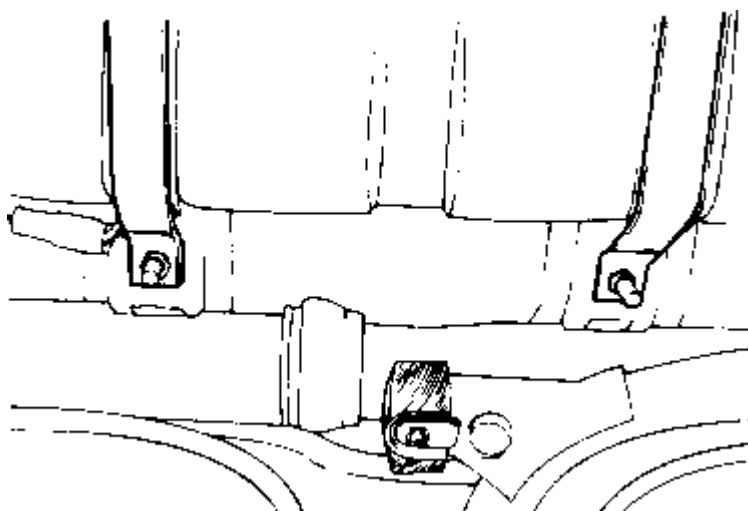


Remove the fuel tank.

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

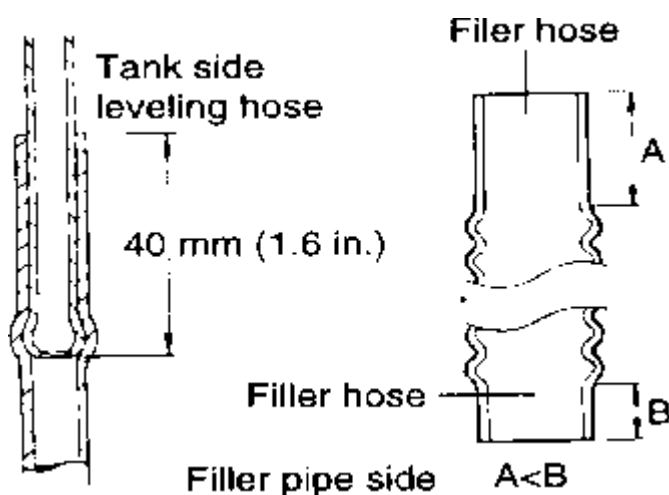
INSTALLATION

Confirm the pad is fully bonded to the fuel tank, and install the fuel tank by tightening the self-locking nuts.

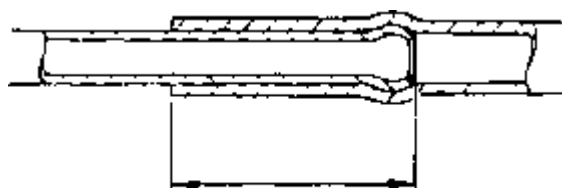


Connect the leveling hose to the tank and approximately 40 mm (1.6 in.) at the filler neck.

When connecting the filler hose, the end with the shorter straight pipe should be connected to the tank side.



Connect the vapor hose and return hose. When attaching the fuel hose to the line, be sure that the hose is attached as shown in the illustration.

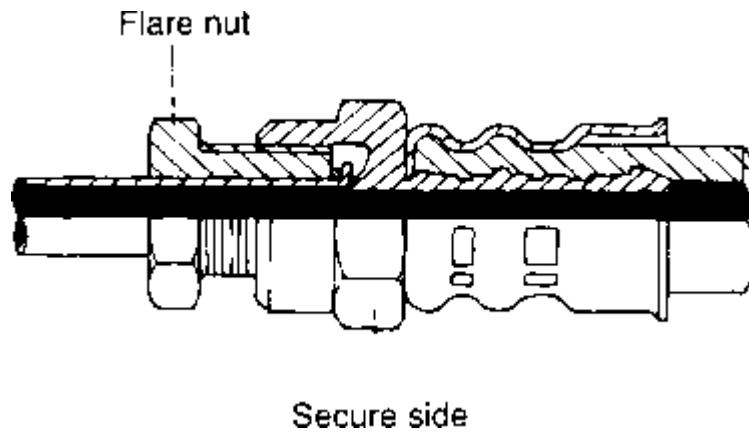


25-30 mm (1.0-1.2 in.)

To connect the high pressure hose to the fuel pump, install the flare nut by hand, and then tighten it to the specified torque. Be careful that the fuel hose does not twist.

TORQUE SPECIFICATION

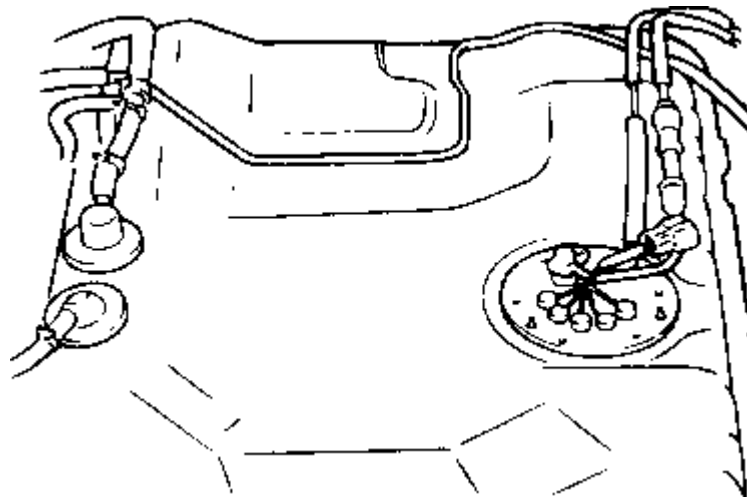
High pressure hose flare nut	30-40 Nm (300-400 kg·cm, 22.1-29.5 lb·ft)
------------------------------	---



CAUTION

When tightening the flare nut, be careful not to bend or twist the line to prevent damage to the fuel pump connection.

Connect the electrical fuel pump connector.

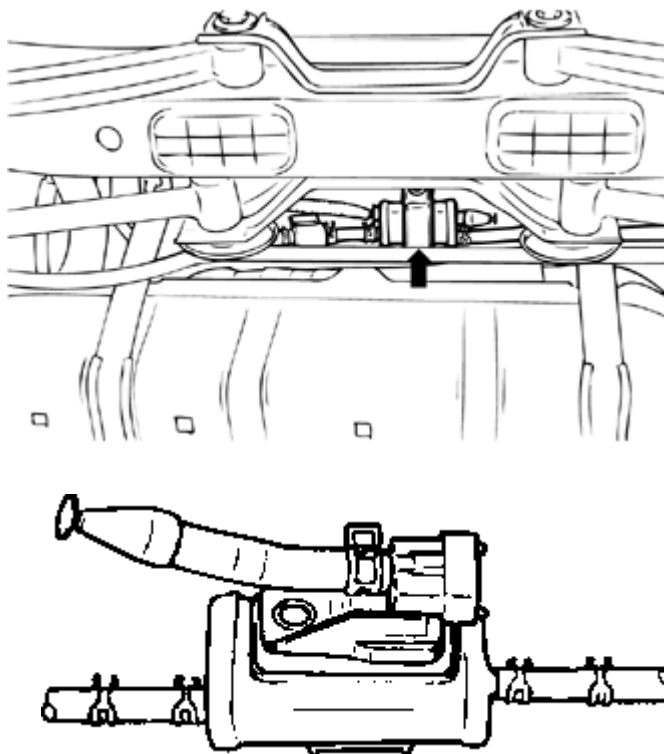


SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2000	
GROUP	
Fuel System	Fuel Delivery System

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FUNCTION

This is the sensor to detect the fuel tank leakage in way which it measures the differential pressure between inside and outside fuel tank.

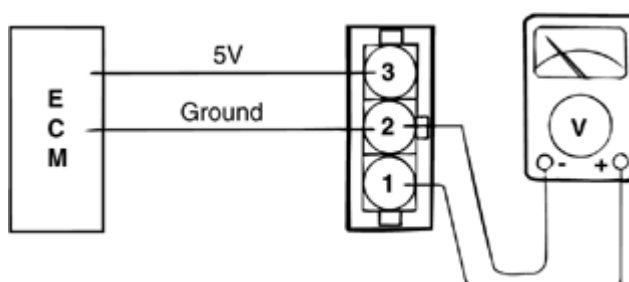


INSPECTION

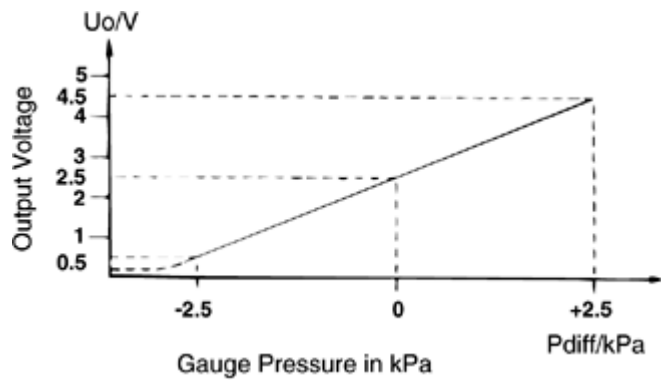
Check to look that fuel level is over 15%. If not, this inspection is not available.

The vehicle must be in turn-on and at idle. Don't forget it.

Prepare a voltmeter and connect it to FTP pins as shown.



After 20 min. idling, inspect the voltage.



SPECIFICATION	
System voltage	5 V

SPECIFICATION	
At accelerate	Max. 4.5 V, Min. 0.5 V

At idle, inspect that voltage fluctuates up to accelerate rpm up and down.

NOTE

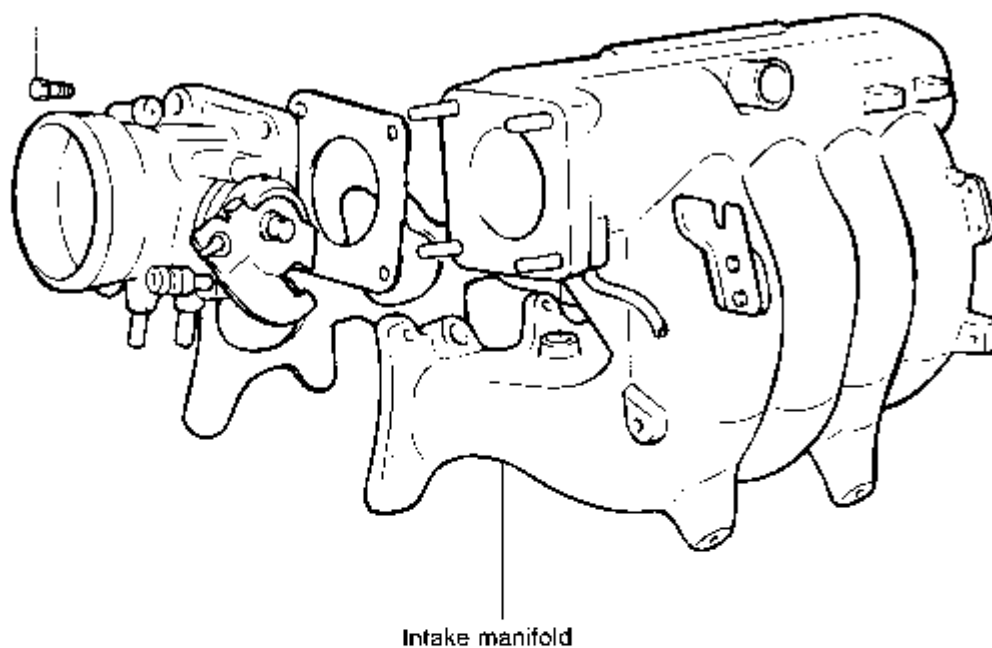
If voltage is not within spec as procedures, there is leakage and inspect the fuel tank and hoses toward canister and fuel neck. Then repair or replace relevant parts.

SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2001	
GROUP	
Fuel System	Fuel Delivery System

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

COMPONENTS

15-20 (150-200, 11-15)



TORQUE : Nm (kg.cm, lb.ft)

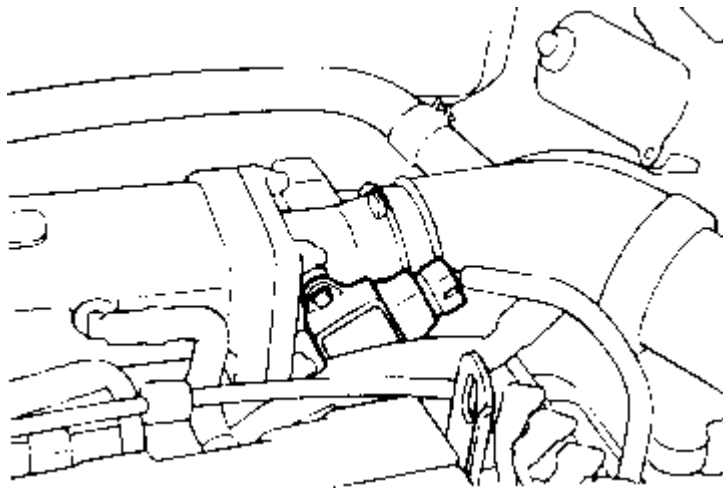
Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

REMOVAL

CAUTION

The throttle valve must not be removed.

Remove the throttle position sensor.



NOTE

Except when necessary for replacement, the throttle position sensor must not be removed.

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

INSPECTION

Check the throttle body for cracks.

Check for restriction of the vacuum port or passage.

Check for interference when moving the accelerator cable.

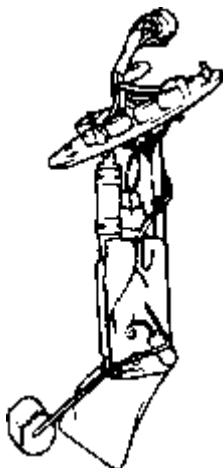
SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2000	
GROUP	
Fuel System	Fuel Delivery System

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

FUEL SENDER REPLACEMENT

Remove the fuel tank cap to lower the fuel tank's internal pressure.

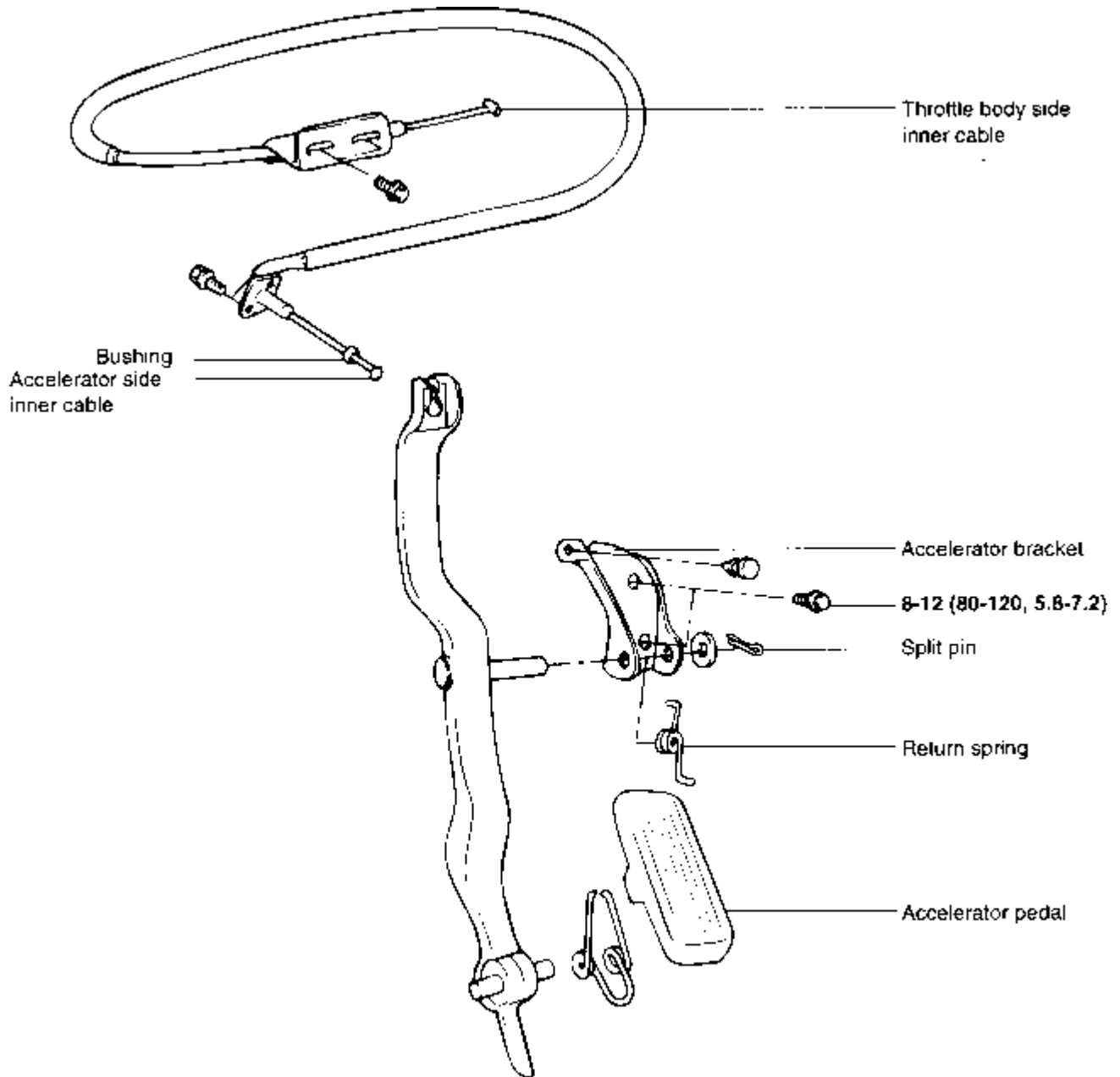
Remove the fuel sender installation cap, then remove the fuel sender from the fuel tank.



SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2001	
GROUP	
Fuel System	Carburetion System

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

COMPONENTS

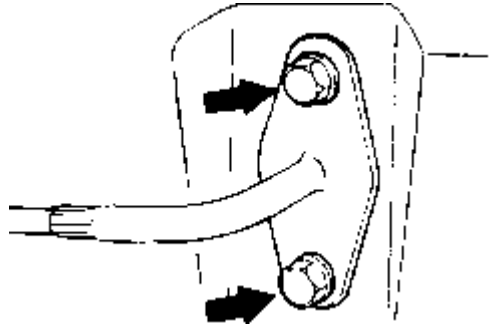


TORQUE : Nm (kg.cm, lb.ft)

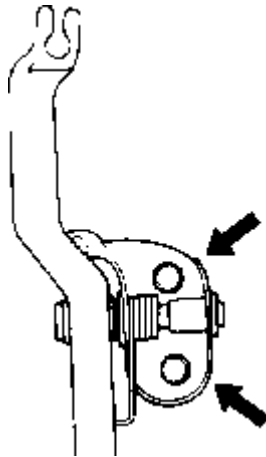
Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

REMOVAL

Remove the bushing and inner cable on the accelerator arm side.



Remove the bolts of the accelerator arm bracket and remove.



Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

INSPECTION

Check the inner and outer cable for damage.

Check the cable for smooth movement.

Check the accelerator arm for deformation.

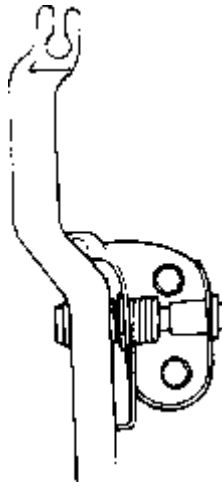
Check the return spring for deterioration.

Check the connection of the bushing to the metal fitting.

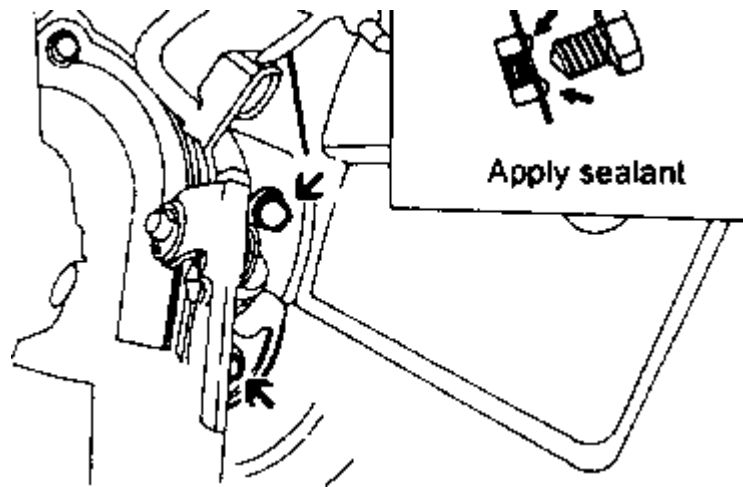
Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

INSTALLATION

When installing the return spring and accelerator arm, apply multi-purpose grease around each moving point of the accelerator arm.



Apply sealant to the bolt mounting hole, and tighten the accelerator arm bracket.



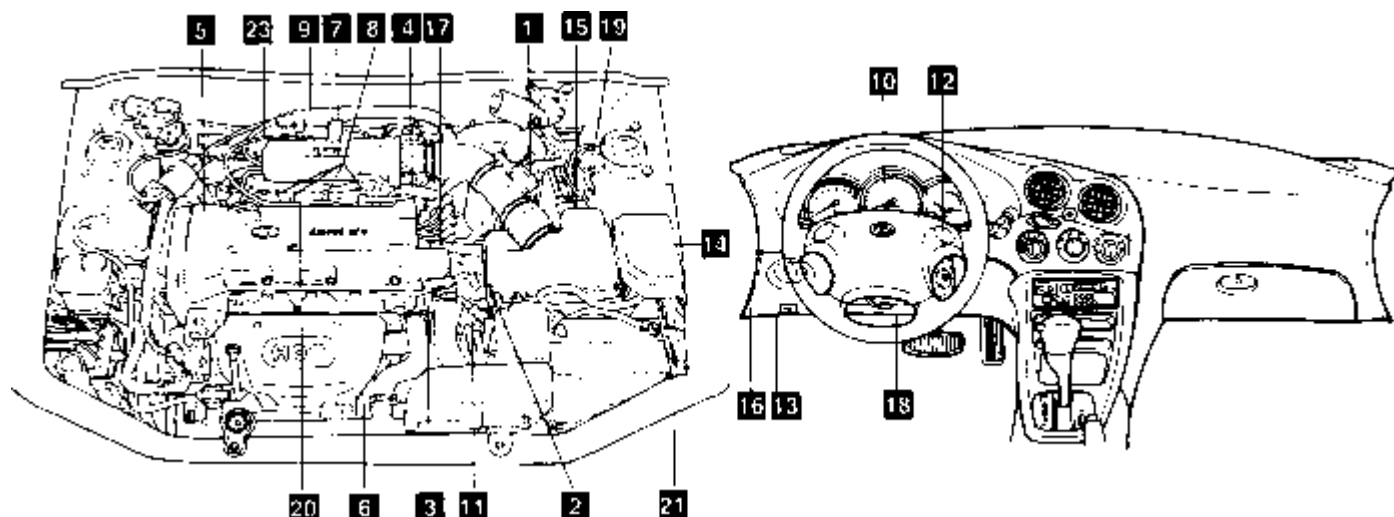
TORQUE SPECIFICATION	
Accelerator arm bracket bolts	8-12 Nm (80-120 kg·cm, 5.8-7.2 lb·ft)

Accelerator arm bracket bolts	8-12 Nm (80-120 kg·cm, 5.8-7.2 lb·ft)
-------------------------------	---

SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2000	
GROUP	
Fuel System	MFI Control System

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

LOCATION OF MFI COMPONENTS



MAF (Mass Air Flow) sensor

- Refer to FL-39

Intake Air Temperature (IAT) sensor

- Refer to FL-71

Engine Coolant Temperature (ECT) sensor

- Refer to FL-32

Throttle Position Sensor (TPS)

- Refer to FL-77

Camshaft Position (CMP) sensor

- Refer to FL-46

Crankshaft Position (CKP) sensor

- Refer to FL-49

Heated Oxygen Sensor (HO2S)

- Refer to FL-60

Injectors

- Refer to FL-43

Idle Speed Control (ISC) actuator

- Refer to FL-67

Vehicle Speed Sensor (VSS)

- Refer to FL-36

Transaxle Range (TR) switch

- Refer to FL-89

Ignition switch

- Refer to FL-91

Engine Control Module (ECM)

- Refer to FL-53

Air conditioning relay

EVAP. canister purge solenoid valve

- Refer to FL-86

MFI control relay

- Refer to FL-55

Ignition coil

- Refer to FL-84

Data Link Connector (DLC)

Acceleration sensor

- Refer to FL-81

Knock sensor

- Refer to FL-74

Canister Close Valve (CCV)

- Refer to FL-95

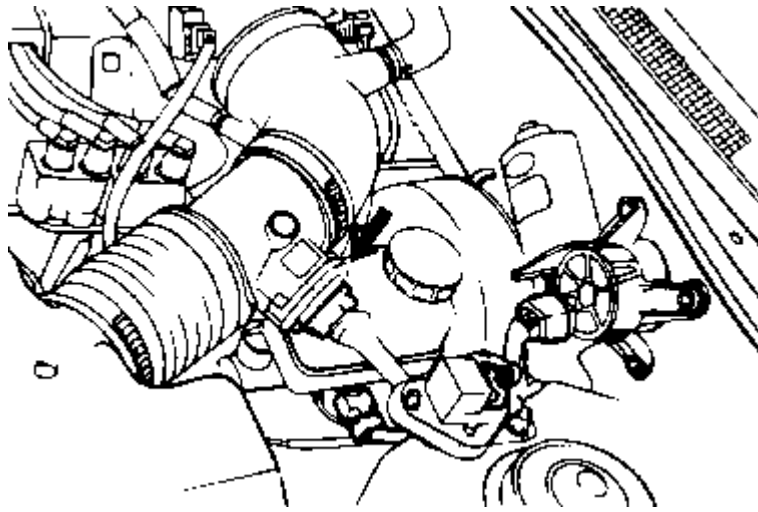
Fuel Tank Pressure (FTP) sensor

- Refer to FL-92

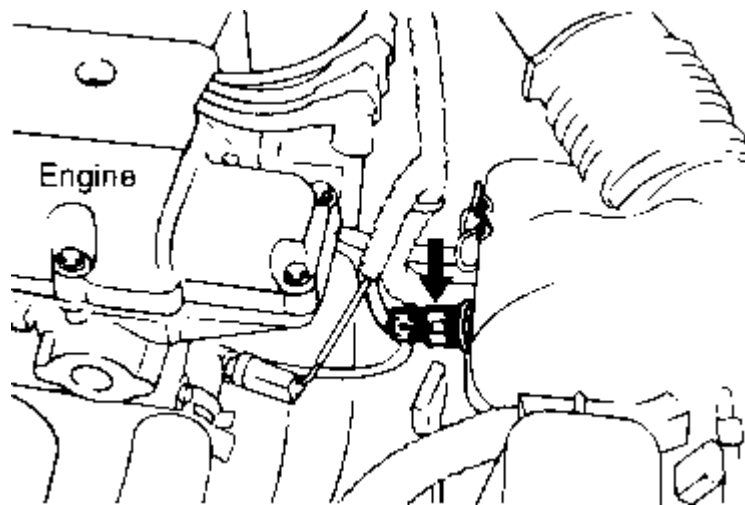
Fuel Pump Check Connector

- Refer to FL-57

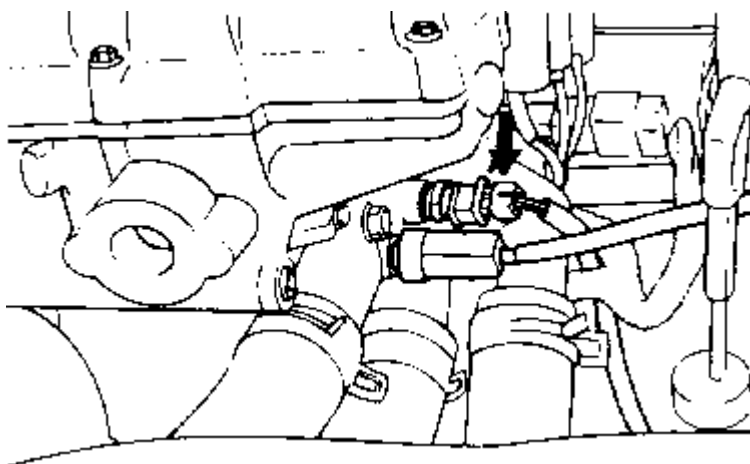
1 - MAF Sensor



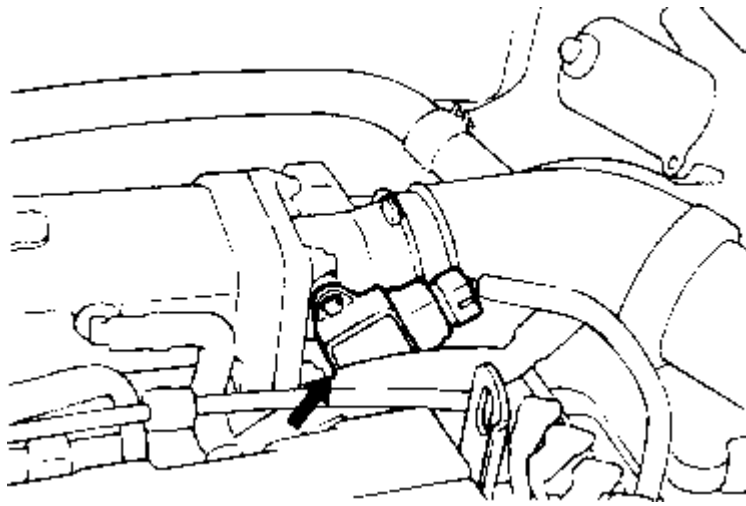
2 - IAT Sensor



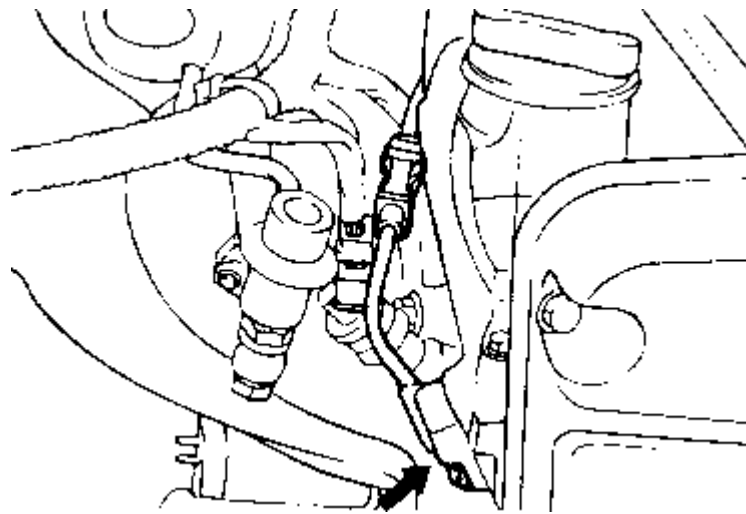
3 - ECT Sensor



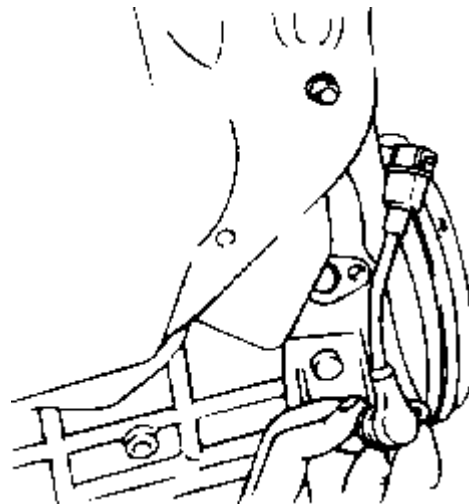
4 - TP Sensor



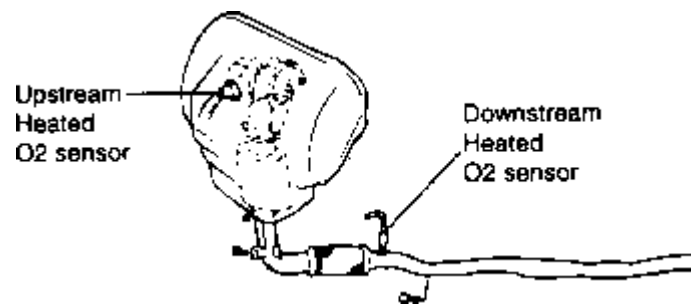
5 - CMP Sensor



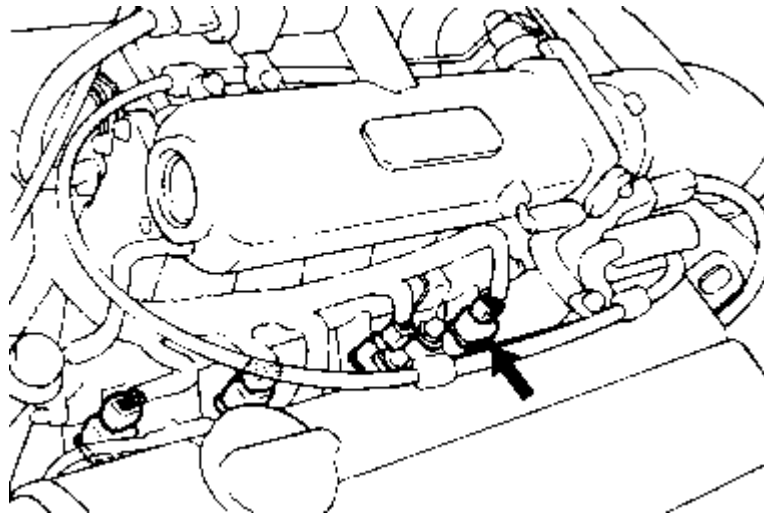
6 - CKP Sensor



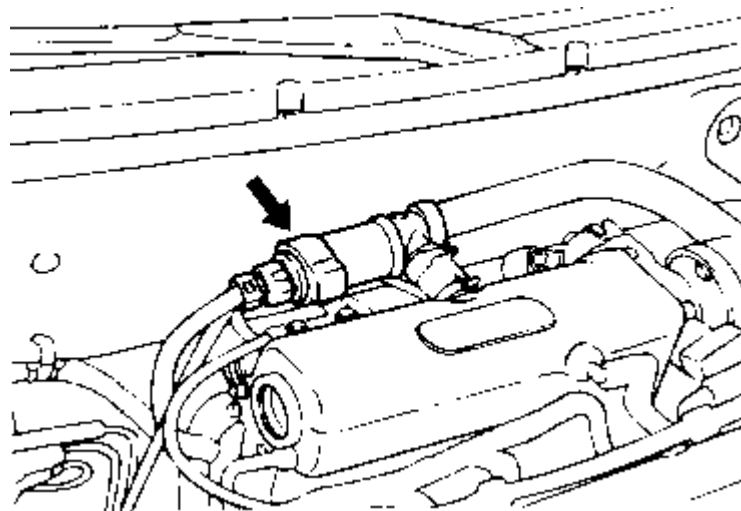
7 - O2 Sensor



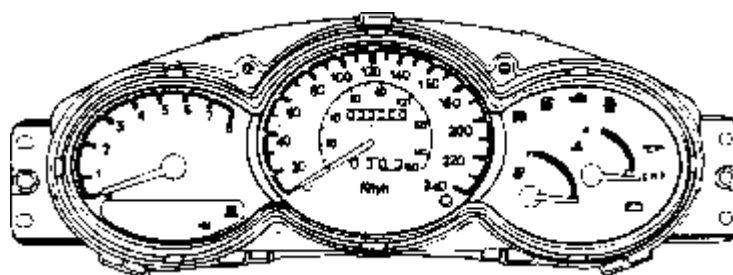
8 - Injector



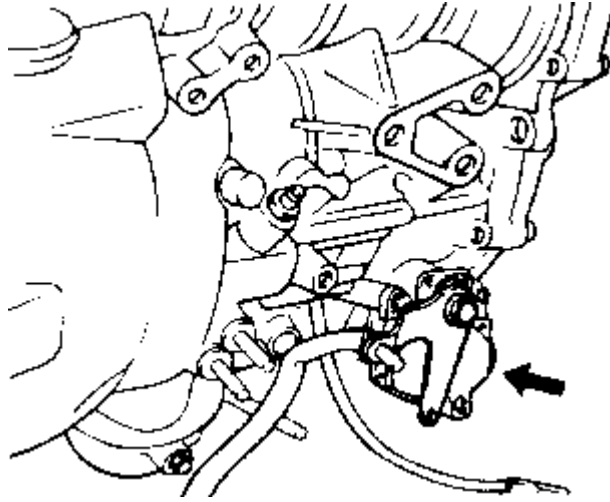
9 - ISC Actuator



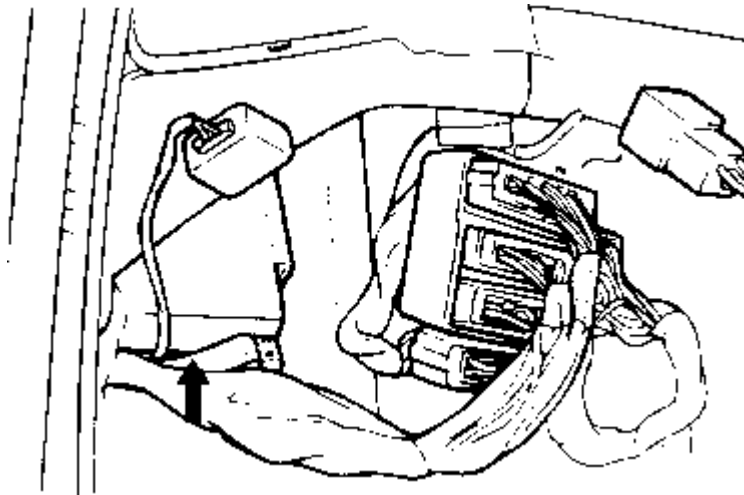
10 - Vehicle speed sensor



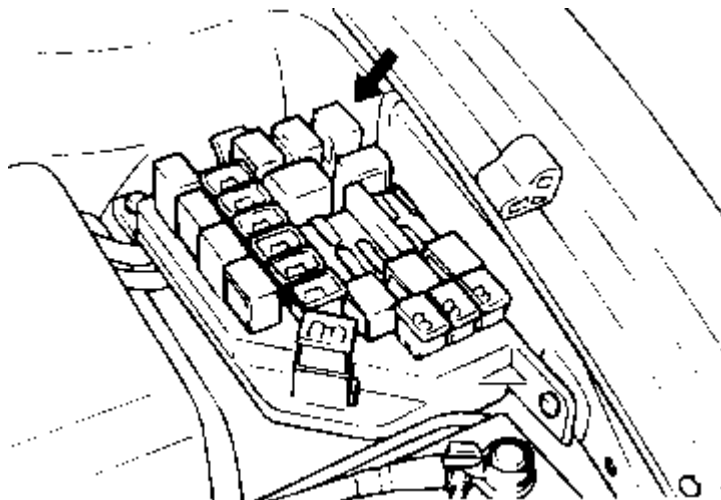
11 - TR switch



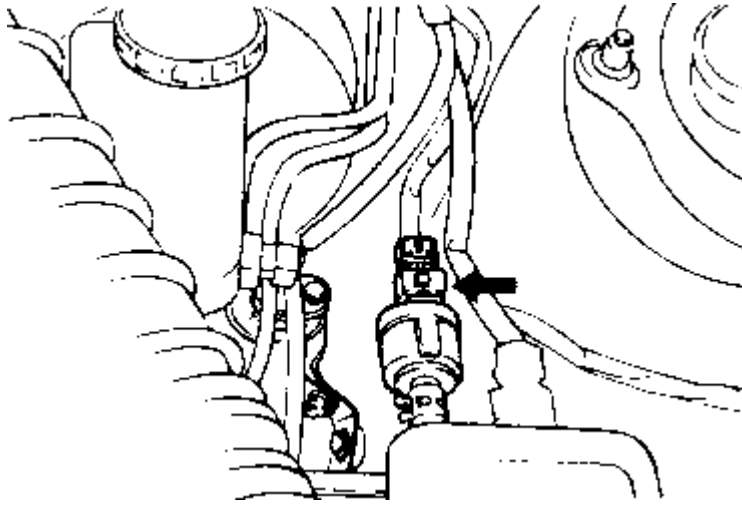
13 - ECM



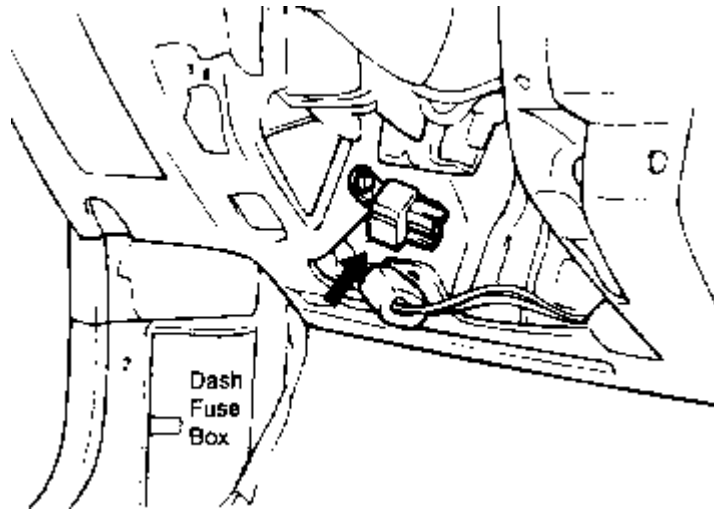
14 - Air/con Relay



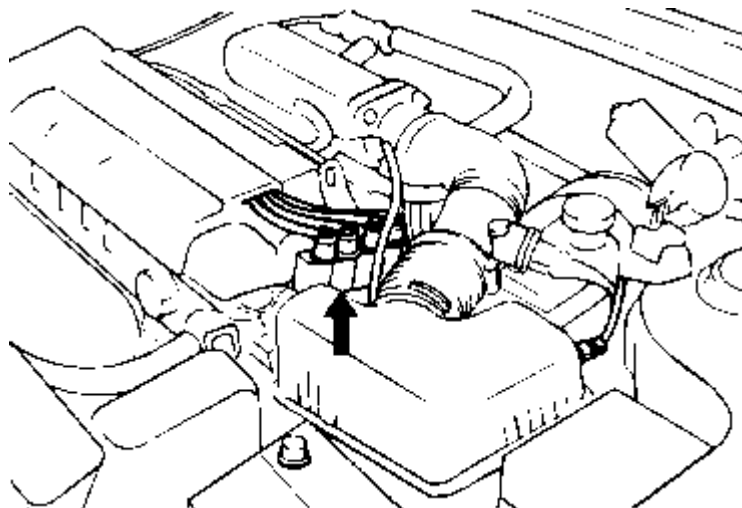
15 - EVAP Solenoid Value



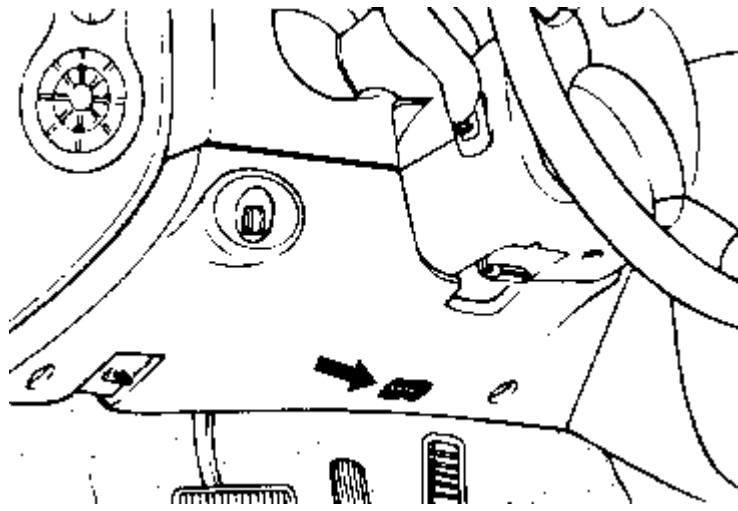
16 - MFI Control Relay



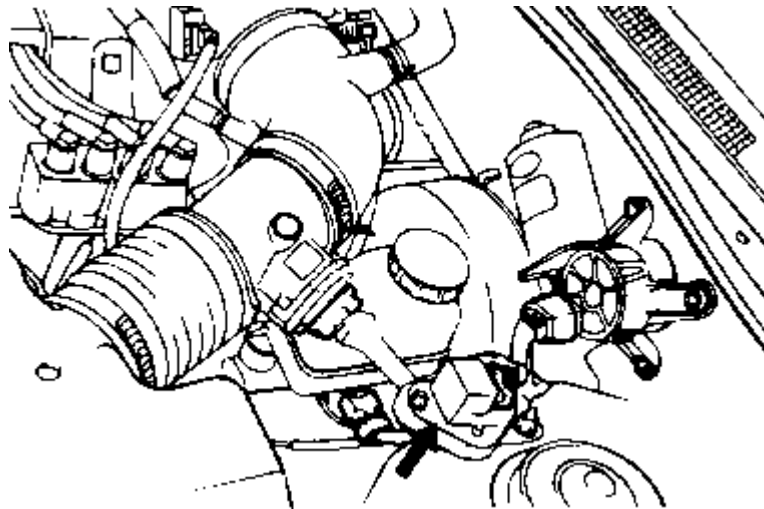
17 - Ignition Coil



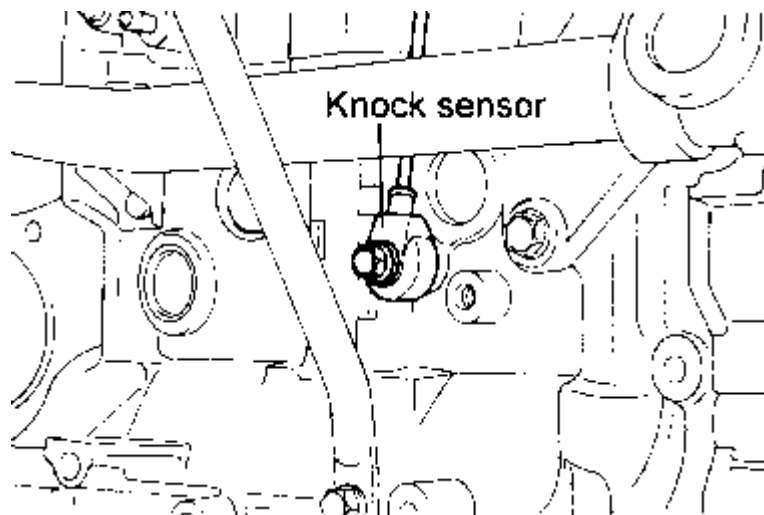
18 - Data Link Connector



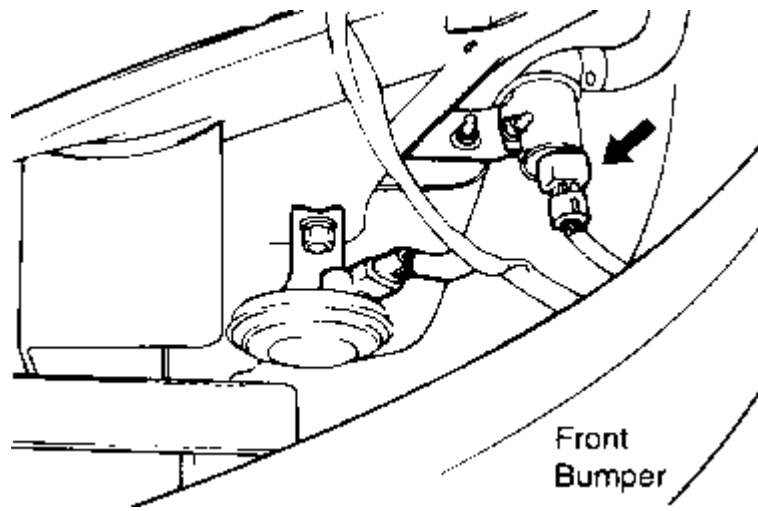
19 - Acceleration Sensor



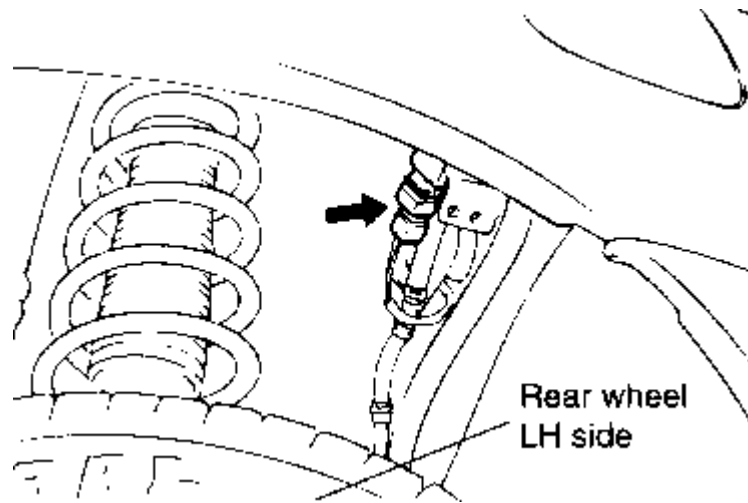
20 - Knock Sensor



21 - Canister Close Valve



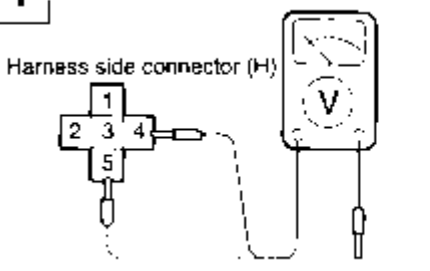
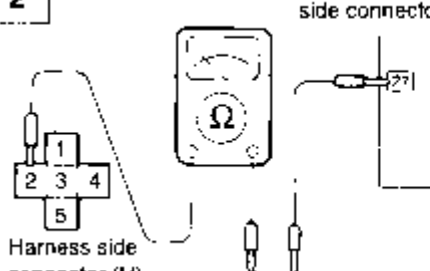
22 - Fuel Tank Pressure Sensor



SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2000	
GROUP	
Fuel System	MFI Control System

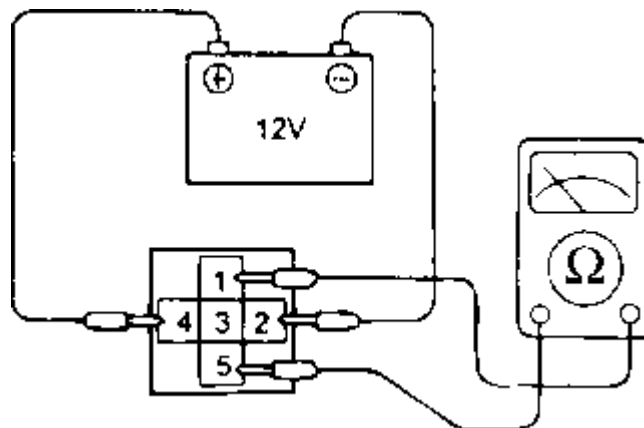
Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

HARNESS INSPECTION PROCEDURE

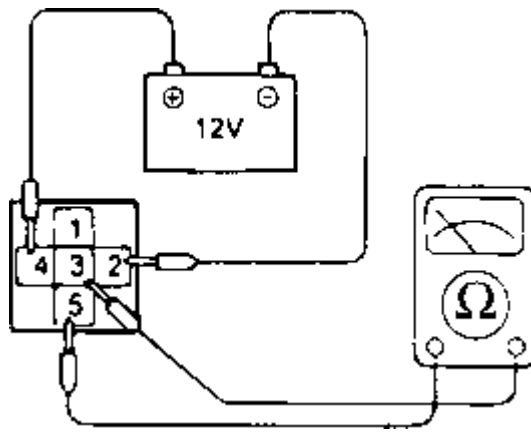
1 	<p>Measure the power supply voltage to the MFI control relay.</p> <ul style="list-style-type: none"> o MFI control relay connector : Disconnected. o Voltage (V) : Battery voltage 	<p>OK → 2</p> <p>NG → Repair the harness. (H4,5-Battery)</p>
2 	<p>Check for open-circuit, or a short-circuit to ground between the engine control module and the MFI control relay.</p> <ul style="list-style-type: none"> o ECM connector : Disconnected. o Injector connector : Disconnected. 	<p>OK → 2</p> <p>NG → Repair the harness. (H2-27)</p>

MFI CONTROL RELAY INSPECTION

Check continuity of relay contacts between terminal 4 (+) and 2 (-).



Relay coil (between terminal 5 & 1)	Continuity
When de-energized	No. (infinite Ω)
When energized	Yes (0 Ω)



Relay coil (between terminal 5 & 3)	Continuity
When de-energized	No. (infinite Ω)
When energized	Yes (0 Ω)

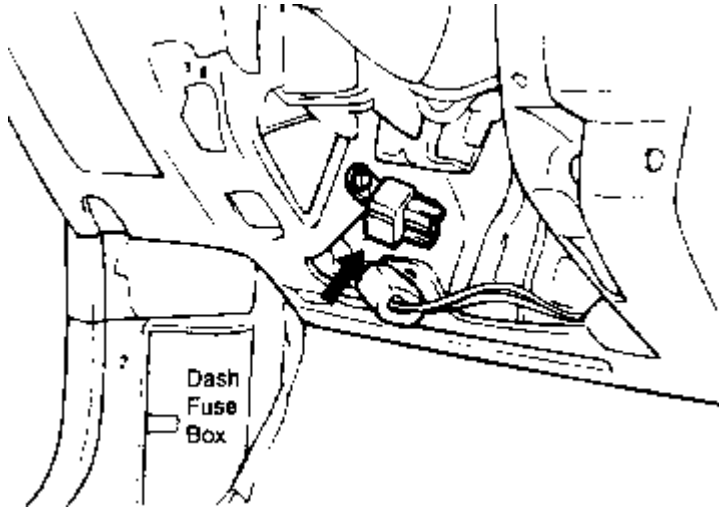
If faulty, replace the MFI control relay.

TORQUE SPECIFICATION	
MFI control relay	7-11 Nm (7-110 kg·cm, 5.2-8.1 lb·ft)

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MFI CONTROL RELAY

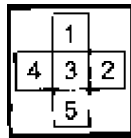
When the ignition switch is on, battery power is supplied to the ECM, the injector, the mass air flow sensor, etc. When the ignition switch is turned on, current flows from the ignition switch through the current relay coil to ground.



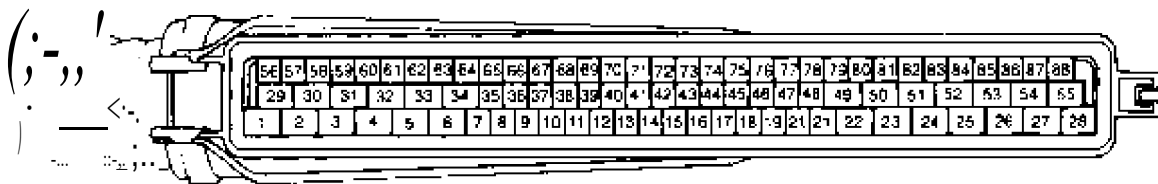
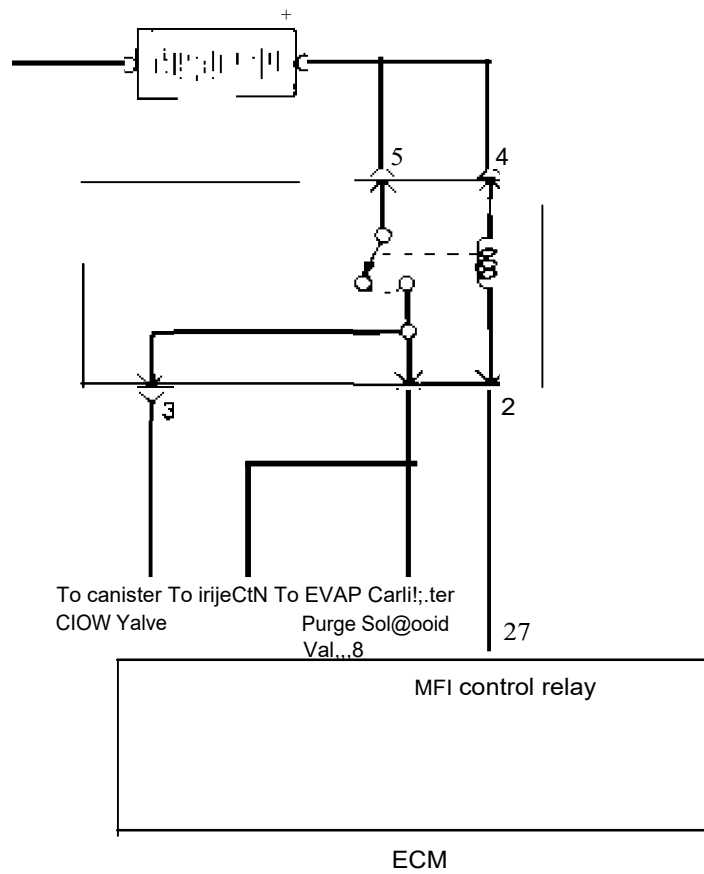
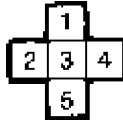
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CIRCUIT DIAGRAM

MFI control relay side connector



Harness side connector (H)



ECM harness side connector

Main Symptoms Sub-Symptoms Check points	Engine Stalls			Others			
	Soon after starting	After accelerator pedal depressed	After accelerator pedal released	During A/C ON	Excessive fuel	Engine overheats	Engine over cools
Fuel quality	1				2		
Fuel pressure regulator	2	4					
Fuel pump	3						
Fuel lines	4	5					
ISC actuator	5		1	2			
MAF sensor circuit	6	1	2		13		
ECT sensor circuit	7				11		
Injectors	8	6			10		
ECM	9	7	3	3	18		
TP Sensor circuit		2			12		
Spark plug		3			6	8	
A/C circuit				1	14		
Fuel leakage					1		
Accelerator pedal link					3		
Clutch (M/T)					4		
Brakes drag when released					5		
Compression					7		
Piston ring					8		
Ignition timing					9		
Oxygen sensor circuit					15		
Intake air temp. sensor circuit					16		
Coolant leakage						1	
Cooling fan						2	1
Thermo switch						3	
Radiator and radiator cap						4	2
Thermostat						5	
Timing belt						6	
Engine coolant pump						7	
Oil pump						9	
Cylinder head						10	
Cylinder block						11	
ECT sender						12	3
Crankshaft position sensor	10	8	4	4			

NOTE

The number herein means the check order.

SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2000	
GROUP	
Fuel System	MFI Control System

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INSTALLATION

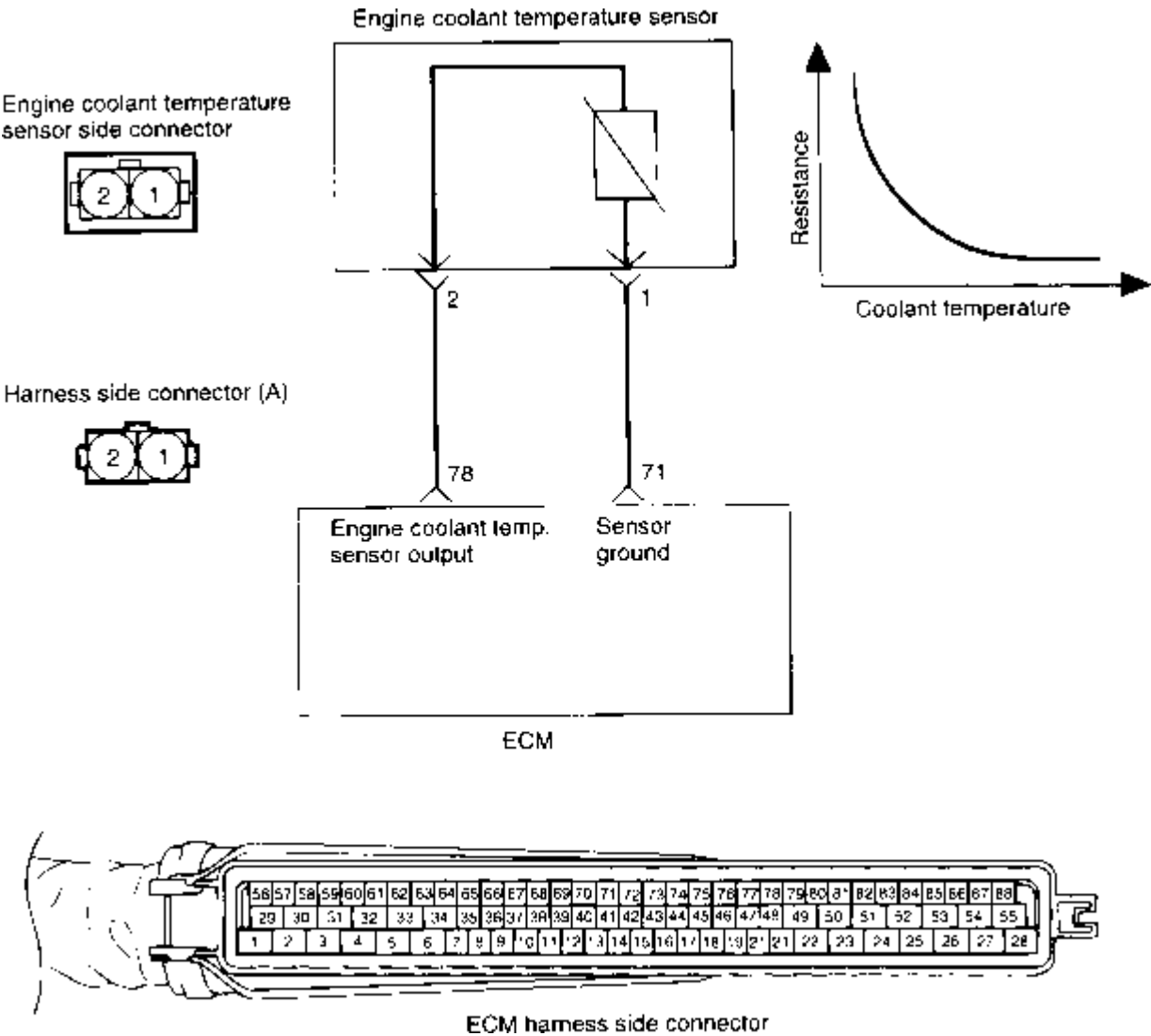
Apply sealant LOCTITE 962T or equivalent to threaded portion.
 Install engine coolant temperature sensor and tighten it to specified torque.

TORQUE SPECIFICATION	
Engine coolant temperature sensor	15-20 Nm (150-200 kg·cm, 11-15 lb·ft)

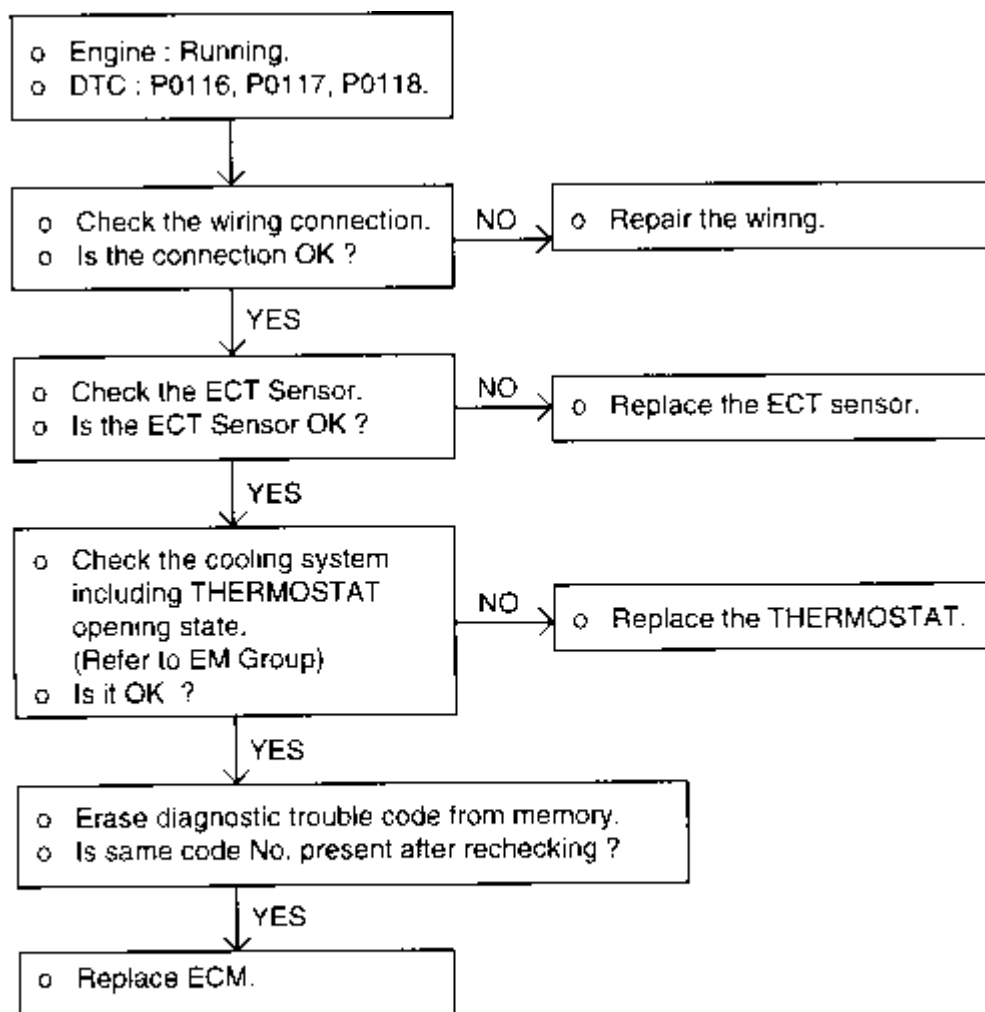
Connect the harness connector securely

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CIRCUIT DIAGRAM



DTC - P0116, P0117, P0118 (ECT SENSOR)



DTC : Diagnosis Trouble Code
ECM : Engine Control Module
ECT : Engine Coolant Temperature

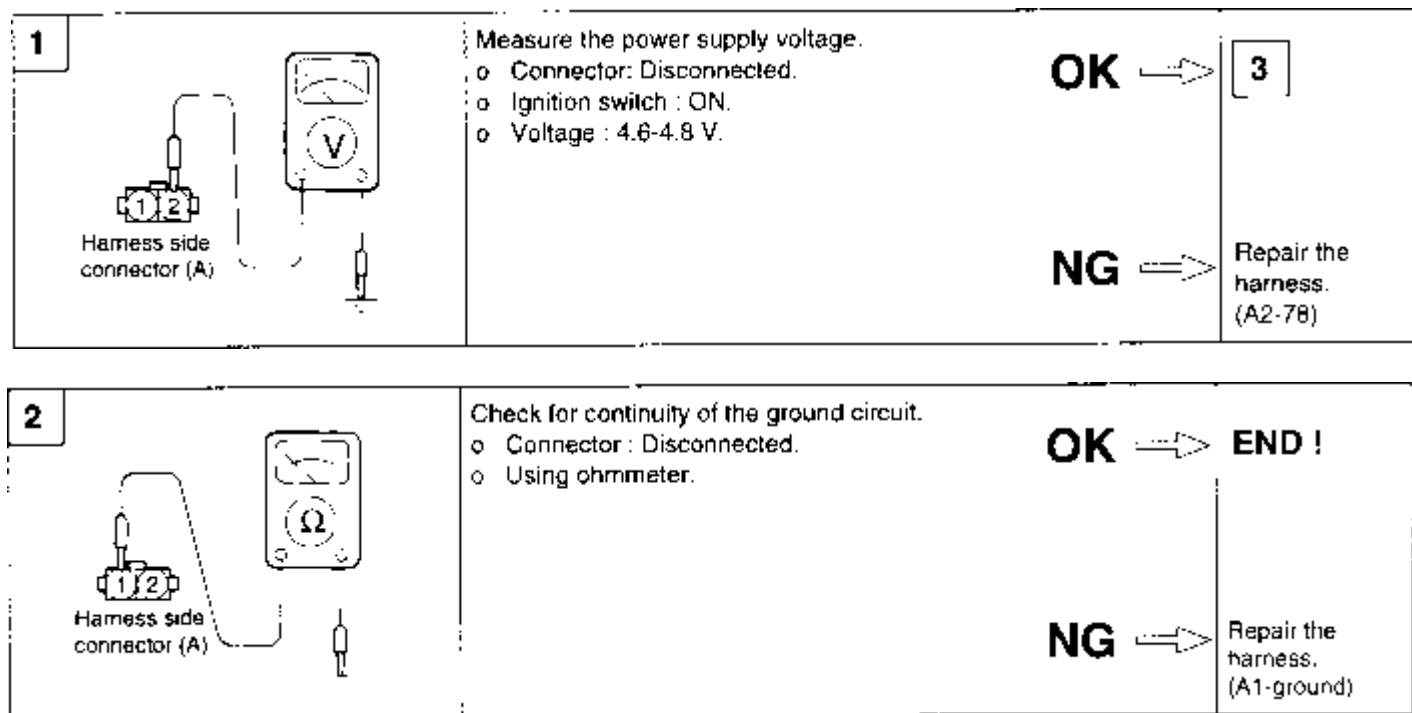
TROUBLESHOOTING HINTS

If the fast idle speed is not high enough or the engine gives off dark smoke during the engine warm-up operation, it might be caused by the engine coolant temperature sensor.

USING VOLTMETER

Check item	Coolant temperature	Test specification
Engine coolant temperature sensor output voltage (ECT Sensor side connector No.2 or ECM harness side connector No.78)	When 0°C	4.05 V
	When 20°C	3.44 V
	When 40°C	2.72 V
	When 80°C	1.25 V

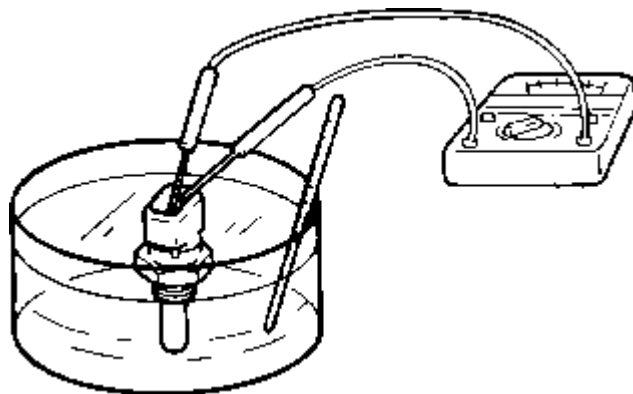
HARNESS INSPECTION PROCEDURES



SENSOR INSPECTION

Remove the engine coolant temperature sensor from the intake manifold.

With temperature sensing portion of engine coolant temperature sensor immersed in hot water, check resistance.



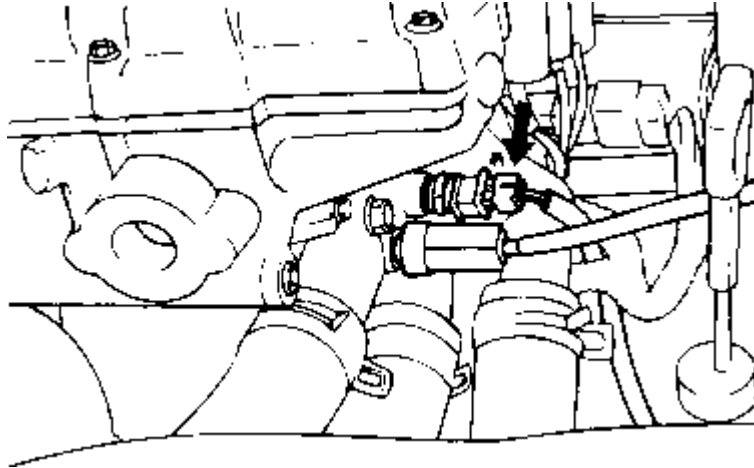
TEMPERATURE °C (°F)	RESISTANCE (KΩ)
-30 (-22)	22.22-31.78
-10 (14)	8.16-10.74
0 (32)	5.18-6.60
20 (68)	2.27-2.73
40 (104)	1.059-1.281
60 (140)	0.538-0.650
80 (176)	0.298-0.322
90 (194)	0.219-0.243

If the resistance deviates from the standard value greatly, replace the sensor.

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ENGINE COOLANT TEMPERATURE (ECT) SENSOR

The engine coolant temperature sensor is installed in the engine coolant passage of the cylinder head, detects engine coolant temperature and emits signals to the ECM. This part employs a Thermistor which is sensitive to, changes. in temperature. The electric resistance of a thermistor decreases in response to temperature rise. The ECM judges engine coolant temperature by the sensor output voltage and provides optimum fuel enrichment when the engine is cold.



SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2000	
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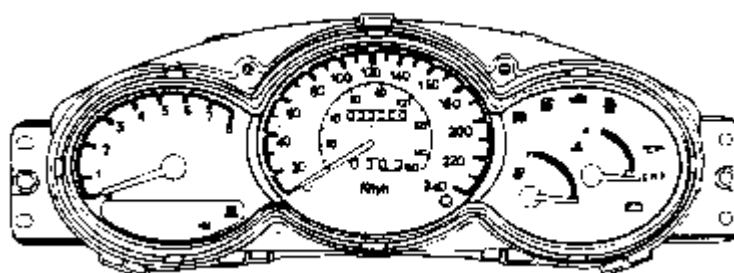
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MALFUNCTION INDICATOR LAMP (MIL)

An On Board Diagnostic lamp comes on to notify the driver that there is a problem in the vehicle.

However MIL will go off automatically after 3 sequential driving cycles without the same malfunction.

Immediately after the ignition switch is turned on (ON position), the malfunction indicator light is lit continuously to indicate that the malfunction indicator light operates normally.



Following Items will be Indicated by the MIL

- Catalyst
- Fuel system
- Mass Air Flow Sensor
- Intake Air Temperature Sensor
- Engine Coolant Temperature Sensor
- Throttle Position Sensor
- Upstream Oxygen Sensor
- Downstream Oxygen Sensor Heater
- Downstream Oxygen Sensor
- Upstream Oxygen Sensor Heater
- Injector
- Misfire
- Crankshaft Position Sensor
- Camshaft Position Sensor
- Evaporative Emission Control System
- Vehicle Speed Sensor
- Idle Control Valve
- Power Supply
- ECM
- MT/AT Encoding
- Acceleration Sensor
- MIL-on Request Signal
- Power Stage
- Canister Close Valve
- Fuel Tank Pressure Sensor

MALFUNCTION INDICATOR LAMP (MIL) INSPECTION

After turning on (ON position) the ignition key, check that the light illuminates continuously without the engine running.

If the light does not illuminate continuously without the engine running, check for an open circuit in harness, blown fuse or blown bulb.

SELF-DIAGNOSIS

The ECM monitor the input/output signals (some signals at all times and the others under specified conditions). When the ECM detects an irregularity, it memorizes the diagnostic trouble code, and outputs the signal to the self-diagnosis output terminal. The diagnosis results can be read out by the Generic Scan Tool (GST). Diagnostic trouble code (DTC) will remain in the ECM as long as battery power is maintained. The diagnostic trouble code will however, be erased when the battery negative terminal or the engine control module (ECM) connector is disconnected or erased by the Generic Scan Tool.

CHECKING PROCEDURE (SELF-DIAGNOSIS)

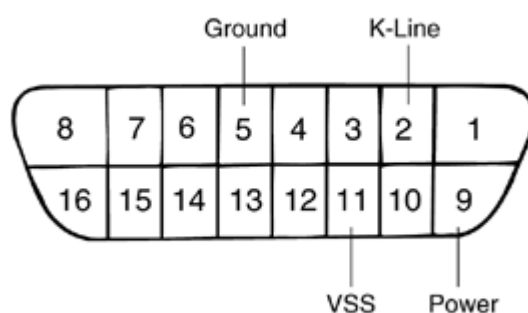
NOTE

1. When battery voltage is low, diagnostic trouble codes can not be read. Be sure to check the battery for voltage and other conditions before starting the test.
2. Diagnosis memory is erased if the battery or the ECM connector is disconnected. Do not disconnect the battery before the diagnostic trouble codes are completely read and recorded.

INSPECTION PROCEDURE (USING GST)

Turn OFF the ignition switch.

Connect the GST to the data link connector located below steering wheel.



Turn ON the ignition switch.

Use the GST to check the diagnostic trouble code.

Repair the faulty pad from the diagnosis chart.

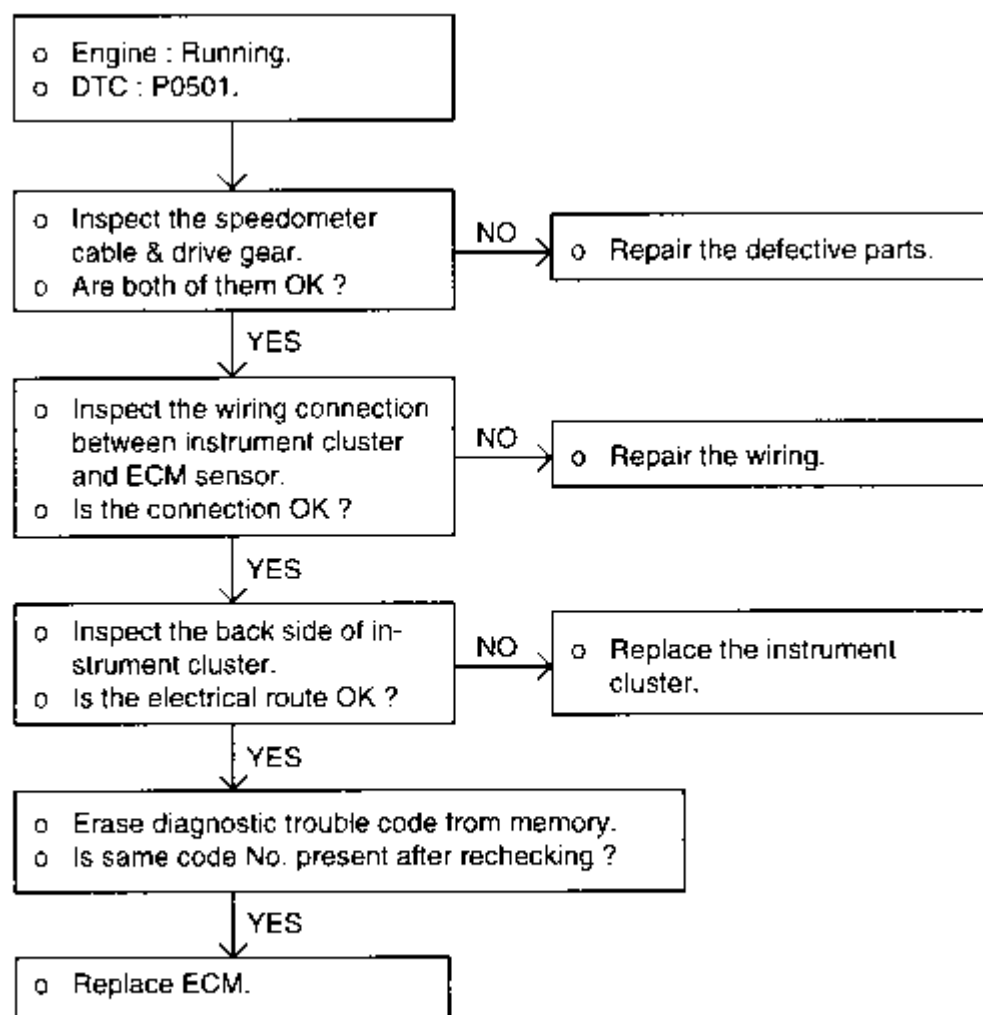
Erase the diagnostic trouble code.

Disconnect the GST

SERVICE MANUAL	
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GROUP	
Fuel System	MFI Control System

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DTC - P0501 (VEHICLE SPEED SENSOR (VSS))



DTC : Diagnosis Trouble Code
ECM : Engine Control Module

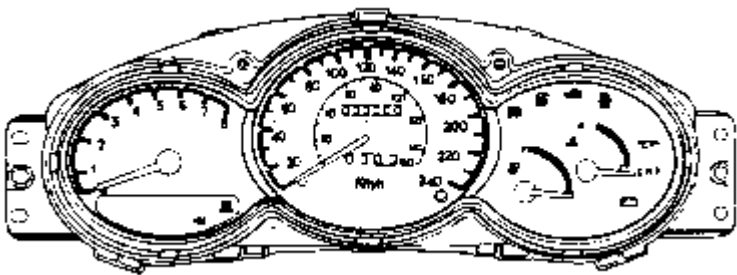
TROUBLESHOOTING HINTS

If there is an open or short circuit in the vehicle speed sensor signal circuit, the engine may stall when the vehicle is decelerated to a stop

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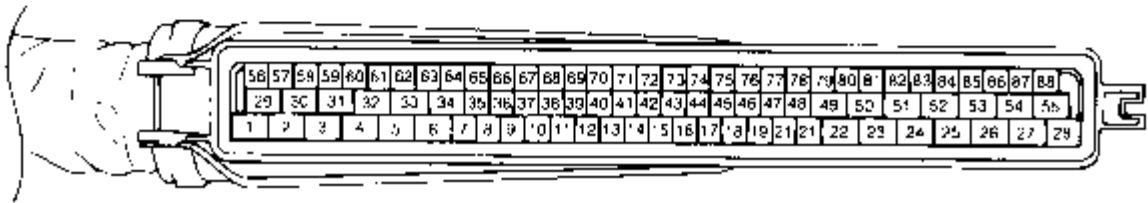
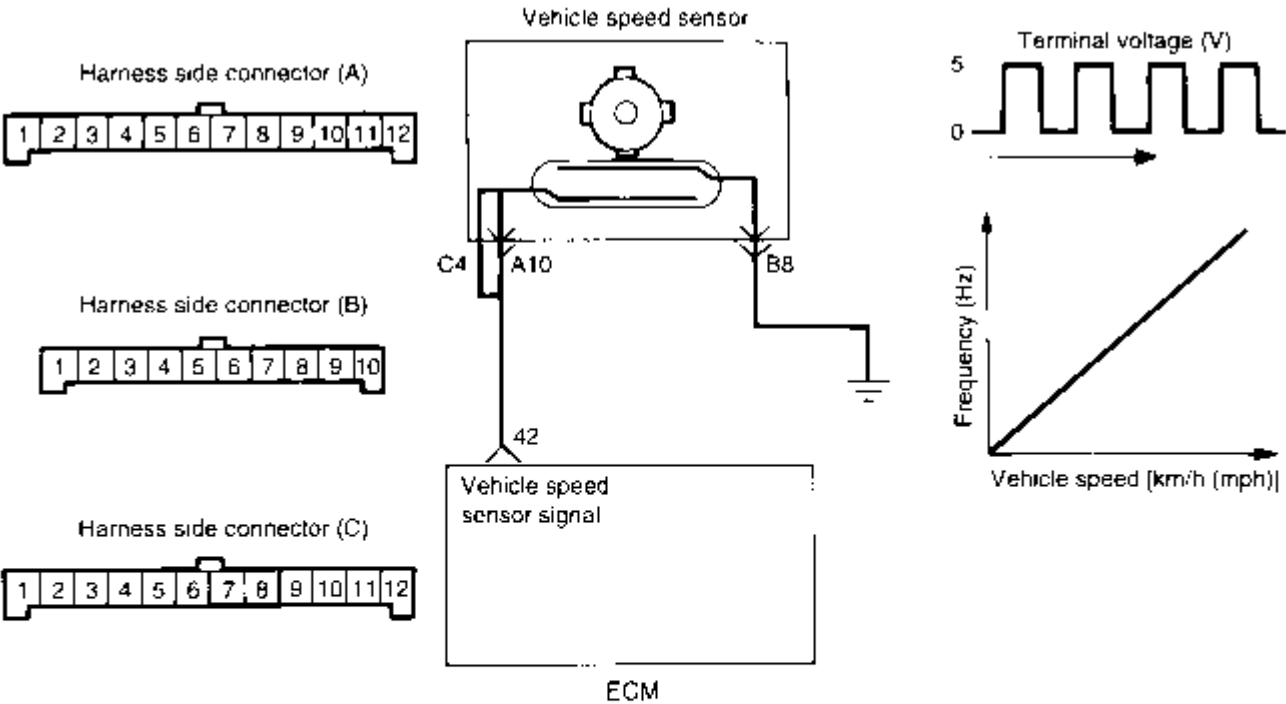
VEHICLE SPEED SENSOR (VSS)

The vehicle speed sensor is a reed switch. The vehicle speed sensor is built into the speedometer and converts the transaxle gear revolutions into pulse signals, which are sent to ECM.



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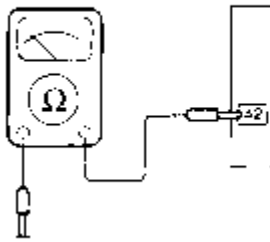
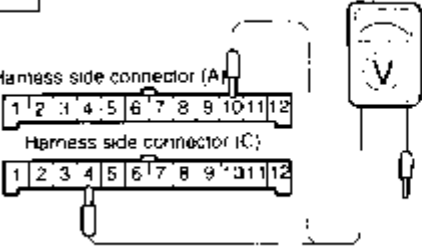
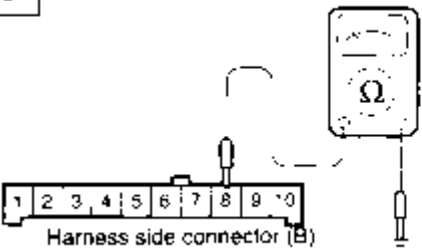
CIRCUIT DIAGRAM



ECM harness side connector

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HARNESS INSPECTION PROCEDURES

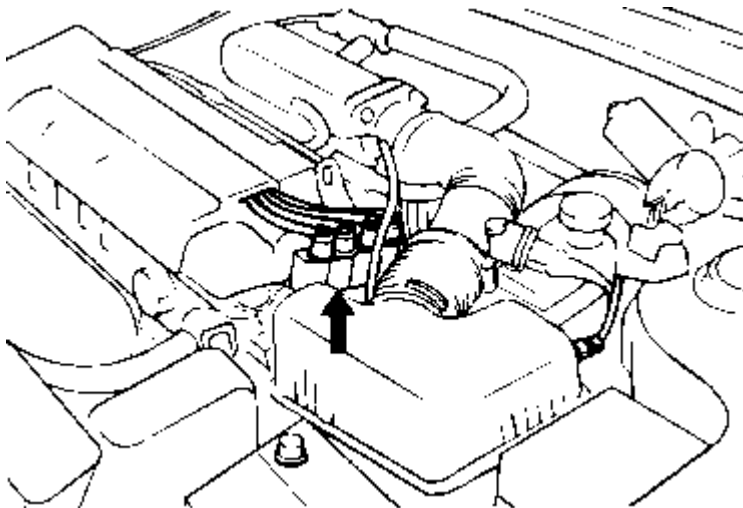
<p>1</p>  <p>ECM harness side connector</p>	<p>Check the vehicle speed sensor output circuit for continuity.</p> <ul style="list-style-type: none"> o Engine control module connector : Disconnected. o Move the vehicle or turn the speedometer cable. 	<p>OK ⇒ END !</p> <p>NG ⇒ 2</p>
<p>2</p>  <p>Harness side connector (A)</p> <p>Harness side connector (C)</p>	<p>Measure the power supply voltage of the vehicle speed sensor.</p> <ul style="list-style-type: none"> o Connector : Disconnected. o Ignition switch : ON. o Voltage : 4.5-4.9V 	<p>OK ⇒ 3</p> <p>NG ⇒ Repair the harness. (A10-42, C4-42)</p>
<p>3</p>  <p>Harness side connector (B)</p>	<p>Check for continuity of the ground circuit.</p> <ul style="list-style-type: none"> o Connector : Disconnected. 	<p>OK ⇒ END !</p> <p>NG ⇒ Repair the harness. (B8-ground)</p>

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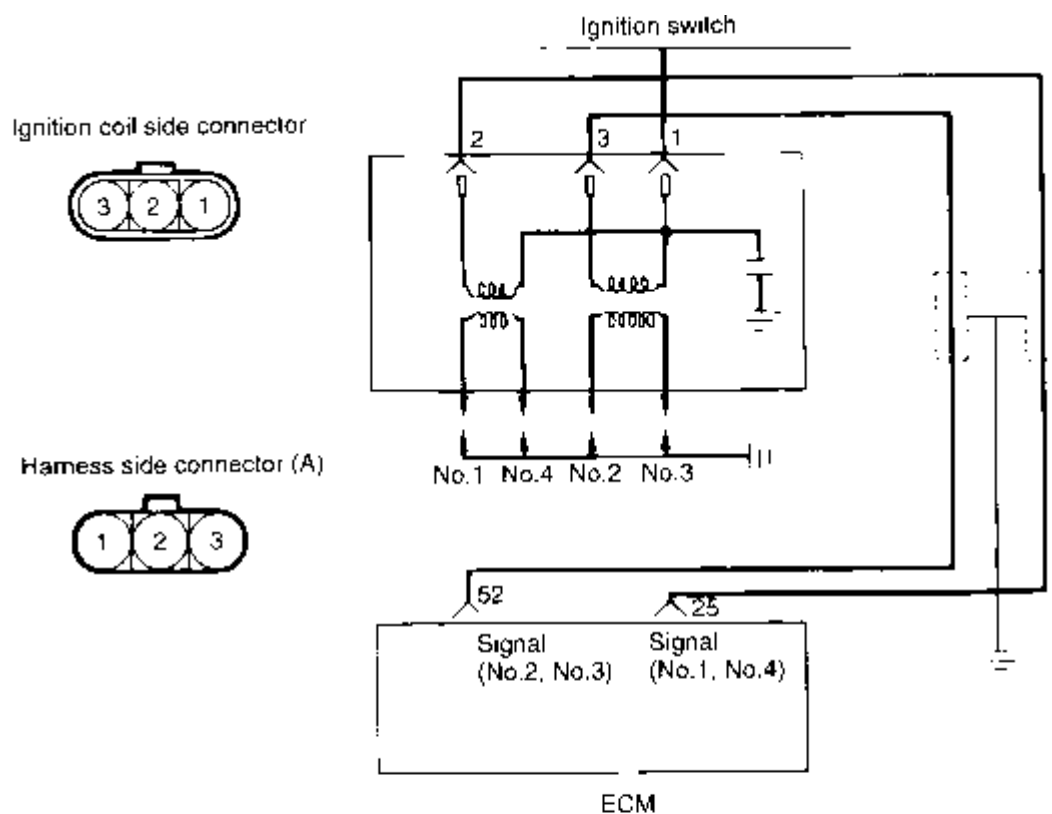
IGNITION COIL

When the ignition power transistor is turned ON by the signal from the ECM. It sends the signal to the ignition coil, then primary current is shut off and a high voltage is induced in the secondary coil.



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CIRCUIT DIAGRAM

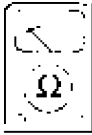
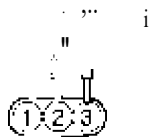


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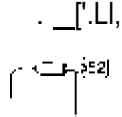
HARNESS INSPECTION PROCESSOR

<p>1</p> <p>Harness side connector</p>	<p>Measure the power supply voltage of the ignition coil.</p> <ul style="list-style-type: none"> Connector: Disconnected. Ignition switch : ON. Voltage (V) : Battery voltage. 	<p>OK ⇒ 2</p> <p>NG ⇒ Repair the harness. (A1-Ignition switch)</p>
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f



ECM Harness
51de connector



Check for an open-circuit or a short-circuit
between the ignition coil and the
engine control module.

- o Engine control module connector :
Disconnected.
- o Power transistor connector:
Disconnected.

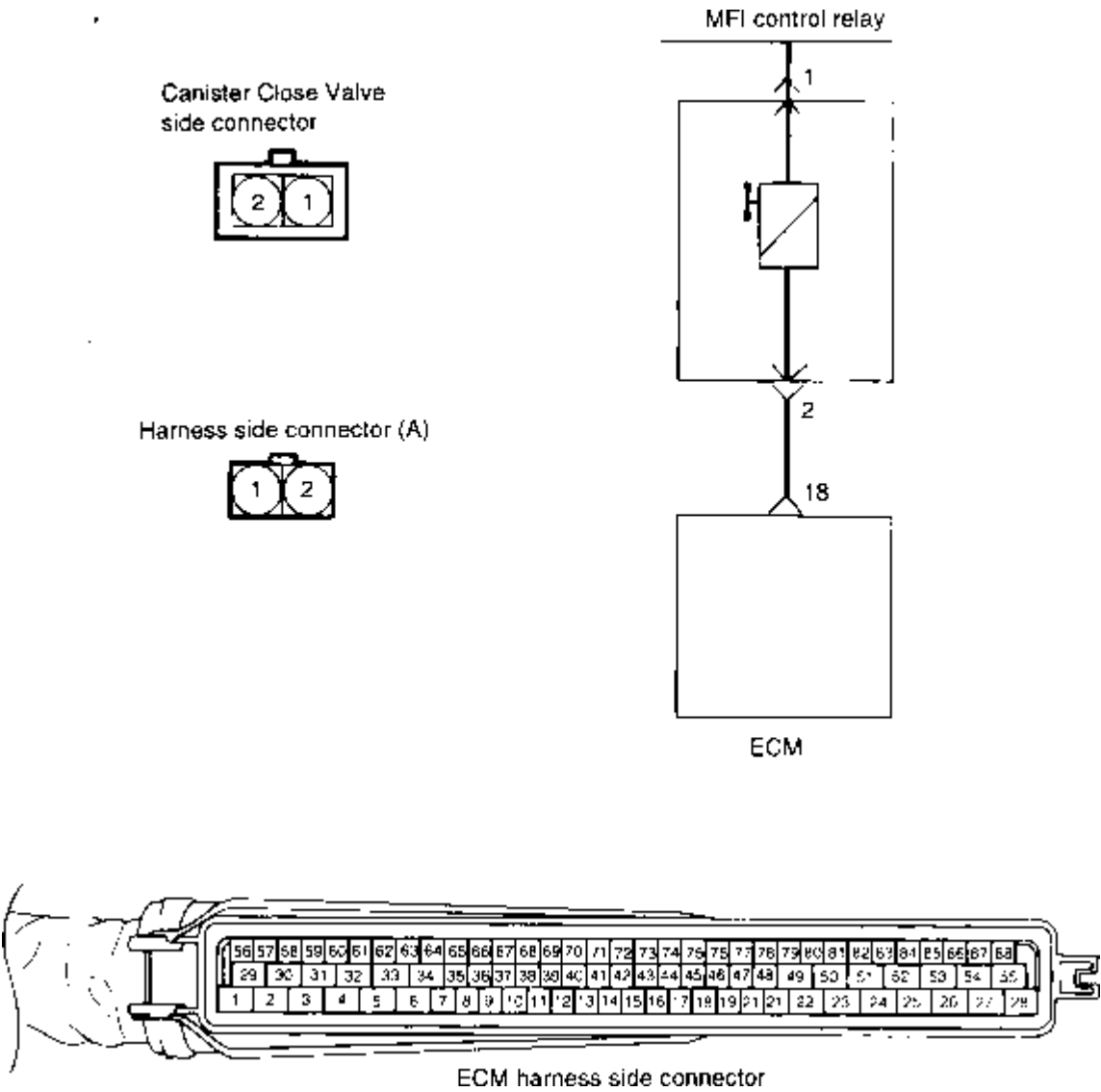
OK > END!

NG :> Repair the
harness.

SERVICE MANUAL	
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Fuel System	MFI Control System

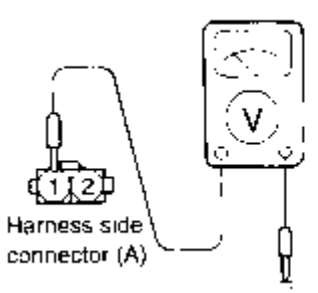
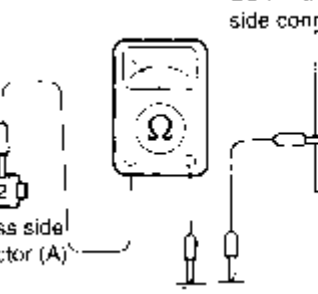
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CIRCUIT DIAGRAM



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HARNESS INSPECTION

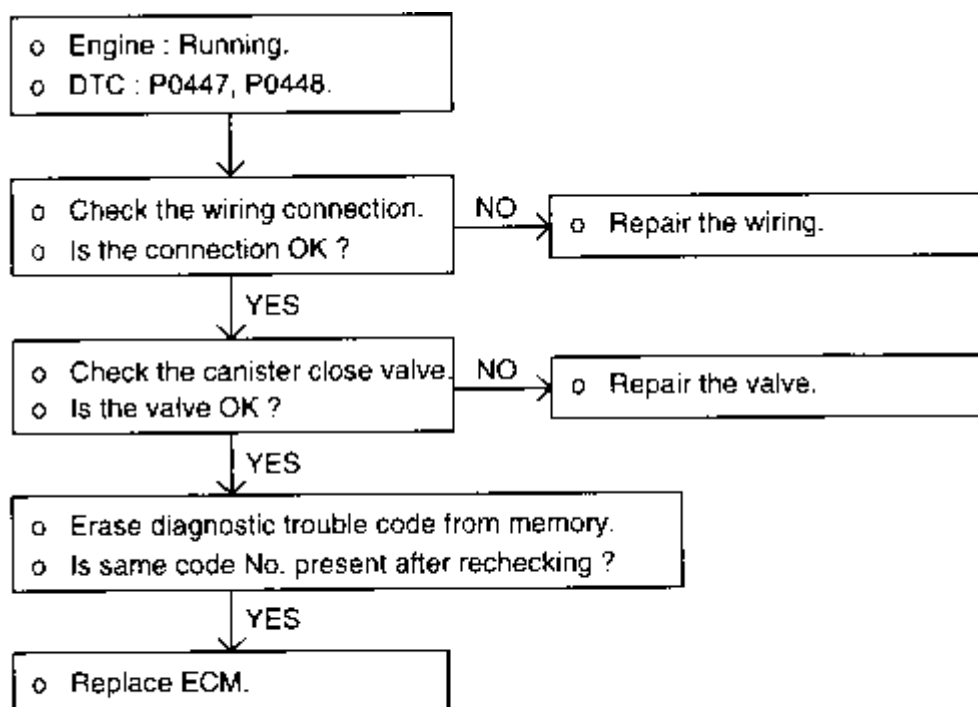
<p>1</p>  <p>Harness side connector (A)</p>	<p>Measure the power supply voltage.</p> <ul style="list-style-type: none"> o Connector : Disconnected. o Ignition switch : ON. o Voltage : Battery voltage. 	<p>OK → 2</p> <p>NG → Repair the harness.</p>
<p>2</p>  <p>Harness side connector (A)</p> <p>ECM Harness side connector</p>	<p>Check for an open-circuit, or a short-circuit to ground between the canister close valve and engine control module.</p> <ul style="list-style-type: none"> o ECM connector : Disconnected. o Canister close valve connector : Disconnected. 	<p>OK → END !</p> <p>NG → Repair the harness. (A2-18)</p>

VALVE INSPECTION

Refer to EC GROUP - Emission Control System.

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

DTC - P0447, P0448 (CANISTER CLOSE VALVE)



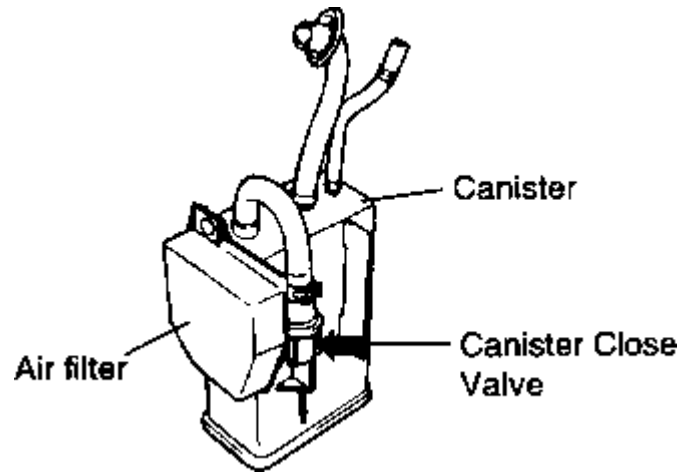
DTC : Diagnosis Trouble Code

ECM : Engine Control Module

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CANISTER CLOSE VALVE

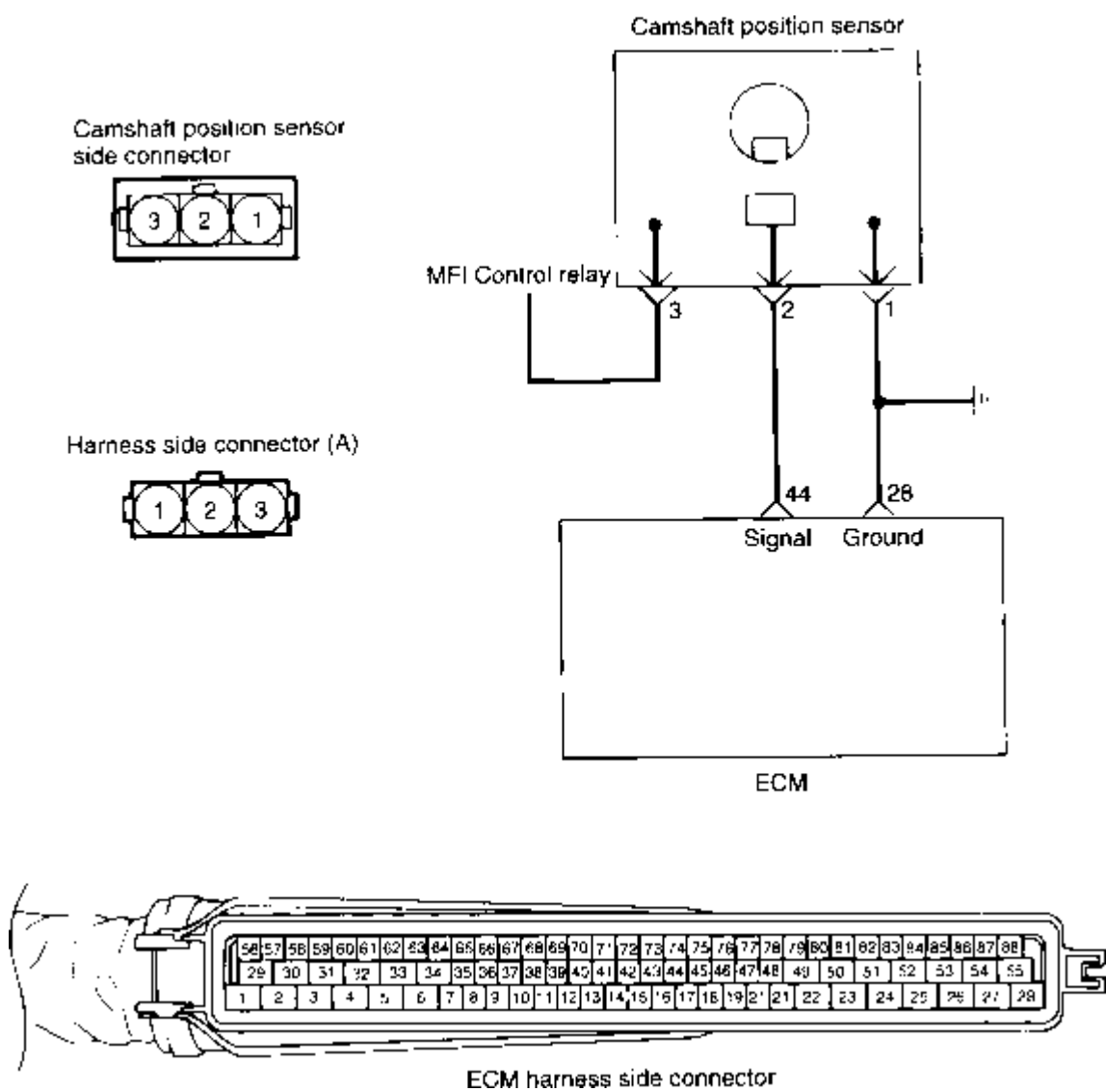
The canister close valve is an ON/OFF type which controls the inner pressure of fuel tank caused by fuel evaporation. It is used to close the evaporative system and to observe tank pressure respectively with the fuel tank pressure sensor.



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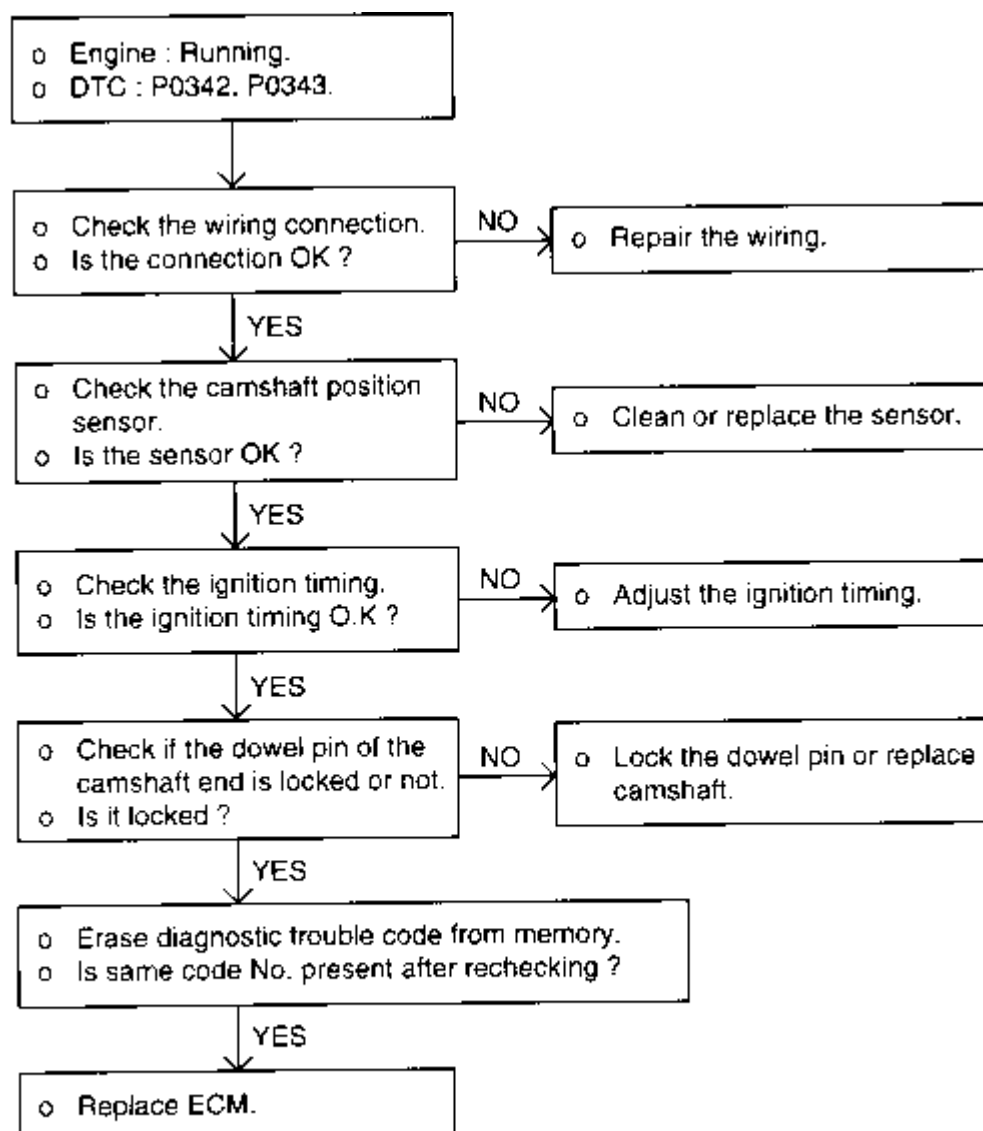
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CIRCUIT DIAGRAM



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DTC - P0342, P0343 (CAMSHAFT POSITION SENSOR)



DTC : Diagnosis Trouble Code
ECM : Engine Control Module

TROUBLESHOOTING HINTS

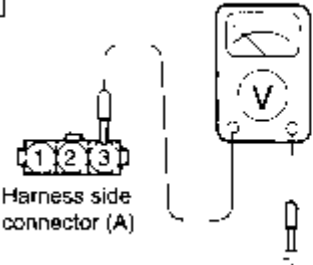
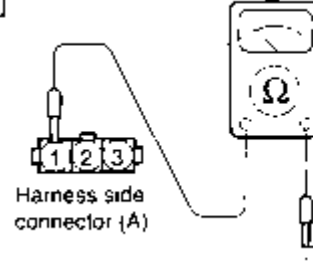
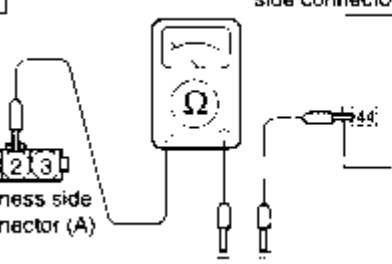
If the camshaft position sensor does not operate correctly, correct sequential injection does not occur so the engine may stall or run irregularly at idle or fail to accelerate normally.

USING VOLTMETER

Check item	Check condition	Test specification
Camshaft position sensor output voltage (Camshaft position sensor side connector No.2 or ECM harness side connector No.44)	At idle (800 rpm)	0-5 V
	3000 rpm	0-5 V

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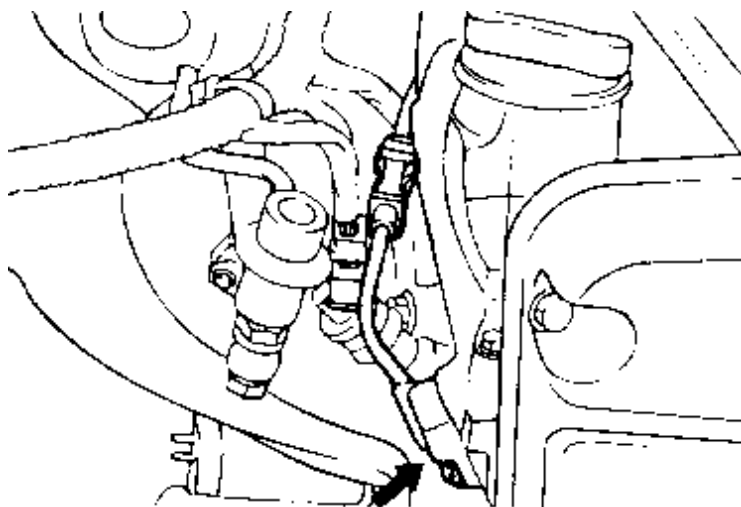
HARNESS INSPECTION PROCEDURES

<p>1</p> 	<p>Measure the power supply voltage.</p> <ul style="list-style-type: none"> ○ Connector : Disconnected. ○ Ignition switch : ON. ○ Voltage (V) : Battery voltage. 	<p>OK → 2</p> <p>NG → Repair the harness. (A3-Power)</p>
<p>2</p> 	<p>Check for continuity of the ground circuit.</p> <ul style="list-style-type: none"> ○ Connector : Disconnected. 	<p>OK → 3</p> <p>NG → Repair the harness. (A1-ground)</p>
<p>3</p> 	<p>Check for an open-circuit, or a short-circuit to ground between the engine control module and the camshaft position sensor.</p> <ul style="list-style-type: none"> ○ Camshaft position sensor connector : Disconnected. ○ Engine control module connector : Disconnected. 	<p>OK → END !</p> <p>NG → Repair the harness. (A2-44)</p>

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CAMSHAFT POSITION SENSOR

Camshaft position sensor (CMP Sensor) senses the TDC point of No.1 cylinder in its compression stroke, whose signals are fed to the ECM to be used to determine the sequence of fuel injection.

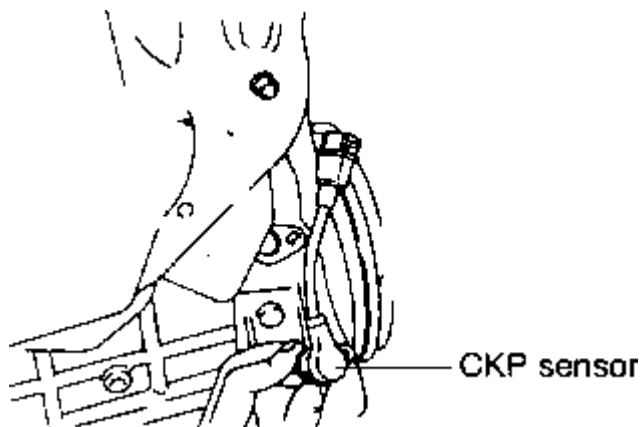


SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2000	
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Fuel System	MFI Control System

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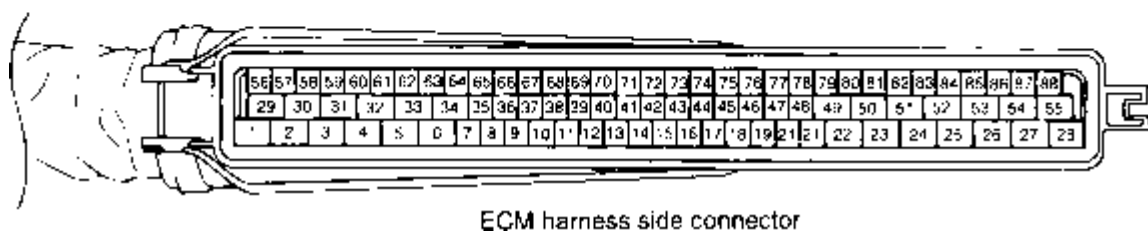
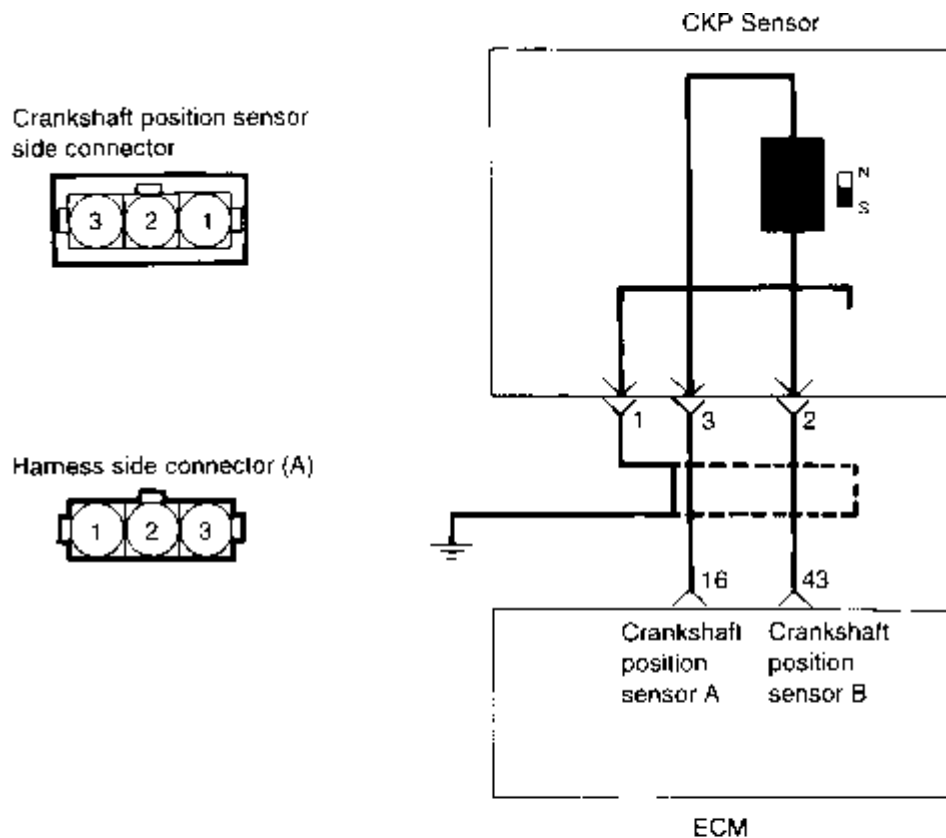
CRANKSHAFT POSITION SENSOR

The crankshaft position sensor which consists of a magnet and coil is installed by the flywheel. The voltage signal from this crankshaft position sensor is provided to the ECM for detecting engine RPM and the position of crankshaft.



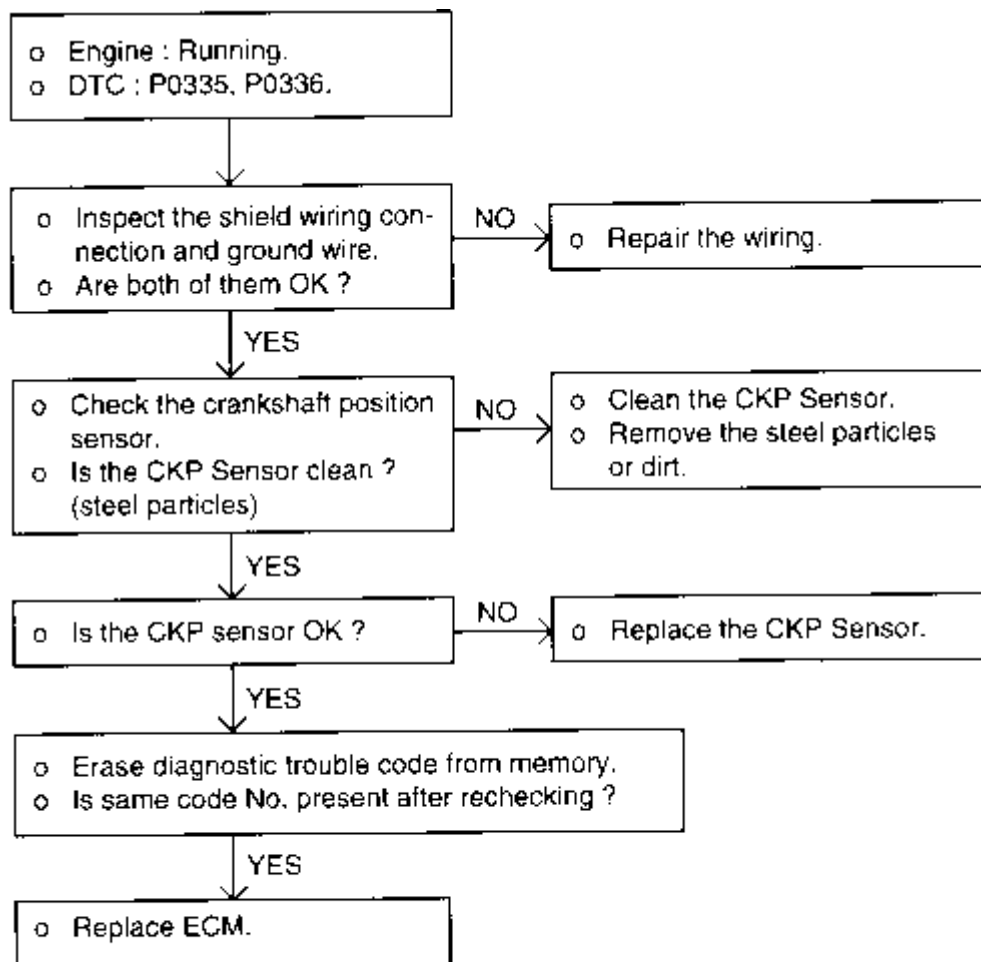
Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

CIRCUIT DIAGRAM



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DTC - P0335, P0336 (CRANKSHAFT POSITION SENSOR)



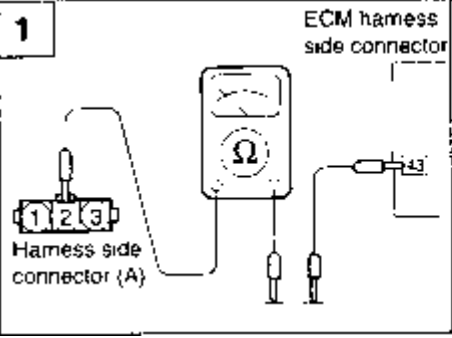
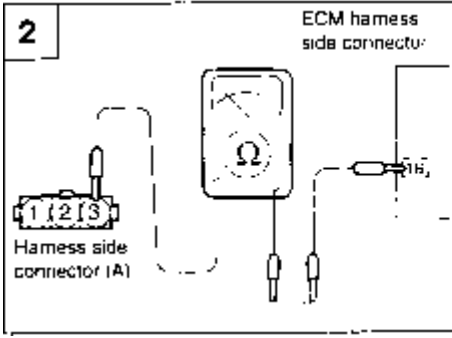
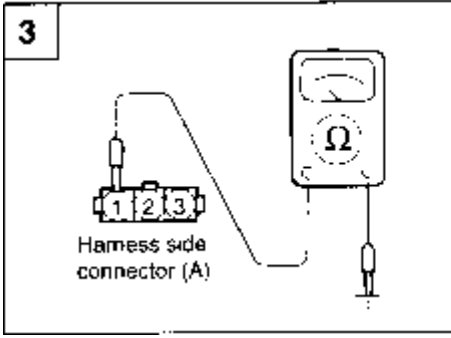
DTC : Diagnosis Trouble Code
ECM : Engine Control Module
CKP : Crankshaft Position Sensor

TROUBLESHOOTING HINTS

1. If unexpected misses are felt during driving or the engine stalls suddenly, shake the crankshaft position sensor harness. If this causes the engine to stall, check for poor contact at the sensor connector.
2. If the tachometer reads 0 rpm when the engine is cranked, check for faulty crankshaft position sensor or ignition system problems.
3. If the tachometer reads 0 rpm when the engine is cranked and it does not start, ignition coil, power TR, or an ECM defect can be considered.
4. Engine can be stalled when the crankshaft position sensor cable is close to the high voltage cable due to the noise caused by the high voltage induced.

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

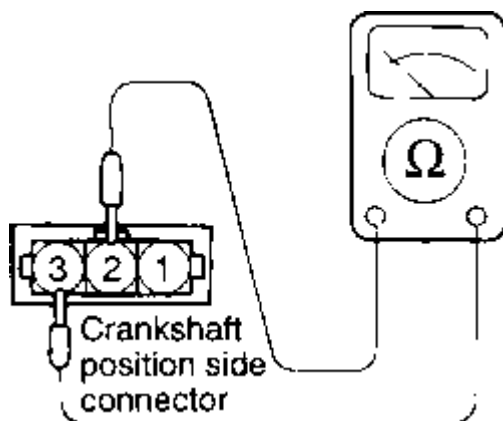
HARNESS INSPECTION PROCEDURE

1 	<p>Check for an open-circuit, or a short-circuit to ground between the ECM and the crankshaft position sensor.</p> <ul style="list-style-type: none"> ECM connector : Disconnected. Crankshaft position sensor connector : Disconnected. 	<p>OK → 2</p> <p>NG → Repair the harness. (A2-43)</p>
2 	<p>Check for an open-circuit, or a short-circuit to ground between the ECM and the crankshaft position sensor.</p> <ul style="list-style-type: none"> ECM connector : Disconnected. Crankshaft position sensor connector : Disconnected. 	<p>OK → 3</p> <p>NG → Repair the harness. (A3-16)</p>
3 	<p>Check for continuity of the ground circuit.</p> <ul style="list-style-type: none"> Connector : Disconnected. 	<p>OK → END !</p> <p>NG → Repair the harness. (A1-ground)</p>

SENSOR INSPECTION

Disconnect the crankshaft position sensor connector.

Measure the resistance between terminal 2 and 3.



SPECIFICATION

Standard value

0.486-0.594 kΩ at 20°C
(68°F)

If the resistance deviates far from the standard value, replace the sensor.

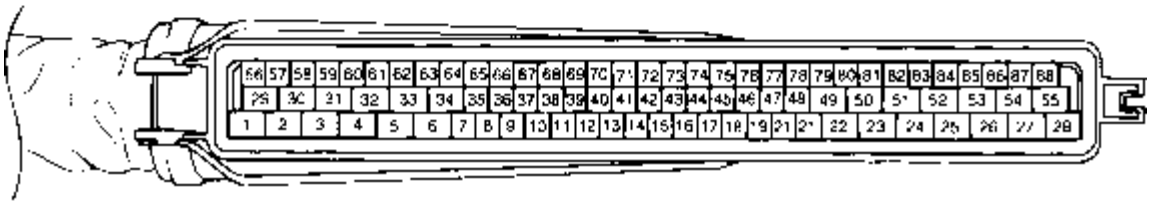
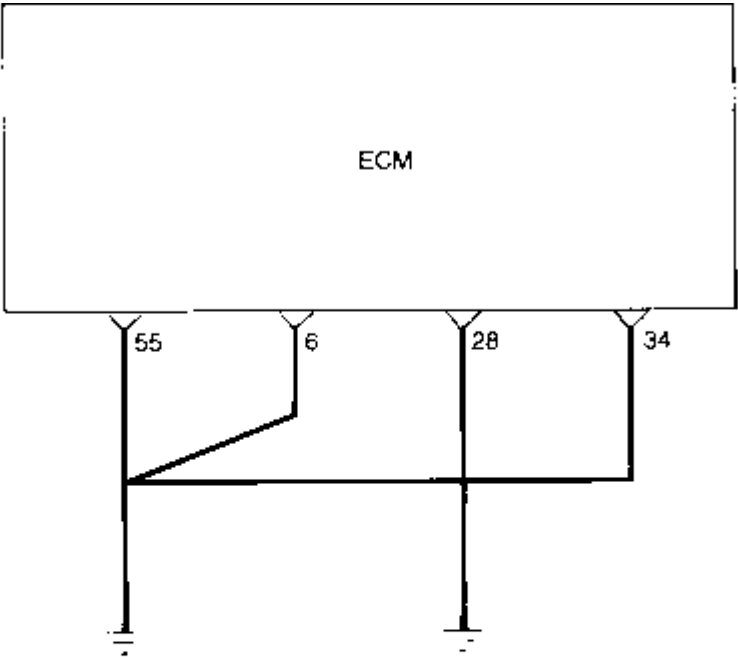
SPECIFICATION	
Clearance between the crankshaft position sensor and crankshaft position sensor wheel	0.5-1.5 mm (0.020-0.059 in.)

TORQUE SPECIFICATION	
Crankshaft position sensor	9-11 Nm (90-110 kg·cm, 6.6-8.1 lb·ft)

SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2000	
GROUP	
Fuel System	MFI Control System

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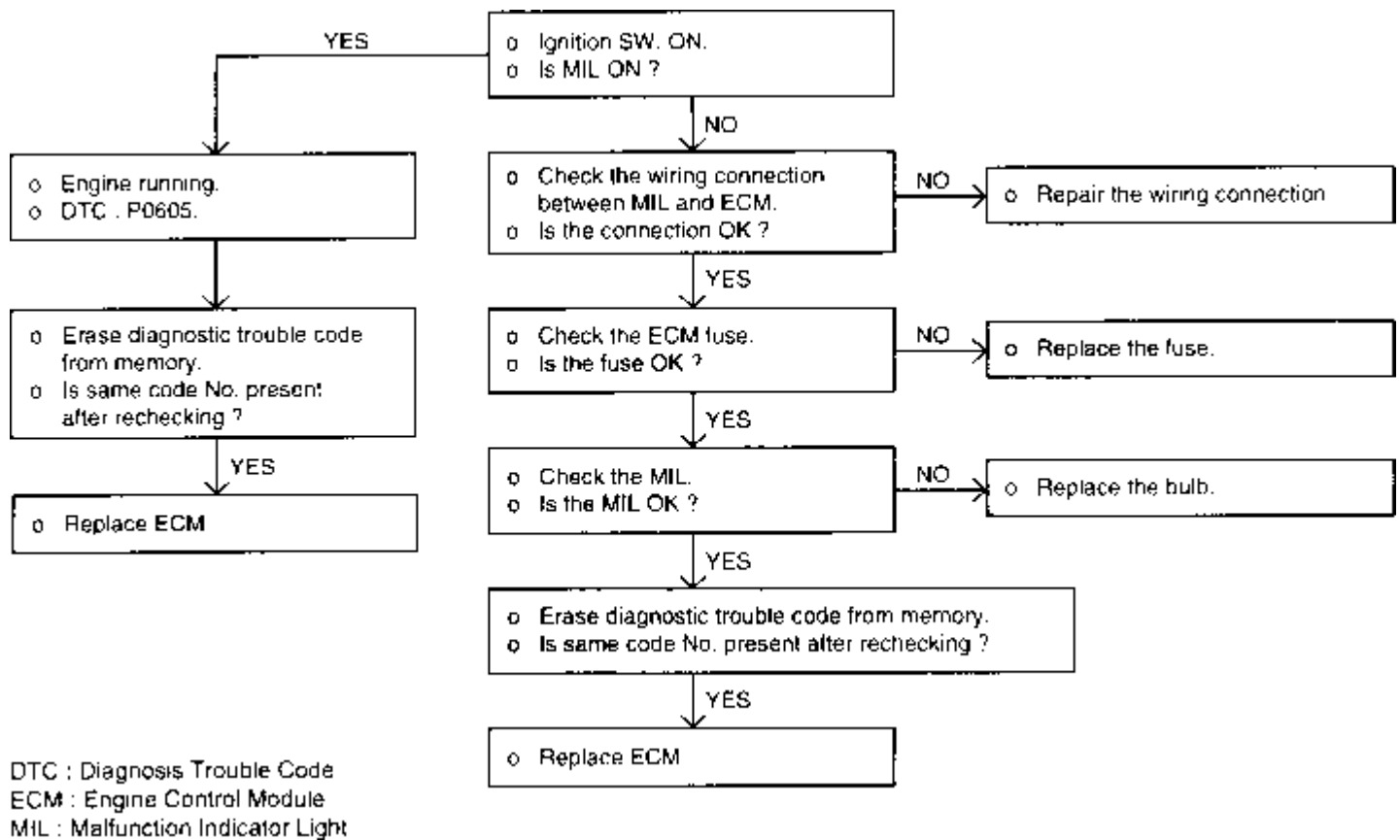
CIRCUIT DIAGRAM



ECM harness side connector

Return to Main Menu(s):
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CIRCUIT INSPECTION (ENGINE CONTROL MODULE)

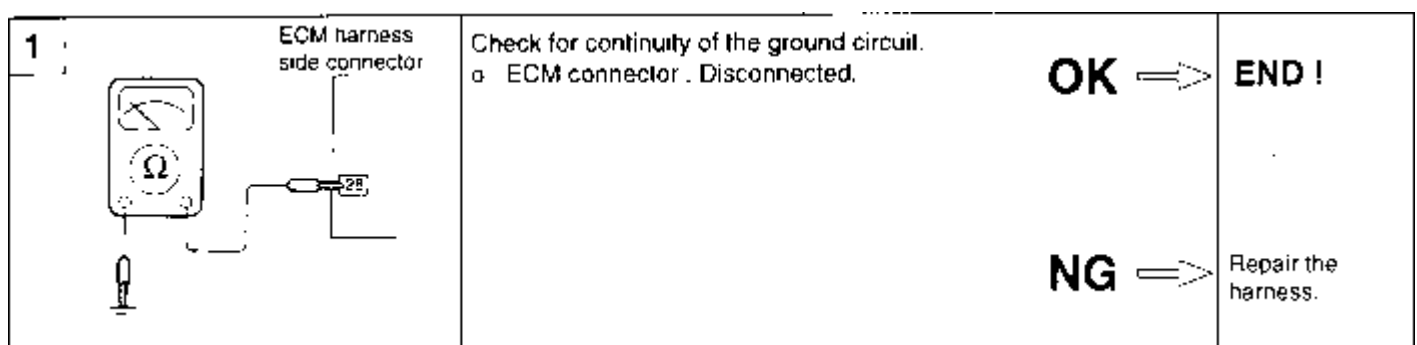


TROUBLESHOOTING HINTS

- If the ground wire of the ECM is not connected securely to ground, the ECM will not operate correctly.
- If we replace ECM ROM without further diagnosis, the problem may reoccur.

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

HARNESS INSPECTION PROCEDURE



Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

ENGINE CONTROL MODULE (ECM)

Check the internal control module ROM/RAM error.



90°

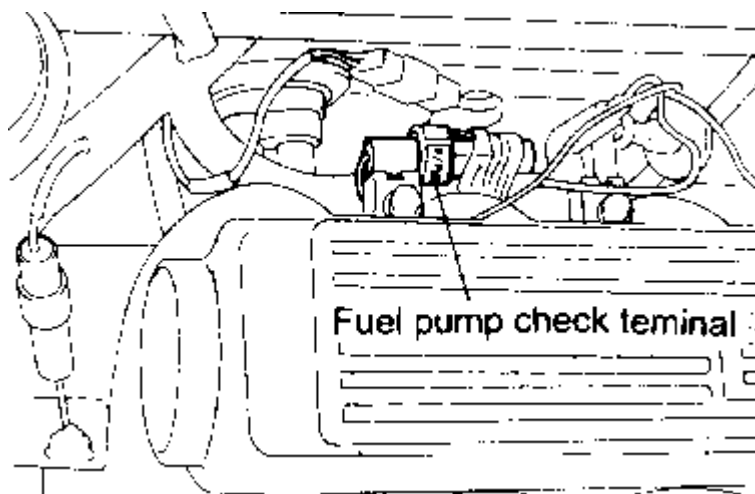


SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2000	
GROUP	
Fuel System	MFI Control System

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FUEL PUMP INSPECTION CONNECTOR

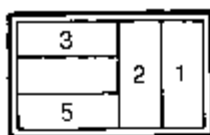
The fuel pump inspection terminal located in engine compartment is used to check the fuel pump operation by connecting battery voltage directly to the terminal.



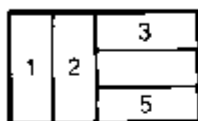
Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

CIRCUIT DIAGRAM

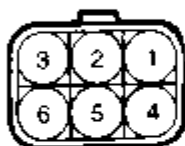
Fuel pump control relay side connector



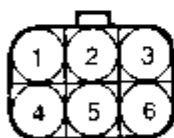
Harness side connector (H)



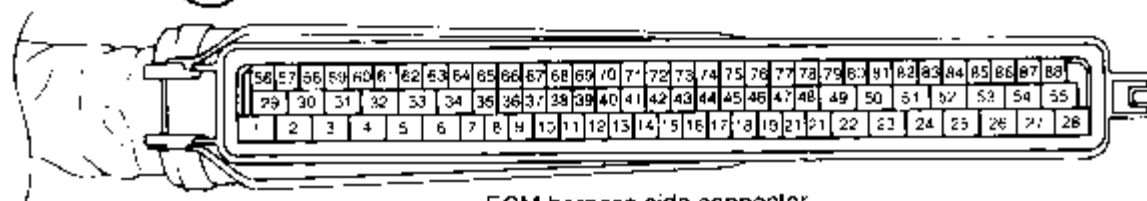
Fuel pump side connector



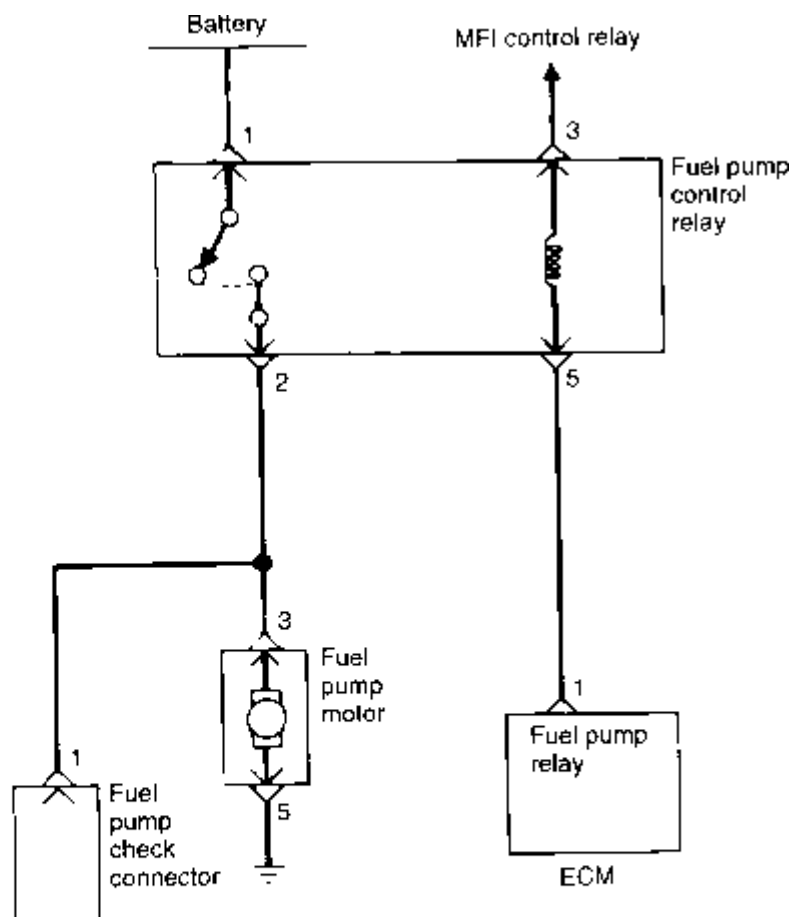
Harness side connector (I)



Fuel pump check connector (J)





ECM harness side connector

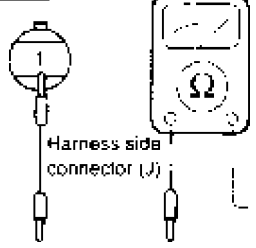



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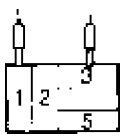
HARNESS INSPECTION PROCEDURES

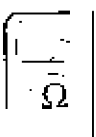
<div data-bbox="103 1478 135 1512" data-label="Text"> <p>1</p> </div> 	<p>Check the fuel pump</p> <ul style="list-style-type: none"> ○ Apply battery voltage to the checking terminal and operate the pump. 	<div data-bbox="1117 1500 1276 1556" data-label="Text"> <p>OK ⇒</p> </div> <div data-bbox="1308 1500 1340 1545" data-label="Text"> <p>4</p> </div> <div data-bbox="1117 1691 1276 1747" data-label="Text"> <p>NG ⇒</p> </div> <div data-bbox="1308 1691 1340 1736" data-label="Text"> <p>2</p> </div>
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<div data-bbox="95 89 135 145" data-label="Text">2</div> <div data-bbox="159 112 319 179" data-label="Text">Harness side connector (I)</div> 	<div data-bbox="550 89 1021 156" data-label="Text">Check the ground circuit of the fuel pump. o Connector: Disconnected.</div>	<div data-bbox="1125 112 1300 168" data-label="Text">OK →</div> <div data-bbox="1316 112 1380 168" data-label="Text">3</div> <div data-bbox="1125 302 1212 369" data-label="Text">NG</div> <div data-bbox="1308 302 1460 403" data-label="Text">Repair the harness. (15-ground)</div>
--	--	---

<div data-bbox="95 459 135 515" data-label="Text">3</div>  <div data-bbox="135 638 255 694" data-label="Text">Harness side connector (J)</div> <div data-bbox="359 627 502 683" data-label="Text">Harness side connector (I)</div>	<div data-bbox="550 459 925 560" data-label="Text">Check for continuity between the fuel pump and the checking terminal. o Connector: Disconnected.</div>	<div data-bbox="1117 459 1372 548" data-label="Text">OK → 141</div> <div data-bbox="1117 672 1204 739" data-label="Text">NG</div> <div data-bbox="1300 660 1436 772" data-label="Text">Repair the harness (12-11)</div>
--	---	---

<div data-bbox="95 828 135 884" data-label="Text">4</div> <div data-bbox="135 873 319 929" data-label="Text">Fuel pump check terminal (J)</div>  <div data-bbox="367 1008 510 1075" data-label="Text">Harness side connector (I)</div>	<div data-bbox="550 828 1029 963" data-label="Text">Check for continuity between the checking terminal and the fuel pump control relay terminal. o Control relay connector: Disconnected.</div>	<div data-bbox="1117 873 1204 929" data-label="Text">OK</div> <div data-bbox="1117 1052 1204 1108" data-label="Text">NG</div> <div data-bbox="1300 1041 1436 1142" data-label="Text">Repair the harness. (13-J 1)</div>
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 <div data-bbox="135 1444 279 1512" data-label="Text">Harness side connector (f-f1)</div>	<div data-bbox="550 1209 973 1276" data-label="Text">Measure the power supply voltage of the control relay.</div> <div data-bbox="550 1265 1029 1377" data-label="List-Group"> <ul style="list-style-type: none"> o Control relay connector : Disconnected. o Ignition switch : START o Voltage (V): Battery voltage. </div>	<div data-bbox="1117 1232 1300 1288" data-label="Text">OK →</div> <div data-bbox="1117 1422 1300 1478" data-label="Text">NG</div> <div data-bbox="1300 1299 1492 1523" data-label="Text">Repair the harness. (H1-Battery) (H3-power relay harness. 5th connector 3)</div>
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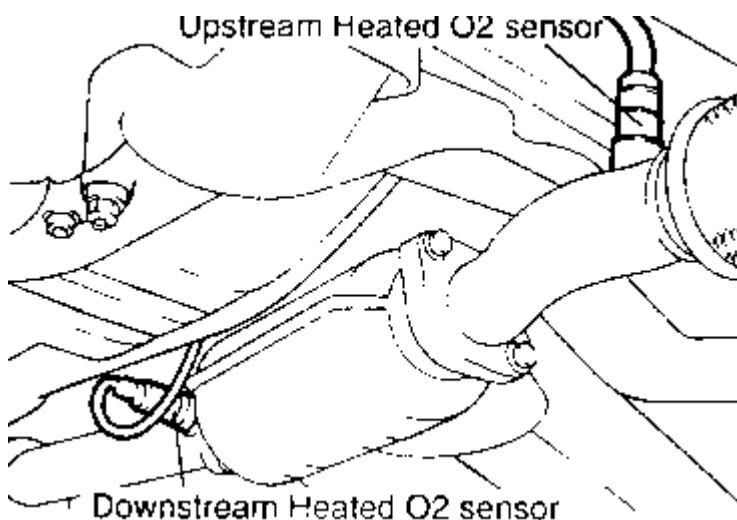
<div data-bbox="95 1590 135 1646" data-label="Text">6</div>  <div data-bbox="271 1680 422 1747" data-label="Text">Harness side connector (f-f1)</div>	<div data-bbox="399 1579 1045 1657" data-label="Text">ECM harness, Check for an open circuit or a short circuit side connector to ground between the control relay and the ECM.</div> <div data-bbox="550 1668 1029 1747" data-label="List-Group"> <ul style="list-style-type: none"> o Control relay connector: Disconnected. o ECM connector : Disconnected. </div>	<div data-bbox="1125 1612 1428 1668" data-label="Text">OK → END !</div> <div data-bbox="1125 1792 1500 1881" data-label="Text">NG → Repair the harness (H5-)</div>
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Applies to:	Hyundai Coupe/Tiburon 1998-2000
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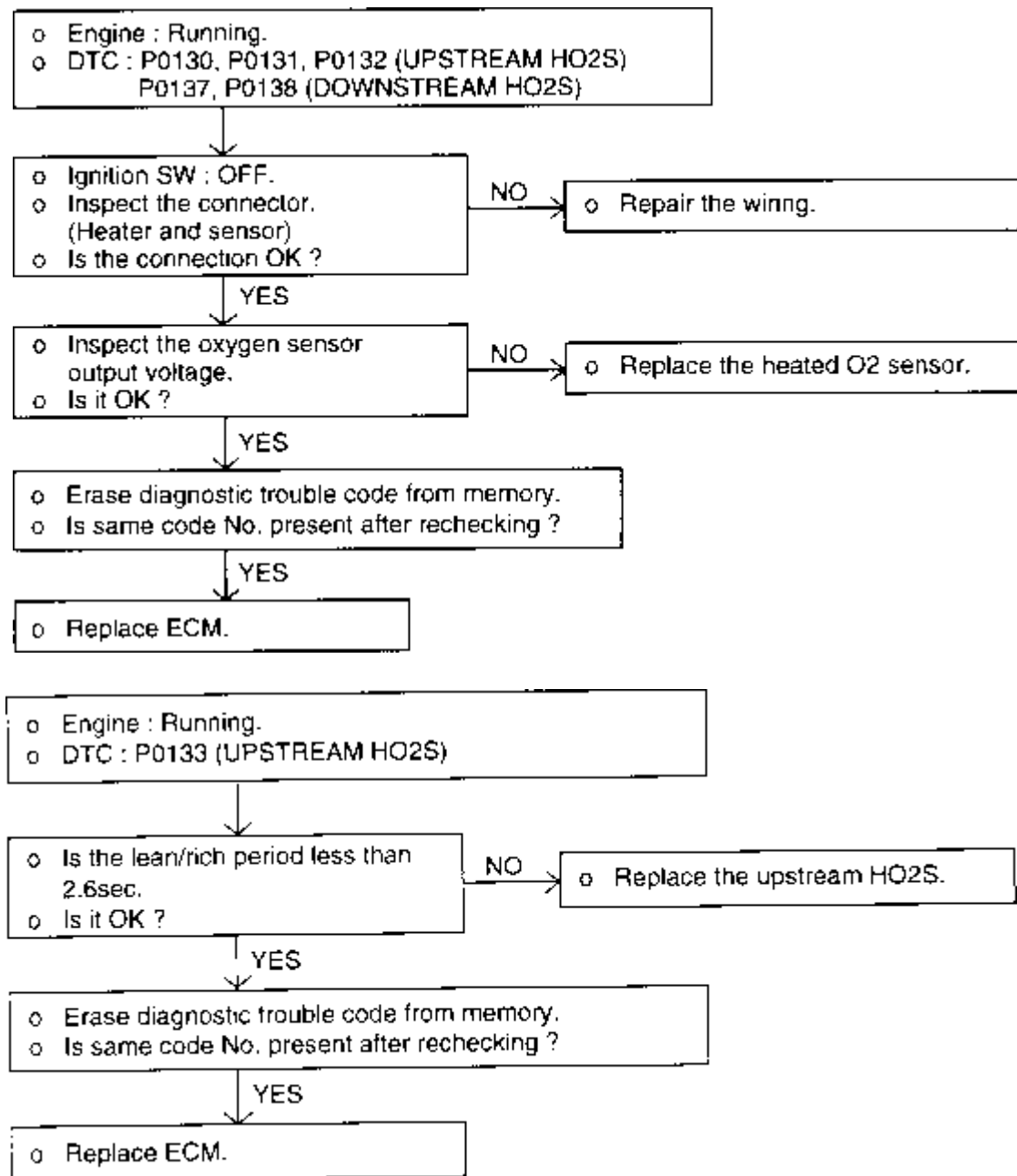
HEATED OXYGEN SENSOR (HO2S) - II

The heated oxygen sensor senses the oxygen concentration in the exhaust gas and, converts it into a voltage which is sent to the ECM. The heated oxygen sensor outputs about 800mV when the air fuel ratio is richer than the theoretical ratio and outputs about 100mV when the ratio is leaner (higher oxygen concentration in exhaust gas.) The ECM controls the fuel injection ratio based on this signal so that the air fuel ratio is maintained at the theoretical ratio. The oxygen sensor has a heater element which ensures the sensor performance during all driving condition.



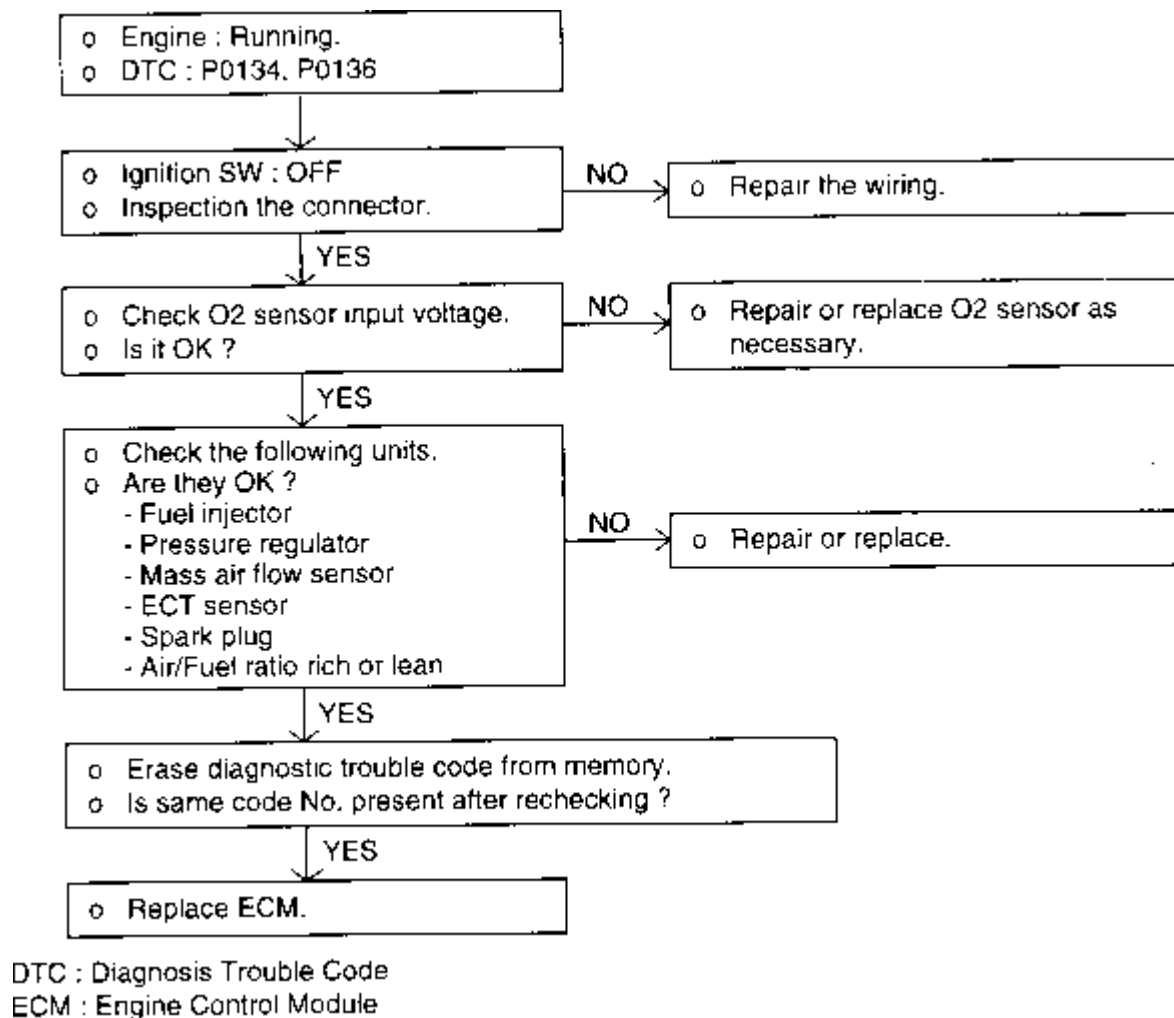
Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

DTC - P1123, P1124, P1127, P1128 (AIR-FUEL CONTROL)



TROUBLESHOOTING HINTS

When the lean/rich period is above 2.6 seconds in the condition that fully warm-up engine is 2,000 - 3,000 r.p.m. and engine is above middle load.



TROUBLESHOOTING HINTS

If the heated oxygen sensor is defective, abnormally high emissions may occur.

If the heated oxygen sensor check has been normal, but the sensor output voltage is out of specification, check the following items related to the air fuel ratio control system.

- o Faulty injector.
- o Air leaks in the intake manifold.
- o Faulty mass air flow sensor, EVAP valve and engine coolant temperature sensor.
- o Wiring connection problem.

When O2 sensor output voltage is maintained as following for above 50 sec.

- o Upstream: 0.4V - 0.6V
- o Downstream: 0.4V - 0.5V

USING VOLTMETER

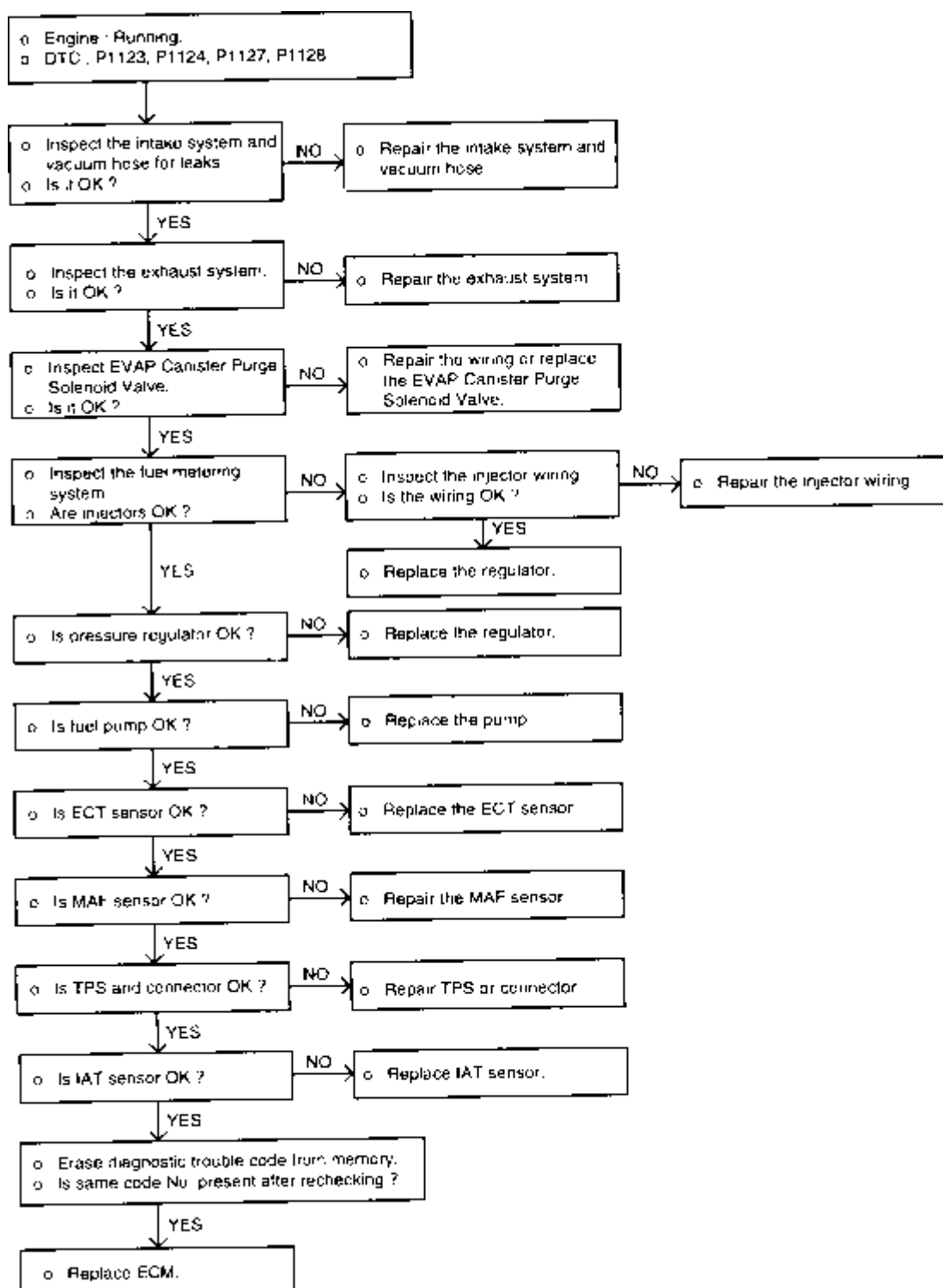
Check item	Check condition	Engine condition	Test specification
Heated oxygen sensor output voltage.(Heated oxygen sensor side connector No. 2 or ECM harness side connector	Warm-up.	When decelerate suddenly from 4,000 rpm.	'A' 200 mV or lower.
		When engine is suddenly raced.	'B' 600-1,000 mV.

NOTE

If you release the accelerator pedal suddenly with the engine running about 4000 rpm, the fuel supply will be stopped for a while. When you suddenly press the accelerator pedal, the voltage will reach 'B' range. Then, when you let the engine idle again, the voltage fluctuates between 'A' and 'B' range. In this case, the O2 sensor can be determined as good

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DTC - P1123, P1124, P1127, P1128 (AIR-FUEL CONTROL)

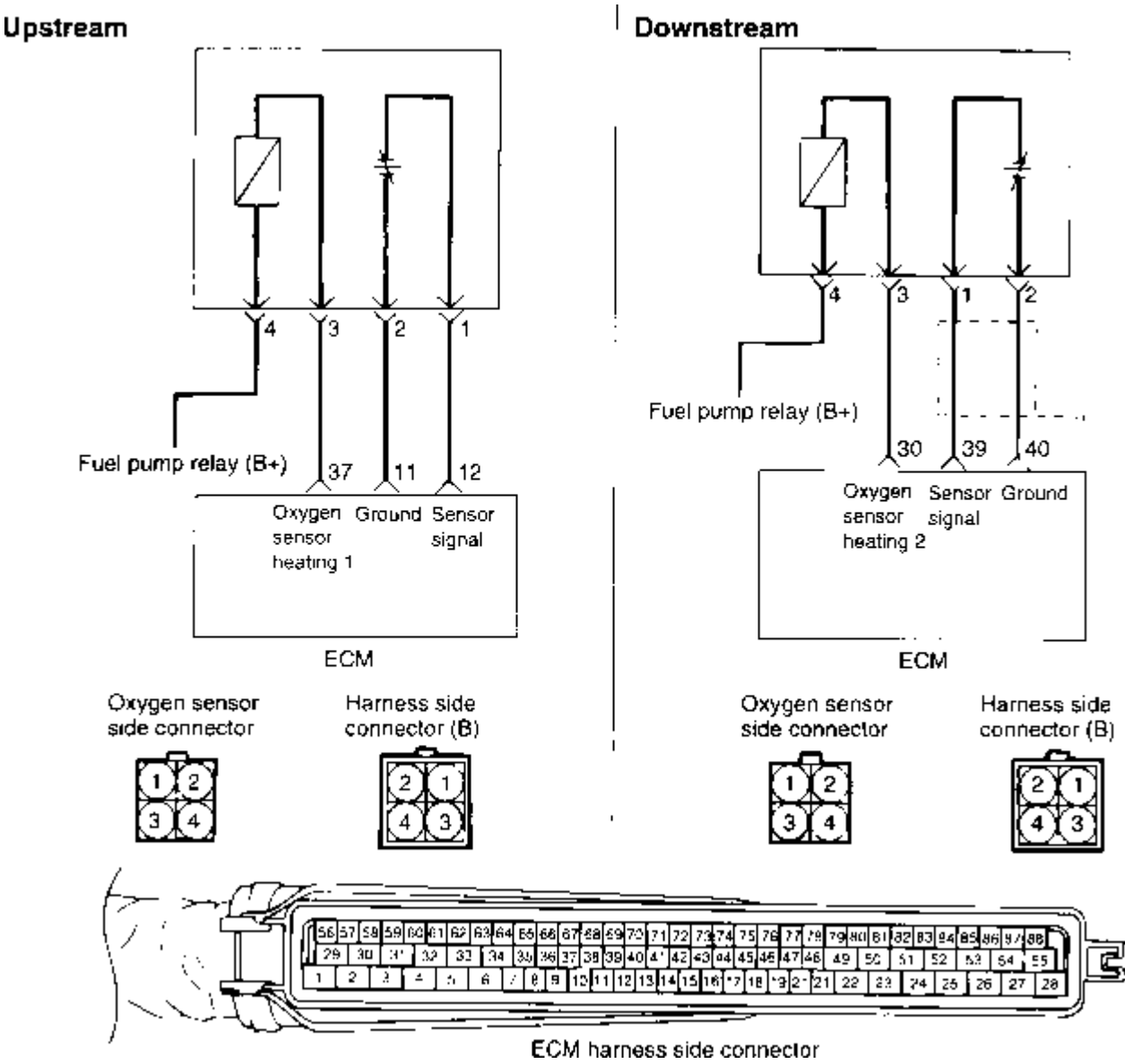


TROUBLESHOOTING HINTS

Air/Fuel ratio stays rich or lean longer than specified period because of system malfunction

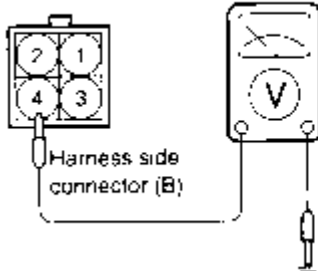
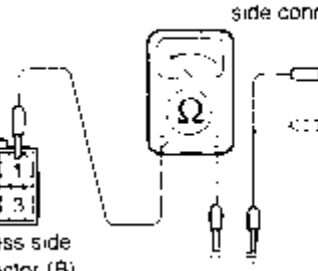
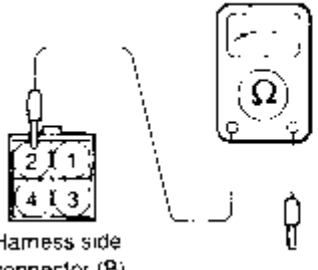
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CIRCUIT DIAGRAM



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HARNESS INSPECTION PROCEDURE

1 	<p>Measure the power supply voltage to the heated oxygen sensor.</p> <ul style="list-style-type: none"> Connector : Disconnected. Ignition switch : START Voltage (V) : Battery voltage. 	<p>OK → 2</p> <p>NG → Repair the harness. (B4-Fuse box)</p>
2 	<p>Check for an open-circuit, or a shortcircuit to ground between the engine control module and the heated oxygen sensor.</p> <ul style="list-style-type: none"> Heated oxygen sensor connector : Disconnected. ECM connector : Disconnected. 	<p>OK → 3</p> <p>NG → Repair the harness. (B1-12, 39)</p>
3 	<p>Check for continuity of ground circuit.</p> <ul style="list-style-type: none"> Connector : Disconnected. 	<p>OK → END !</p> <p>NG → Repair the harness. (B2-ground)</p>

SENSOR INSPECTION

NOTE

- Before checking, warm up the engine until the engine coolant temperature reaches 80 to 95°C (176 to 205°F).
- Use an accurate digital voltmeter.

Replace the oxygen sensor if there is a malfunction.

Disconnect the heated oxygen sensor connector, and measure the resistance between terminal 3 and terminal 4.

Standard value

Temperature °C(°F)	Resistance Ω
400 (752)	30 or more

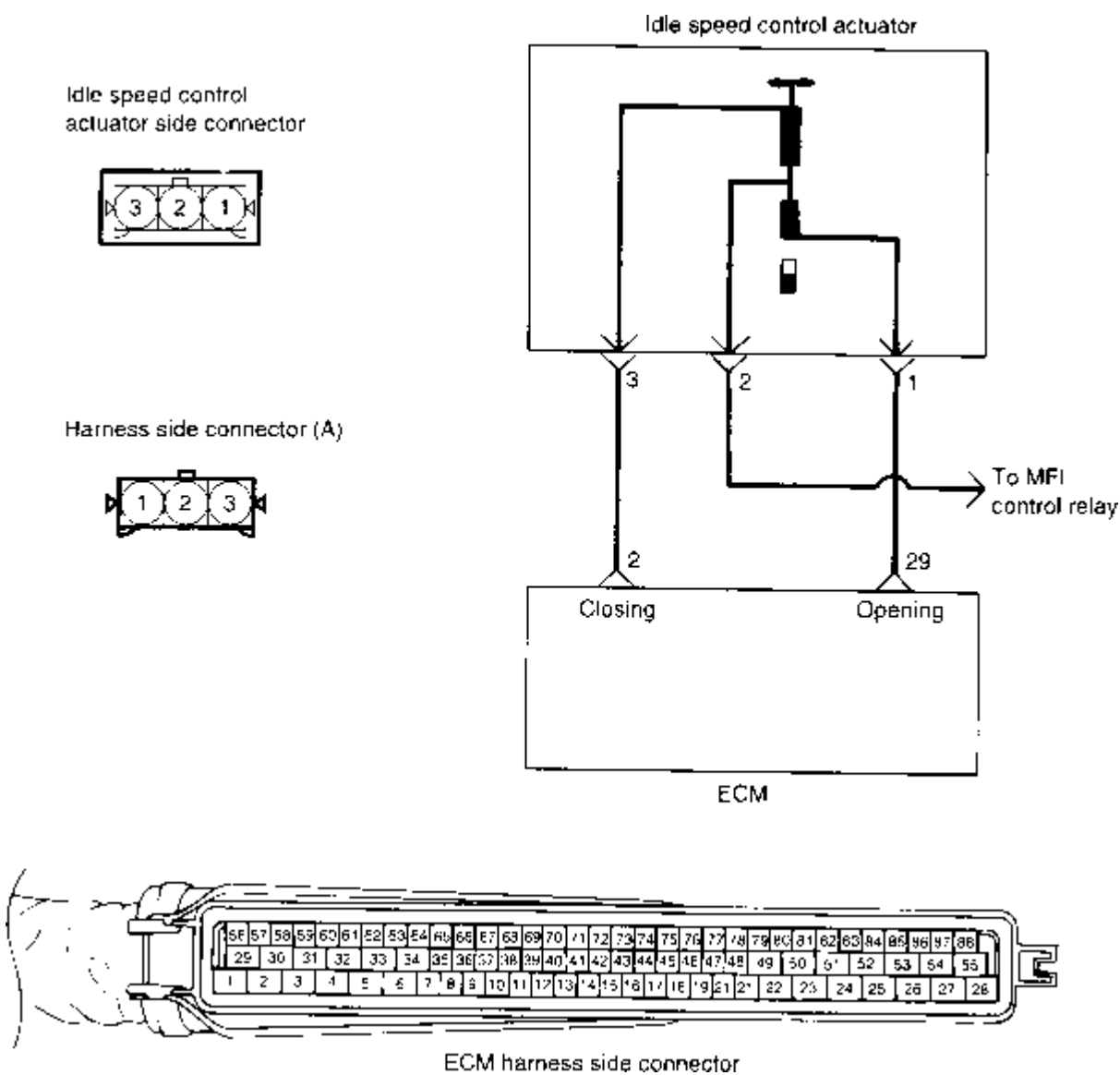
Replace the oxygen sensor if there is a malfunction

TORQUE SPECIFICATION	
Heated oxygen sensor	50-60 Nm (500-600 kg·cm, 37-44 lb·ft)

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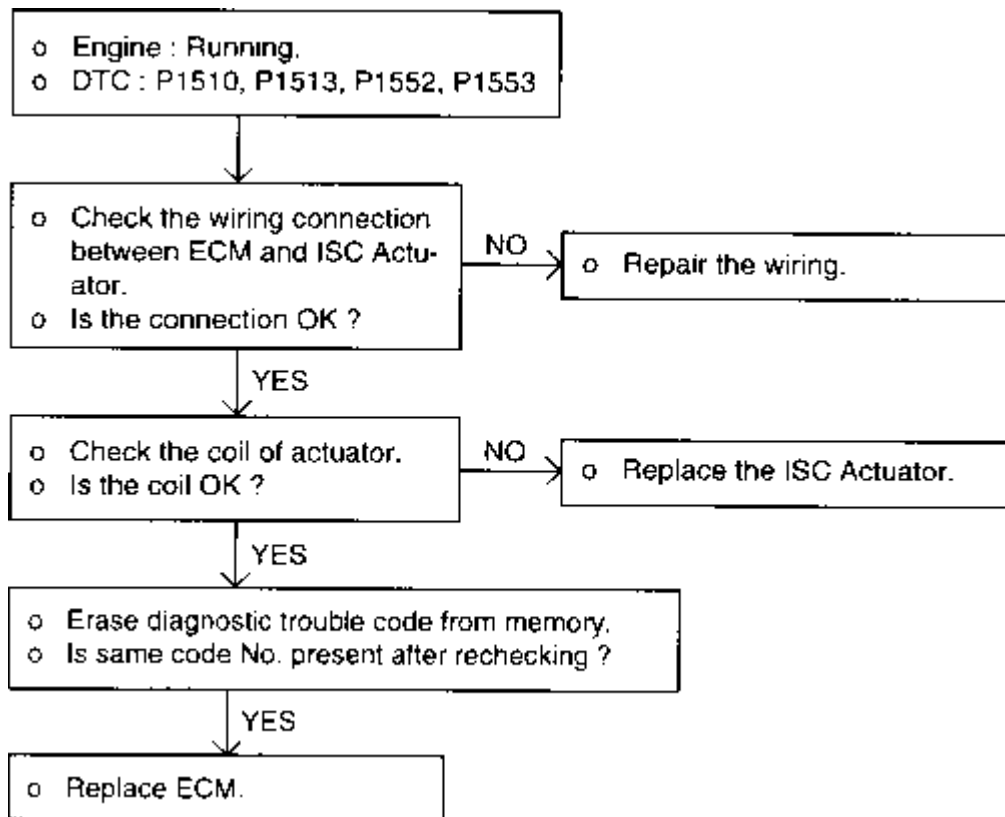
Return to Main Menu(s):
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CIRCUIT DIAGRAM



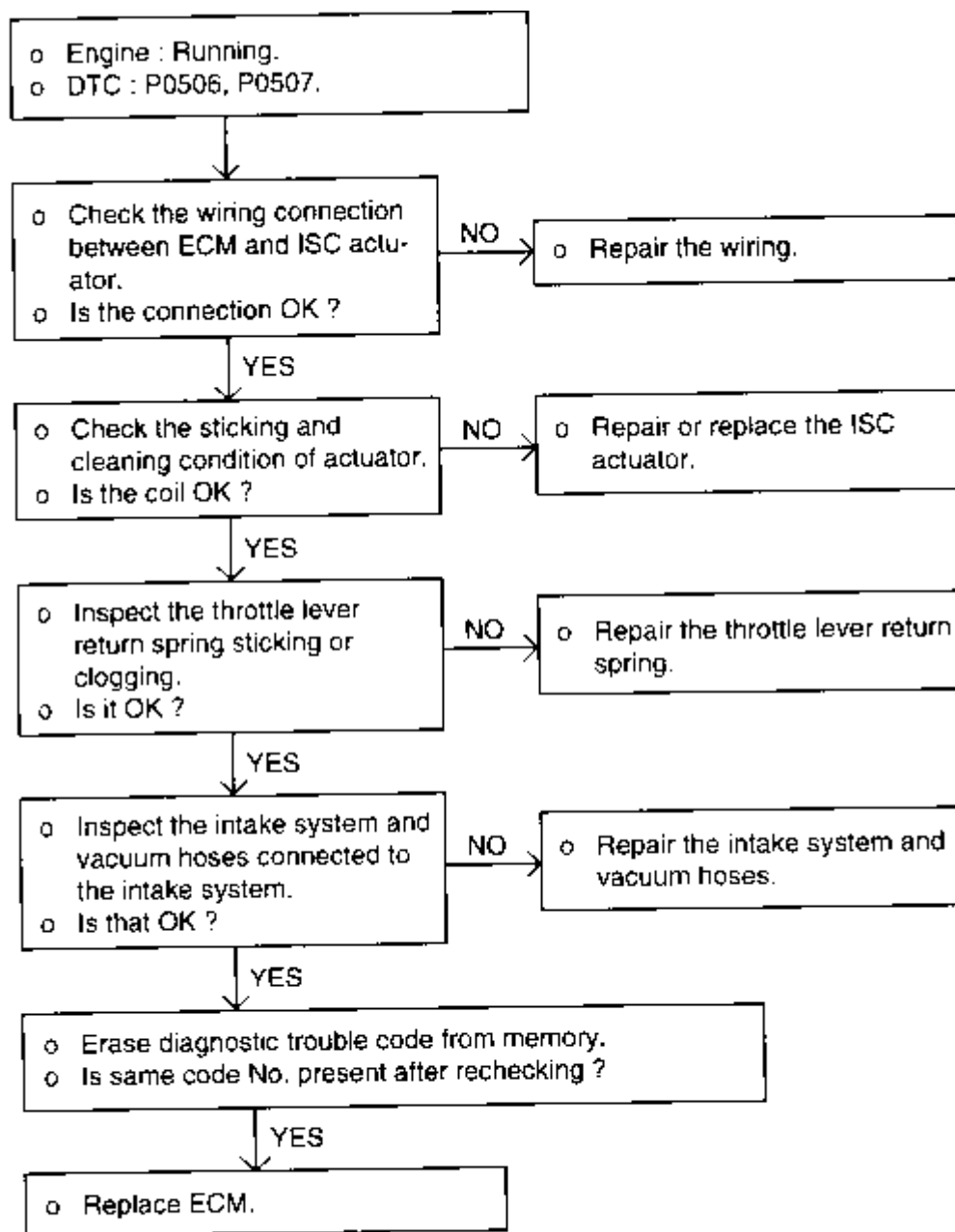
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DTC - P1510, P1513, P1552, P1553 (IDLE SPEED CONTROL (ISC) ACTUATOR)



TROUBLESHOOTING HINTS

Open or short circuit is observed in idle air control system when ignition switch is turned on.



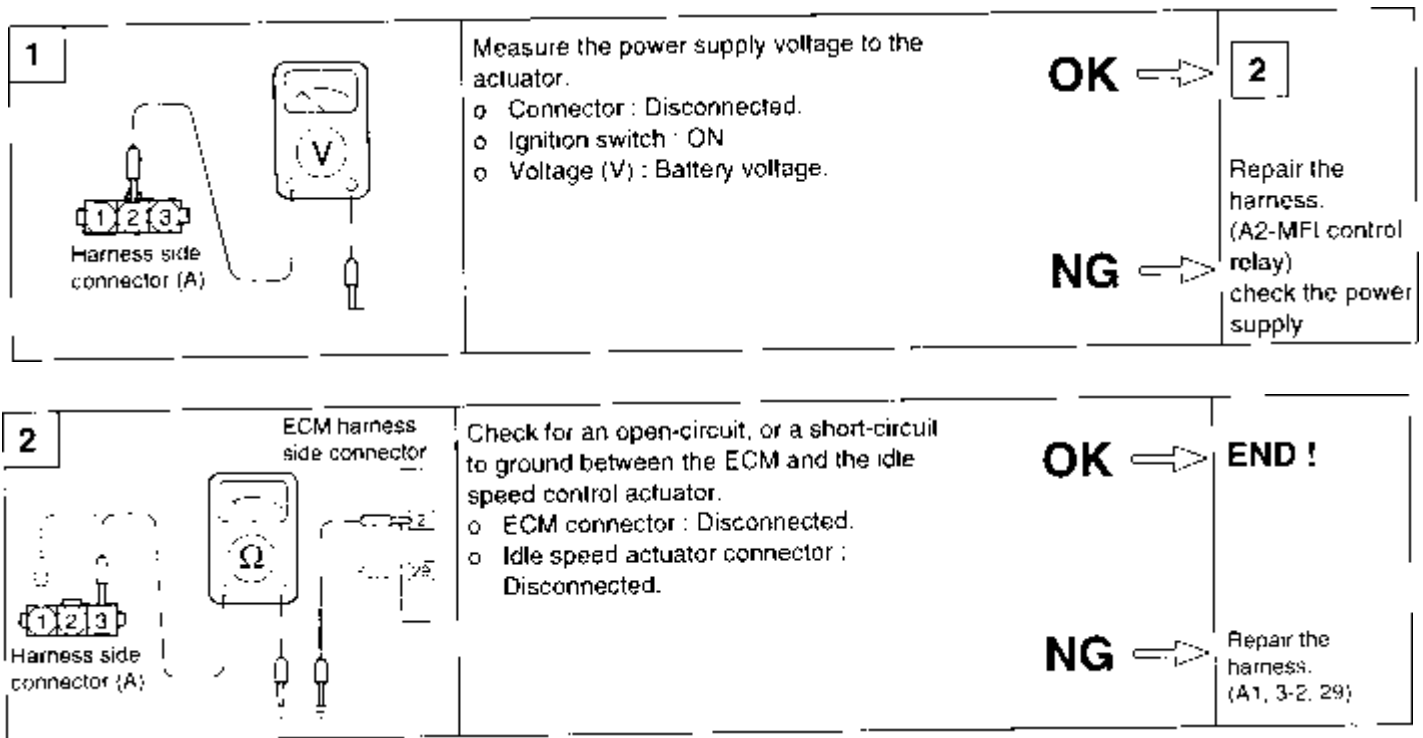
DTC : Diagnosis Trouble Code
ECM : Engine Control Module

TROUBLESHOOTING HINTS

Mechanical problems are observed in the idle air control system.

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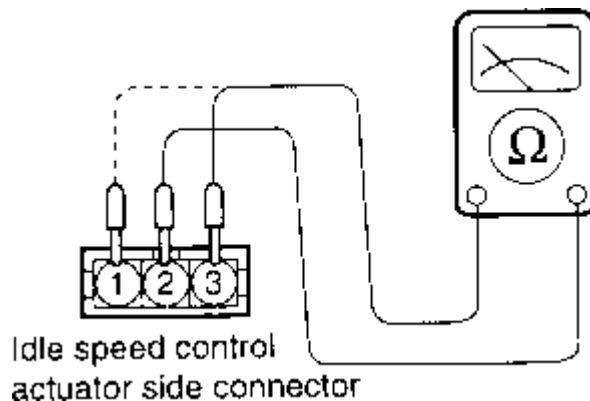
HARNESS INSPECTION PROCEDURE



ACTUATOR INSPECTION

Disconnect the connector at the idle speed control actuator.

Measure the resistance between terminals.



RESISTANCE SPECIFICATION

Terminal 1 and 2	10.5-14 Ω
------------------	-----------

SPECIFICATION

Terminal 2 and 3	10.-12.5 OHM [at 20°C (68°F)]
------------------	-------------------------------

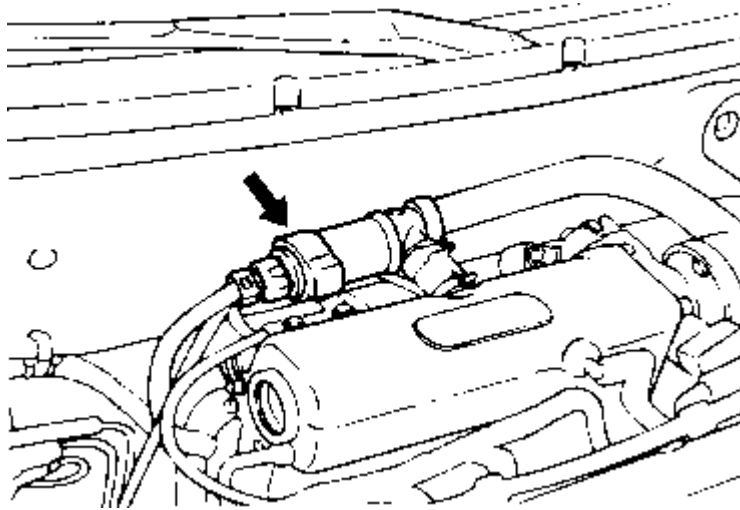
Connect the connector at the idle speed control actuator.

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IDLE SPEED CONTROL (ISC) ACTUATOR

The idle speed control actuator is the double coil type and has two coils. The two coils are driven by separate driver stages in the ECM. Depending on the pulse duty factor, the equilibrium of the magnetic forces of the two coils will

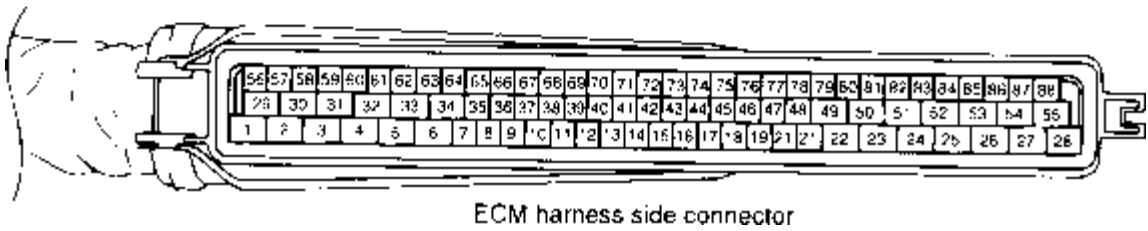
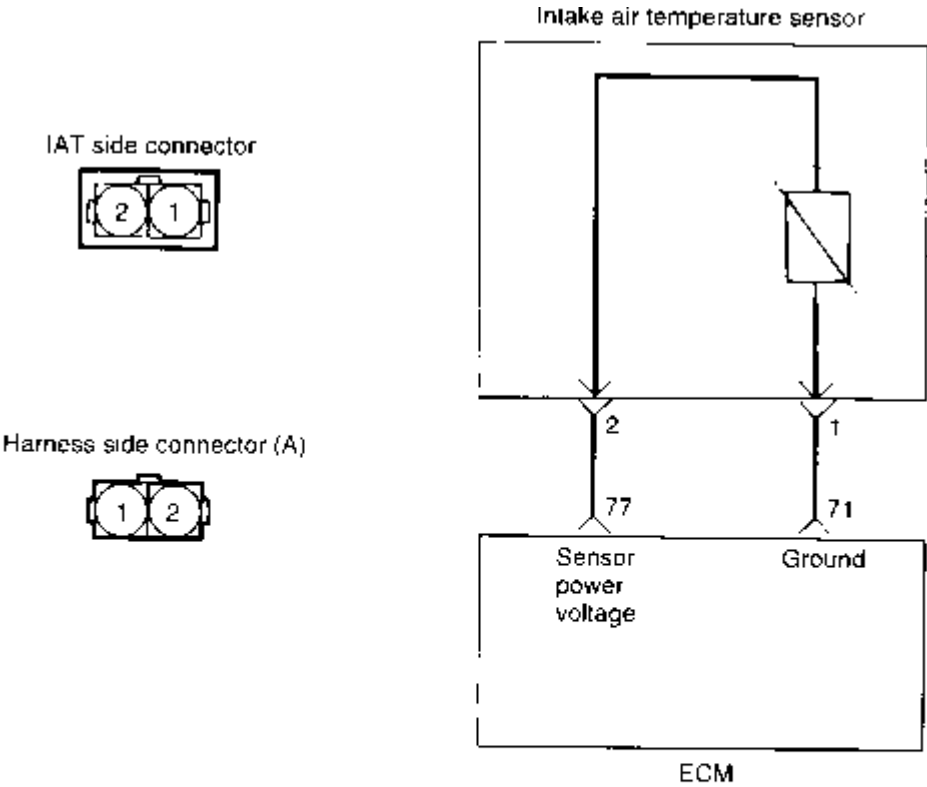
result in different angles of the motor. In parallel to the throttle valve, a bypass hose line is arranged, where the idle speed actuator is inserted in.



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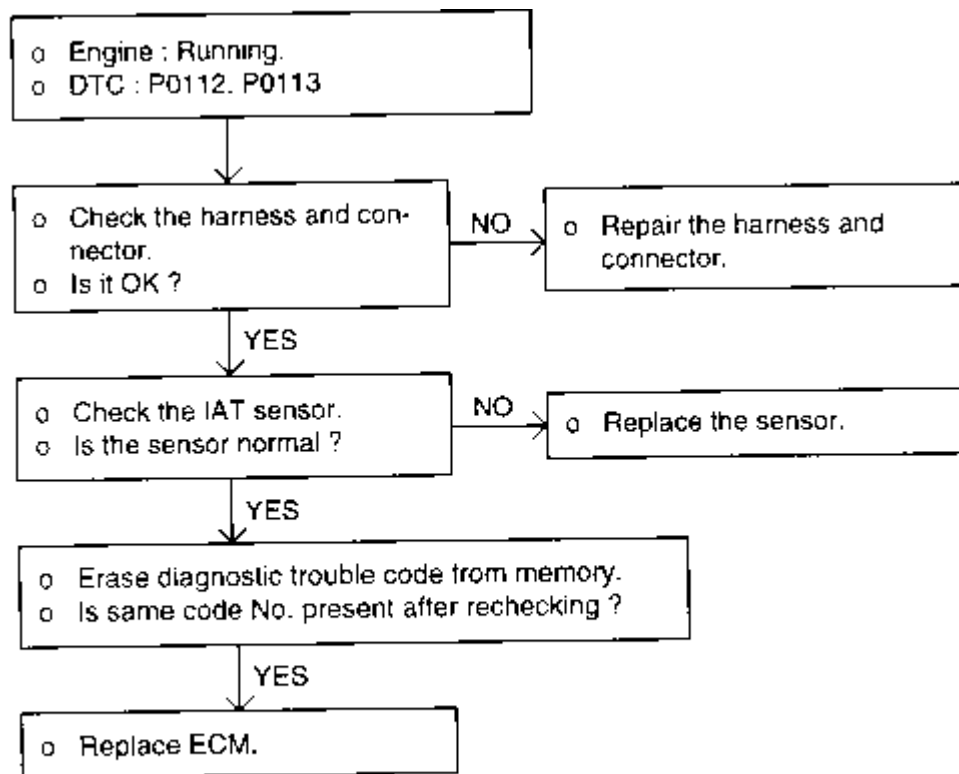
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CIRCUIT DIAGRAM



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DTC - P0112, P0113 (IAT SENSOR)



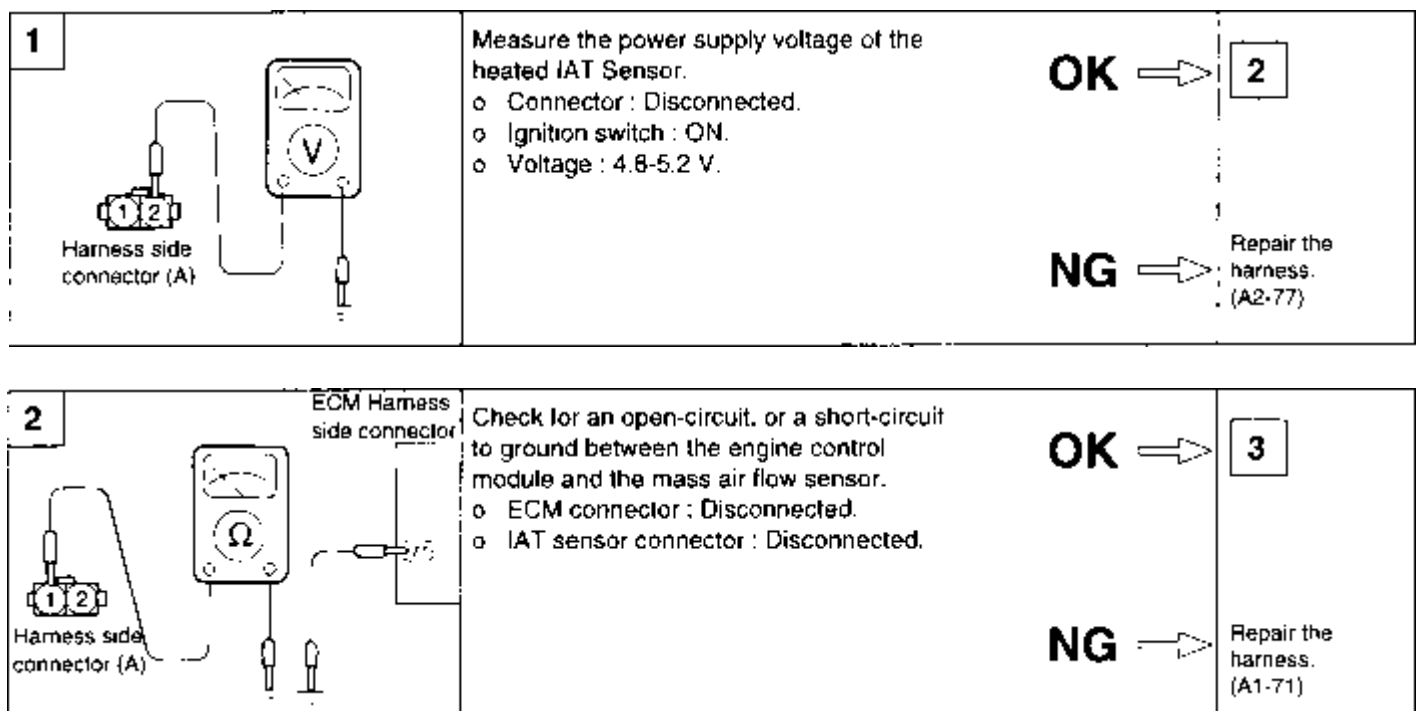
DTC : Diagnosis Trouble Code
ECM : Engine Control Module

TROUBLESHOOTING HINTS

Input from intake air temperature sensor is below 0.1 V or above 4.8V when engine is in a full warm-up condition.

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HARNESS INSPECTION PROCEDURES



SENSOR INSPECTION

Using the voltmeter, measure the sensor voltage.

Measure the voltage between the IAT sensor terminal 1 and 2.

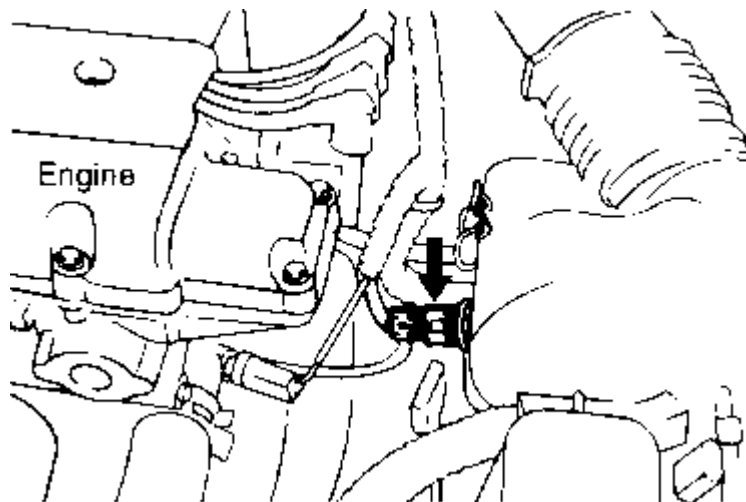
	Temperature °C(°F)	Output voltage (V)
IG. SW. ON	0 (32)	3.3-3.7 V
	20 (68)	2.4-2.8 V
	40 (104)	1.6-2.0 V
	80 (176)	0.5-0.9 V

If the voltage deviates from the standard value, replace the intake air temperature sensor assembly

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INTAKE AIR TEMPERATURE (IAT) SENSOR

The intake air temperature sensor (IAT Sensor), located on the air cleaner, is a resistor-based sensor for detecting the intake air temperature. According to the intake air temperature information from the sensor, the ECM provides necessary fuel injection amount control.

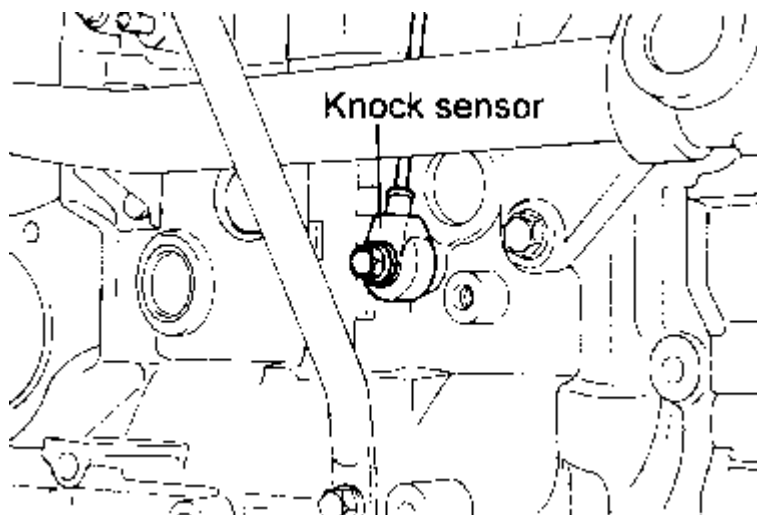


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KNOCK SENSOR (KS)

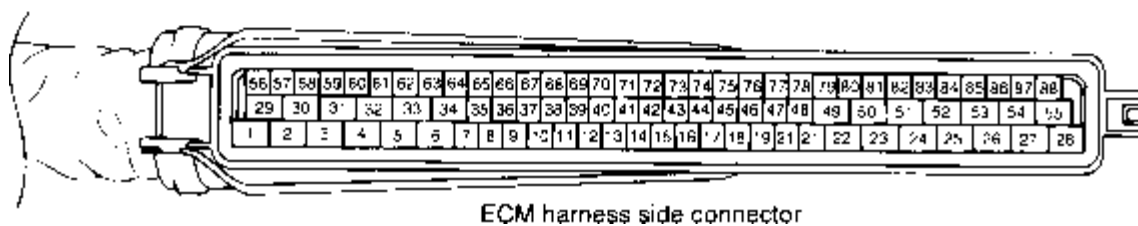
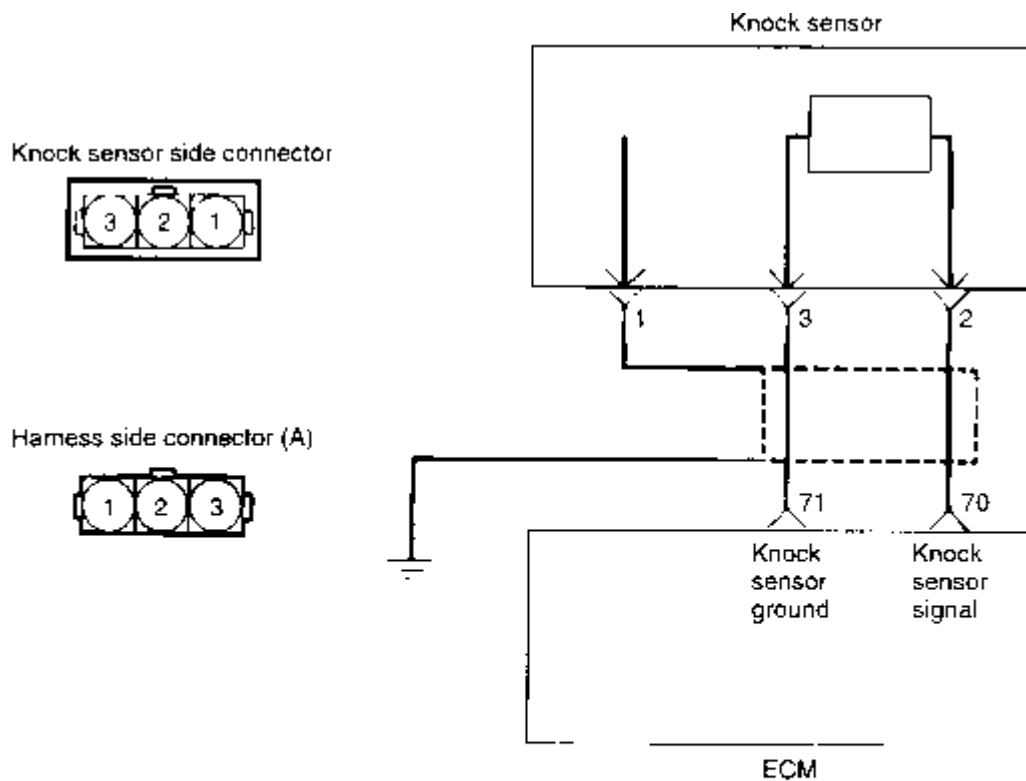
The knock sensor is attached to the cylinder block and senses engine knocking conditions.



A knocking vibration from the cylinder block is applied as pressure to the piezoelectric element. This vibrational pressure is then converted into a voltage signal which is delivered as output. If engine knocking occurs, ignition timing is retarded to suppress it.

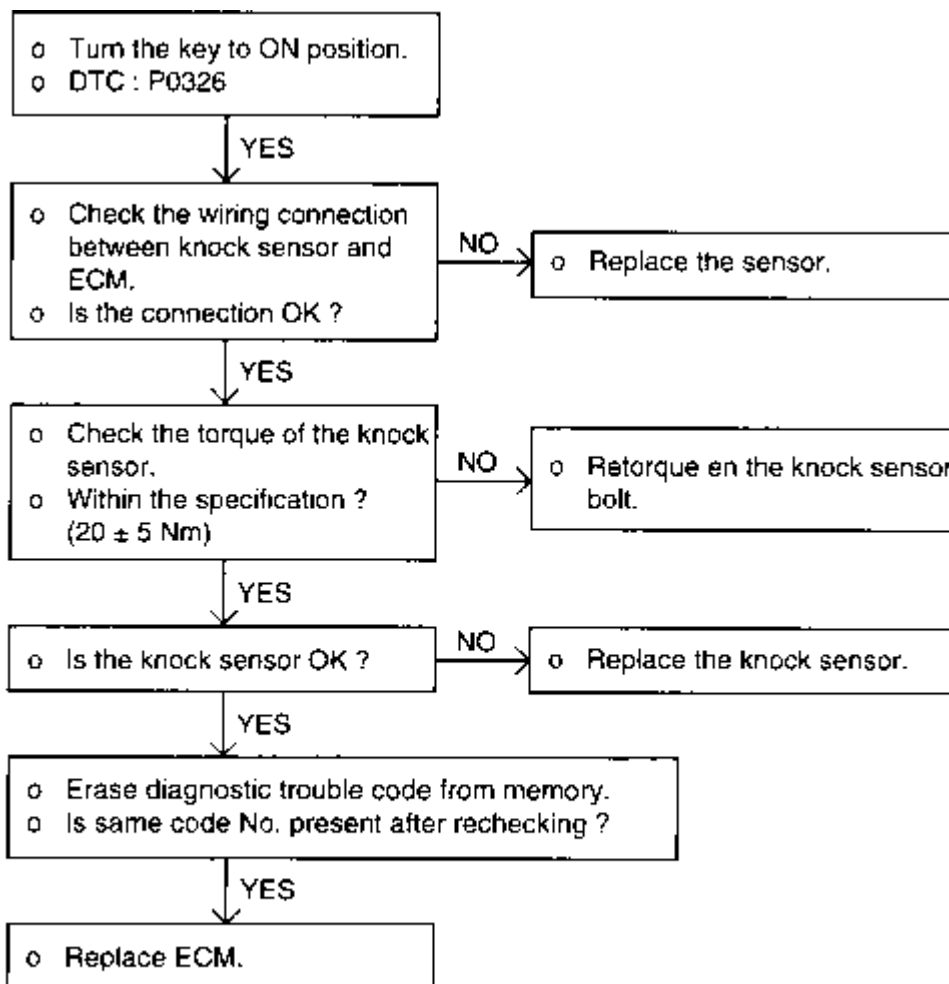
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CIRCUIT DIAGRAM



Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

DTC - P0326 (KNOCK SENSOR (KS))



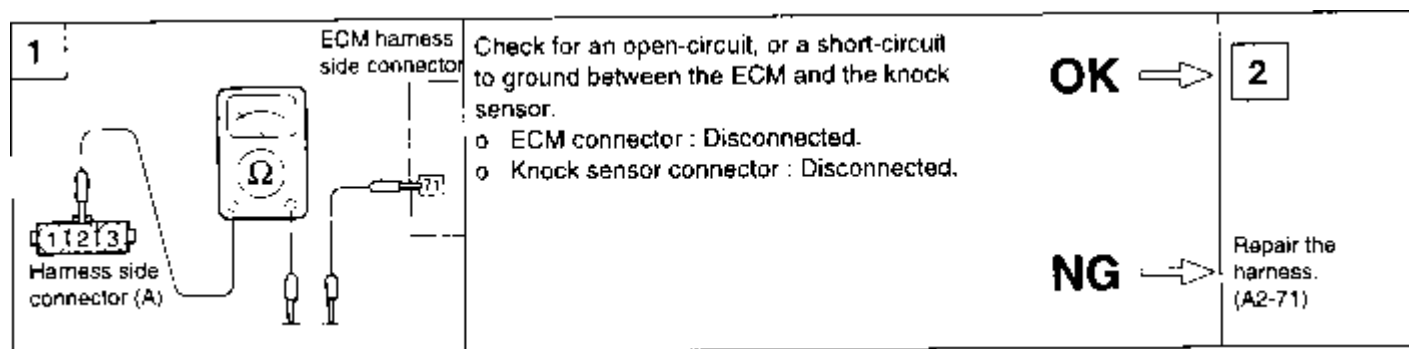
DTC : Diagnosis Trouble Code
ECM : Engine Control Module

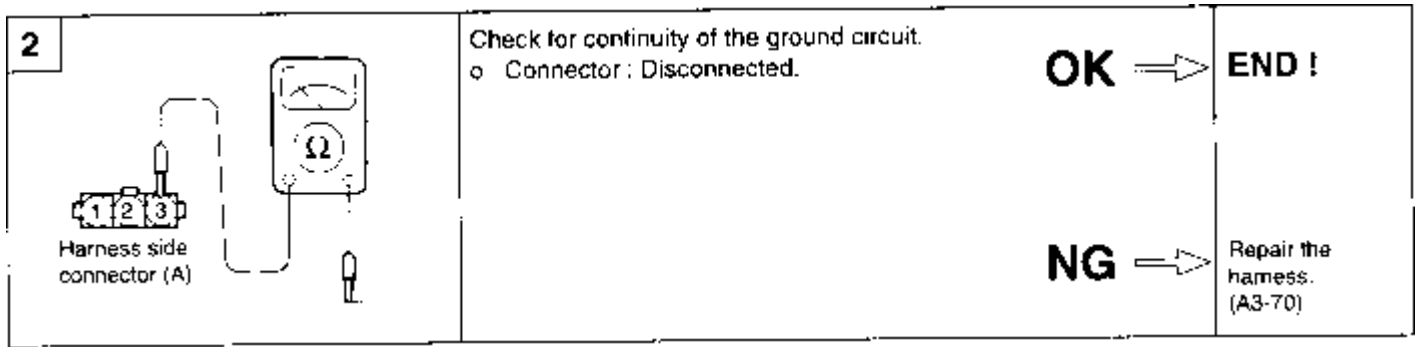
TROUBLESHOOTING HINTS

When knock sensor signal is abnormally low.

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

HARNESS INSPECTION PROCEDURE



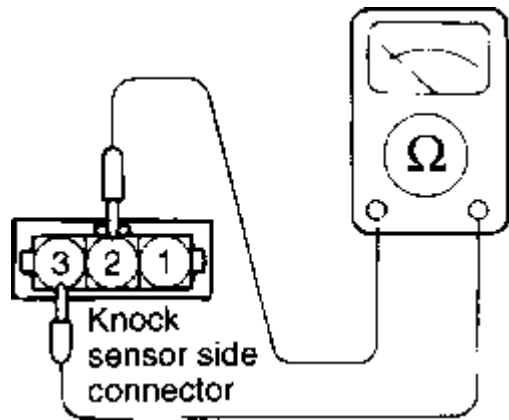


SENSOR INSPECTION

Disconnect the knock sensor connector.

Measure resistance between the terminal 2 and 3.

SPECIFICATION	
Standard value	about 50 [at 20°C (68°F)]



If the resistance is continual, replace the knock sensor.

TORQUE SPECIFICATION	
Knock sensor	16-28 Nm (160-250 kg·cm, 11.8-18.4 lb·ft)

Measure the capacitance between the terminal 2 & 3.

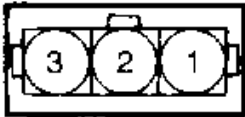
Standard value: 800-1600 pF

SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2000	
GROUP	
Fuel System	MFI Control System

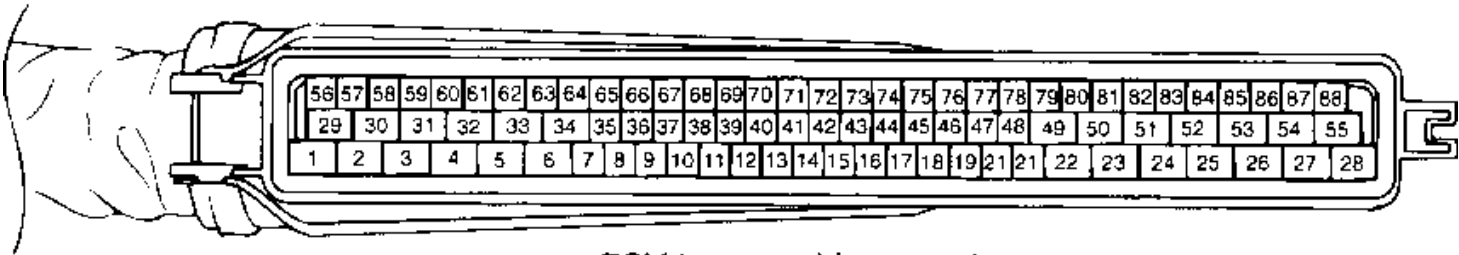
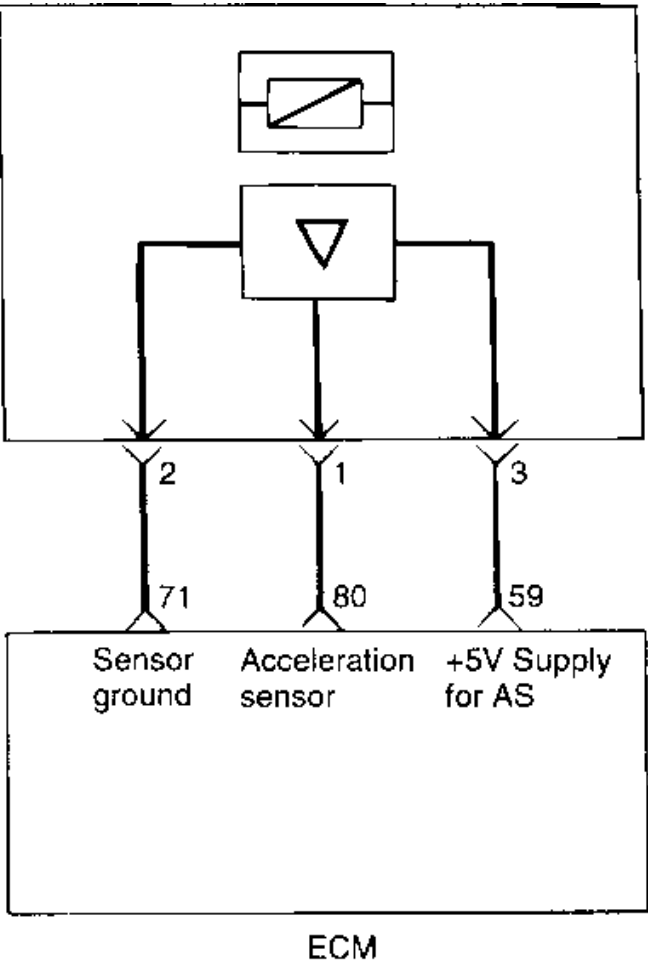
Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

CIRCUIT DIAGRAM

Acelemtion sensor
side connector



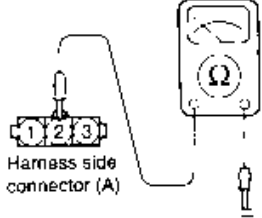
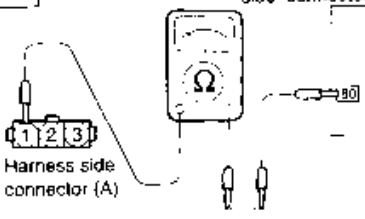
Harness side connector (A)



ECM harness side connector

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

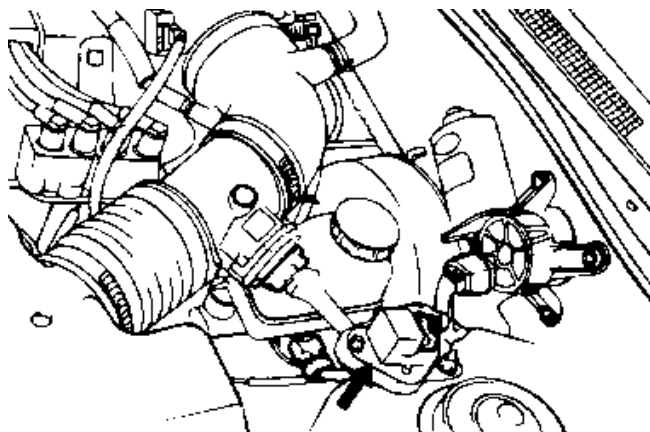
HARNESS INSPECTION PROCEDURES

1  <p>Harness side connector (A)</p>	<p>Check for continuity of the ground circuit</p> <ul style="list-style-type: none"> ○ Connector : Disconnected. <p>OK → 2</p> <p>NG → Repair the harness. (A2-ground)</p>
2  <p>ECM Harness side connector</p> <p>Harness side connector (A)</p>	<p>Check for an open-circuit, or a short-circuit to ground between the engine control module and the acceleration sensor.</p> <ul style="list-style-type: none"> ○ Acceleration sensor connector : Disconnected. ○ Engine control module connector : Disconnected <p>OK → 3</p> <p>NG → Repair the harness. (A1-80)</p>

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

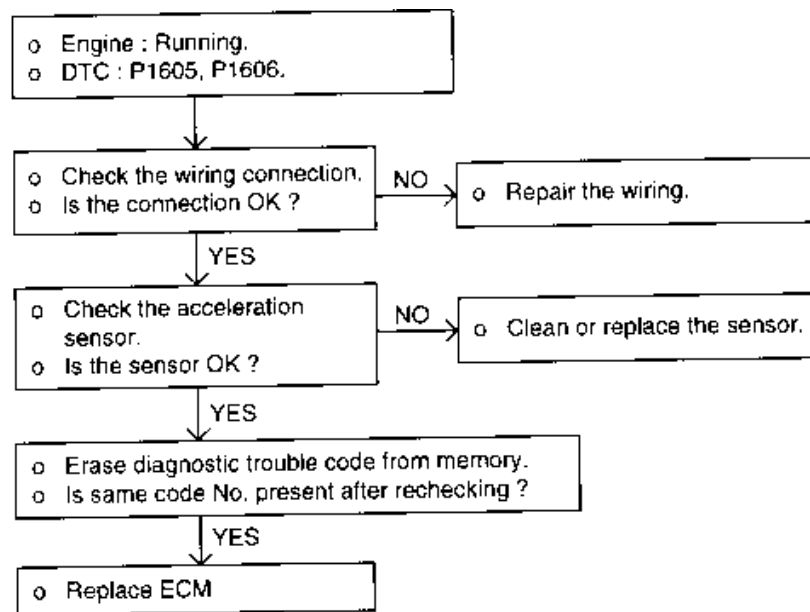
ACCELERATION SENSOR

The acceleration sensor is attached in the engine compartment on the driver's side. While driving, the rough road condition is sensed by the acceleration sensor and the ECM uses this input signal to avoid the wrong misfire detection.



Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

DTC - P1605, P1606 (ACCELERATION SENSOR)



DTC : Diagnosis Trouble Code
ECM : Engine Control Module

TROUBLESHOOTING HINTS

When abnormal output voltage occurs at stop position of vehicle or acceleration sensor is operated beyond normal operating zone.

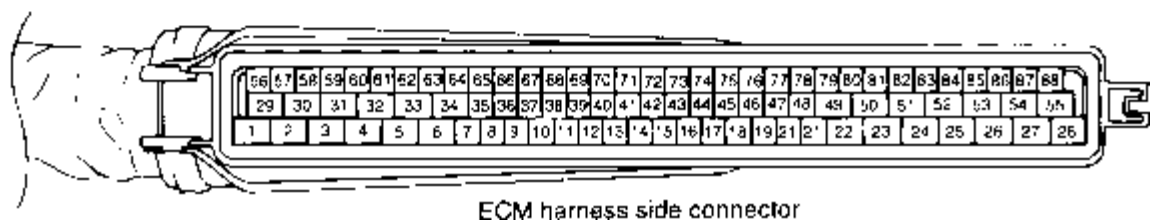
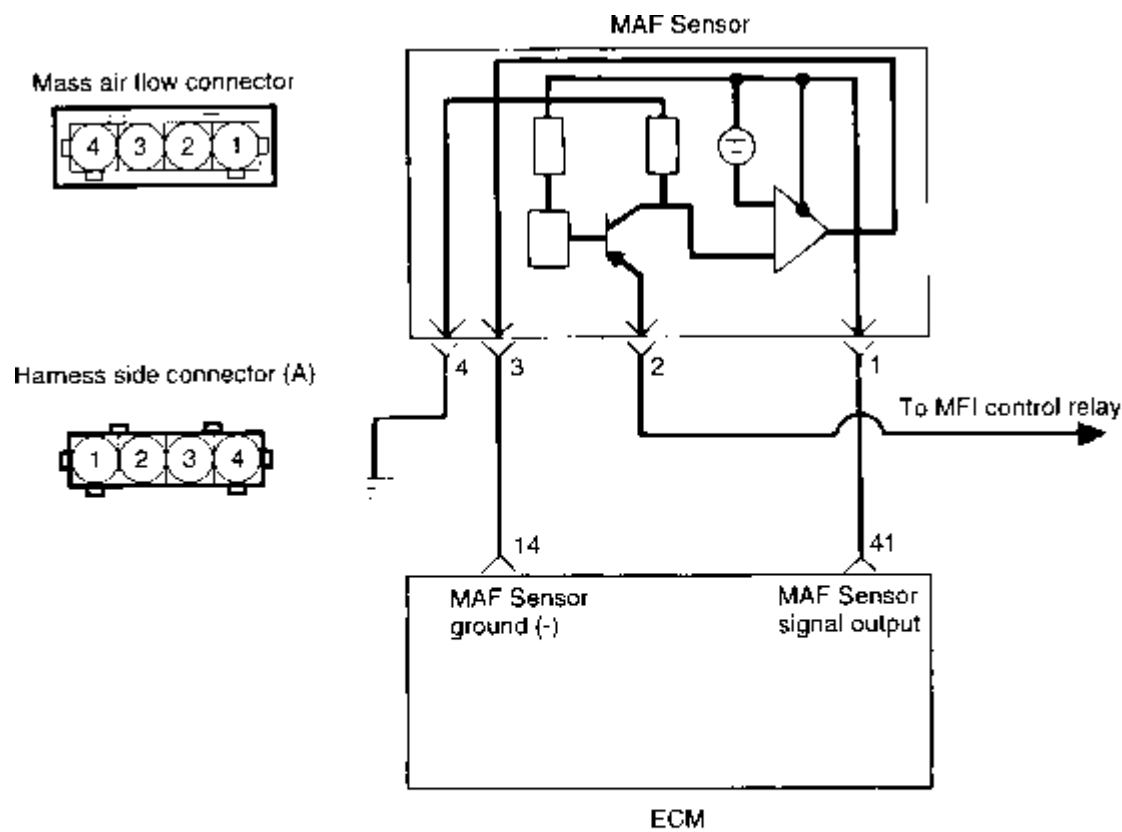
USING VOLTMETER

Check item	Check condition	Test specification
Acceleration sensor output voltage (acceleration sensor side connector No.1 or ECM harness side connector No. 80)	While idling	2.3 - 2.7V
	While driving	0.5 - 4.5V

SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2000	
GROUP	
Fuel System	MFI Control System

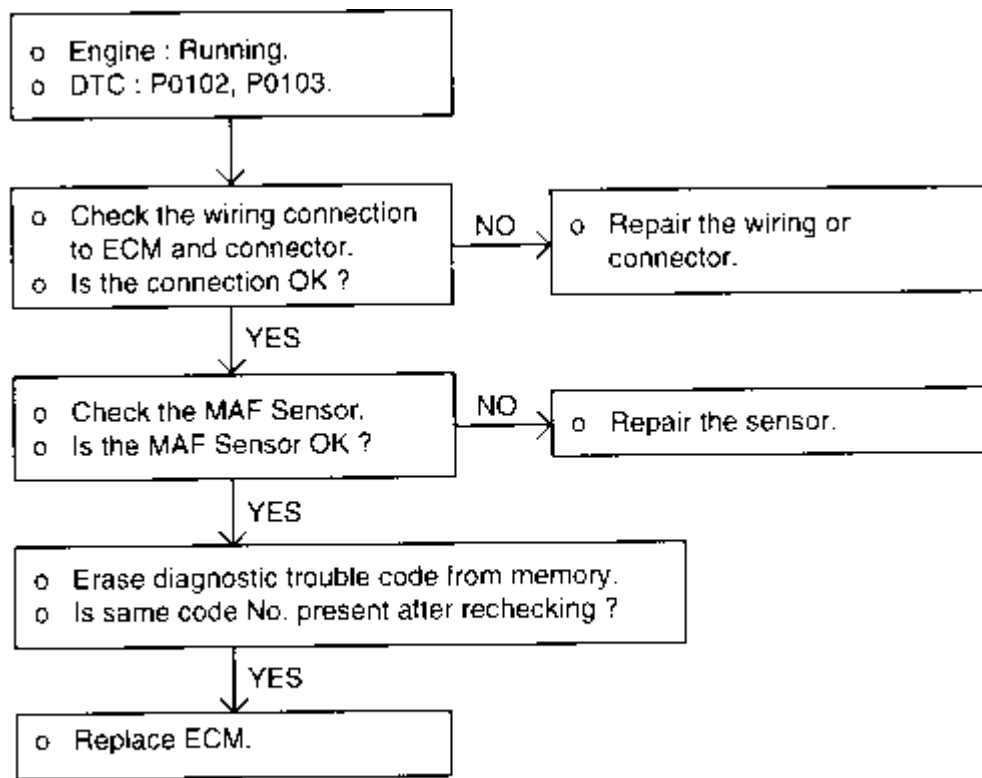
Return to Main Menu(s):
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[Electrical Manual](#)

CIRCUIT DIAGRAM



Return to Main Menu(s):
 [Mechanical Manual](#)
[Electrical Manual](#)

DTC - P0102, P0103 (MAF SENSOR)



DTC : Diagnosis Trouble Code
ECM : Engine Control Module

TROUBLESHOOTING HINTS

If the engine stalls occasionally, start the engine and shake the MAF sensor harness. If the engine stalls, check for poor contact at the MAF sensor connector.

If the MAF sensor output voltage is other than 0 when the ignition switch is turned on (do not start the engine). Check for the faulty MAF sensor or ECM.

If the engine can be idle even if the MAF sensor output voltage is out of specification, check for the following conditions;

- o Disturbed air flow in the MAF sensor, disconnected air duct, and clogged air cleaner filter.
- o Poor combustion in the cylinder, faulty ignition plug, ignition coil, injector, and incorrect comparison.

Though no MAF sensor malfunction occurs, check the mounting direction of MAF sensor.

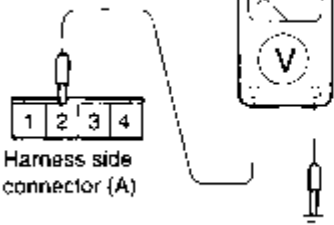
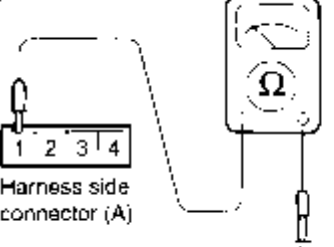
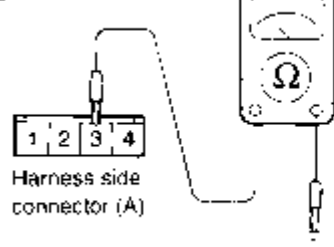
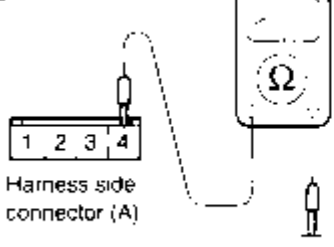
USING VOLTMETER

Check item	Engine state	Test specification
Mass air flow sensor output voltage (MAF sensor side connector No.1 or ECM harness side connector No.41)	Idle (800 rpm)	0.7 - 1.1 V
	3000 rpm	1.3 - 2.0 V

NOTE

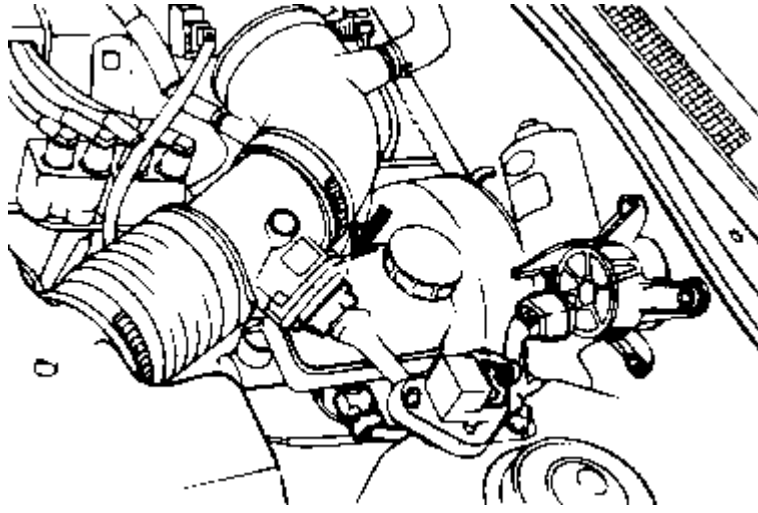
1. When the vehicle is new [within initial operation of about 500 km (300 miles)], the mass air flow sensor air quantity will be about 10% higher.
2. Use an accurate digital voltmeter.
3. Before checking, warm up the engine until the engine coolant temperature reaches

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)**HARNESS INSPECTION PROCEDURES**

1 	Measure the power supply voltage. <ul style="list-style-type: none"> Connector: Disconnected. Ignition switch : ON. Voltage (V) : Battery voltage. 	OK → 2 NG → Repair the harness. (A2-MFI control relay) or check the MFI control relay.
2 	Check for an open-circuit, or a short-circuit to ground between the engine control module and the mass air flow sensor. <ul style="list-style-type: none"> Engine control module connector : Disconnected. Mass air flow sensor connector : Disconnected. 	OK → 3 NG → Repair the harness. (A1-41)
3 	Check for continuity of the ground circuit. <ul style="list-style-type: none"> Connector : Disconnected. 	OK → 4 NG → Repair the harness. (A3-14)
4 	Check for continuity of the ground circuit. <ul style="list-style-type: none"> Connector : Disconnected. 	OK → END ! NG → Repair the harness. (A4-ground)

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)**MASS AIR FLOW (MAF) SENSOR**

This hot film type air flow sensor is composed of a hot film sensor, housing, metering duct (hybrid, sensor element).

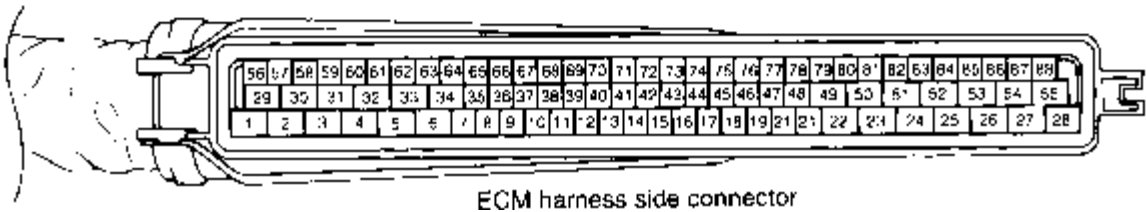
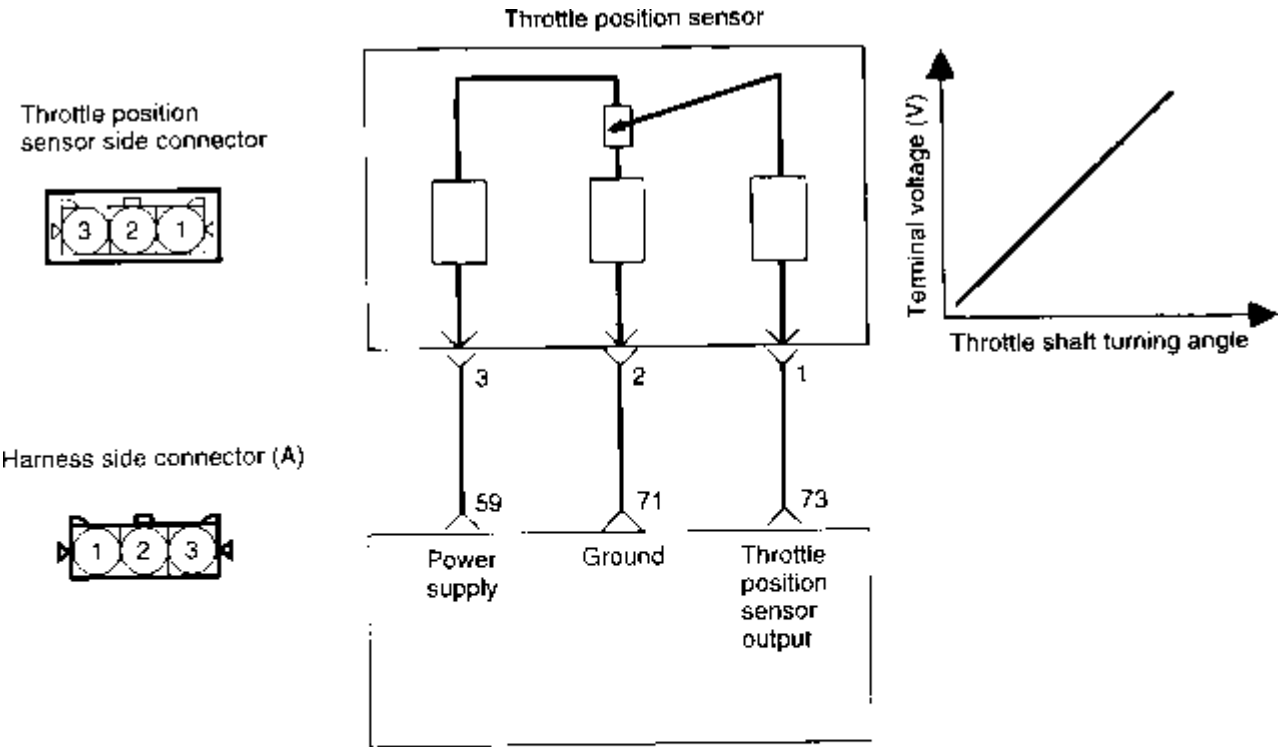


Mass air flow rate is measured by detection of heat transfer from a hot film probe because the change of the mass air flow rate causes change in the amount of heat being transferred from the hot film probe surface to the air flow. The air flow sensor generates a pulse so it repeatedly opens and closes between the 5V voltage supplied from the engine control module. This results in the change of the temperature of the hot film probe and in the change of resistance.

SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2000	
GROUP	
Fuel System	MFI Control System

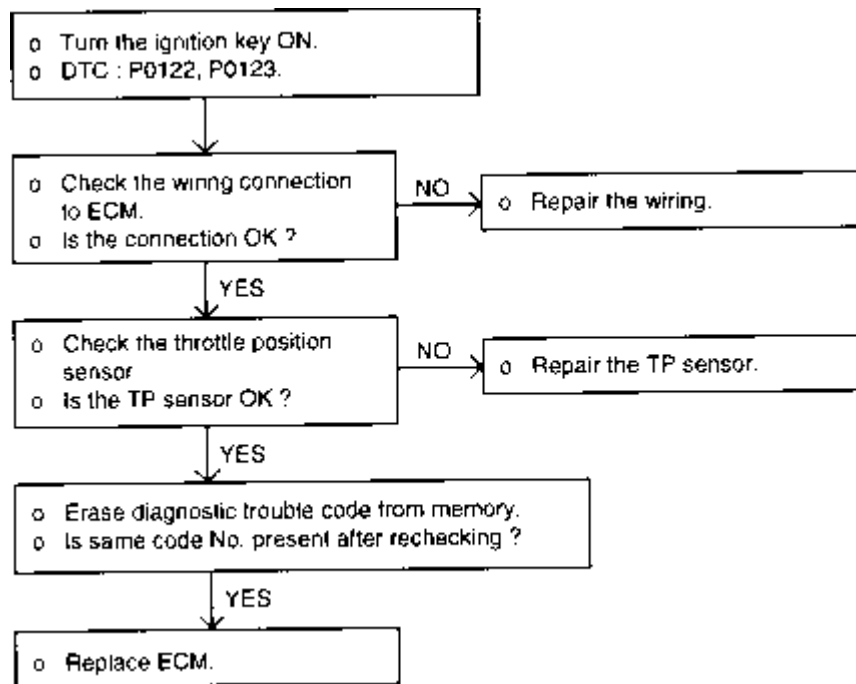
Return to Main Menu(s):
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[Electrical Manual](#)

CIRCUIT DIAGRAM



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[Electrical Manual](#)

DTC - P0122, P0123 (THROTTLE POSITION (TP) SENSOR)



TROUBLESHOOTING HINTS

The TP Sensor signal is important in the control of the automatic transaxle. Shift shock and other troubles will occur if the sensor is faulty.

If the idle condition or accelerating is abnormal, check the TPS connector. (When the TPS connector is not connected properly, the current data can show that the idle state remains off, though the accelerator pedal is released. And it results in improper idle or accelerating.)

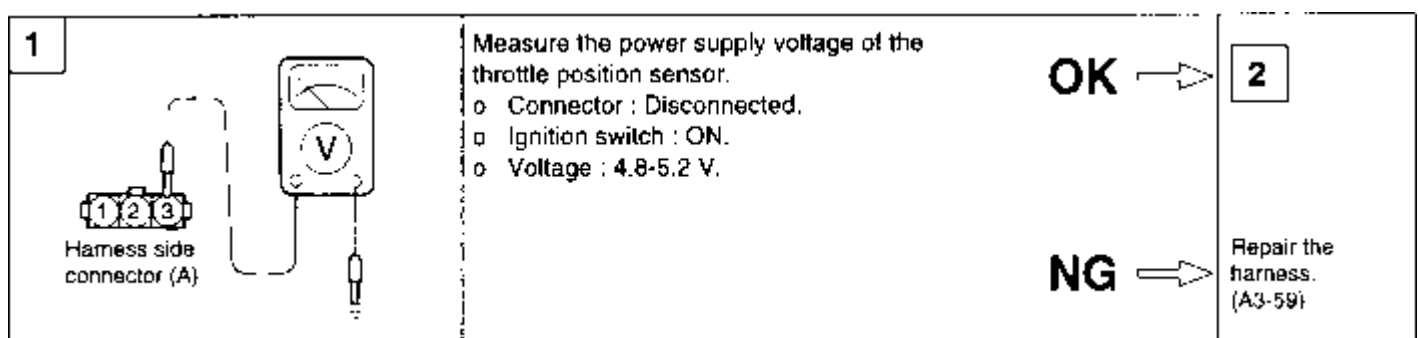
Input voltage from throttle position sensor is below 0.1 V or above 4.7V when ignition switch is turned on.

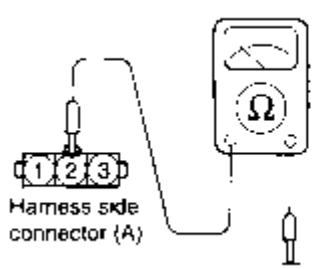
USING VOLTMETER

Check item	Check condition	Test specification
Throttle position sensor output voltage (TP sensor side connector No.1 or ECM harness side connector No.73)	At idle (800 rpm)	0.25-0.8 V
	Wide open throttle	4.25-4.8 V

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HARNESS INSPECTION PROCEDURES



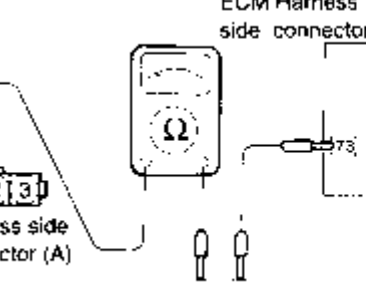
2


Check for continuity of the ground circuit

- Connector : Disconnected.

OK → **3**

NG → Repair the harness. (A2-ground)

3


Check for an open-circuit, or a short-circuit to ground between the engine control module and the throttle position sensor.

- Throttle position sensor connector : Disconnected.
- Engine control module connector : Disconnected.

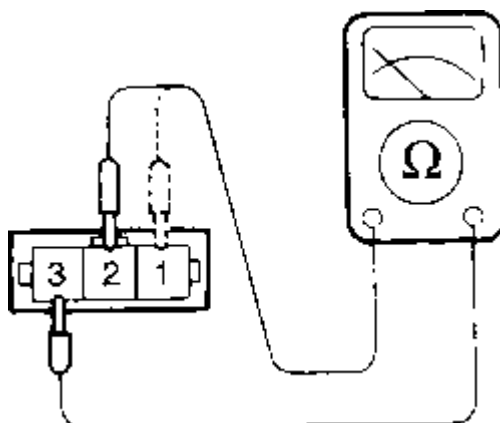
OK → **END !**

NG → Repair the harness (A1-73)

SENSOR INSPECTION

Disconnect the throttle position sensor connector.

Measure resistance between terminal 2 (sensor ground) and terminal 3 (sensor power).



RESISTANCE SPECIFICATION	
Standard value	0.7-3.0 k Ω
When idling	2.3-3.4 k Ω

Connect an ohmmeter between terminal 3 (sensor ground) and terminal I (sensor output).

Operate the throttle valve slowly from the idle position to the full open position and check that the resistance changes smoothly in proportion to the throttle valve opening angle.

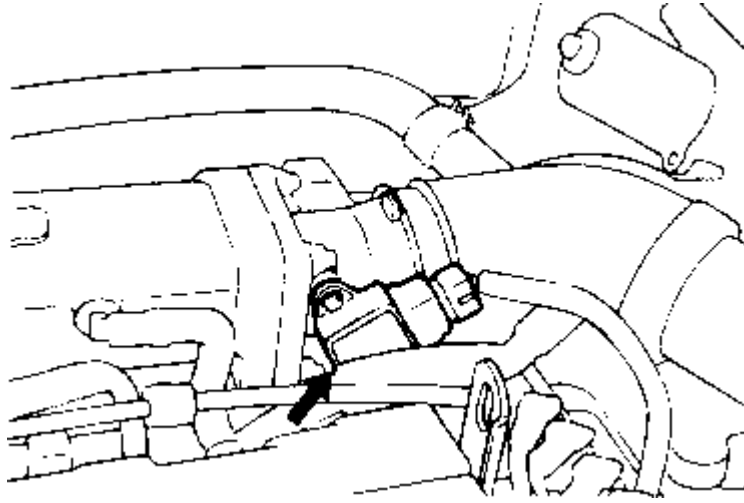
If the resistance is out of specification, or fails to change smoothly, replace the throttle position sensor.

TORQUE SPECIFICATION	
Throttle position sensor	1.5-2.5 Nm (15-25 kg·cm, 1.1-1.8 lb·ft)

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THROTTLE POSITION (TP) SENSOR

The TP Sensor is a rotating type variable resistor that rotates with the throttle shaft to sensor the throttle valve angle. As the throttle shaft rotates, the throttle angle of the TP Sensor changes and the ECM detects the throttle valve opening based on the change of the throttle angle.

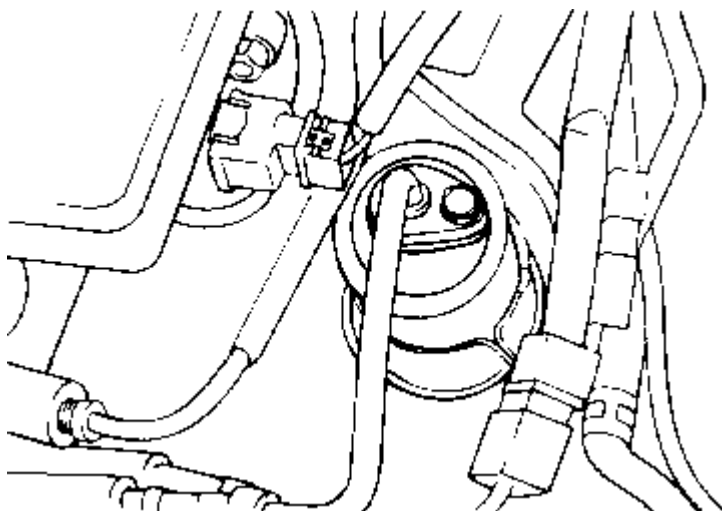


SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2001	
GROUP	
Fuel System	Fuel Delivery System

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REMOVAL

Remove the upper bolt and the high pressure fuel hose.



CAUTION

1. Be sure to reduce the fuel pressure before disconnecting the fuel line and hose, otherwise fuel will spill out.
2. Cover the hose connection with a shop towel to prevent splashing of fuel that could be caused by residual pressure in the fuel line.

Remove the lower bolt.

Remove the fuel filter mounting bolts, then remove the fuel filter from the bracket.

Remove the fuel return hose and line.

Remove the fuel vapor hose and line.

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

INSPECTION

Check the hoses and pipes for cracking, bending, deformation or restrictions.

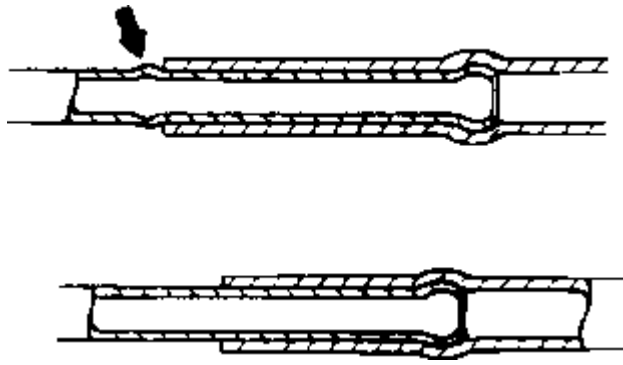
Check the canister for restrictions.

Check the fuel filter for restrictions and damage. If a problem is found, repair or replace parts as necessary

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

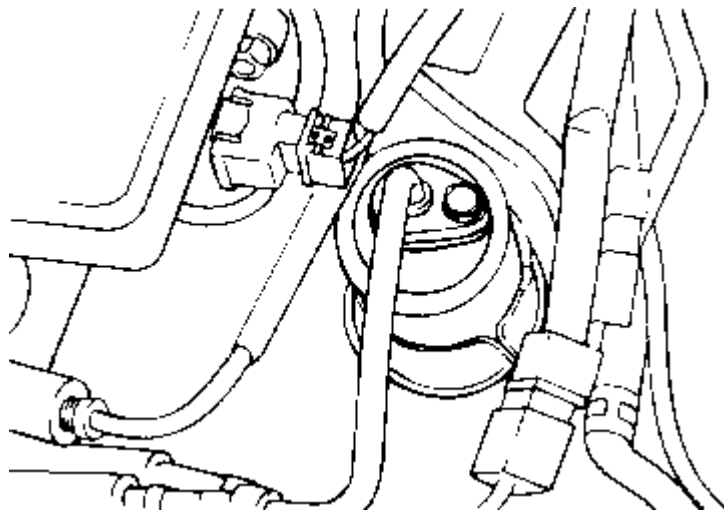
INSTALLATION

Install the fuel vapor hose and return hoses.



- If the fuel line has a stepped section, connect the fuel hose to the line securely, as shown in the illustration.
- If the fuel line does not have a stepped section, connect the fuel hose to the line securely.

Install the fuel filter, and tighten the fuel filter bracket.

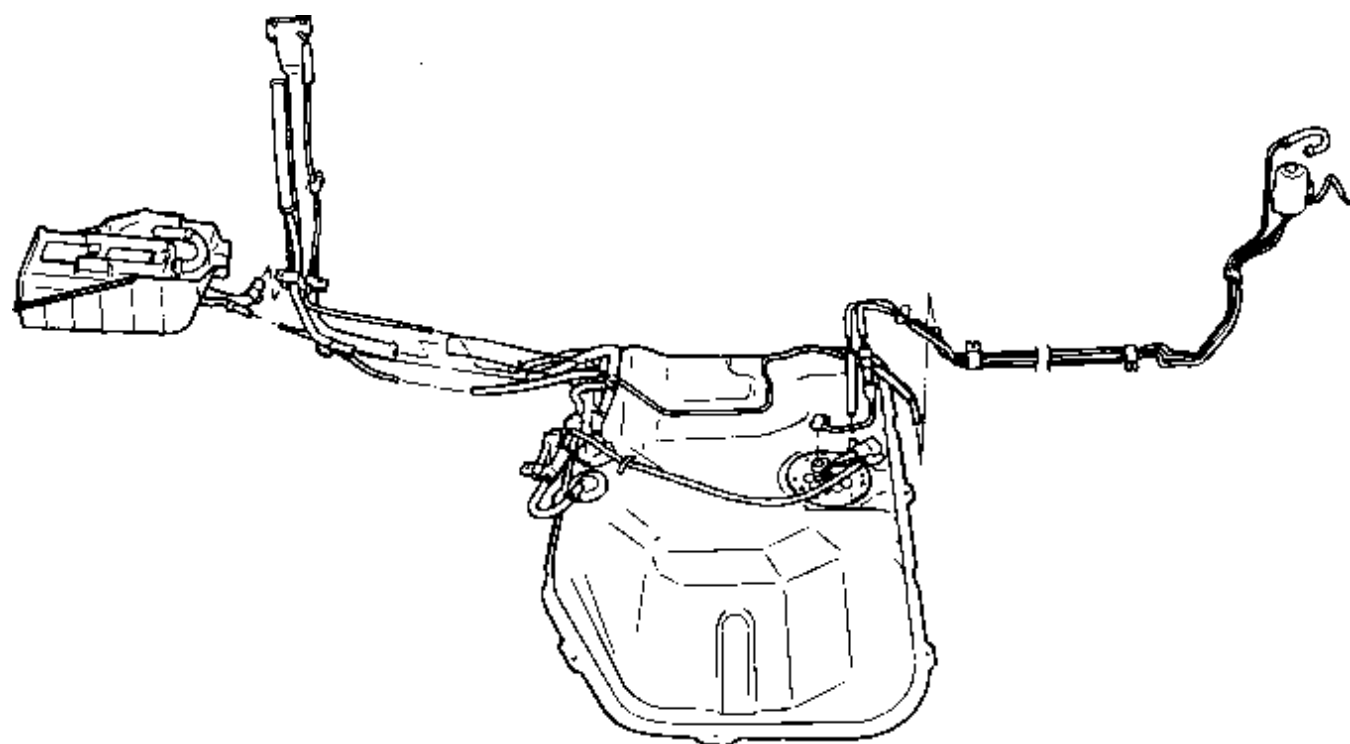


Insert the main line on the filter and tighten the bolts.

Install the clips and make sure that the do not interfere with other components.

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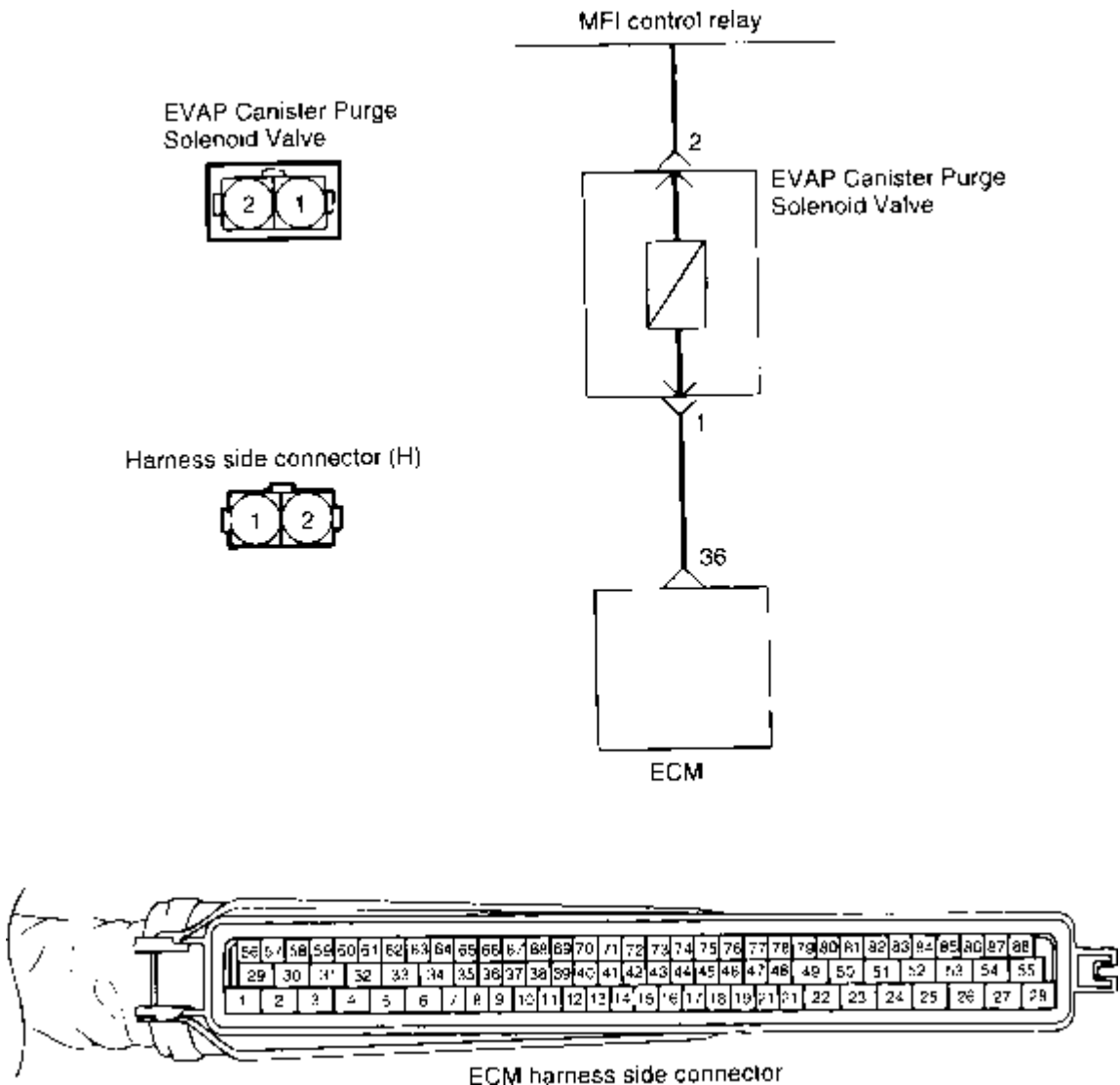
COMPONENTS



SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2000	
GROUP	
Fuel System	MFI Control System

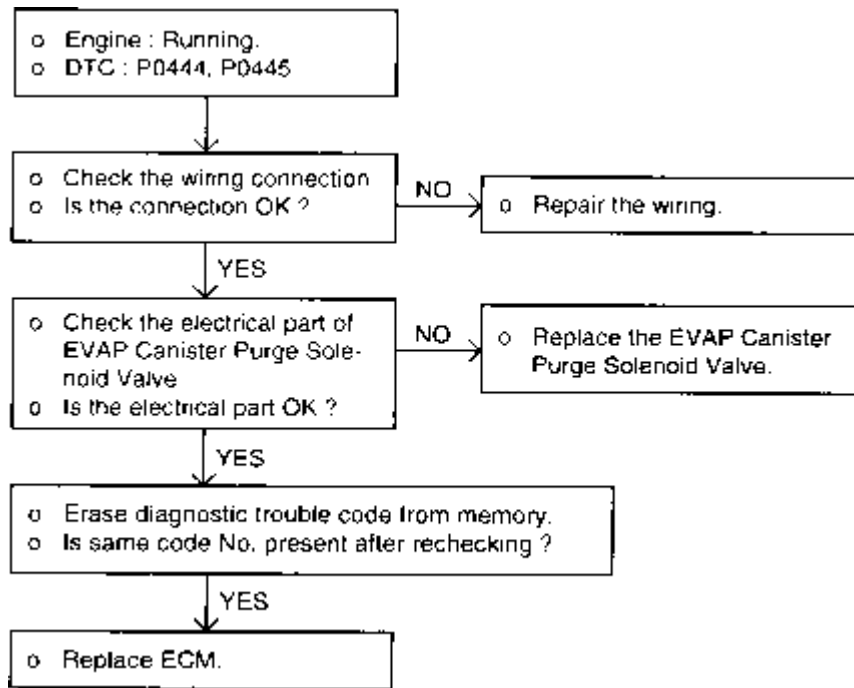
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CIRCUIT DIAGRAM



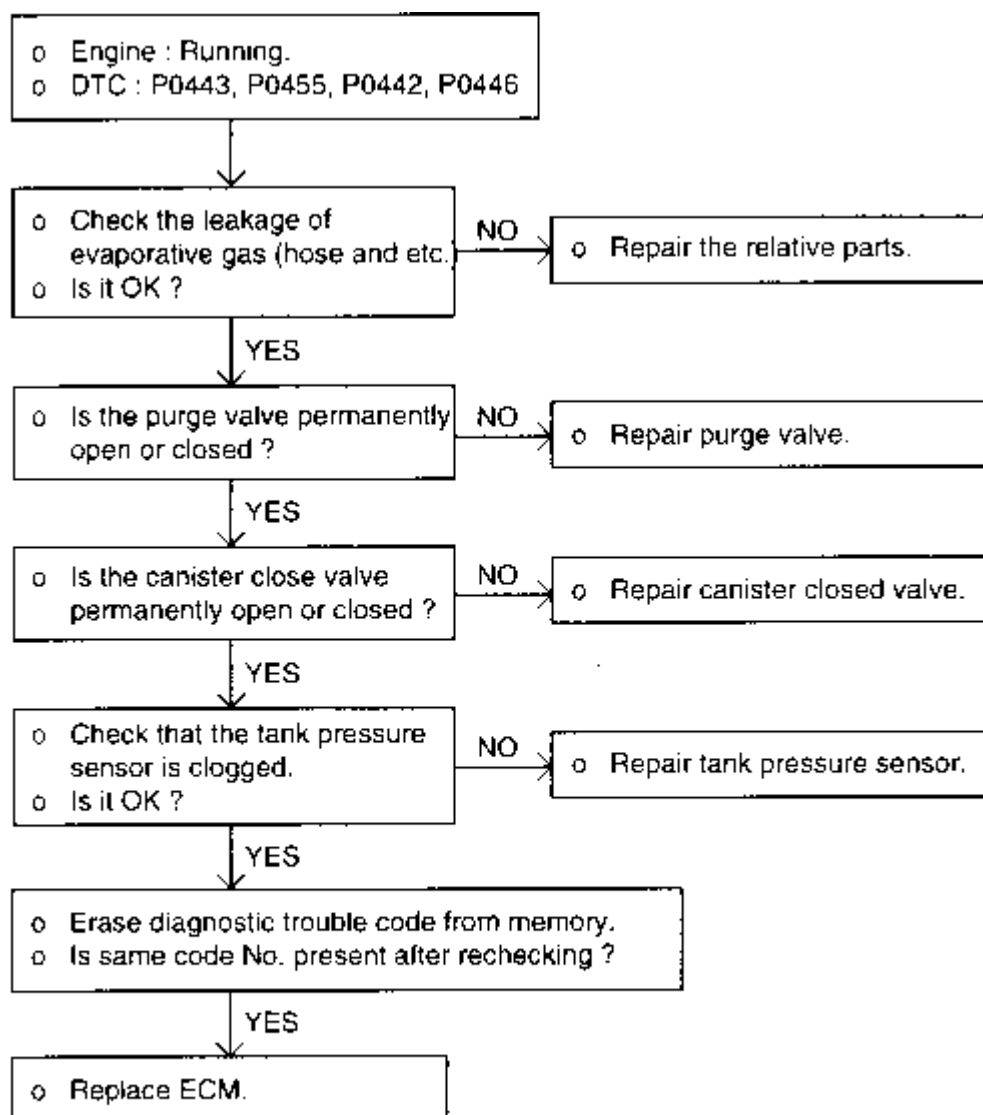
Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

DTC - P0444, P0445 (EVAP CANISTER PURGE SOLENOID VALVE)



TROUBLESHOOTING HINTS

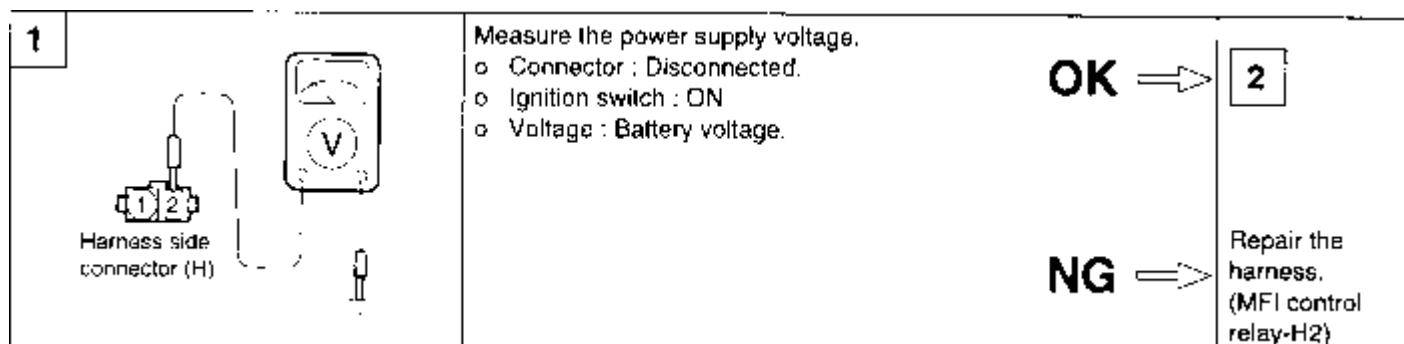
Open or short circuit is observed in purge solenoid valve (High) system when ignition switch is turned on.

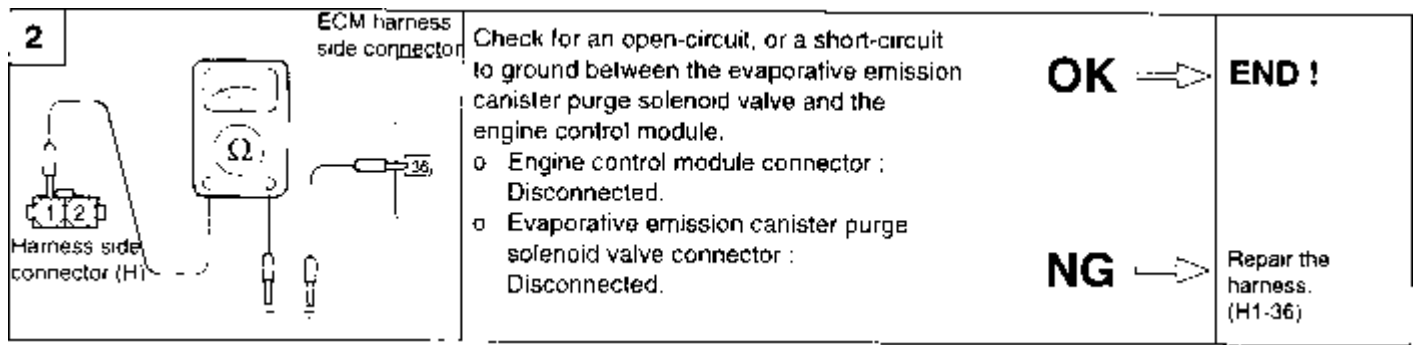


DTC : Diagnosis Trouble Code
ECM : Engine Control Module

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HARNESS INSPECTION

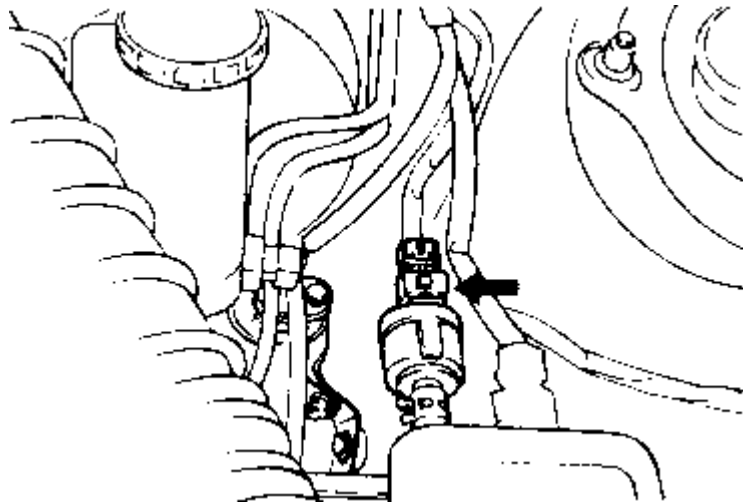




Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

EVAPORATIVE [EVAP] EMISSION CANISTER PURGE SOLENOID VALVE

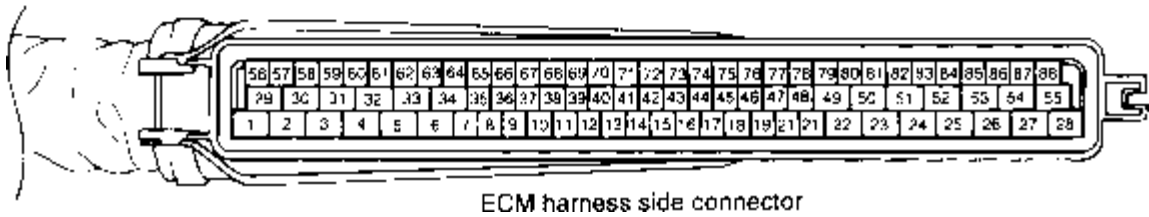
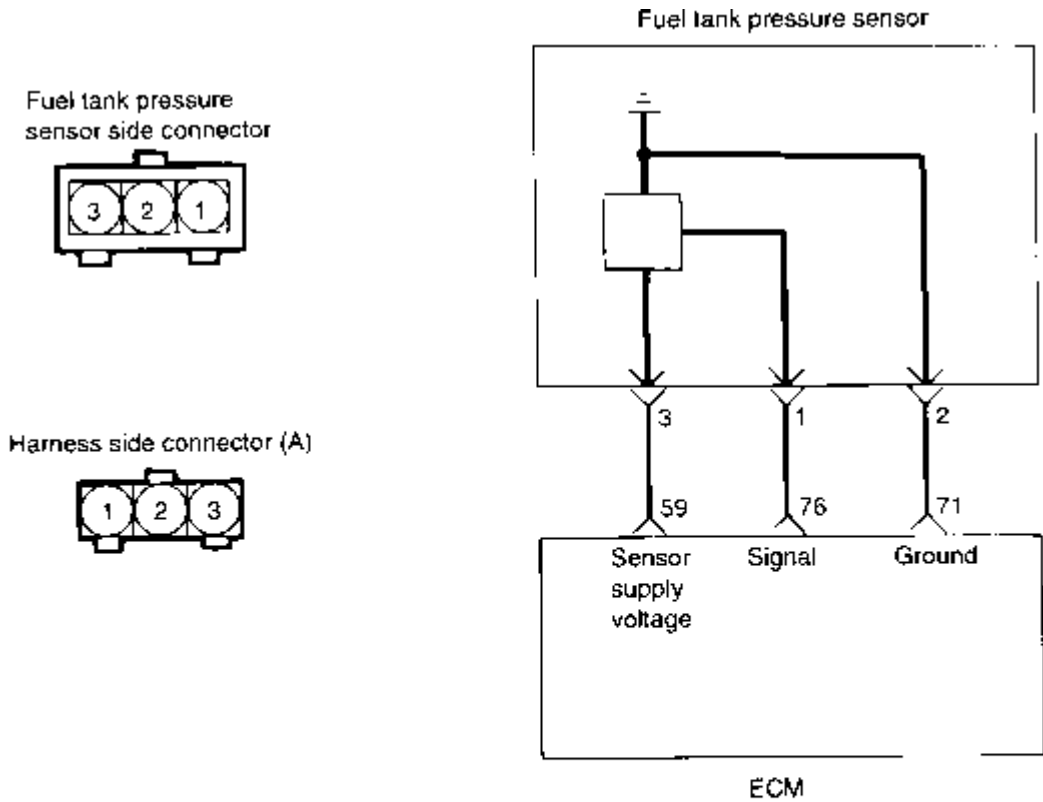
The evaporative emission canister purge solenoid valve is a duty control type, which controls purge air from the evaporative emission canister.



SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2000	
GROUP	
Fuel System	MFI Control System

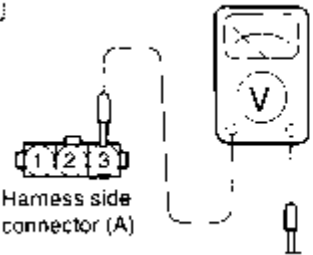
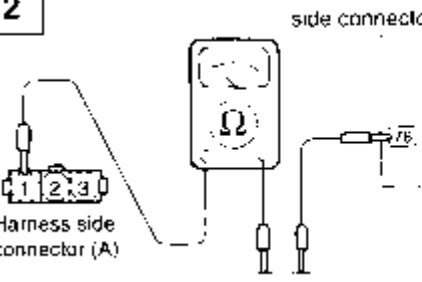
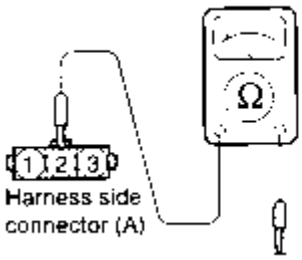
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CIRCUIT DIAGRAM



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[Electrical Manual](#)

HARNESS INSPECTION PROCEDURES

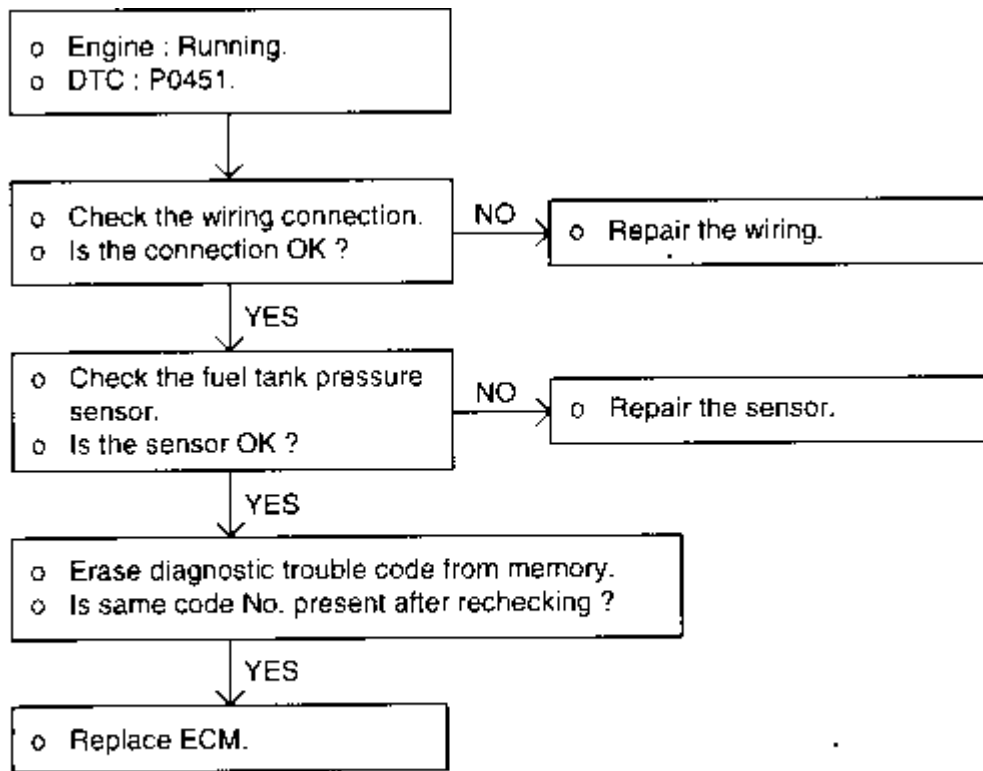
<p>1</p>  <p>Harness side connector (A)</p>	<p>Measure the power supply voltage.</p> <ul style="list-style-type: none"> o Connector : Disconnected. o Ignition switch : ON. o Voltage : 4.8-5.2V. 	<p>OK ⇒ 2</p> <p>NG ⇒ Repair the harness. (A3-59)</p>
<p>2</p>  <p>Harness side connector (A)</p> <p>ECM harness side connector</p>	<p>Check for an open-circuit, or a short-circuit to ground between the engine control module and the fuel tank pressure sensor.</p> <ul style="list-style-type: none"> o Fuel tank pressure sensor connector : Disconnected o ECM connector : Disconnected 	<p>OK ⇒ 3</p> <p>NG ⇒ Repair the harness. (A1-76)</p>
<p>3</p>  <p>Harness side connector (A)</p>	<p>Check for continuity of the ground circuit.</p> <ul style="list-style-type: none"> o Connector : Disconnected 	<p>OK ⇒ END !</p> <p>NG ⇒ Repair the harness. (A2-71)</p>

SENSOR INSPECTION

Refer to EC GROUP - Emission Control System.

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

DTC - P0451 (FUEL TANK PRESSURE SENSOR)

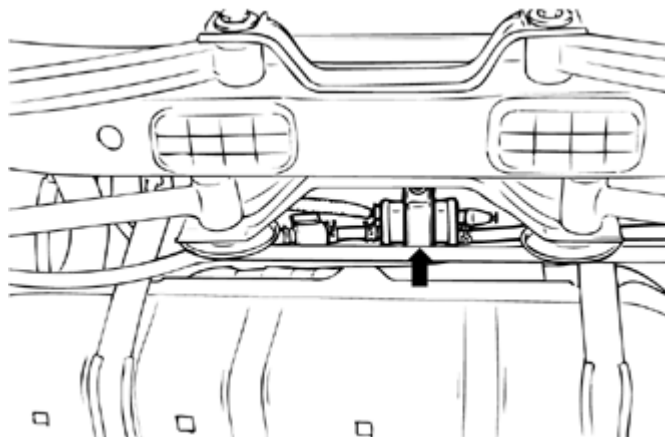


DTC : Diagnosis Trouble Code
ECM : Engine Control Module

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DTC - P0451 (FUEL TANK PRESSURE SENSOR)

The fuel tank pressure sensor is a pressure sensitive variable resistor. It measures the change of pressure in the fuel tank and monitors leakage detection. It is used to close the evaporative system and observes tank pressure respectively with canister close valve.

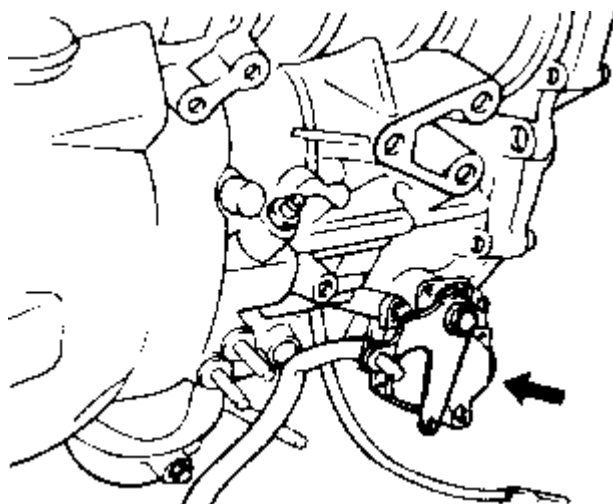


SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2000	
GROUP	
Fuel System	MFI Control System

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IGNITION SWITCH-ST AND TRANSAXLE RANGE SWITCH [A/T]

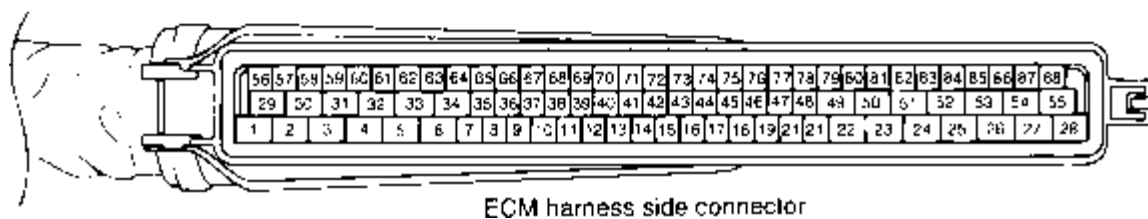
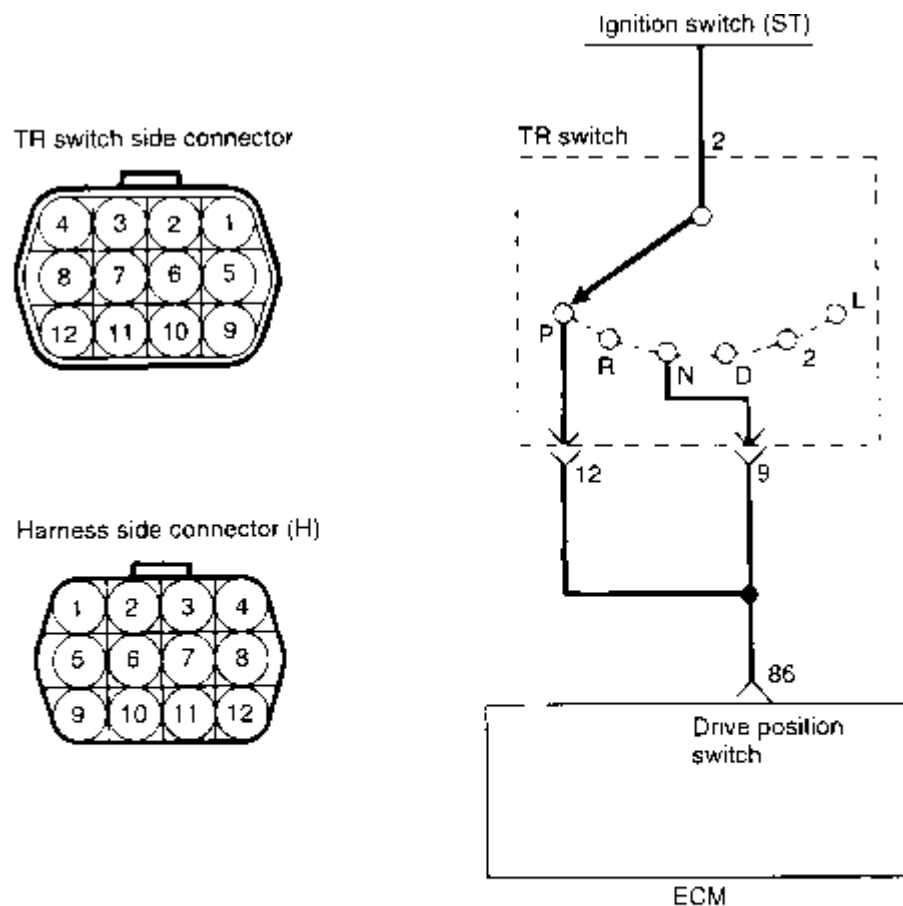
When the ignition switch is in the ST position, the battery voltage is applied through the ignition switch and inhibitor switch to the ECM. If the selector lever is not in P or N position, the battery voltage will not reach the ECM.



Based on this signal, the ECM determines the automatic transaxle load and drives the idle speed control actuator to maintain optimum idle speed

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CIRCUIT DIAGRAM



Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

HARNESS INSPECTION

<p>1</p> <p>Harness side connector (H)</p>	<p>Measure the power supply voltage of the PNP switch.</p> <ul style="list-style-type: none"> ECM connector : Disconnected. TR switch connector : Disconnected. Ignition switch : START and ON. Voltage (V) : Battery voltage. 	<p>OK → 2</p> <p>NG → Check the power supply circuit.</p>
---	--	--

<div data-bbox="102 98 129 132" data-label="Text">2</div> <div data-bbox="181 152 284 389" data-label="Image"> <p>The diagram shows a voltmeter with a needle and a 'V' symbol. One lead is connected to a ground symbol, and the other lead is connected to a connector labeled 'ECM harness side connector'.</p> </div>	<p>Measure the input voltage of engine control module.</p> <ul style="list-style-type: none"> o ECM connector : Disconnected. o TR switch connector : Connected. o Ignition switch : START. o Voltage : 8V or more. 	<div data-bbox="1129 120 1406 159" data-label="Text">OK → END !</div> <div data-bbox="1129 315 1422 389" data-label="Text">NG → Repair the harness (H9,12-86)</div>
--	---	--

Return to Main Menu(s): [Mechanical Manual](#) [Electrical Manual](#)

CIRCUIT INSPECTION (TR SWITCH)

If the park/neutral position switch harness check is normal but the park/neutral position switch output is abnormal, check the control cable adjustment.

SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2000	
GROUP	
Fuel System	MFI Control System

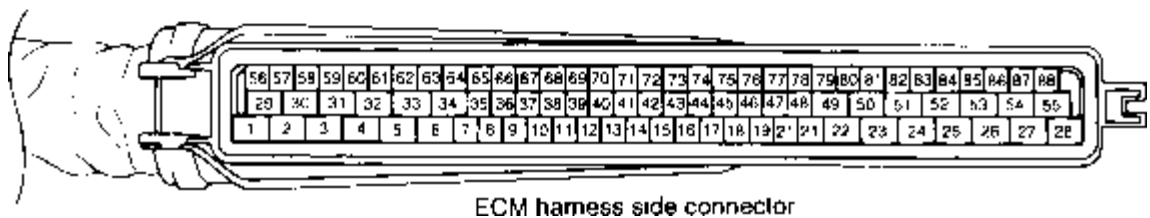
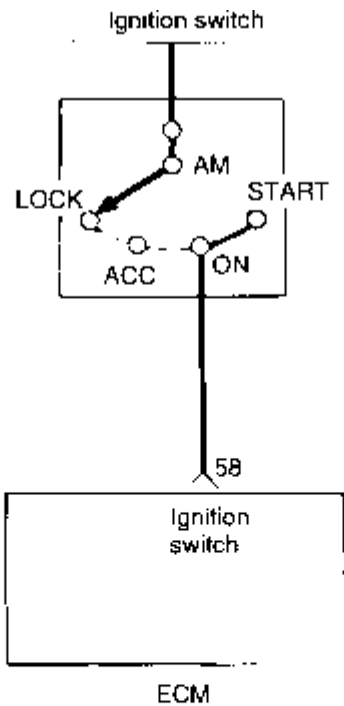
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IGNITION SWITCH - ST [MT]

The ignition switch-ST inputs a high signal to the ECM while the engine is cranking. The ECM provides fuel injection control, etc. at engine start-up based on this signal.

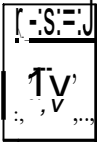

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CIRCUIT DIAGRAM



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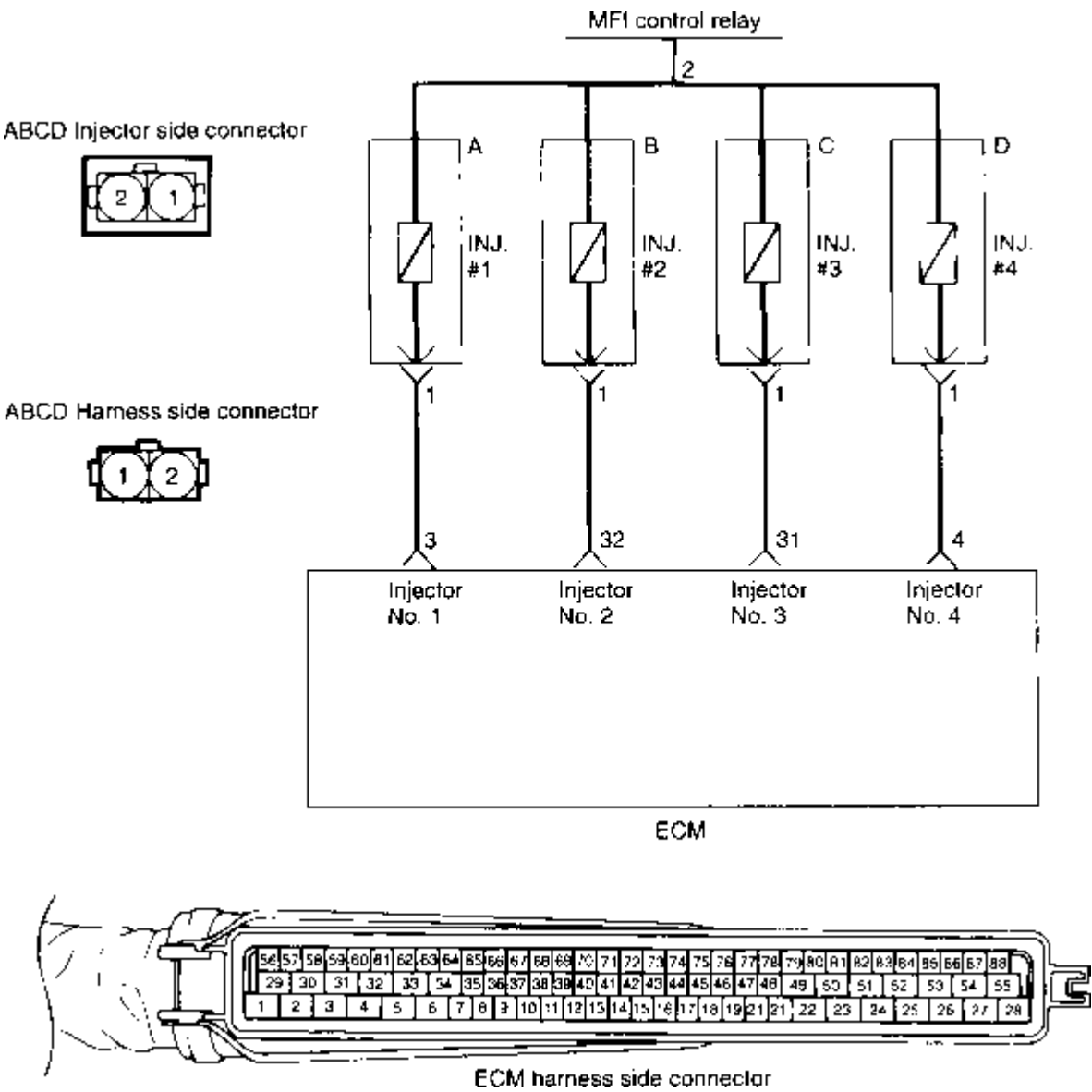
HARNESS INSPECTION

<div>LI_J</div> <div></div>	<div>ECM harness side connector</div> <div></div>	<div>Measure the 1npul voltage of ECM.</div> <div>0 ECM connector : Disconnected.</div> <div>0 Ignition switch; START.</div> <div>0 Clutch pe-dal : Press.</div> <div>0 Voltage; SV or mor-ei,</div>	<div>OK ==C></div> <div>END!</div> <div>NG ==f></div> <div>Repair the harnes5. (I9nitioni 5W•t"h -58)</div>
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SERVICE MANUAL	
Applies to: Hyundai Coupe/Tiburon 1998-2000	
GROUP	
Fuel System	MFI Control System

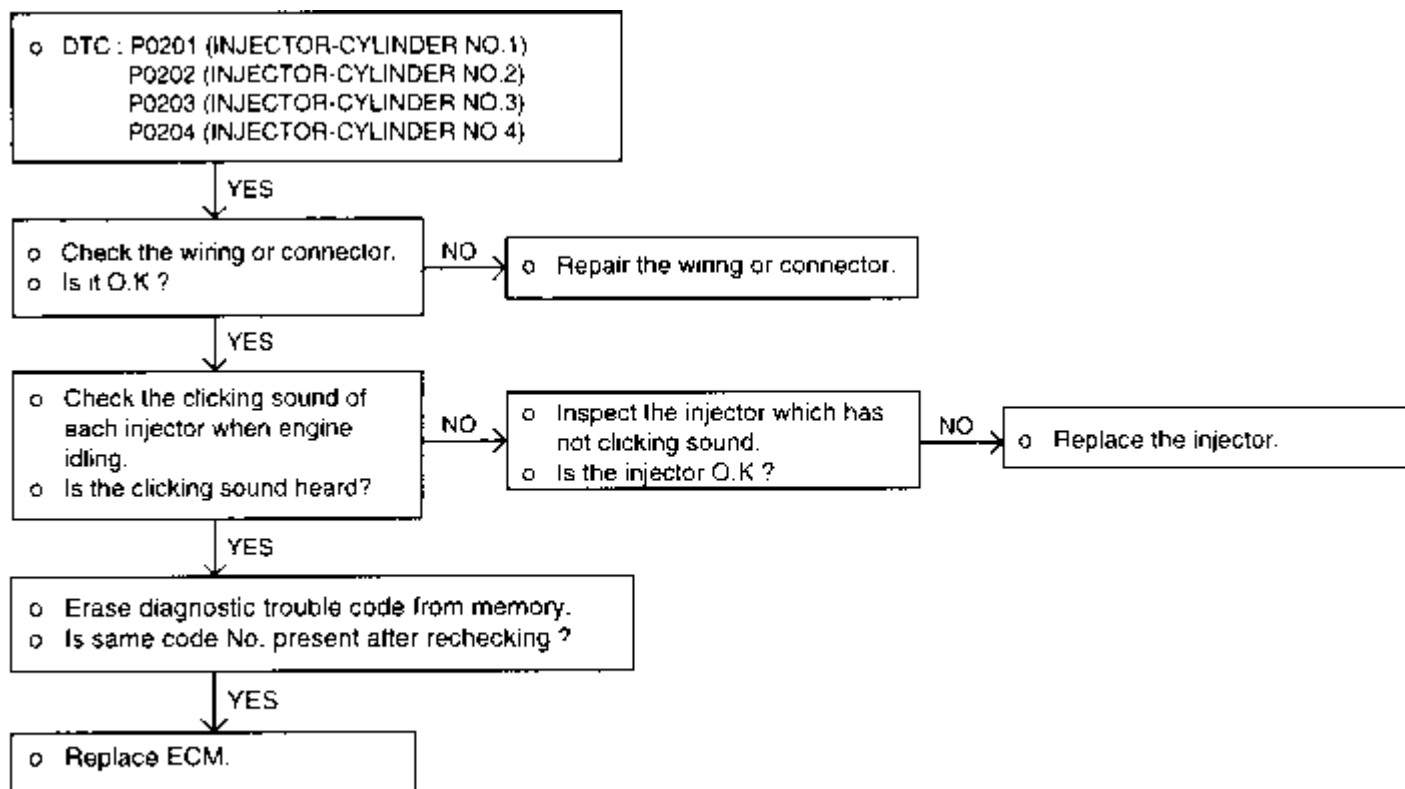
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CIRCUIT DIAGRAM



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DTC - P0201, P0202, P0203, P0204 (FUEL INJECTOR)



DTC : Diagnosis Trouble Code
ECM : Engine Control Module

TROUBLESHOOTING HINTS

If the engine is hard to start when hot, check for fuel pressure and injector leaks.

If the injector does not operate when the engine is cranked, then check the following:

- Faulty power supply circuit to the ECM and faulty ground circuit
- Faulty MFI control relay
- Faulty crankshaft position sensor and camshaft position sensor

If there is any cylinder whose idle state remains unchanged when the fuel injection of injectors is cut one after another during idling, check for the following items about such cylinder.

- Injector and harness
- Ignition plug and high tension cable
- Compression pressure

If the injection system is OK but the injector drive time is out of specification, check for the following items.

- Poor combustion in the cylinder. (faulty ignition plug, ignition coil, compression pressure and etc.)

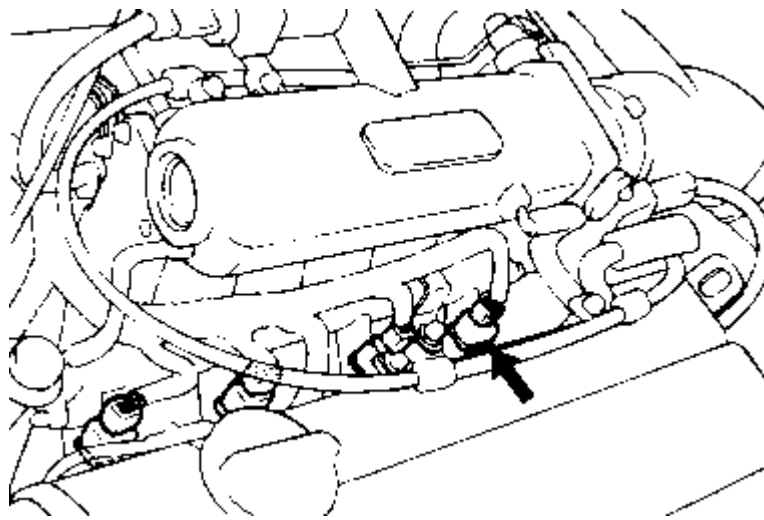
The MIL is on or the DTC is displayed on the SCAN TOOL under the following condition.

- When the injector itself is faulty

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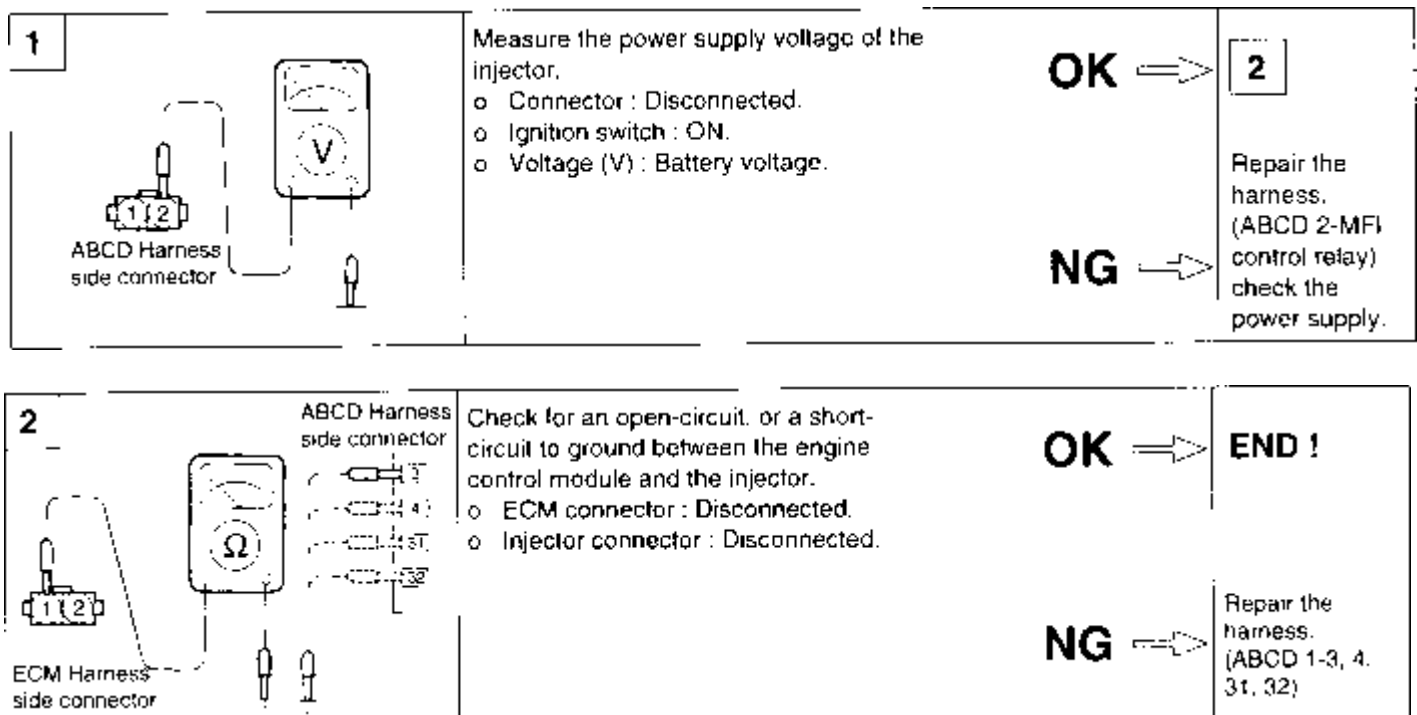
FUEL INJECTOR

The injectors inject fuel according to a signal coming from the ECM. The volume of fuel injected by the injector is determined by the time the solenoid valve is energized.



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HARNESS INSPECTION PROCEDURES



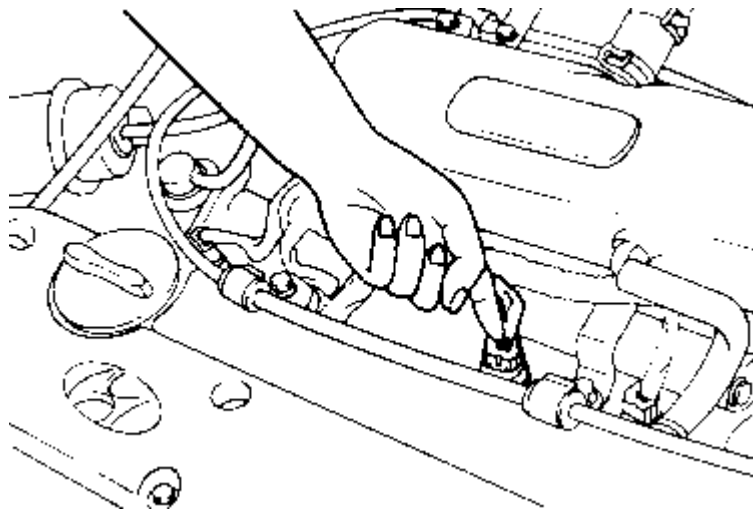
Operation Sound Check

Using a stethoscope, check the injectors for a clicking sound at idle. Check that the sound is produced at shorter intervals as the engine speed increases.

NOTE

Be sure that the sound from an adjacent injector is not being transmitted along the delivery pipe to an inoperative injector.

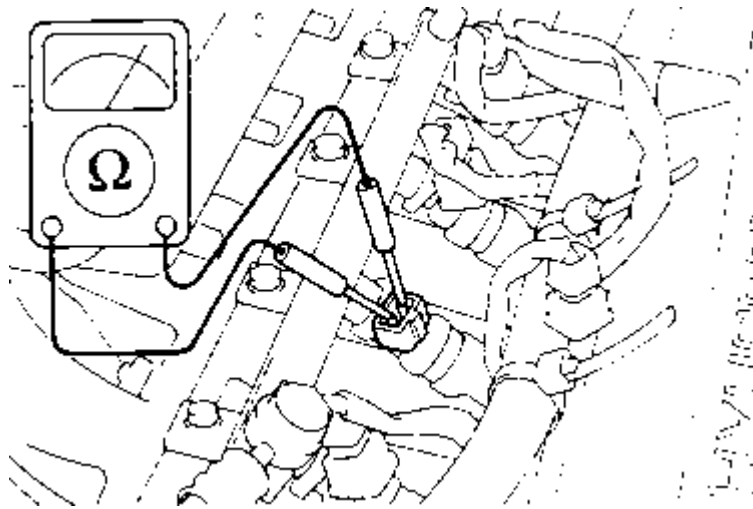
If a stethoscope is not available, check the injector operation with your finger. If no vibrations are felt, check the wiring connector, injector, or injection signal from ECM.



Resistance Measurement Between Terminals

Disconnect the connector at the injector.

Measure the resistance between terminals.



SPECIFICATION	
Standard value	15.9±0.35 [at 20°C (68°F)]

If the resistance is not within specification, replace the injector.