

EMISSION CONTROL SYSTEMS

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SPECIFICATIONS

N25CA--

GENERAL SPECIFICATIONS

Items	Specifications
Crankcase emission control system	Closed type with positive crankcase ventilation valve
Evaporative emission control system Canister	Canister storage type Charcoal type
Exhaust emission control system Exhaust gas recirculation system EGR valve Thermo valve <Federal and Canada> EGR temperature sensor <California> EGR control solenoid valve <California> Catalytic converter Location	Vacuum-activated diaphragm type Bimetal type Thermistor type Duty cycle solenoid valve Monolith type Under floor

SERVICE SPECIFICATIONS

N25CB--

Items	Specifications
Purge control solenoid valve coil resistance Ω	36 – 44 [at 20°C (68°F)]
Thermo valve valve closing temperature °C (°F)	65 (149)
EGR temperature sensor resistance $k\Omega$	60 – 83 [at 50°C (122°F)] 11 – 14 [at 100°C (212°F)]
EGR control solenoid valve coil resistance Ω	36 – 44 [at 20°C (68°F)]

TORQUE SPECIFICATIONS

N25CC--

Items	Nm	ft.lbs.
Positive crankcase ventilation valve	8 – 12	6 – 8.5
EGR valve installation bolt <1.5L Engine> <1.6L Engine>	10 – 15 15 – 22	7.2 – 10 10 – 15.5
Thermo valve	20 – 40	15 – 30
EGR temperature sensor	10 – 12	7.3 – 8.6
Front exhaust pipe to catalytic converter	40 – 60	29 – 43
Catalytic converter to center exhaust pipe	30 – 40	22 – 29

SEALANT

N25CE--

Items	Specified sealant	Quantity
Thermo valve thread portion	3M NUT Locking No. 4171 or equivalent	As required

TROUBLESHOOTING

N25EA-

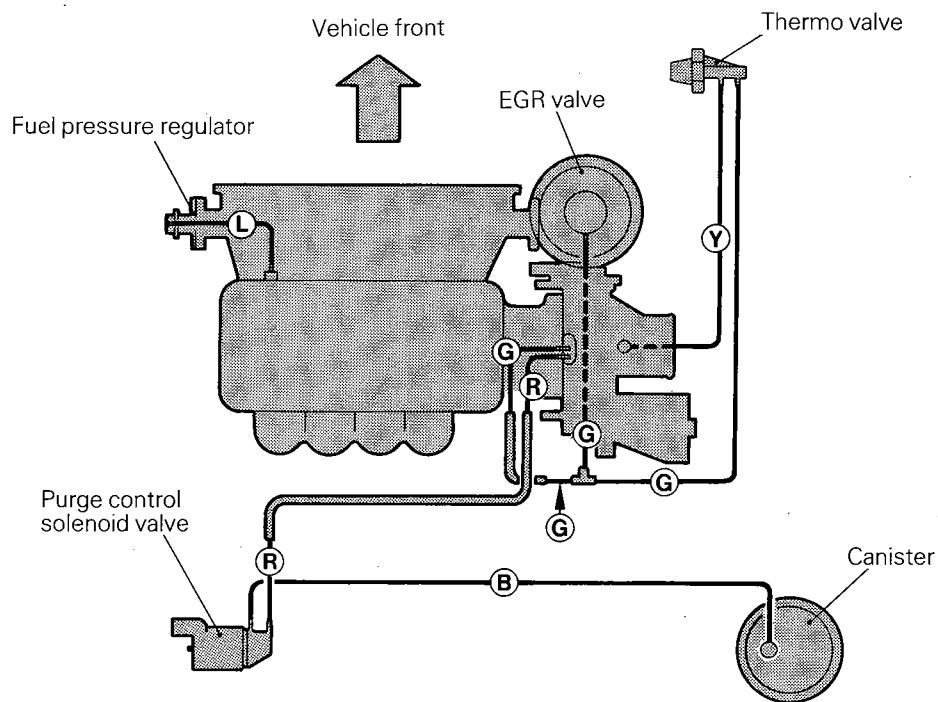
Symptom	Probable cause	Remedy
Engine will not start or hard to start	Vacuum hose disconnected or damaged	Repair or replace
	The EGR valve is not closed	Repair or replace
	Malfunction of the purge control solenoid valve	Repair or replace
Rough idle or engine stalls	The EGR valve is not closed	Repair or replace
	Vacuum hose disconnected or damaged	Repair or replace
	Malfunction of the positive crankcase ventilation valve	Replace
	Malfunction of the purge control system	Check the system; if there is a problem, check its component parts
Engine hesitates or poor acceleration	Malfunction of the exhaust gas recirculation system	Check the system; if there is a problem, check its component parts
Excessive oil consumption	Positive crankcase ventilation line clogged	Check positive crankcase ventilation system
Poor fuel mileage	Malfunction of the exhaust gas recirculation system	Check the system; if there is a problem, check its component parts

VACUUM HOSES

N25JA--

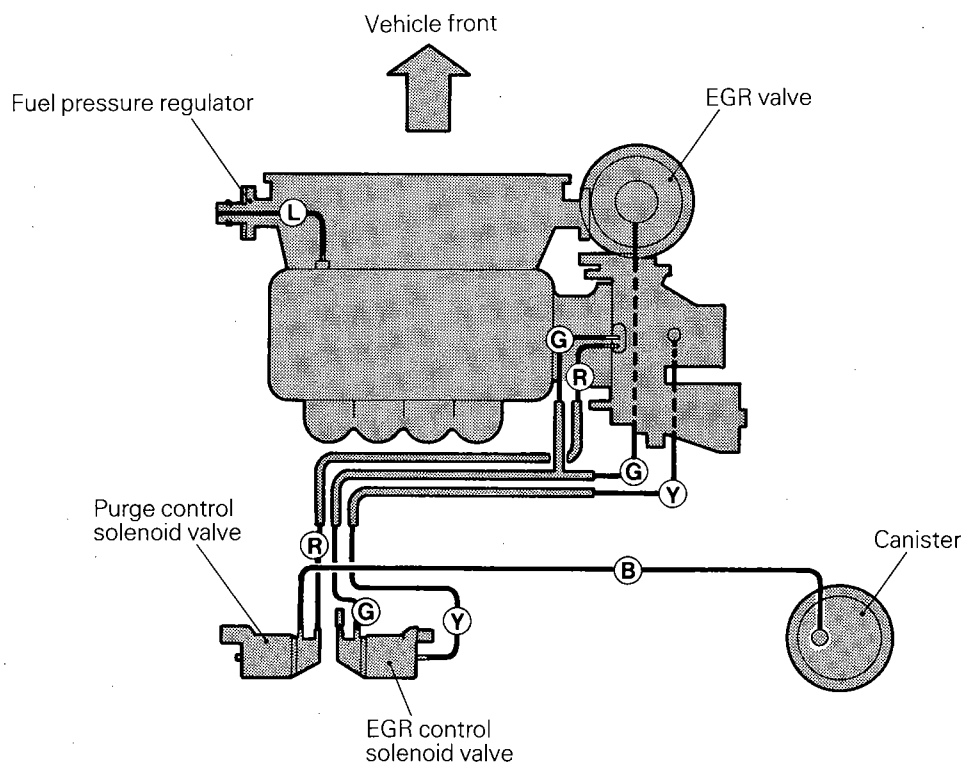
VACUUM HOSES ROUTING

<Federal and Canada – 1.5L Engine>



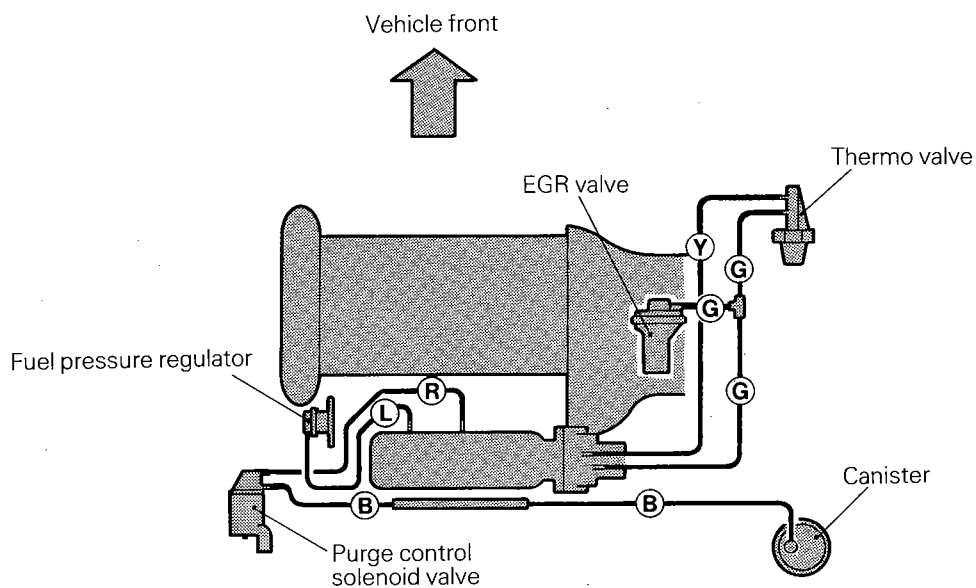
1EM0097

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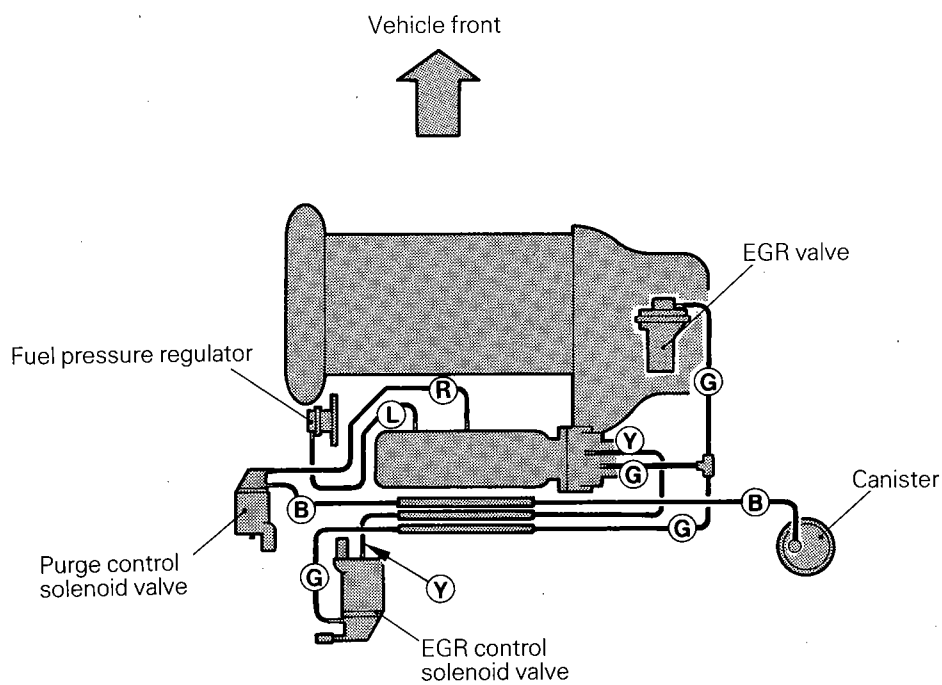
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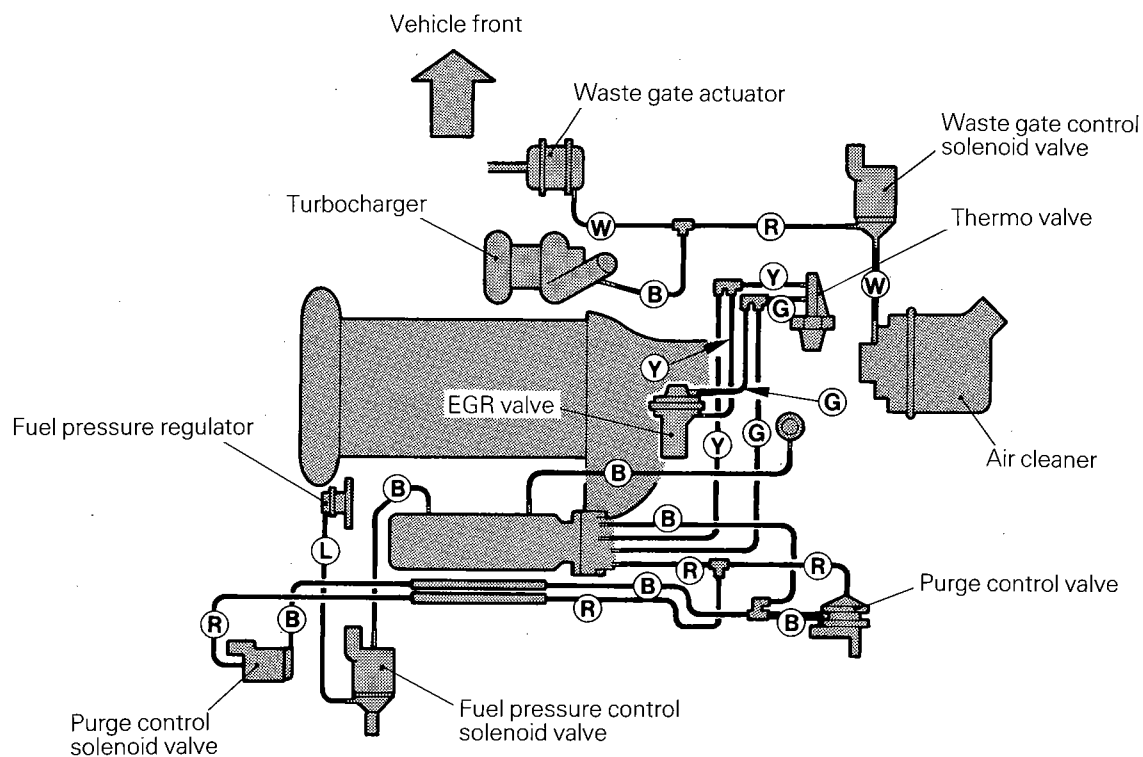
6EM0225

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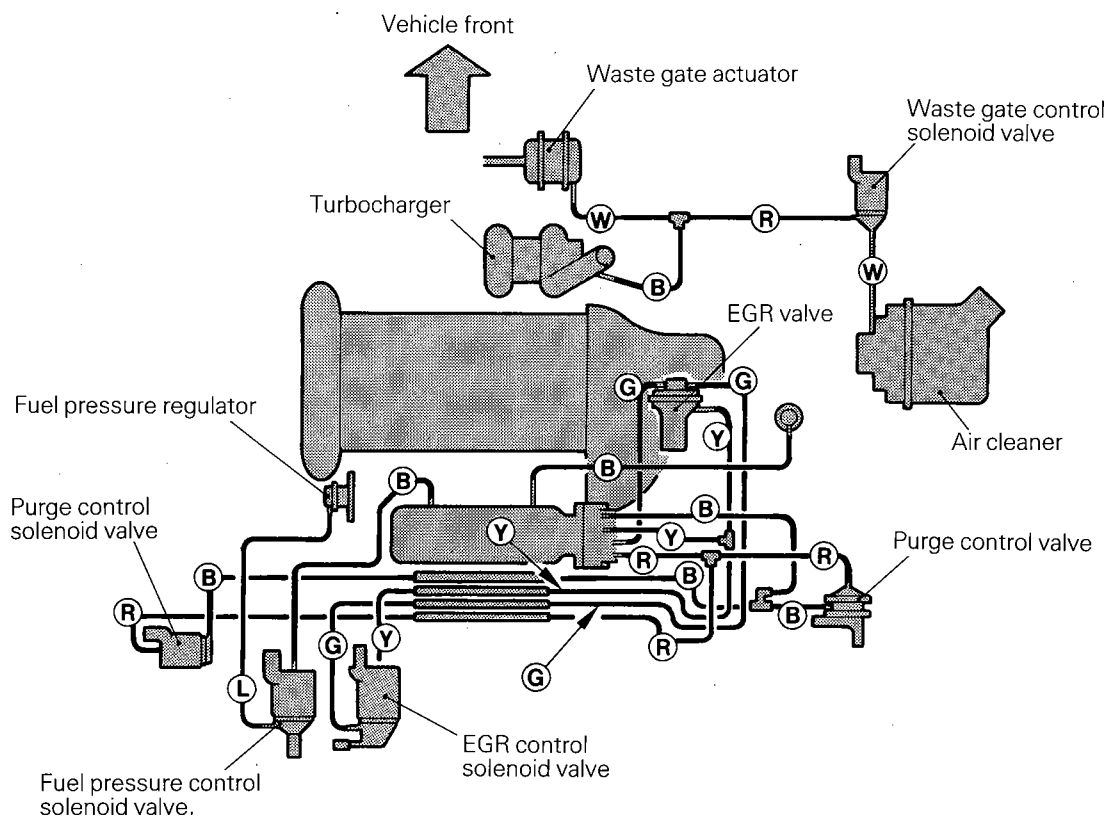
6EM0226

<Federal and Canada – T/C>



6EM0222

<California – T/C>



6EM0223

INSPECTION

N25JCAD

- (1) Referring to the VACUUM HOSES ROUTING, confirm that the vacuum hoses are properly connected.
- (2) Check the hoses for irregularities (disconnection, looseness, etc.) and confirm that there is no breakage or damage.

INSTALLATION

N25JDAD

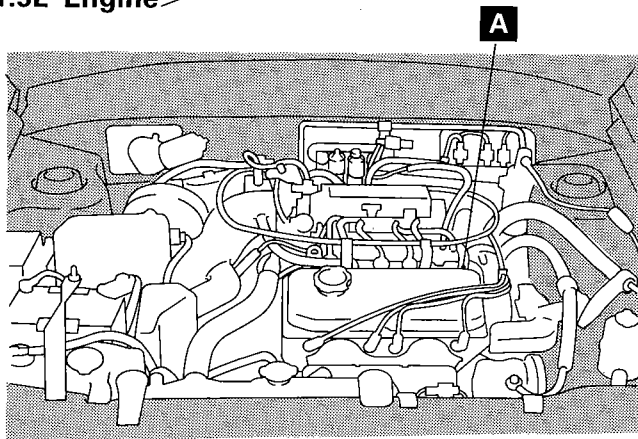
- (1) When connecting a hose, firmly press it onto the nipple.
- (2) Referring to the VACUUM HOSES ROUTING, connect the hoses correctly.

CRANKCASE EMISSION CONTROL SYSTEM

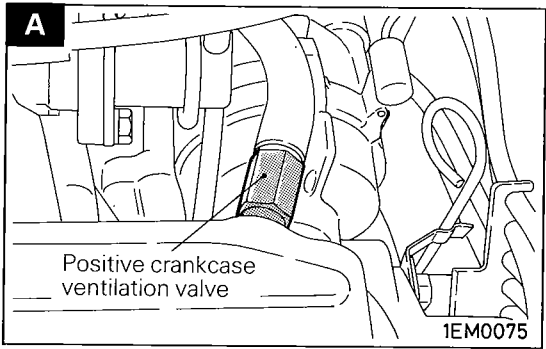
N251A --

COMPONENTS LOCATION

<1.5L Engine>

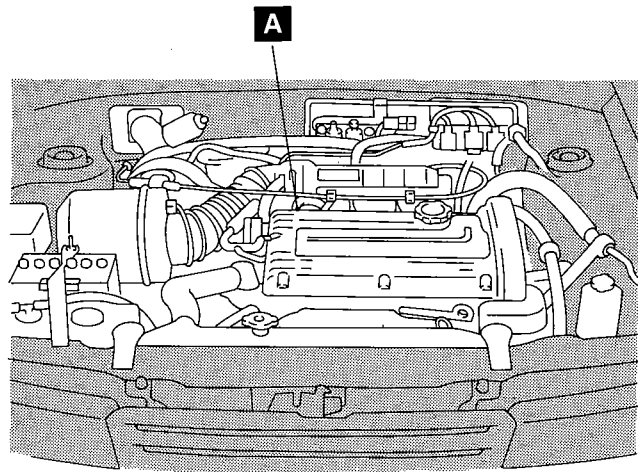


1FU0287

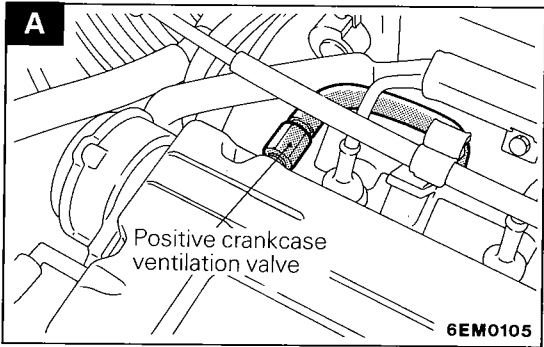


Name	Symbol
Positive crankcase ventilation valve	A

<1.6L Engine>



6FU1022

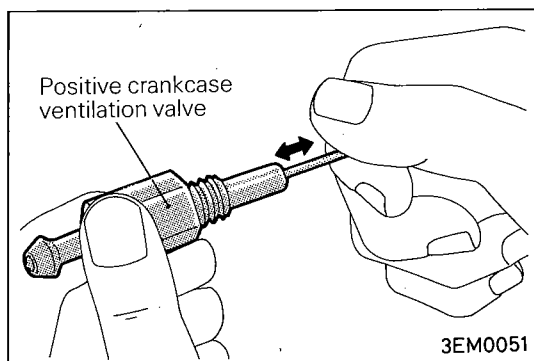


Name	Symbol
Positive crankcase ventilation valve	A

CRANKCASE VENTILATION SYSTEM INSPEC-
TION

N251AADa

To inspect the positive crankcase ventilation system, refer to
GROUP 0 – Maintenance Service.



POSITIVE CRANKCASE VENTILATION VALVE INSPECTION

- (1) Remove the positive crankcase ventilation valve.
- (2) Insert a thin stick into the positive crankcase ventilation valve from the threaded side to check that the plunger moves.
- (3) If the plunger does not move, the positive crankcase ventilation valve is clogged. Clean it or replace.

INSTALLATION

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

Specified tightening torque:

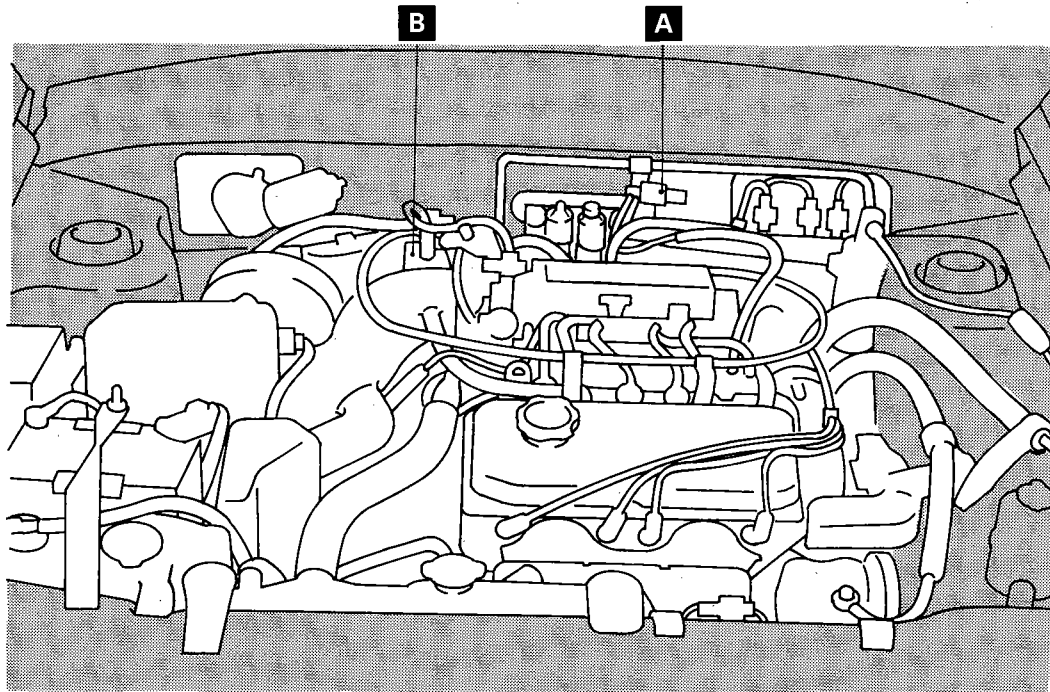
8 – 12 Nm (6 – 8.5 ft.lbs.)

EVAPORATIVE EMISSION CONTROL SYSTEM

N25IB--

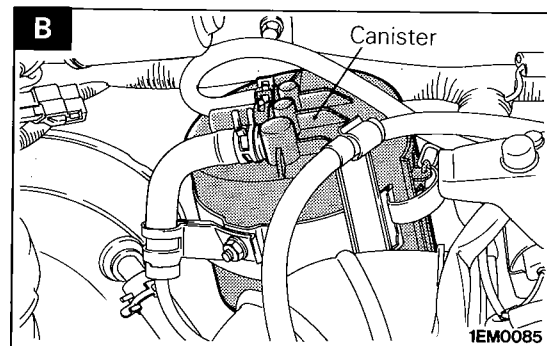
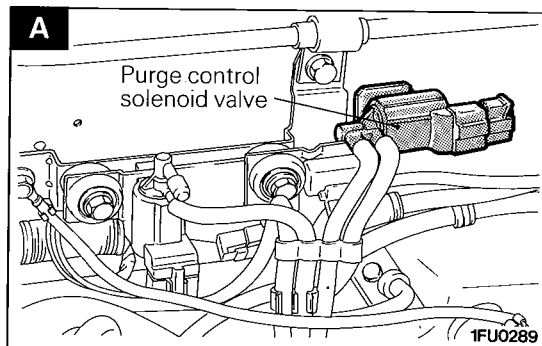
COMPONENTS LOCATION

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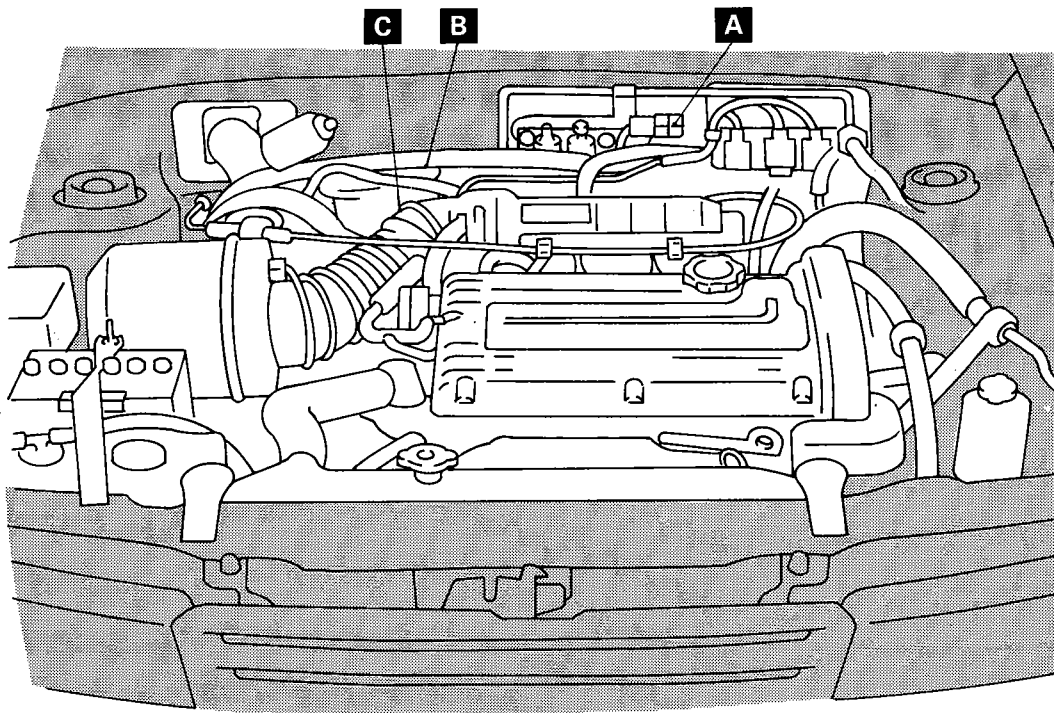


1FU0287

Name	Symbol
Canister	B
Purge control solenoid valve	A

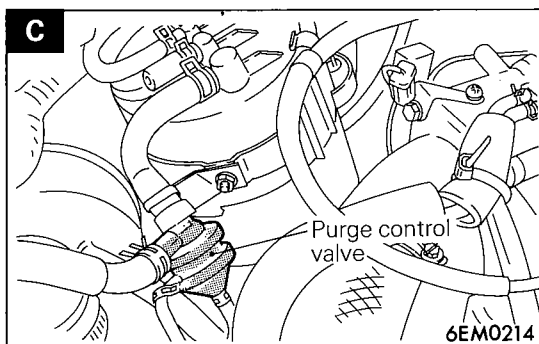
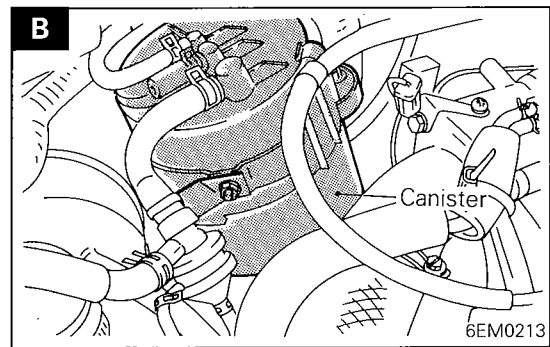
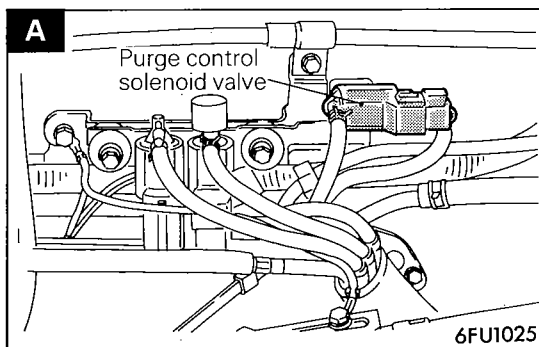


<1.6L Engine>



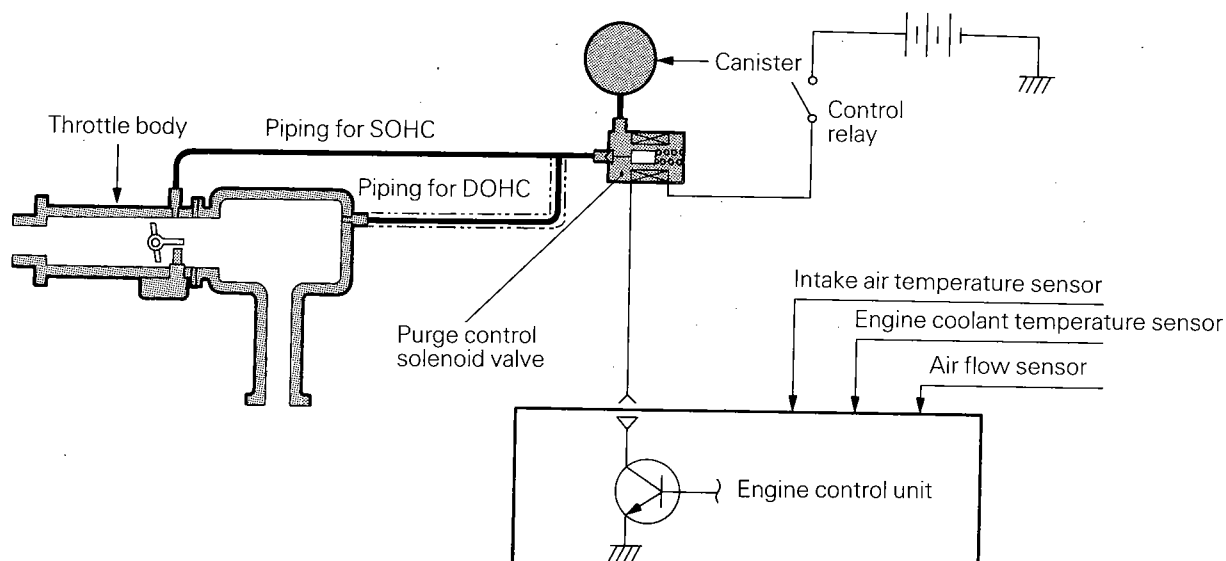
6FU1022

Name	Symbol
Canister	B
Purge control solenoid valve	A
Purge control valve <T/C>	C



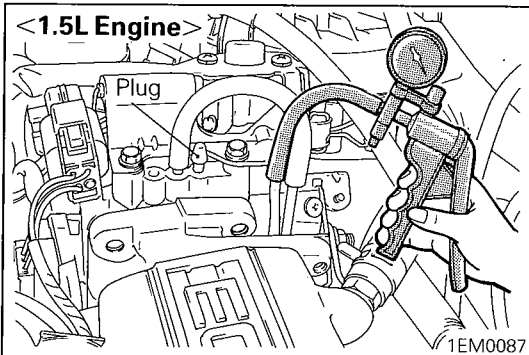
PURGE CONTROL SYSTEM INSPECTION <N/A>

N25IBBG



1EM0086

<1.5L Engine>

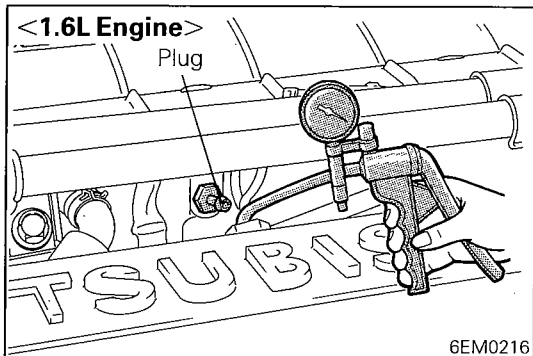


- (1) Disconnect the vacuum hose (red stripes) from the throttle body and connect it to a hand vacuum pump.
- (2) Plug the nipple from which the hose was removed.
- (3) Under the engine conditions shown below, check by applying vacuum from a hand vacuum pump.

When engine is cold – engine coolant temperature: 60°C (140°F) or less

Engine operating condition	Applying vacuum	Result
Idling	50 kPa (14.8 in.Hg)	Vacuum is maintained
3,000 rpm		

<1.6L Engine>

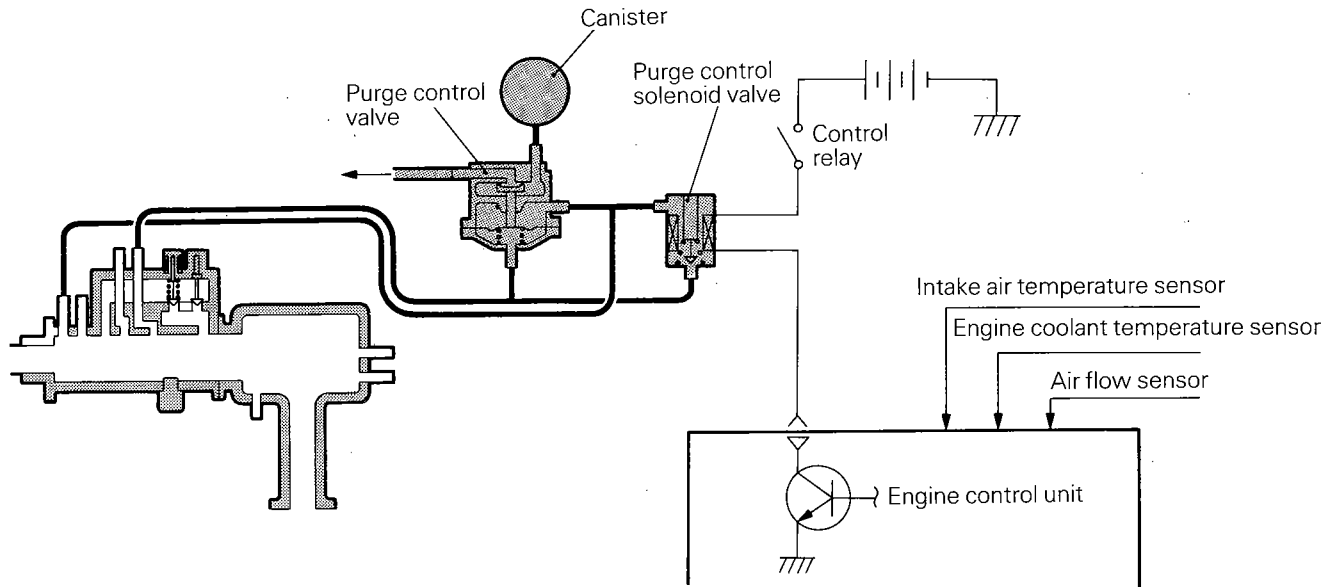


When engine is hot – engine coolant temperature: 70°C (158°F) or higher

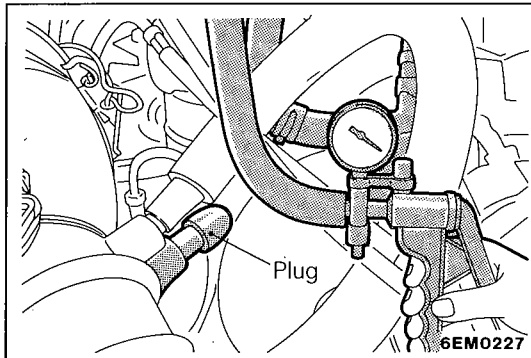
Engine operating condition	Applying vacuum	Result
Idling	50 kPa (14.8 in.Hg)	Vacuum is maintained
3,000 rpm within three minutes after starting engine	Try applying vacuum	Vacuum leaks
3,000 rpm after three minutes have elapsed after starting engine	50 kPa (14.8 in.Hg)	Vacuum will be maintained momentarily, after which it will leak. NOTE The vacuum will leak continuously if the altitude is 2,200 m (7,200 ft.) or higher, or the intake air temperature is 50°C (122°F) or lower.

PURGE CONTROL SYSTEM INSPECTION <T/C>

N25IBBGa



6EM0215



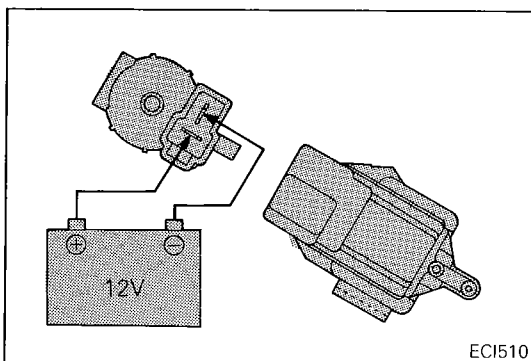
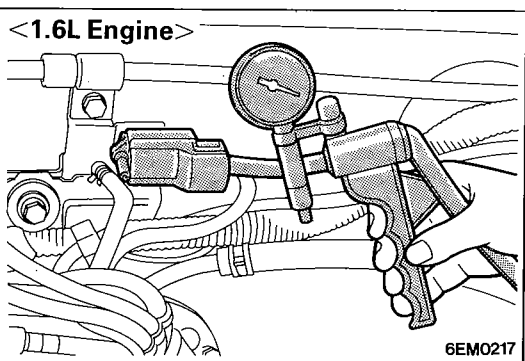
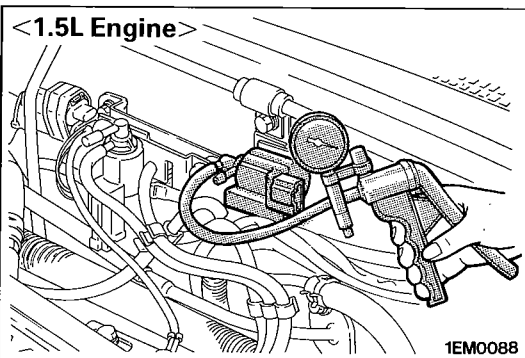
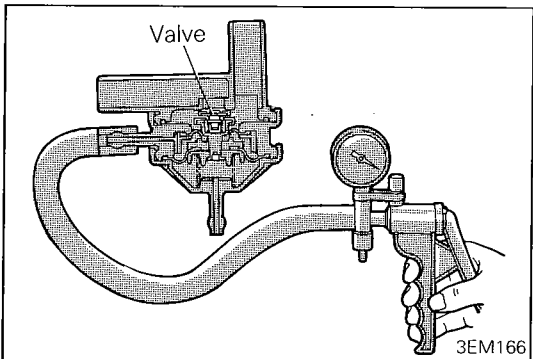
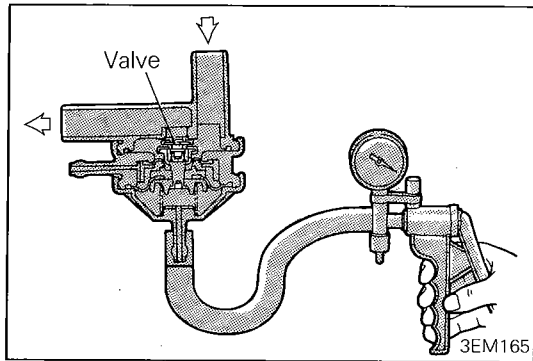
- (1) Disconnect the air purge hose from the air intake hose, close the air intake hose with a plug, and then connect a hand vacuum pump to the air purge hose.
- (2) Under the engine conditions shown below, check by applying vacuum from a hand vacuum pump.

When engine is cold – engine coolant temperature: 60°C (140°F) or less

Engine operating condition	Applying vacuum	Result
Idling	50 kPa (14.8 in.Hg)	Vacuum is maintained
3,000 rpm		

When engine is hot – engine coolant temperature: 70°C (158°F) or higher

Engine operating condition	Applying vacuum	Result
Idling	50 kPa (14.8 in.Hg)	Vacuum is maintained
3,000 rpm within three minutes after starting engine	Try applying vacuum	Vacuum leaks
3,000 rpm after three minutes have elapsed after starting engine	50 kPa (14.8 in.Hg)	Vacuum will be maintained momentarily, after which it will leak. NOTE The vacuum will leak continuously if the altitude is 2,200 m (7,200 ft.) or higher, or the intake air temperature is 50°C (122°F) or lower.

**PURGE CONTROL VALVE <T/C>**

N25IBCC

INSPECTION

- (1) Remove the purge control valve.
- (2) Connect a hand vacuum pump to the vacuum nipple of the purge control valve.
- (3) Apply a vacuum of 53 kPa (15.7 in.Hg) and check air-tightness.
- (4) Blow in air lightly from the canister side nipple and check conditions as follows.

Hand vacuum pump vacuum	Normal condition
0 kPa (0 in.Hg) (No vacuum is applied)	Air does not blow through
27 kPa (8.0 in.Hg) or more	Air blow through

- (5) Connect a hand vacuum pump to the positive pressure nipple of the purge control valve.
- (6) Apply a vacuum of 53 kPa (15.7 in.Hg) and check air-tightness.

PURGE CONTROL SOLENOID VALVE

N25IBFD

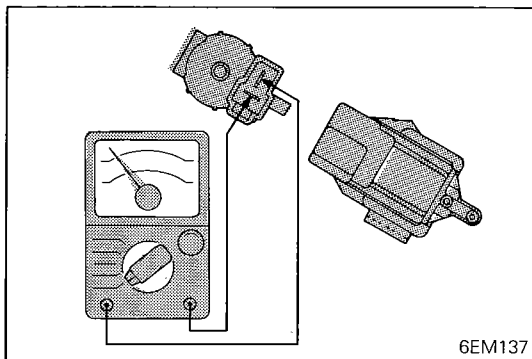
INSPECTION**NOTE**

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

- (1) Disconnect the vacuum hoses (non stripe and red stripe hose) from the solenoid valve.
- (2) Disconnect the harness connector from solenoid valve.
- (3) Connect a hand vacuum pump to the nipple to which the red-striped vacuum hose was connected.

- (4) Apply a vacuum and check for air-tightness when voltage applied directly to the purge control solenoid valve and when the voltage is discontinued.

	Battery voltage	Result
N/A	When applied	Vacuum leaks
	When discontinued	Vacuum is maintained
T/C	When applied	Vacuum is maintained
	When discontinued	Vacuum leaks



- (5) Measure the resistance between the terminals of the solenoid valve.

Standard value: 36 – 44 Ω [at 20°C (68°F)]

AIR FLOW SENSOR, ENGINE COOLANT TEMPERATURE SENSOR AND INTAKE AIR TEMPERATURE SENSOR

N25IBGBa

To inspect these parts, refer to GROUP 14 – MPI System Components.

AIR CONDITIONER SWITCH

N25IBHBa

To inspect the air conditioner switch, refer to GROUP 24 – Air Conditioner Switch.

OVERFILL LIMITER (TWO-WAY VALVE)

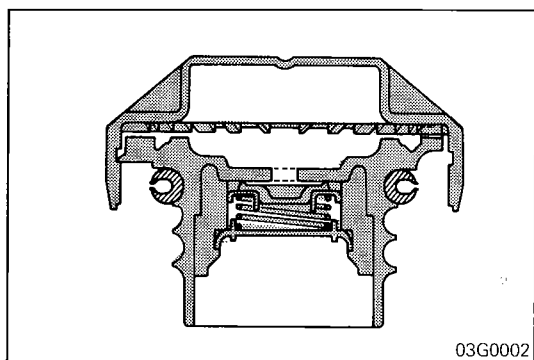
N25IBEBa

To inspect the overfill limiter (two-way valve), refer to GROUP 14 – Fuel Tank.

CANISTER

N25IBIBa

To inspect the canister, refer to GROUP 14 – Fuel Line and Vapor Line.



FUEL FILLER CAP INSPECTION

N25IBJA

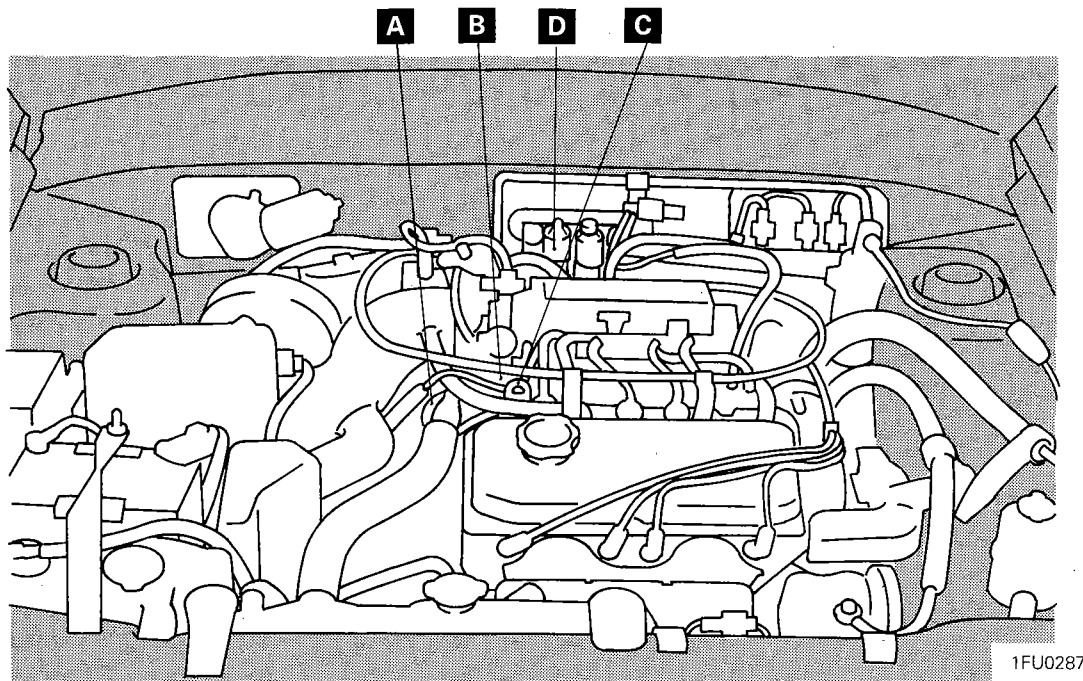
Check the gasket of the fuel filler cap, and the filler cap itself, for damage or deformation; replace the cap if necessary.

EXHAUST GAS RECIRCULATION (EGR) SYSTEM

N25IC -

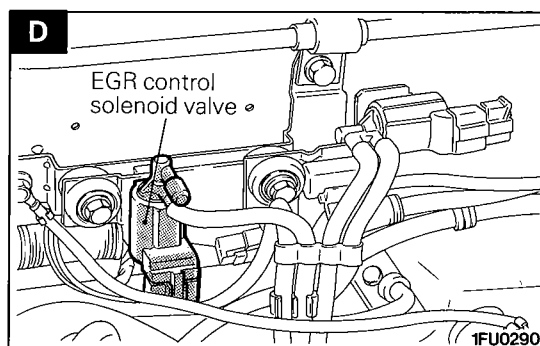
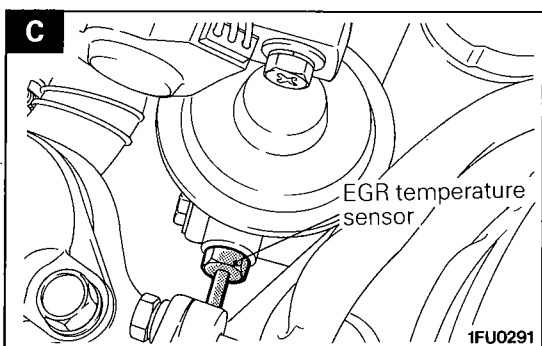
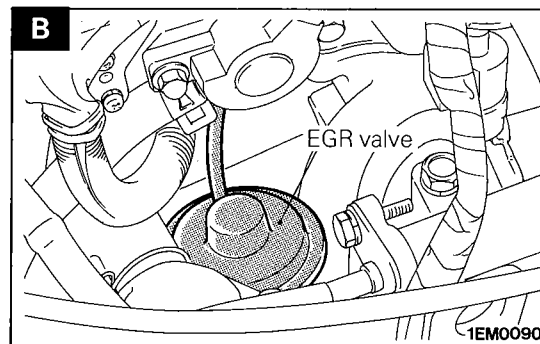
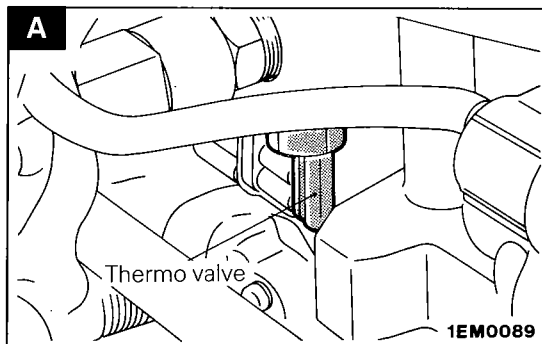
COMPONENTS LOCATION

<1.5L Engine>

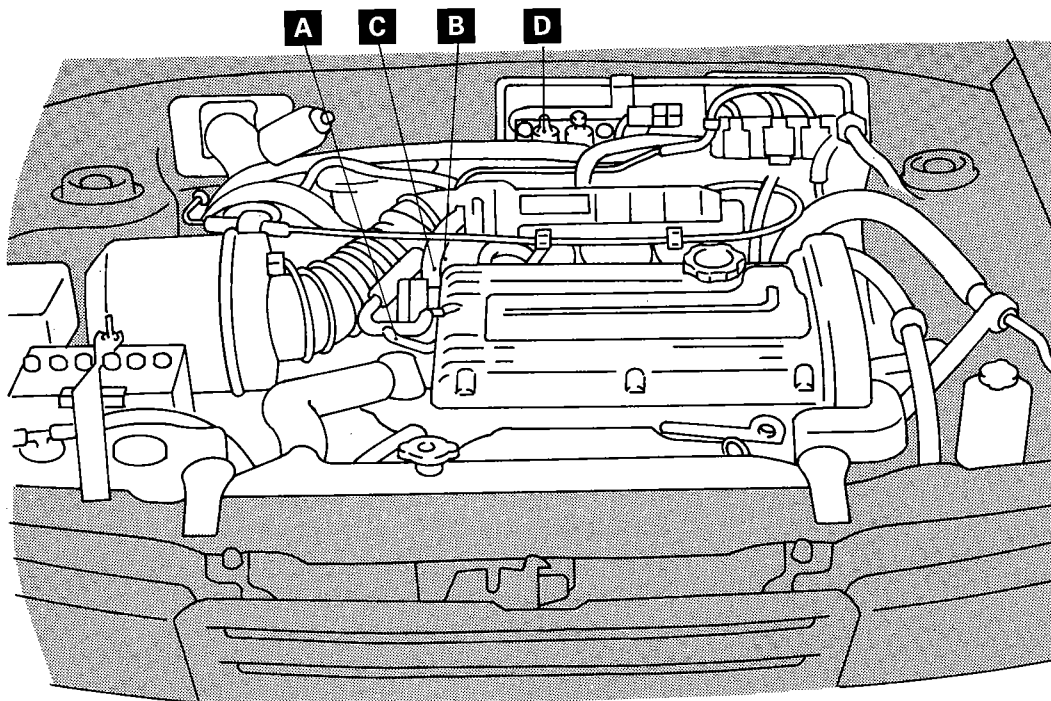


1FU0287

Name	Symbol
EGR control solenoid valve <California>	D
EGR temperature sensor <California>	C
EGR valve	B
Thermo valve <Federal and Canada>	A

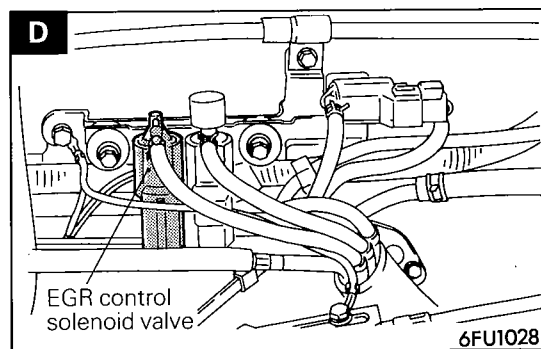
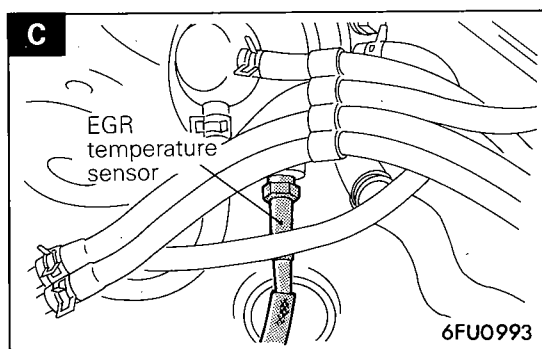
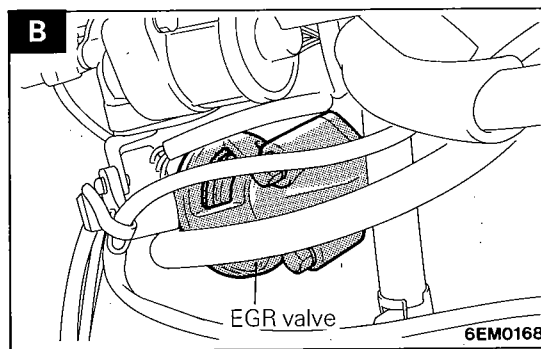
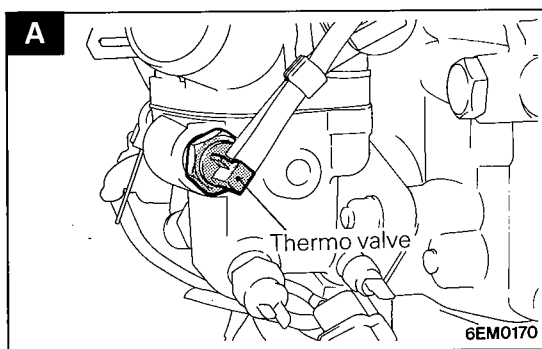


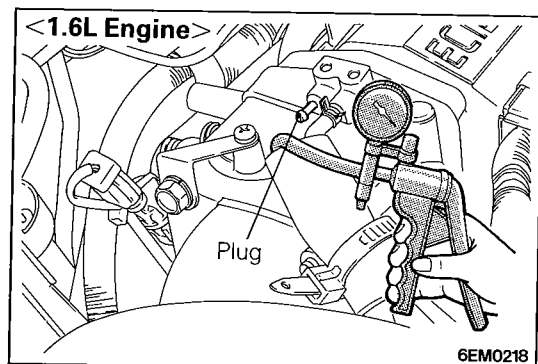
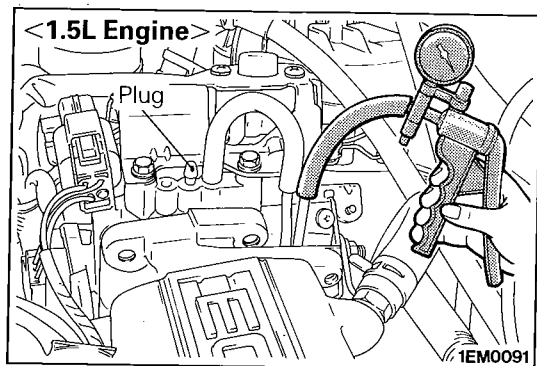
<1.6L Engine>



6FU1022

Name	Symbol
EGR control solenoid valve <California>	D
EGR temperature sensor <California>	C
EGR valve	B
Thermo valve <Federal and Canada>	A





EGR SYSTEM INSPECTION <Federal and Canada>

N25ICJG

- (1) Disconnect the vacuum hose (green stripe) from the throttle body, and connect a hand vacuum pump to the vacuum hose.
- (2) Plug the nipple from which the vacuum hose was removed.
- (3) Under the engine conditions shown below, check by applying vacuum from a hand vacuum pump.

When engine is cold – engine coolant temperature: 50°C (122°F) or below

Engine operating condition	Applying vacuum	Result
Idling	Try applying vacuum	Vacuum leaks

When engine is hot – engine coolant temperature: 85 – 95°C (185 – 205°F) or higher

Engine operating condition	Applying vacuum	Result
Idling	6 kPa (1.8 in.Hg)	Vacuum is maintained
Changes from idling to slightly unstable	26 kPa (7.7 in.Hg)	Vacuum is maintained

EGR SYSTEM INSPECTION <California>

N25ICJGa

- (1) Disconnect the green striped vacuum hose from the EGR valve, and using a three-way terminal, connect a hand vacuum pump as shown.
- (2) Perform checks as follows both for when the engine is not hot [engine coolant temperature 20°C (68°F) or lower] and when the engine is hot [engine coolant temperature 70°C (158°F) or higher].

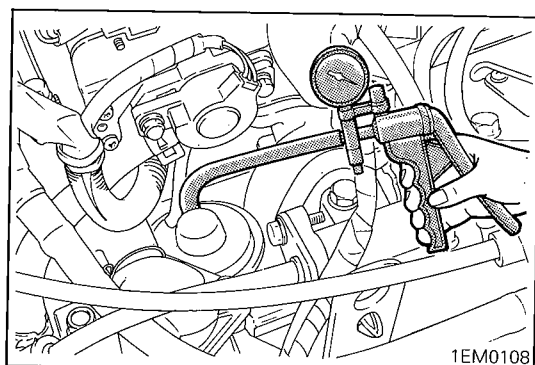
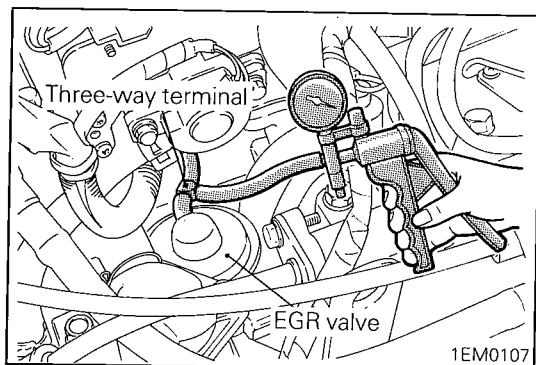
When engine is not hot

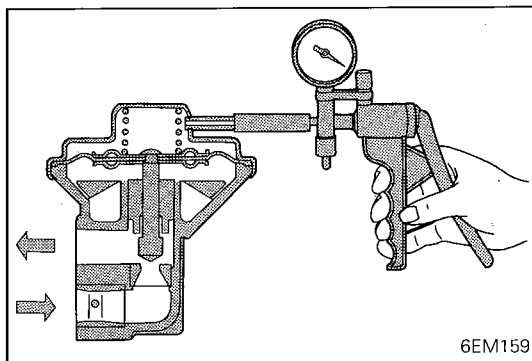
Engine operating condition	Normal result
Quickly depress the accelerator pedal to race the engine.	No change in vacuum is detected (atmospheric pressure).

When engine is hot

Engine operating condition	Normal result
Quickly depress the accelerator pedal to race the engine.	Vacuum increases to 114 kPa (3.9 in.Hg) or higher level.

- (3) Remove the three-way terminal and connect the hand vacuum pump directly to the EGR valve.
- (4) Apply a vacuum of 26 kPa (7.7 in.Hg) to the EGR valve while running the engine at idle, and make sure that the engine stalls or the idle speed becomes unstable.





EGR VALVE

N25ICKFa

INSPECTION

- (1) Remove the EGR valve and check it for sticking, deposit of carbon, etc.
If such condition exists, clean with adequate solvent to ensure tight valve seat contact.
- (2) Connect a hand vacuum pump to the EGR valve.
- (3) Apply a vacuum of 67 kPa (19.8 in.Hg) and check air-tightness.
- (4) Blow in air from one passage of the EGR to check condition as follows.

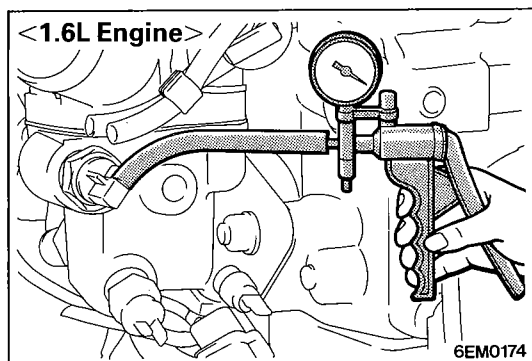
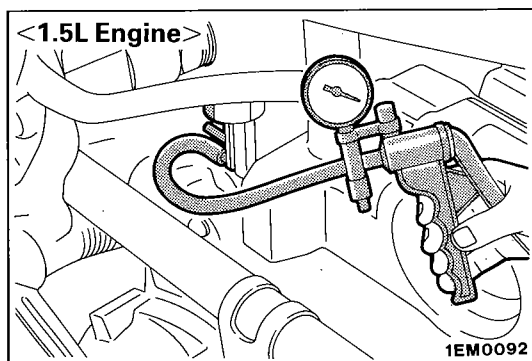
Applying vacuum	Result
6 kPa (1.8 in.Hg) or less	Air does not blow through
26 kPa (7.7 in.Hg) or more	Air blows through

INSTALLATION

Install a new gasket and EGR valve, tighten bolts to specified torque.

Specified tightening torque:

<1.5L Engine>	10 – 15 Nm (7.2 – 10 ft.lbs.)
<1.6L Engine>	15 – 22 Nm (10 – 15.5 ft.lbs.)



THERMO VALVE <Federal and Canada>

N25ICNGa

INSPECTION

- (1) Disconnect the vacuum hoses from the thermo valve, and connect a hand vacuum pump to nipple of the thermo valve.
- (2) Apply a vacuum and check the air passage through the thermo valve.

Engine coolant temperature	Result
50°C (122°F) or less	Vacuum leaks
80°C (176°F) or more	Vacuum is maintained

REMOVAL

- (1) When removing the thermo valve, do not use wrenches or other tools on the resin part.
- (2) When disconnecting the vacuum hoses, put a mark on the hose so that it may be reconnected at original position.

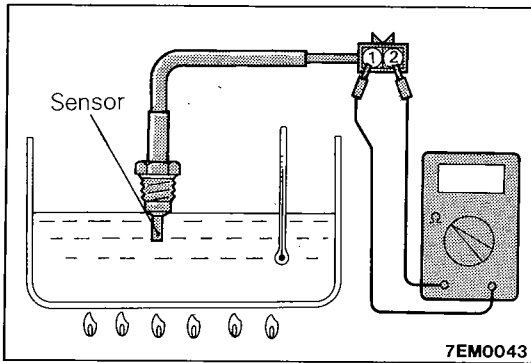
INSTALLATION

- (1) Apply specified sealant to the threads of thermo valve and tighten to specified torque. When installing the thermo valve, do not use wrenches or other tools on the resin part.

Specified sealant: 3M NUT Locking No. 4171 or equivalent

Specified torque: 20 – 40 Nm (15 – 30 ft.lbs.)

- (2) Reconnect the vacuum hoses in position.

**EGR TEMPERATURE SENSOR <California>**

N251CZB

INSPECTION

- (1) Remove the EGR temperature sensor.
- (2) Place the EGR temperature sensor in water, and then measure the resistance value between terminals 1 and 2 while increasing the water's temperature. Replace the EGR temperature sensor if there is a significant deviation from the standard value.

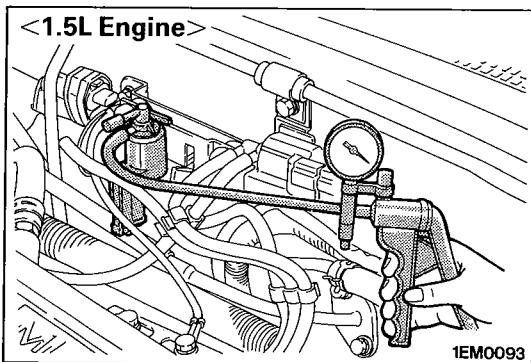
Temperature °C (°F)	Resistance k Ω
50 (122)	60 – 83
100 (212)	11 – 14

INSTALLATION

Install the EGR temperature sensor tighten to specified torque.

Specified tightening torque:

10 – 12 Nm (7.3 – 8.6 ft.lbs.)

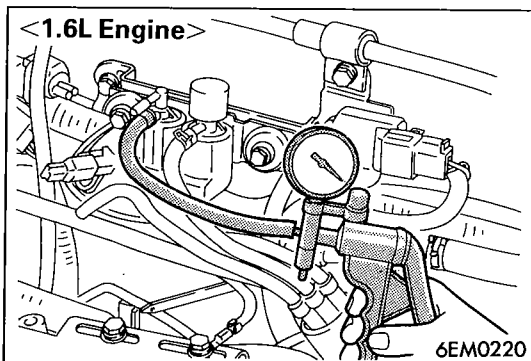
**EGR CONTROL SOLENOID VALVE <California>**

N251CRB

INSPECTION**NOTE**

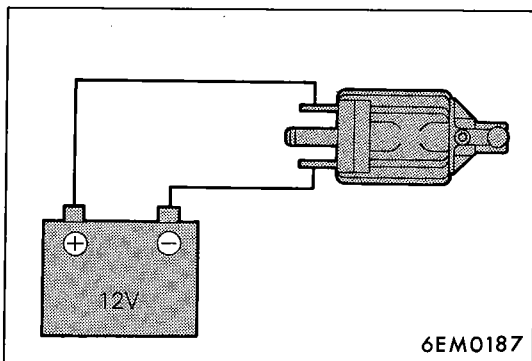
When disconnecting the vacuum hose, make an identification mark on it so that it can be reconnected to the original position.

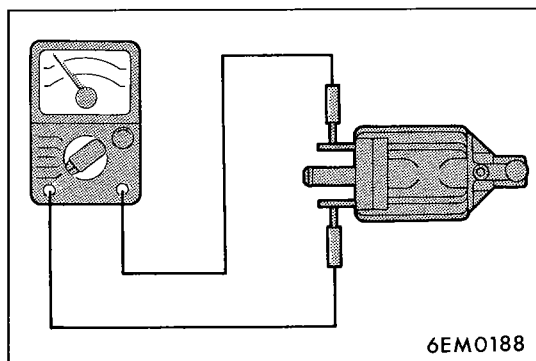
- (1) Disconnect the vacuum hose (yellow and green stripe) from the solenoid valve.
- (2) Disconnect the harness connector.
- (3) Connect a hand vacuum pump to the nipple to which the green-striped vacuum hose was connected.



- (4) Apply a vacuum and check for air-tightness when voltage applied directly to the EGR control solenoid valve and when the voltage is discontinued.

Battery voltage	Result
When applied	Vacuum is maintained
When discontinued	Vacuum leaks



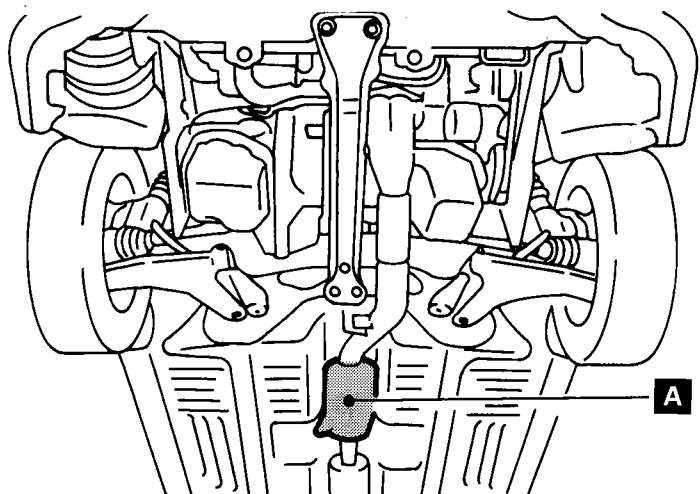


- (5) Measure the resistance between the terminals of the solenoid valve.

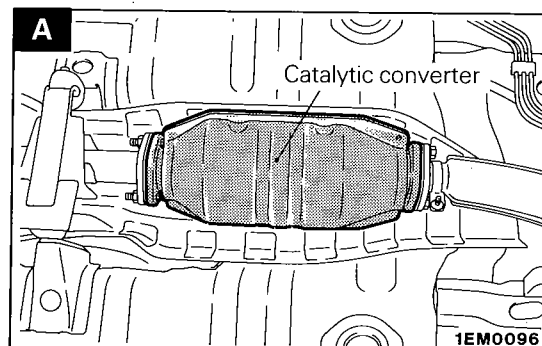
Standard value: 36 – 44 Ω [at 20°C (68°F)]

CATALYTIC CONVERTER

COMPONENTS LOCATION

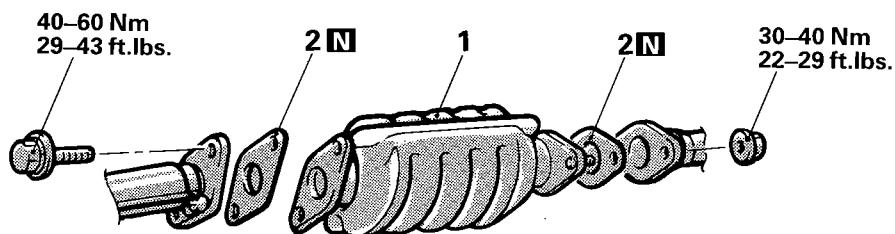


1EM0099



Name	Symbol
Catalytic converter	A

REMOVAL AND INSTALLATION



01P0115

Removal steps

1. Catalytic converter
2. Gasket

NOTE

- (1) Reverse the removal procedures to reinstall.
- (2) **N**: Non-reusable parts