EMISSION CONTROL SYSTEM

CONTENTS

N25AA-

EMISSION CONTROL SYSTEM <2.6L ENGINE>

SPECIFICATIONS

GENERAL SPECIFICATIONS

N25CA-

Crankcase emission control system	Closed type with positive crankcase ventilation valve
Evaporative emission control system	
Canister	Equipped
Two-way valve	Equipped
Purge control valve	Single diaphragm type
Bowl vent valve	Vacuum type
Exhaust emission control system	
Jet control combustion type system	Jet swirl type
Air fuel ratio control system - FBC system	Oxygen sensor feedback type
Secondary air supply system	
Reed valve	With air control valve
Secondary air control solenoid valve	ON/OFF solenoid valve
Exhaust gas recirculation system	
EGR valve	Single type
Vacuum regulator valve	With vacuum control
Thermo valve	Wax type
High altitude compensation system–Federal/California and High altitude vehicles for Federal	
High altitude compensator	Bellow type
Intake air temperature control system	Vacuum control type
Mixture control valve	Differential pressure type valve
Catalytic converter	Monolith type
Location	Under floor

SERVICE SPECIFICATIONS

N25CB-A

Items	Specifications
Secondary air control solenoid valve coil resistance Ω	36–44 [at 20°C (68°F)]
Thermo valve temperature (vacuum holds) °C (°F)	18 (64) or more 65 (149) or more
High altitude compensator operating altitude m (ft.)	Approx. 1,200 (3,900)

TORQUE SPECIFICATIONS

N25CC-A

Items	Nm	ft.lbs.
Secondary air pipe control valve side joint	50–60	37–44
Secondary air pipe exhaust manifold side joint	70–100	52–74
EGR valve attaching bolt	19–28	14–20
Thermo valve	20–40	15–30

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SEALANTS AND ADHESIVES

N25CE-A

Items	Specified sealants and adhesives	Quantity
Thermo valve	3M Adhesive Nut Locking 4171 or equivalent	As required

TROUBLESHOOTING

N25EA-A

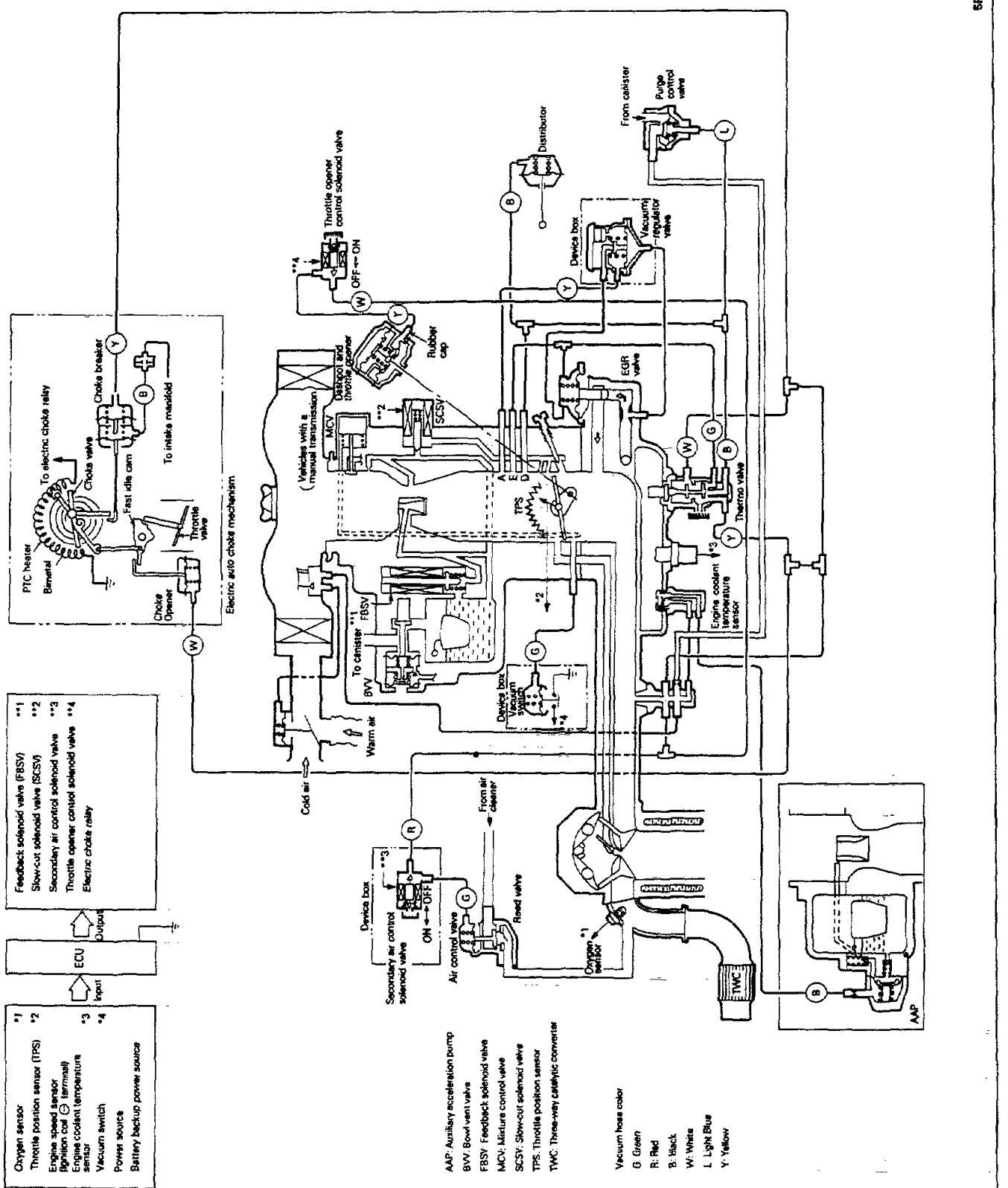
Symptom	Probable cause	Remedy
Engine will not start or is hard to start (Cranking possible)	Vacuum hose disconnected or damaged	Repair or replace
	Mixture control valve kept open	Replace
	EGR valve kept open	Repair or replace
Rough idle or engine stalls	Vacuum hose disconnected or damaged	Repair or replace
	High altitude compensation system faulty – Federal/California and High-altitude vehicles for Federal	Troubleshoot the system and check components under suspicion
	EGR valve kept open	Repair or replace
	Faulty purge control system	Troubleshoot the system and check components under suspicion
	Faulty bowl vent valve	Replace
	Mixture control valve kept open	Replace
	Faulty positive crankcase ventilation valve	Replace
Engine hesitates or poor acceleration	Exhaust gas recirculation system faulty	Troubleshoot the system and check each component under suspicion
	High altitude compensation system faulty – Federal/California and High-altitude vehicles for Federal	Troubleshoot the system and check components under suspicion
	Thermo valve faulty – cold engine	Replace
	Intake air temperature control system faulty	Troubleshoot the system and check components under suspicion
Poor fuel mileage	Intake air temperature control system faulty	Troubleshoot the system and check components under suspicion
	Exhaust gas recirculation system faulty	Troubleshoot the system and check components under suspicion
	High altitude compensation system faulty – Federal/California and High-altitude vehicles for Federal	Troubleshoot the system and check components under suspicion

VACUUM HOSES

N25JA-A

VACUUM HOSES ROUTING

<FEDERAL EXCEPT HIGH-ALTITUDE VEHICLES>



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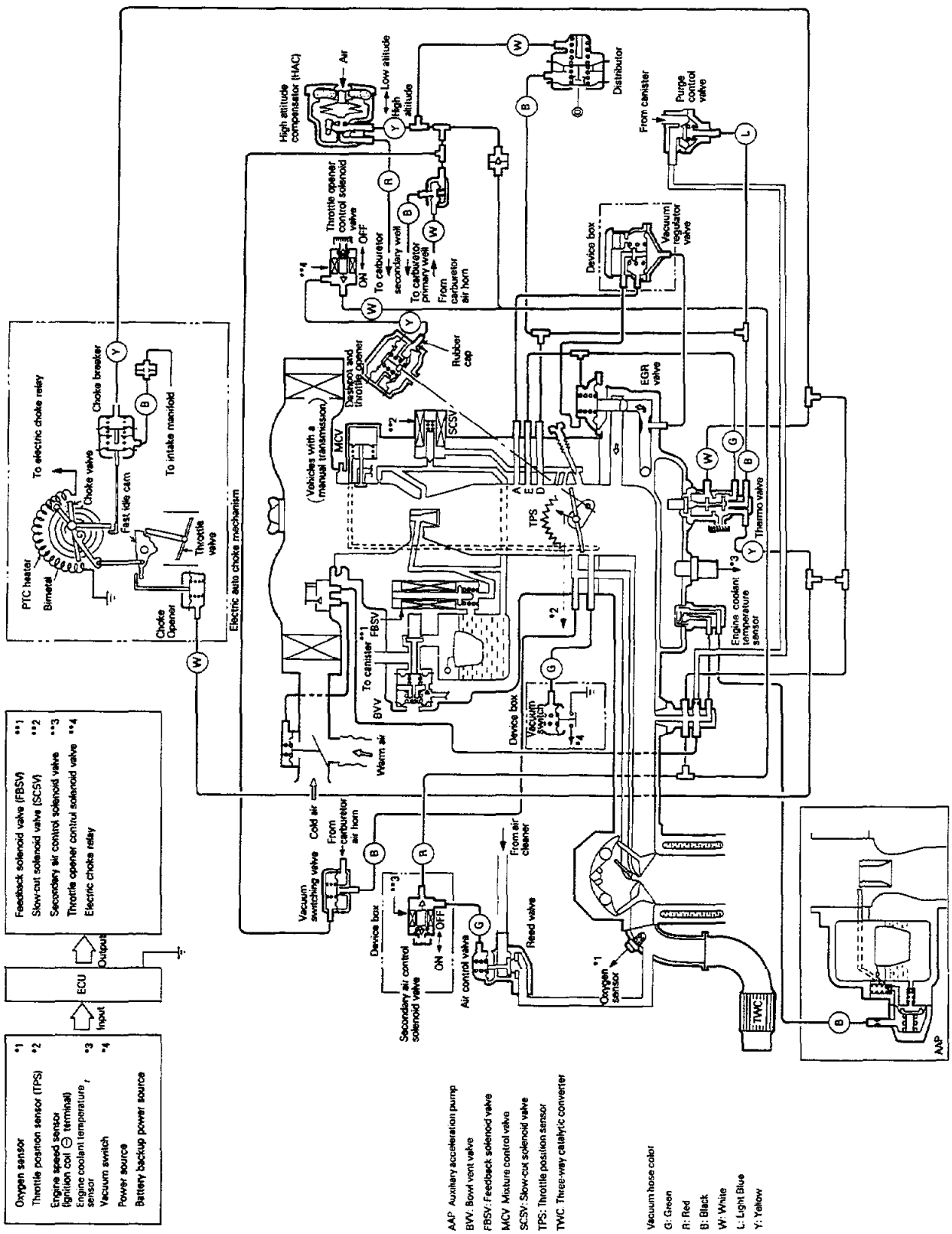

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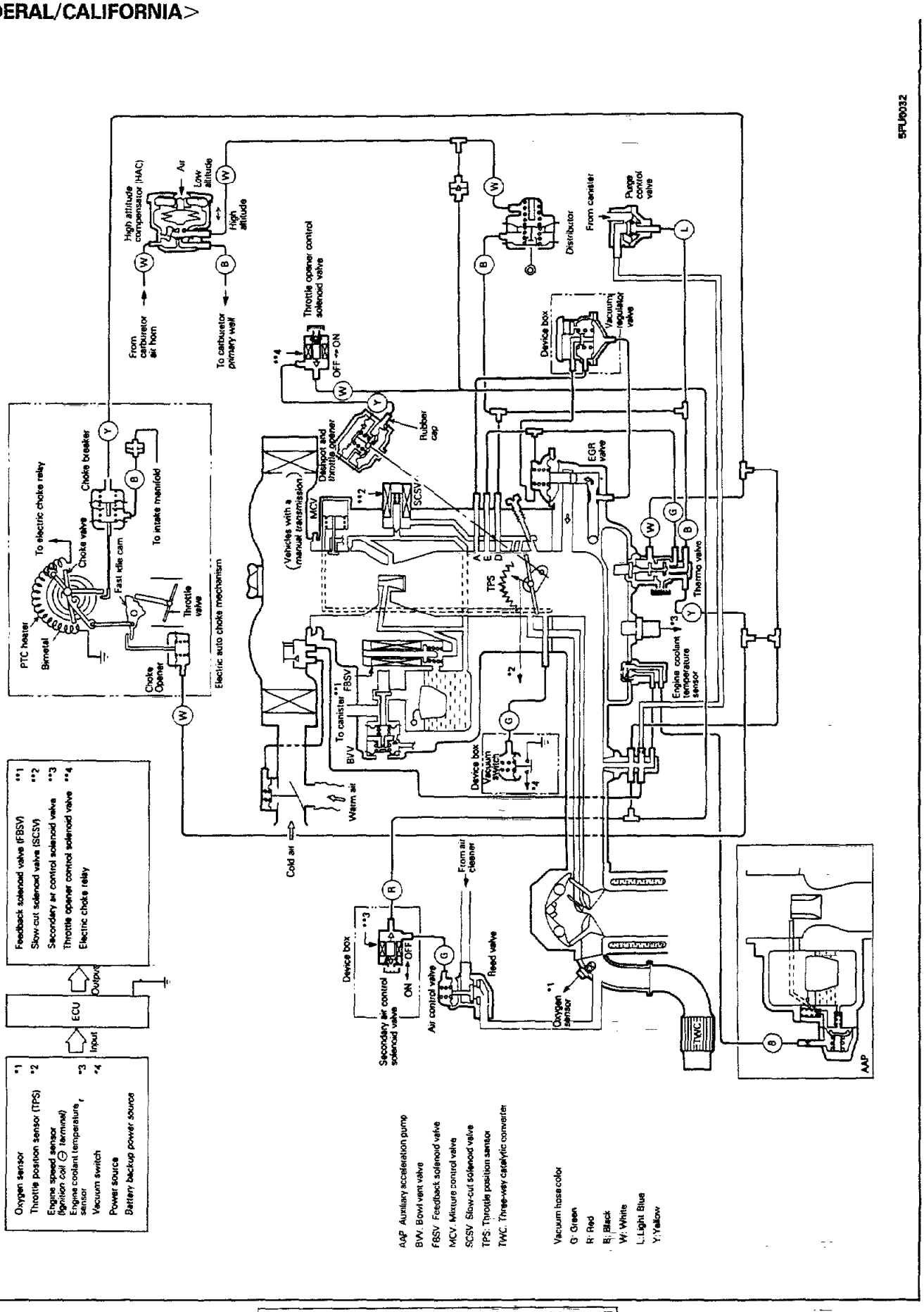

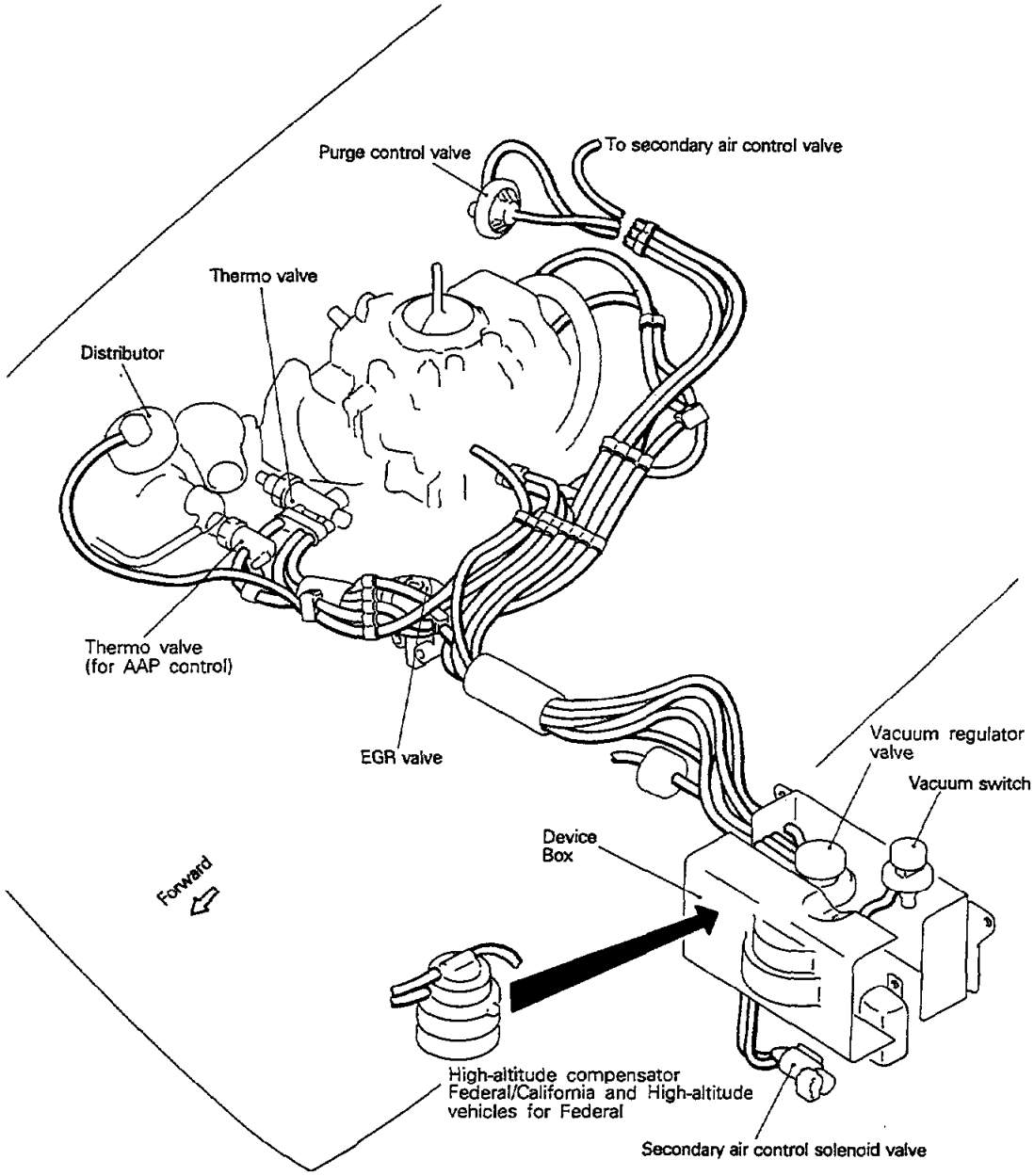

INSPECTION N25JCAE1

(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 N25JDAE1

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

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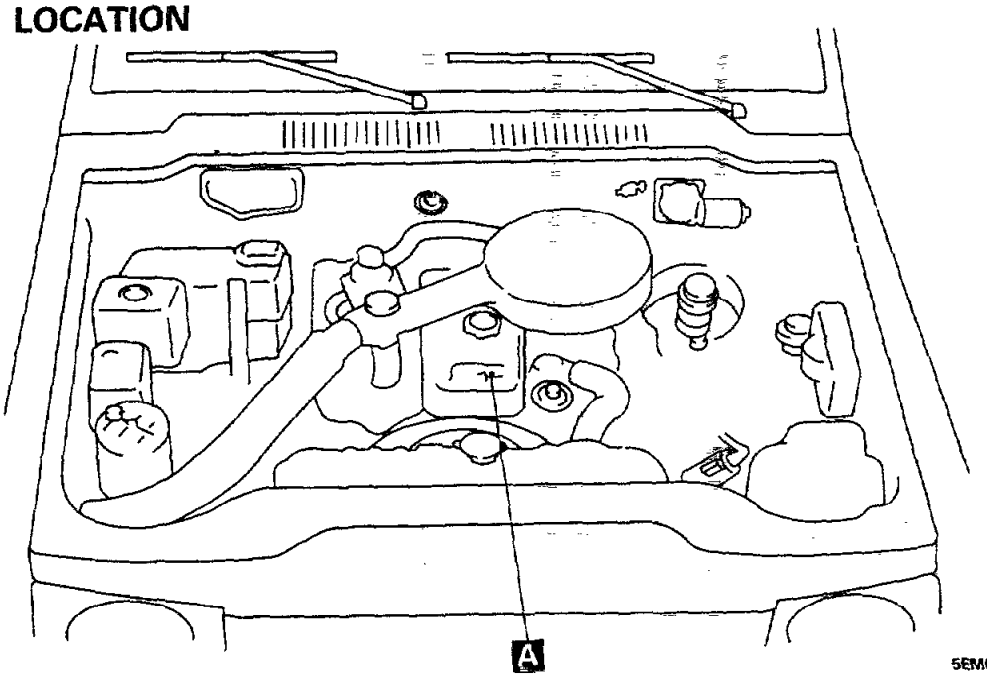
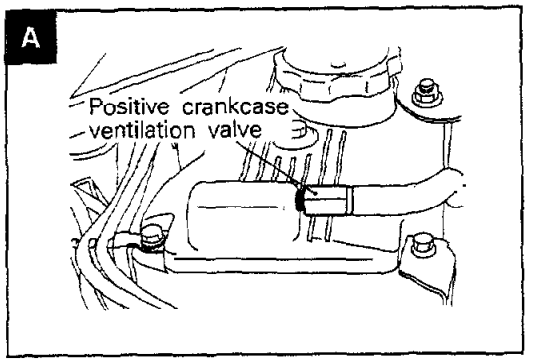
CRANKCASE EMISSION CONTROL SYSTEM

N25IA-A

COMPONENTS LOCATION





Name	Symbol
Positive crankcase ventilation valve	A

POSITIVE CRANKCASE VENTILATION (PCV) VALVE

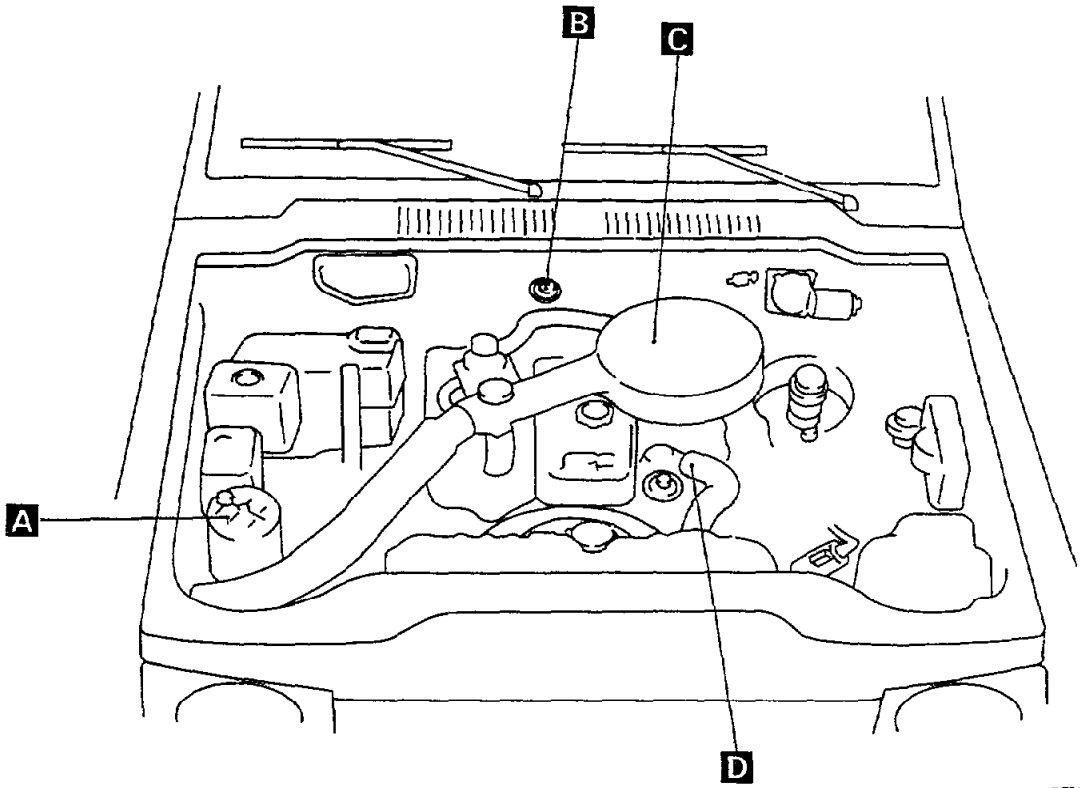
N25IAAE

For information concerning the checking of the positive crankcase ventilation valve, refer to GROUP 0 – Maintenance Service.

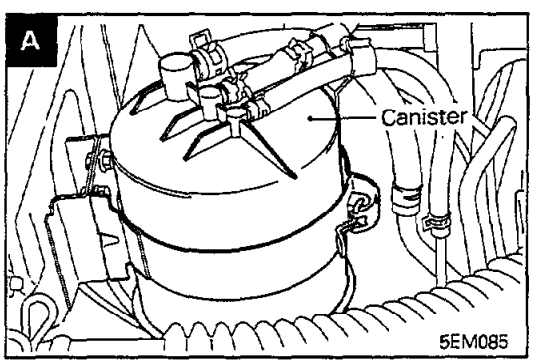
EVAPORATIVE EMISSION CONTROL SYSTEM

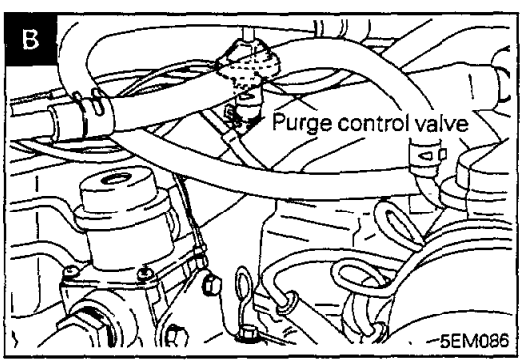
N2518-A

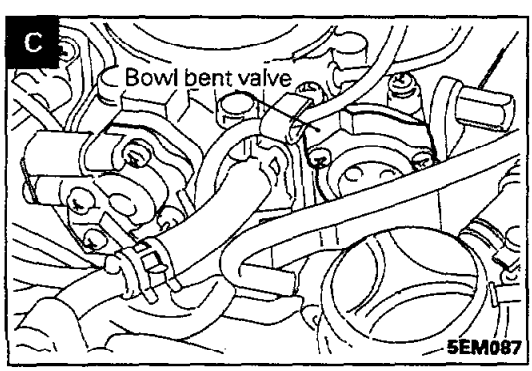
COMPONENTS LOCATION

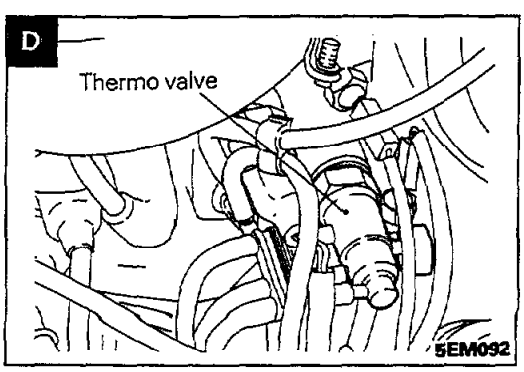


Name	Symbol	Name	Symbol
Bowl vent valve	C	Purge control valve	B
Canister	A	Thermo valve	D









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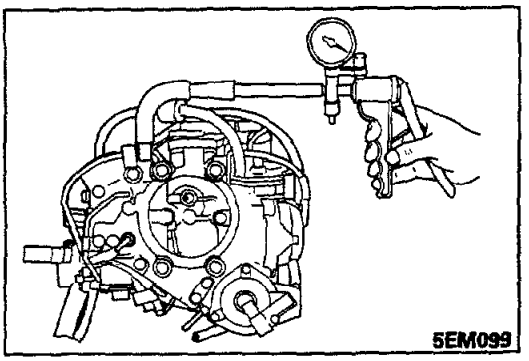
BOWL VENT VALVE (BVV) N25IBAB

INSPECTION

Caution
Check after the engine is allowed to cool enough. If the engine is not cold, fuel could gush out from the bowl vent valve.

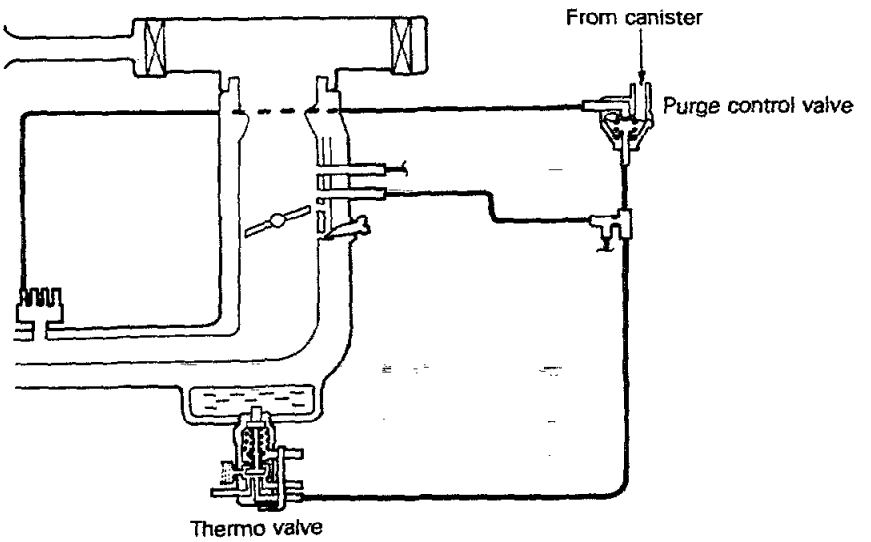
(1) Remove the air cleaner.
(2) Disconnect the bowl vapor hose from the bowl vent valve nipple and connect a hand vacuum pump to the bowl vent valve nipple.


5EM099

(3) Apply a vacuum of 20 kPa (6.1 in.Hg) to the bowl vent valve to check the condition as follows.

Engine state	Normal condition
Stopped	Vacuum leaks
Idling	Vacuum holds

PURGE CONTROL SYSTEM N25IBBA



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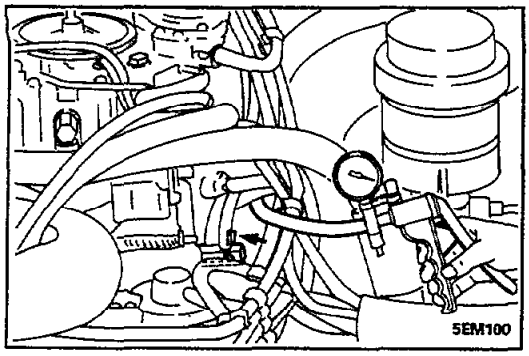


INSPECTION

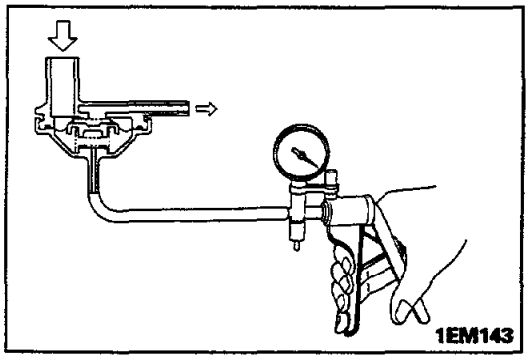
(1) Disconnect the black vacuum hose from the intake manifold nipple and plug the nipple. Then, connect a hand vacuum pump to the disconnected black vacuum hose.
(2) Check the following both when the engine is cold [engine coolant temperature 50°C (122°F) or less] and when it is hot [engine coolant temperature 85 to 95°C (185 to 205°F)]

When engine is cold

Vacuum	Engine state	Normal condition
53 kPa (15.7 in.Hg)	2,500 rpm	Vacuum is held

When engine is hot

Vacuum	Engine state	Normal condition
53 kPa (15.7 in.Hg)	Idling	Vacuum is held
53 kPa (15.7 in.Hg)	2,500 rpm	Vacuum leaks



PURGE CONTROL VALVE

N25IBCD

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) to check air tightness.
(4) Blow in air lightly from the canister side nipple to check conditions as follows.

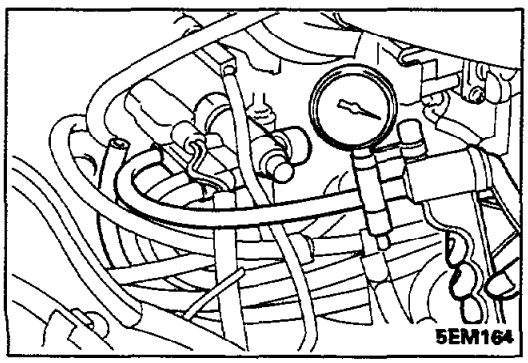
Hand vacuum pump vacuum	Normal condition
0 kPa (No vacuum is applied)	Air does not blow through
27 kPa (7.9 in.Hg) or more	Air blows through

THERMO VALVE

N25IBDH

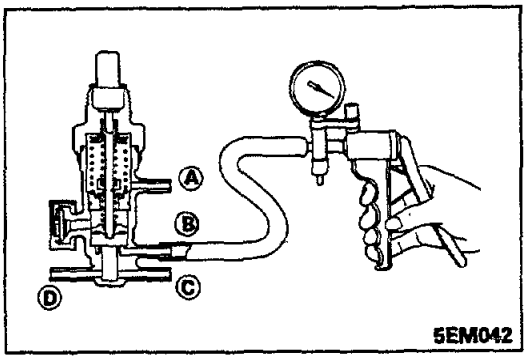
INSPECTION

NOTE
This thermo valve also controls the choke breaker, EGR and choke opener.



(1) Disconnect the vacuum hose (white stripe) from the thermo valve and connect a hand vacuum pump to the thermo valve.
(2) Apply vacuum to check thermo valve condition as follows.

Engine coolant	Normal condition
10°C (50°F) or less	Vacuum leaks
18°C (65°F) or more	Vacuum holds



(3) Disconnect all vacuum hoses from the thermo valve.
(4) Connect a hand vacuum pump to nipples (B), (C) and (D) and apply vacuum to check thermo valve condition as follows.

NOTE
Plug nipples other than one to which the hand vacuum pump is connected.

Engine coolant temperature	Normal condition
40°C (104°F) or less	Vacuum leaks
65°C (149°F) or more	Vacuum holds

REMOVAL

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

INSTALLATION

(1) When installing, apply specified sealant to the threads of thermo valve and tighten to specified torque.

Specified sealant : 3M Adhesive Nut Locking 4171 or equivalent
Specified torque : 20–40 Nm (15–30 ft.lbs.)

(2) When installing the thermo valve, do not use wrenches or other tools on the resin part.

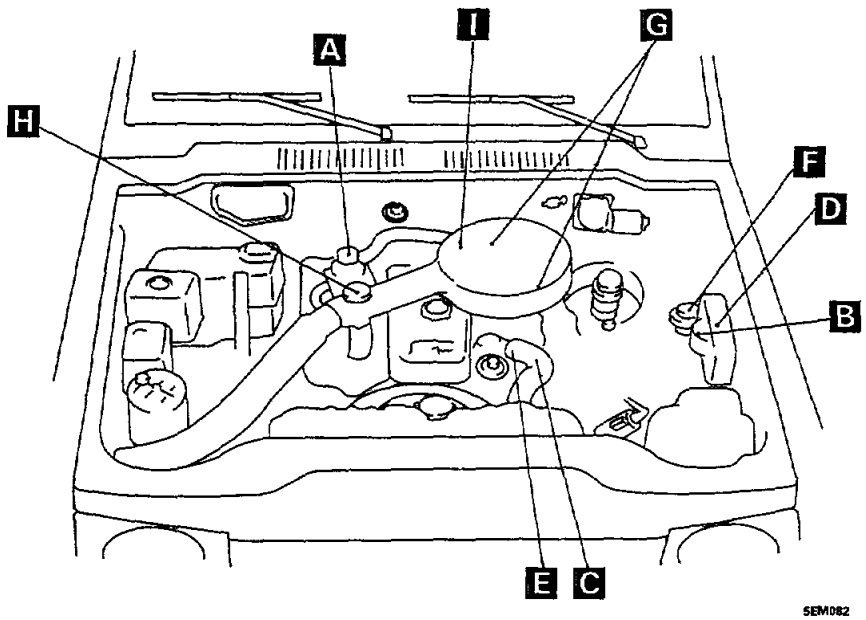
OVERFILL LIMITER (TWO-WAY VALVE) N2518EB

For information concerning the checking of the overfill limiter (two-way valve), refer to GROUP 14 – Fuel Tank.

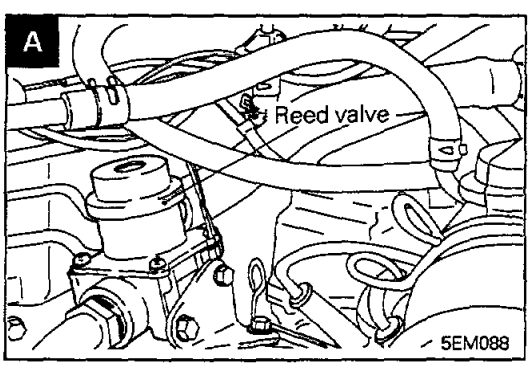
EXHAUST EMISSION CONTROL SYSTEM

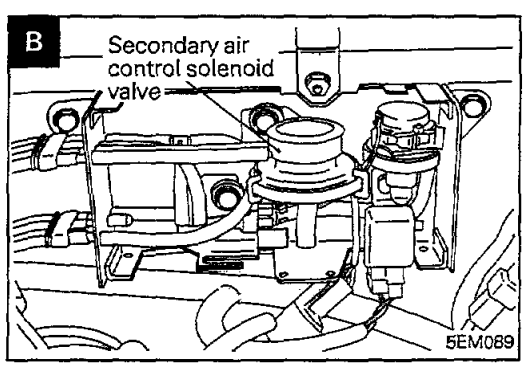
N25IC-A

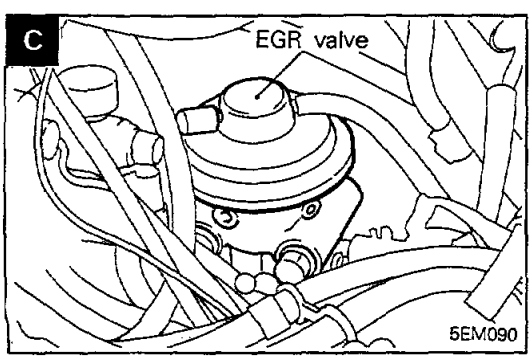
COMPONENTS LOCATION

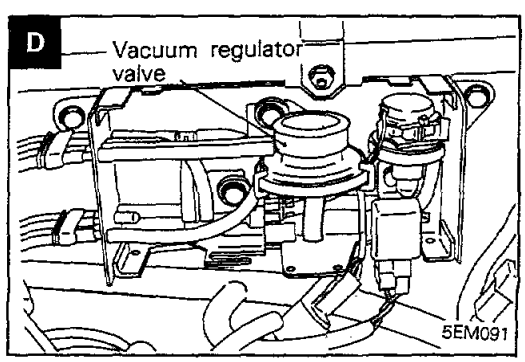


Name	Symbol	Name	Symbol
Air control valve	H	Reed valve	A
EGR valve	C	Secondary air control solenoid valve	B
High-altitude compensator <Federal/California and High-altitude vehicles for Federal>	F	Thermo valve	E
		Vacuum regulator valve	D
Mixture control valve	I	Vacuum switching valve <High-altitude vehicles for Federal>	G









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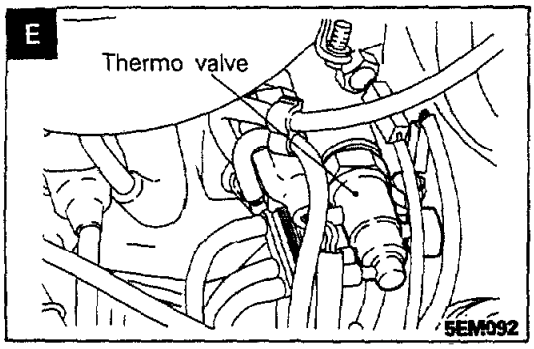

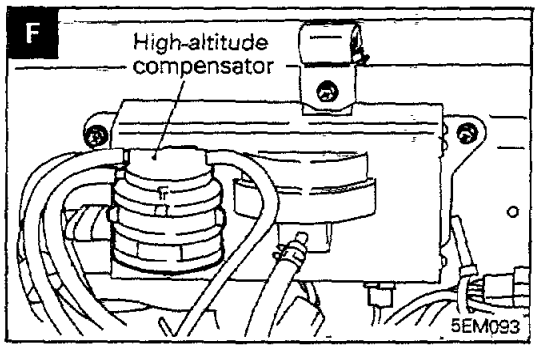

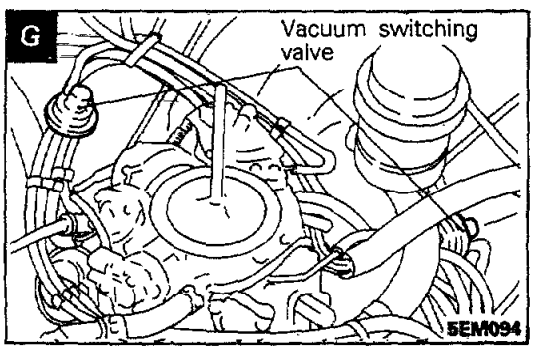

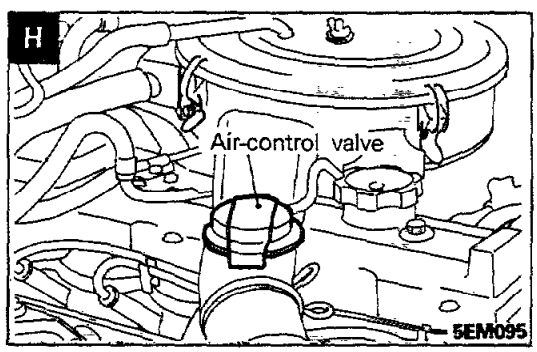

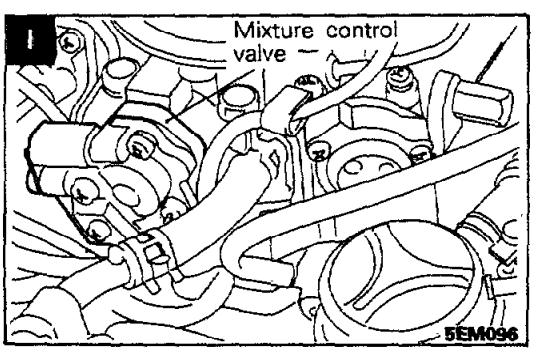

AIR-FUEL RATIO CONTROL (FBC) SYSTEM N25ICAE

For information concerning the checking of the air-fuel-ratio control (FBC) system, refer to GROUP 14 – Service Adjustment Procedures.

CATALYTIC CONVERTER N25ICBAE

REMOVAL AND INSTALLATION

For removal and installation procedures, refer to GROUP 11 – Exhaust Pipes and Main Muffler.

INSPECTION

Check for damage, cracks or fusion and replace if faulty.

Caution

1. **Operation of any type, including idling, should be avoided if engine misfiring occurs. Under this condition the exhaust system will operate at abnormally high temperature, which may cause damage to the catalyst or under-body parts of the vehicle.**

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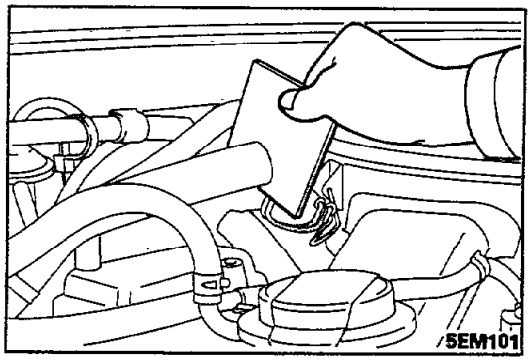
2. **Alteration or deterioration of ignition or fuel system, or any type of operating condition which results in engine misfiring must be corrected to avoid overheating the catalytic converters.**
3. **Proper maintenance and tuneup according to manufacturer's specifications should be made to correct the conditions as soon as possible.**



SECONDARY AIR SUPPLY SYSTEM

N25ICCAa

INSPECTION

(1) Disconnect the air supply hose from the air cleaner and hold a small steel plate at the disconnected hose end to check air suction.

Engine coolant temperature	Engine state	Air suction
20–40°C (68–104°F)	Idling	Yes
70°C (158°F) or more		Yes (within 70 seconds after start)
		No (70 seconds or more after start)
	Rapid deceleration from 4,000 rpm	Yes

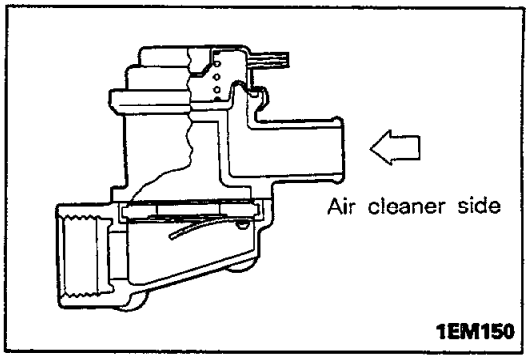
Caution
Note that if secondary air control valve is broken, emission may blow back.

SECONDARY AIR CONTROL VALVE

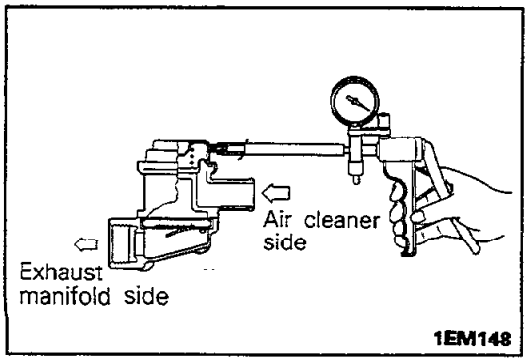
N25ICFAb

INSPECTION

(1) Remove the secondary air control valve
(2) Blow in air from the air cleaner side to check that air does not blow through.
(3) Connect a hand vacuum pump to the secondary air control valve nipple.
(4) Apply a vacuum of 67 kPa (19.7 in.Hg) and check air tightness.
(5) Apply a vacuum of 20 kPa (6.1 in.Hg) and blow in air to check condition as follows.

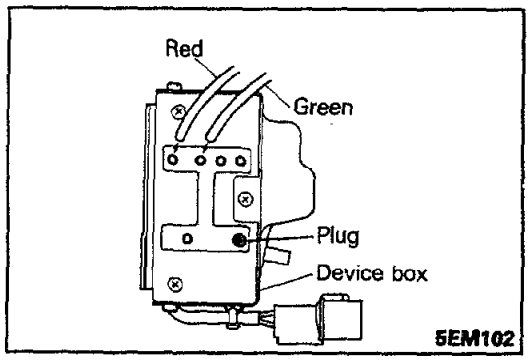


Air blow direction	Normal condition
Air cleaner side to exhaust manifold side	Air blows through
Exhaust manifold side to air cleaner side	Air does not blow through



(6) If any fault is found in above checks, replace the secondary air control valve.

Secondary air control valve specified tightening torque:
50–60 Nm (37–44 ft.lbs.)



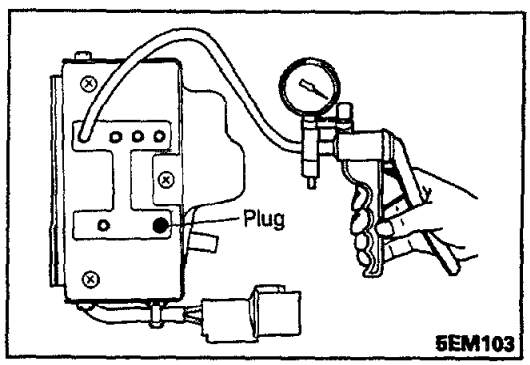
SECONDARY AIR CONTROL SOLENOID VALVE

N25ICGC

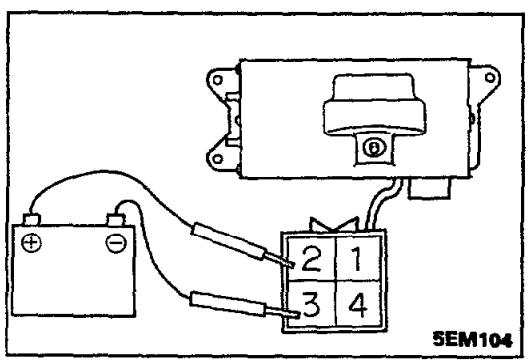
INSPECTION

NOTE
When disconnecting the vacuum hose, put a mark on the hose so that it may be reconnected at original position.

(1) Disconnect the vacuum hoses, (red stripe, green stripe) from the device box.
(2) Disconnect the harness connector.

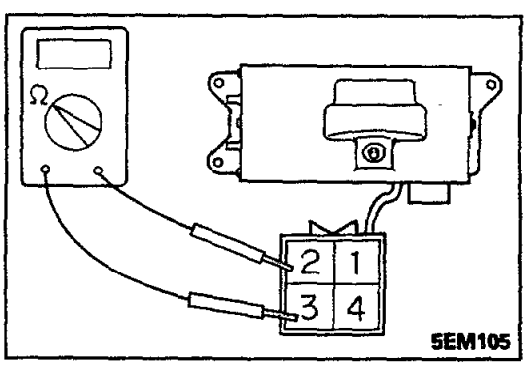


(3) Connect a hand vacuum pump to the nipple to which red stripe vacuum hose has been connected.



(4) Apply vacuum and check air tightness both when the battery voltage is applied directly to the solenoid valve terminal and when not applied

Battery voltage	Other nipple of device box	Normal condition
When applied	Open	Vacuum leaks
	Closed with finger	Vacuum holds
When not applied	Open	Vacuum holds



(5) Measure solenoid coil resistance.

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

ENGINE COOLANT TEMPERATURE SENSOR, ENGINE SPEED SENSOR AND VACUUM SWITCH

N25ICHA

For information concerning the checking of these components, refer to GROUP 14 – Service Adjustment Procedures.

THERMO VALVE

N25ICNI

For information concerning the checking of the thermo valve, refer to the section PURGE CONTROL SYSTEM (page 25-10.)

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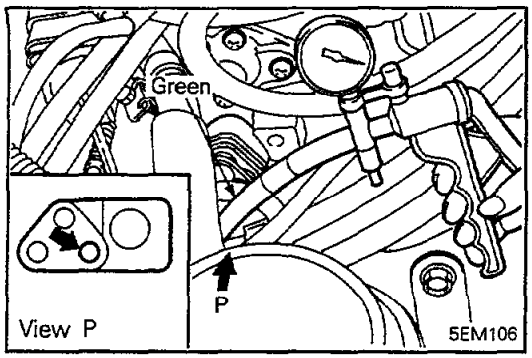


EXHAUST GAS RECIRCULATION (EGR) SYSTEM
N25ICJA

INSPECTION

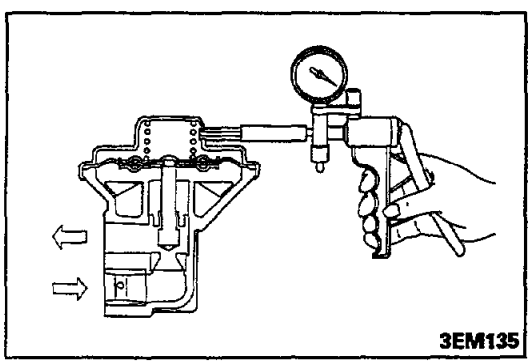
(1) Disconnect the vacuum hose (green stripe) from the carburetor throttle body and connect a hand vacuum pump to the vacuum hose.
(2) Check the following both when the engine is cold [engine coolant temperature 45°C (113°F) or less] and when it is hot [engine coolant temperature 85 to 95°C (185 to 205°F)]

When engine is cold

Vacuum	Engine state	Normal condition
Apply vacuum	3,500 rpm	Vacuum leaks - from thermo valve into atmosphere

When engine is hot

Vacuum	Engine state	Normal condition
Apply vacuum	Idling	Vacuum leaks
	3,500 rpm	Leaks until vacuum reaches about 11 kPa (3.1 in.Hg)



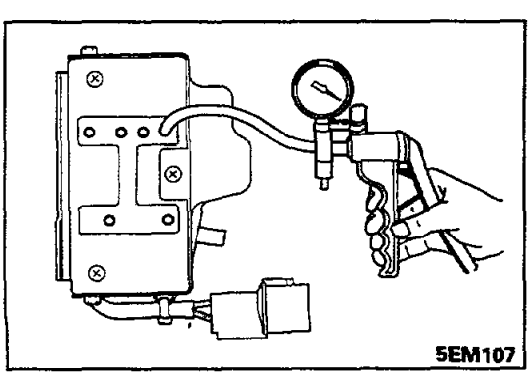
EGR VALVE
N25ICKA

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 (19.7 in.Hg) and check air tightness.
(4) Blow in air from one passage of the EGR to check condition as follows.

Vacuum	Normal condition
8 kPa (2.4 in.Hg) or less	Air does not blow through
23 kPa (6.7 in.Hg) or more	Air blows through

Caution
When installing the EGR, use a new gasket and tighten to 7 to 11 Nm (5 to 8 ft.lbs.)



VACUUM REGULATOR VALVE (VRV)
N25ICLA

INSPECTION

(1) Disconnect the vacuum hose (white stripe) from the device box and connect a hand vacuum pump to the device box.
(2) Apply a vacuum of 53 kPa (15.7 in.Hg) and check VRV condition as follow.

Engine state	Normal condition
Stopped	Vacuum leaks
3,500 rpm	Vacuum holds

EGR VALVE CONTROL VACUUM AND VRV CONTROL VACUUM

N25ICMAa

For information concerning the checking of these components, refer to GROUP 14 – Service Adjustment Procedures.

THERMO VALVE

N25ICNAa

For information concerning the checking of the thermo valve, refer to the section PURGE CONTROL SYSTEM (page 25-10).

HIGH-ALTITUDE COMPENSATION SYSTEM – High-altitude vehicles for Federal

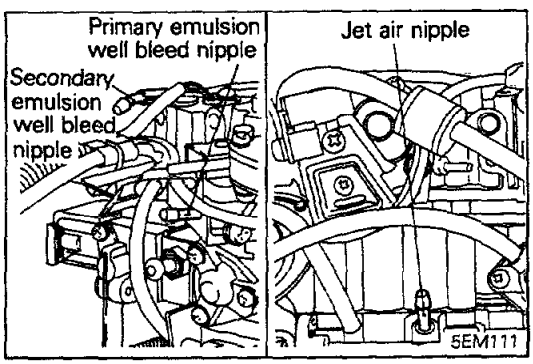
N25ICOEa

NOTE
When disconnecting the vacuum hose, put a mark on the hose so that it may be reconnected at original position.

Inspection Condition

Engine coolant temperature : 85–95°C (185–205°F)

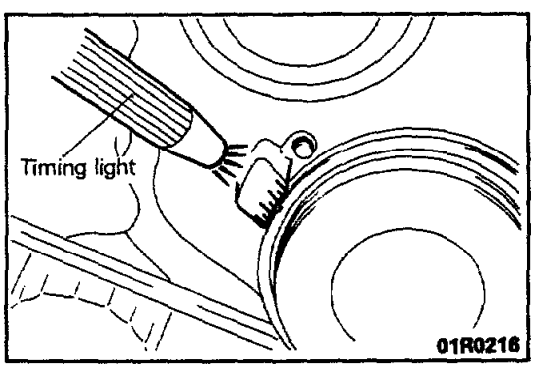
(1) Set the timing light.
(2) Remove the air cleaner.
(3) Disconnect the vacuum hoses (black, red stripe, black) from the carburetor primary emulsion well bleed nipple, secondary emulsion well bleed nipple and jet air nipple and plug the nipples.
(4) Connect a hand vacuum pump to the vacuum hoses, one hose at a time, and check air tightness while running the engine at idle.



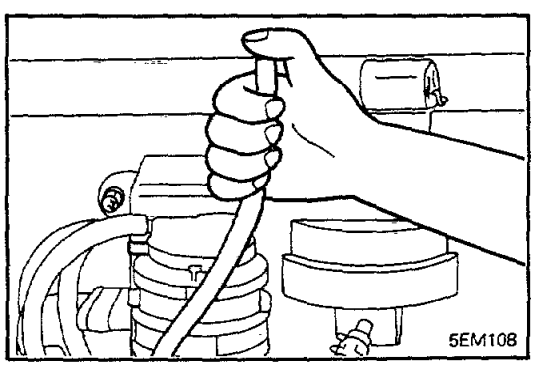
Step	vacuum hose	Normal condition
1	Primary emulsion well (black)	Vacuum holds
2	Secondary emulsion well (red stripe)	
3	Jet air (black)	

(5) Connect the disconnected vacuum hoses to original position.
(6) Run the engine at idle and check ignition timing.

Standard value : 7°BTDC±2°



(7) While running the engine at idle, disconnect the vacuum hose (yellow stripe) from the HAC and put a finger at the hose end to check that vacuum is felt.

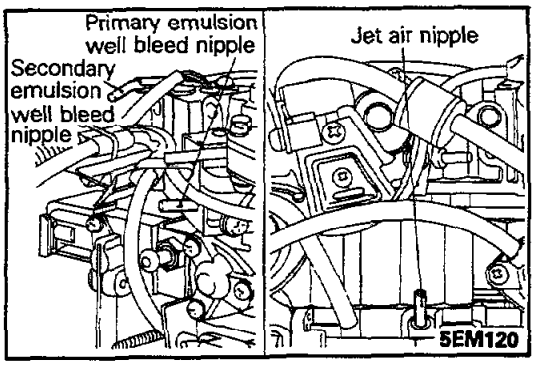


INSPECTION AT ALTITUDE ABOVE 1,200 m (3,900 ft.)

NOTE
When disconnecting the vacuum hose, put a mark on the hose so that it may be reconnected at original position.

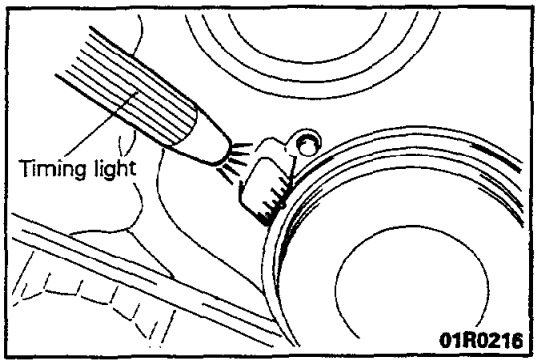
Inspection Condition

Engine coolant temperature : 85–95°C (185–205°F)
(1) Set the timing light.
(2) Remove the air cleaner.



(3) Disconnect the vacuum hoses (black, red stripe, black) from the carburetor primary emulsion well bleed nipple, secondary emulsion well bleed nipple and jet air nipple.
(4) Connect a hand vacuum pump to the vacuum hoses, one hose at a time, and check air tightness while running the engine at idle.

Step	Vacuum hose	Normal condition
1	Primary emulsion well (black)	Vacuum leaks
2	Secondary emulsion well (red stripe)	
3	Jet air (black)	

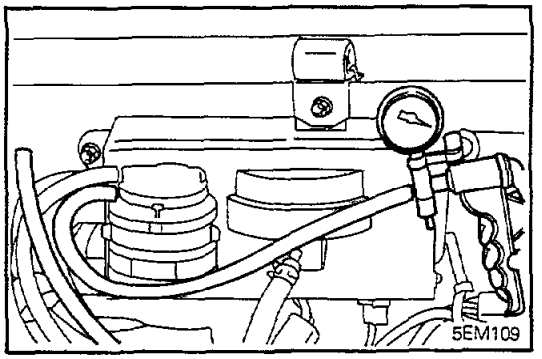


(5) Connect the disconnected vacuum hoses to original position.
(6) Run the engine at ilde and check ignition timing.

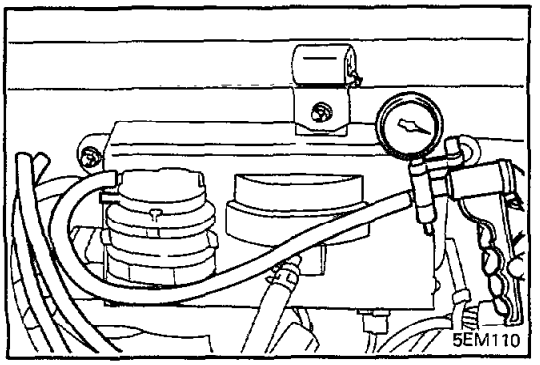
Standard value : Approx. 12°BTDC

HIGH-ALTITUDE COMPENSATOR (HAC) – High-altitude vehicles for Federal N25ICPCa

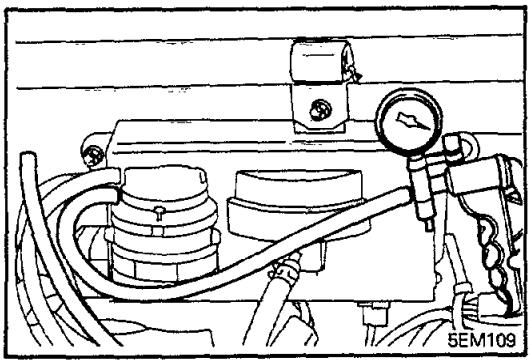
INSPECTION AT ALTITUDE BELOW 1,200 m (3,900 ft.)



(1) Disconnect the vacuum hose (yellow stripe) from the HAC and connect a hand vacuum pump to the HAC nipple.
(2) Apply vacuum and check that it leaks and does not hold.

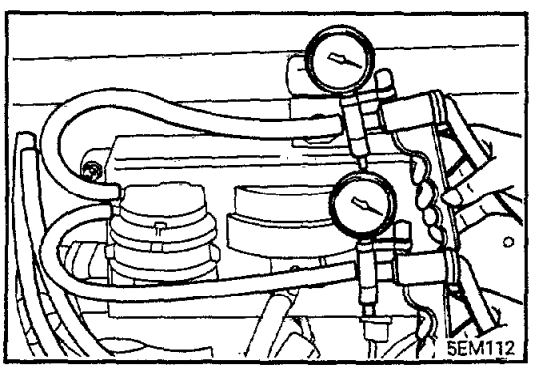


(3) Disconnect the vacuum hose (red stripe) from the HAC and connect a hand vacuum pump to the HAC nipple.
(4) Check that vacuum holds when applied.



INSPECTION AT ALTITUDE ABOVE 1,200 m (3,900 ft.)

(1) Disconnect the vacuum hose (yellow stripe) from the HAC and connect a hand vacuum pump to the HAC nipple.
(2) Check that vacuum holds when applied.

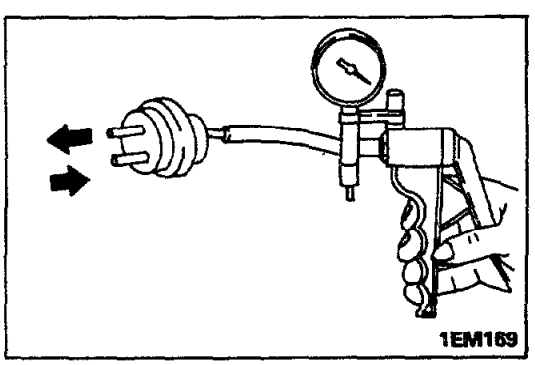


(3) Disconnect the vacuum hose (red stripe) from the HAC and connect another hand vacuum pump to the HAC nipple.
(4) With vacuum held as in step (2), check that vacuum leaks and dose not hold.

VACUUM SWITCHING VALVE (VSV) – High-altitude vehicles for Federal N25ICQC

INSPECTION

NOTE
When disconnecting the vacuum hose, put a mark on the hose so that it may be reconnected at original position.

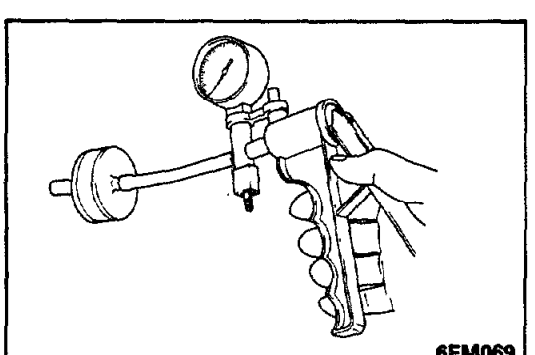


(1) Remove the vacuum switching valve.
(2) Connect a hand vacuum pump to the black vacuum nipple of the vacuum switching valve.
(3) Apply a vacuum of 53 kPa (15.7 in.Hg) and check air tightness.
(4) Blow in air lightly from the carburetor air bleed side nipple and check condition as follows.

Hand vacuum pump vacuum	Normal condition
27 kPa (7.9 in.Hg) or less	Air does not blow through
34 kPa (9.8 in.Hg) or more	Air blows through

CHECK VALVE – Federal/California and High-altitude vehicles for Federal N25ICKCa

INSPECTION



NOTE
When disconnecting the vacuum hose, put a mark on the hose so that it may be reconnected at original position.

(1) Remove the check valve.
(2) Connect a hand vacuum pump to the check valve and check air tightness.

Color of nipple to which hand vacuum pump is connected	Normal condition
Dark blue	Vacuum leaks
White	Vacuum holds

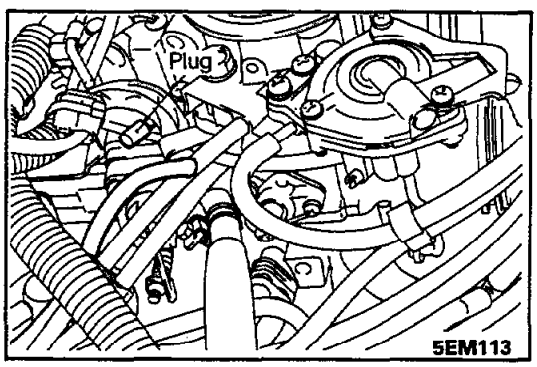
TSB Revision

CARBURETOR BLEED AIR PASSAGE CLOGGING (CARBURETOR HIGH-ALTITUDE COMPENSATION FUNCTION) N25ICVAa

Refer to GROUP 14 – Service Adjustment Procedures.

HIGH-ALTITUDE COMPENSATION SYSTEM – Federal/California N25ICOFa

INSPECTION AT ALTITUDE BELOW 1,200 m, (3,900 ft.)

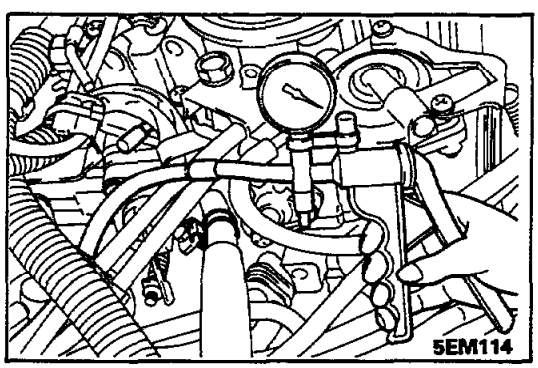


NOTE
When disconnecting the vacuum hose, put a mark on the hose so that it may be reconnected at original position.

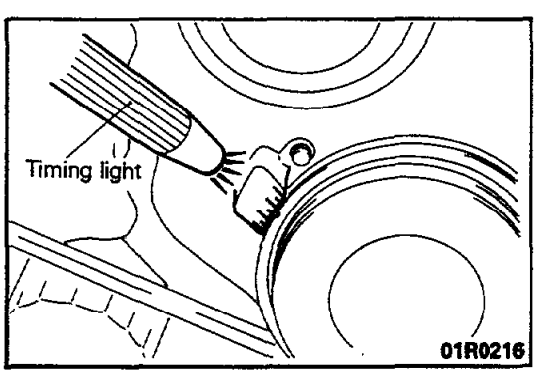
Inspection Condition

Engine coolant temperature : 85 – 95°C (185 – 205°F)

(1) Set the timing light.
(2) Remove the air cleaner.
(3) Disconnect the vacuum hose (black) from the carburetor primary emulsion well bleed nipple and plug the nipple.

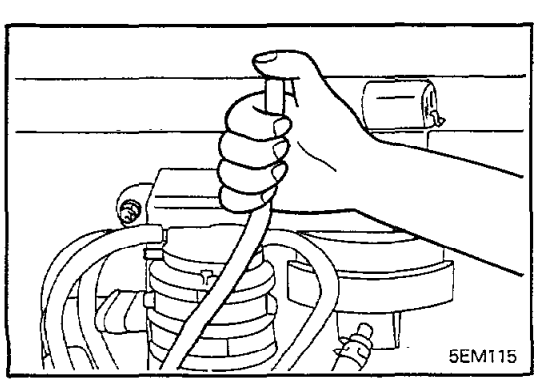


(4) Connect a hand vacuum pump to the vacuum hose and check that vacuum is held when applied while running the engine at idle.



(5) Connect the disconnected vacuum hose to original position.
(6) Run the engine at idle and check ignition timing.

Standard value : 7°BTDC±2°



(7) While running the engine at idle, disconnect the vacuum hose (white stripe, two nipples side) from the HAC and hold a finger at the hose end to check that vacuum is felt.

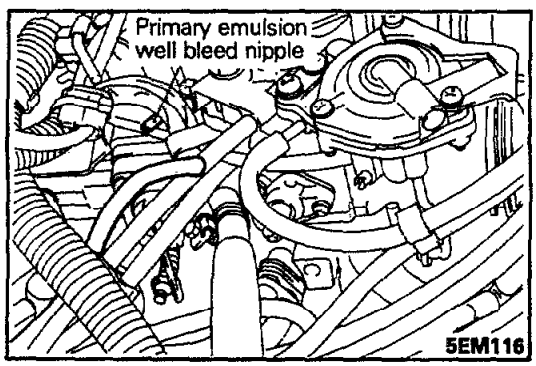
INSPECTION AT ALTITUDE ABOVE 1,200 m (3,900 ft.)

NOTE
When disconnecting the vacuum hose, put a mark on the hose so that it may be reconnected at original position.

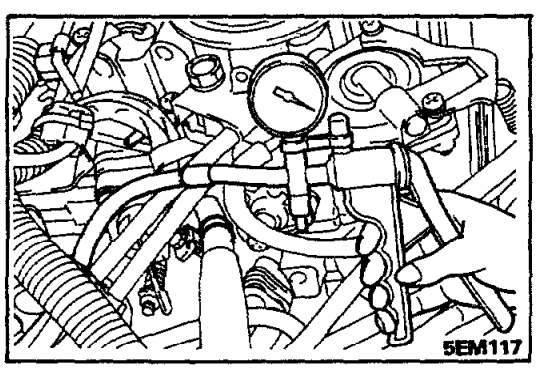
Inspection Condition

Engine coolant temperature : 85–95°C(185 –205°F)

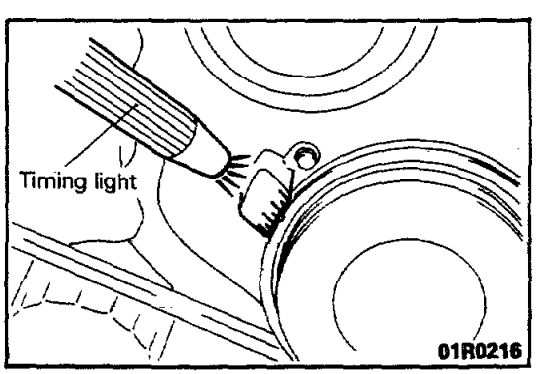
(1) Set the timing light.
(2) Remove the air cleaner.



(3) Disconnect the vacuum hose (black) from the carburetor primary emulsion well bleed nipple.

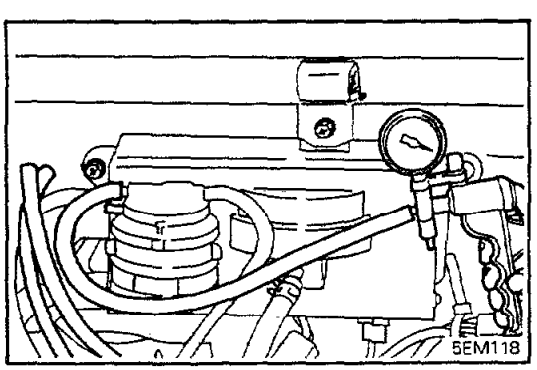


(4) Connect a hand vacuum pump to the vacuum hose and while running the engine at idle, apply vacuum to check the pressure leaks and does not build up.



(5) Connect the disconnected vacuum hose to original position.
(6) Run the engine at idle and check ignition timing.

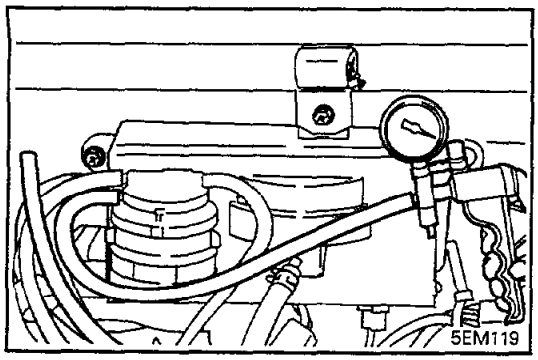
Standard value : Approx. 12°BTDC



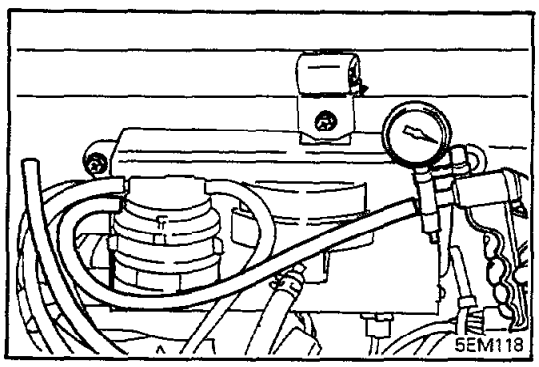
HIGH-ALTITUDE COMPENSATOR (HAC) – Federal/California N25ICPDa

INSPECTION AT ALTITUDE BELOW 1,200 m (3,900 ft.)

(1) Disconnect the vacuum hose (white stripe, two nipples side) from the HAC and connect a hand vacuum pump to the HAC nipple.
(2) Apply vacuum and check that it leaks and does not hold.

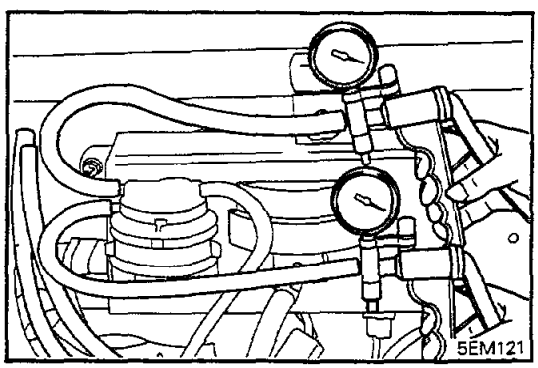


(3) Disconnect the vacuum hose (black) from the HAC and connect a hand vacuum pump to the HAC nipple.
(4) Check that vacuum holds when applied.

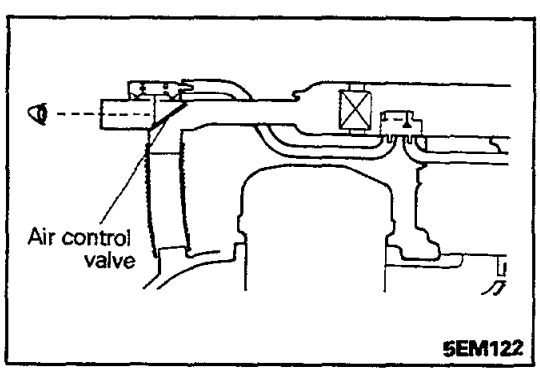


INSPECTION AT ALTITUDE ABOVE 1,200 m (3,900 ft.)

(1) Disconnect the vacuum hose (white stripe, two nipples side) from the HAC and connect a hand vacuum pump to the HAC nipple.
(2) Check that vacuum holds when applied.



(3) Disconnect the vacuum hose (black) from the HAC and connect another hand vacuum pump to the HAC nipple.
(4) Holding the vacuum applied in procedure 2, apply vacuum and check that it leaks and does not hold.



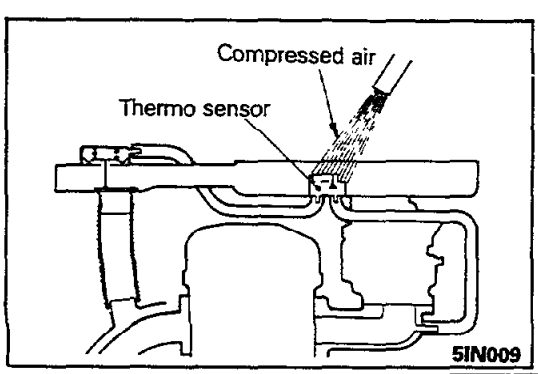
INTAKE AIR TEMPERATURE CONTROL SYSTEM

N25ICSAa

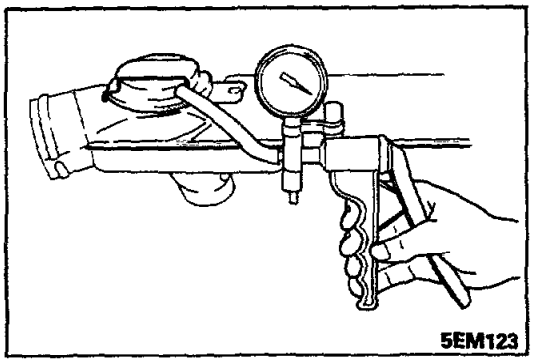
INSPECTION

(1) Remove the air cleaner cover and air duct.
(2) Run the engine at idle and check air control valve condition.

Thermo sensor temperature	Normal condition
30°C (86°F) or less	Cold air side inlet closes
45°C (113°F) or more	Cold air side inlet opens



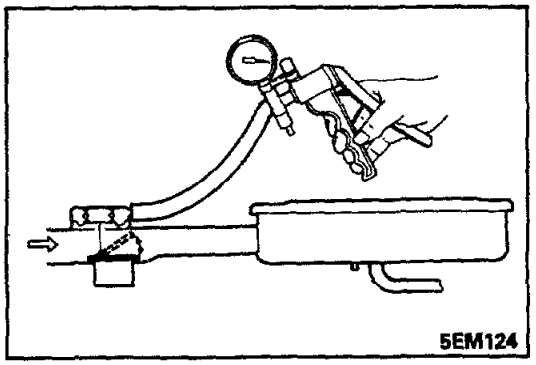
NOTE
If necessary, apply compressed air to cool or apply hot air using a hair dryer, etc. to heat.


5EM123

AIR CONTROL VALVE AND THERMO SENSOR
N25ICTAa

INSPECTION OF AIR CONTROL VALVE

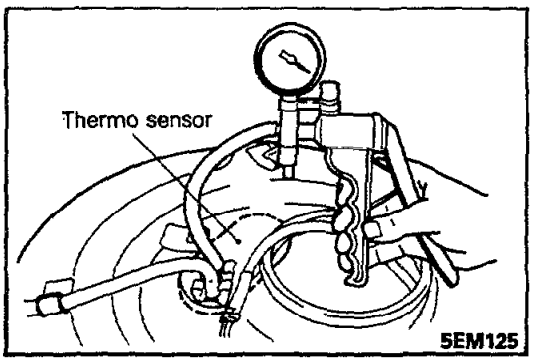
(1) Remove the air cleaner.
(2) Disconnect the vacuum hose from the air control valve and connect a hand vacuum pump to the valve nipple.
(3) Apply a vacuum of 67 kPa (19.7 in.Hg) and check air tightness.


5EM124

(4) Check air control valve operation.

Vacuum	Normal condition
9 kPa (2.8 in.Hg) or less	Cold air side inlet opens
25 kPa (7.5 in.Hg)	Cold air side inlet closes

(5) Connect the disconnected vacuum hose to the original position.



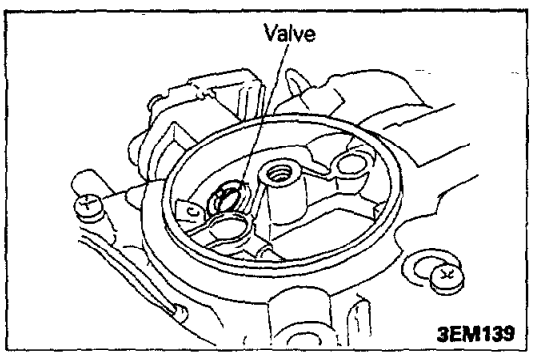
5EM125

INSPECTION OF THERMO SENSOR

(1) Connect a hand vacuum pump to the thermo sensor nipple and check air tightness.

Thermo sensor temperature	Normal condition
30°C (86°F) or less	Vacuum holds
45°C (113°F) or more	Vacuum leaks

(2) If any fault is found in above checks, replace the air cleaner body.



3EM139

MIXTURE CONTROL VALVE (MCV) – Vehicles with a manual transmission
N25ICUBa

INSPECTION

Caution
Check the valve after warming up the engine.

(1) Remove the air cleaner.
(2) Start the engine and open and close the throttle valve quickly to check MCV operation and air suction noise.

Engine speed	Normal condition	
	MCV valve operation	Air suction noise
Throttle lever in operation	Pops out once and quickly closes	Heard
Idling	Remains closed	Not heard

EMISSION CONTROL SYSTEM <3.0L ENGINE>

SPECIFICATIONS

GENERAL SPECIFICATIONS

N25CA-B

Crankcase emission control system	Closed type with positive crankcase ventilation valve
Evaporative emission control system	Canister storage type
Canister	Charcoal type
Purge control solenoid valve	ON/OFF solenoid valve
Exhaust emission control system	
Exhaust gas recirculation system	
EGR valve	Vacuum-actuated diaphragm type
Thermo valve <Vehicles with a manual transmission>	Bimetal type
EGR control solenoid valve <Vehicles with an automatic transmission>	Duty cycle solenoid valve
EGR temperature sensor <California>	Thermistor type
Catalytic converter	Monolith type
Location	Under floor

SERVICE SPECIFICATIONS

N25CB-B

Items	Specifications
Purge control solenoid valve coil resistance Ω	36 – 44 [at 20°C (68°F)]
Thermo valve temperature (vacuum holds) °C (°F)	65 (149) or more
EGR temperature sensor resistance kΩ	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-B

Items	20–40	ft.lbs.
EGR valve installation bolt	17–26	12–18
Thermo valve	20–40	15–30
EGR temperature sensor	10–12	7.3–8.6

SEALANTS AND ADHESIVES

N25CE-B

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

TROUBLESHOOTING

N25EA-B

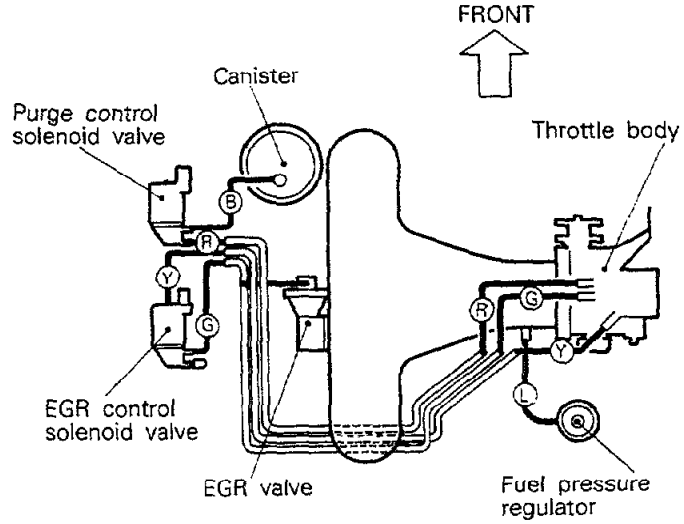
Symptom	Probable cause	Remedy
Engine will not start or hard to start	Vacuum hose disconnected or damaged	Repair or replace
	The EGR valve is not closed	Repair or replace
	Malfunction of the purge control solenoid valve	Repair or replace
Rough idle or engine stalls	The EGR valve is not closed	Repair or replace
	Vacuum hose disconnected or damaged	Repair or replace
	Malfunction of the positive crankcase ventilation	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-B

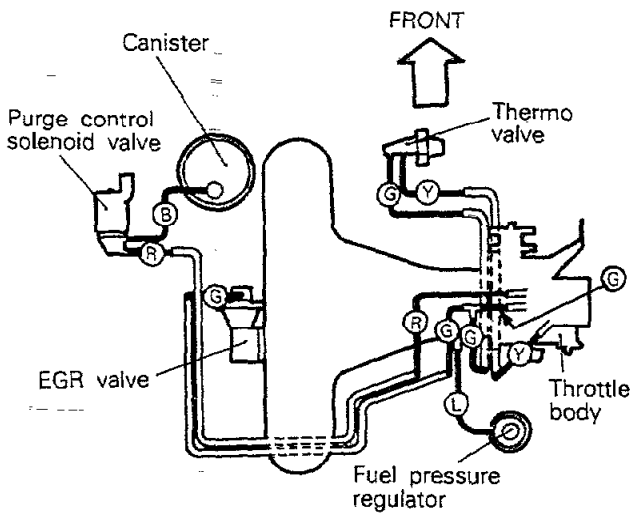
VACUUM HOSES ROUTING

<Vehicles with a manual transmission>



7EM0048

<Vehicles with an automatic transmission>



7EM0049

TSB Revision

INSPECTION N25JCAE2

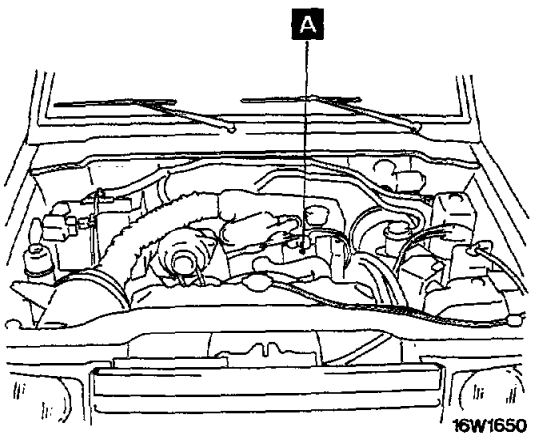
(1) Referring to the VACUUM HOSES ROUTING, confirm that the vacuum hoses are properly connected.
(2) Check the hoses for irregularities (disconnection, looseness, etc.) and confirm that there is no breakage or damage.

INSTALLATION N25JDAE2

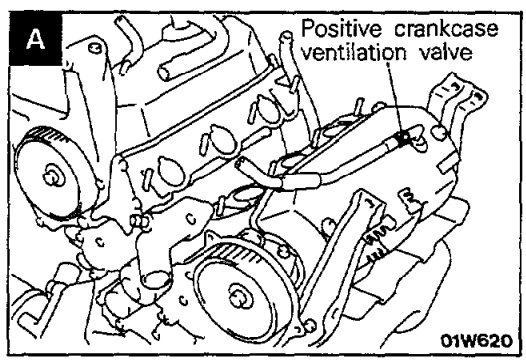
(1) When connecting a hose, firmly press it onto the nipple.
(2) Referring to the VACUUM HOSES ROUTING, connect the hoses correctly.

CRANKCASE EMISSION CONTROL SYSTEM N25IA-B

COMPONENTS LOCATION



Name	Symbol
Positive crankcase ventilation valve	A



POSITIVE CRANKCASE VENTILATION (PCV) VALVE N25IAAF

For information concerning the checking of the positive crankcase ventilation valve, refer to GROUP 0 – Maintenance Service.

REMOVAL

(1) Remove the air intake plenum. (Refer to GROUP 11 – Air Intake Plenum.)
(2) Remove the positive crankcase ventilation valve.

INSTALLATION

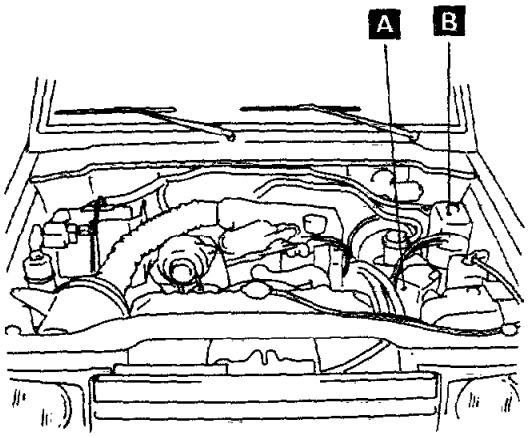
(1) Install the positive crankcase ventilation valve and tighten to specified torque.

Specified tightening torque : 8–12 Nm (6–9 ft.lbs.)

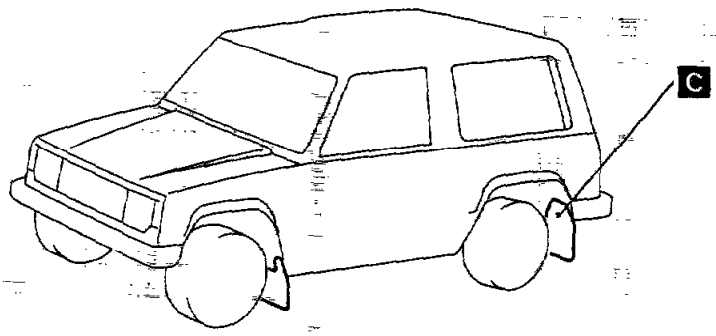
(2) Install the air intake plenum. (Refer to GROUP 11 – Air Intake Plenum.)

EVAPORATIVE EMISSION CONTROL SYSTEM

COMPONENTS LOCATION

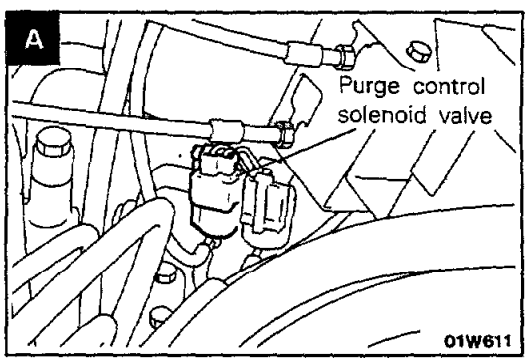


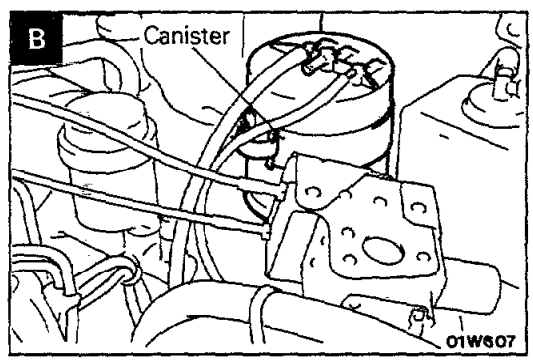
16W1650

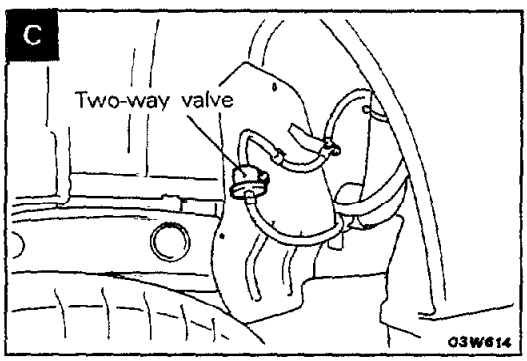


18W779

Name	Symbol	Name	Symbol
Canister	B	Two-way valve	C
Purge control solenoid valve	A		







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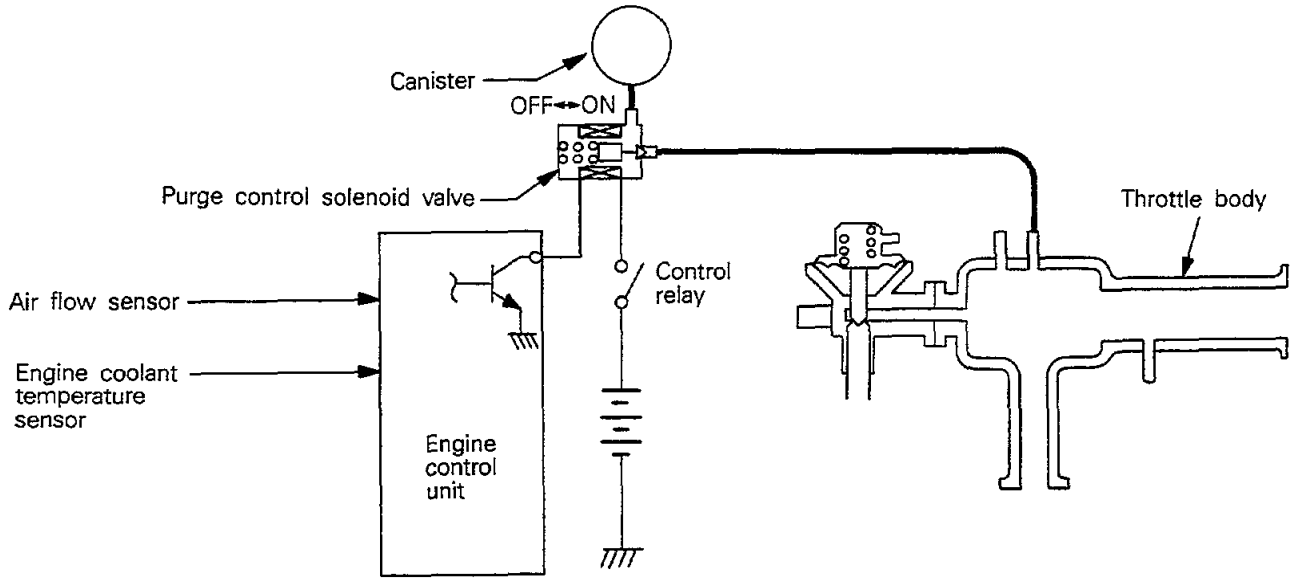
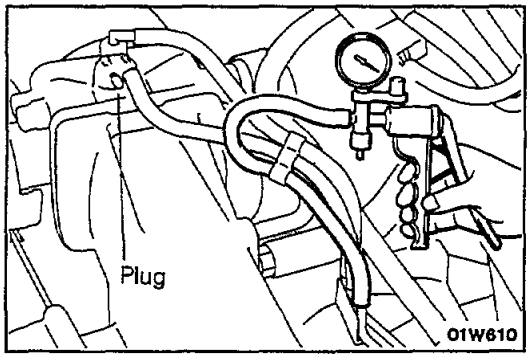
PURGE CONTROL SYSTEM





INSPECTION

(1) Disconnect the vacuum hose (red stripe) from the throttle body, and connect a hand vacuum pump to the vacuum hose.
(2) Cap the nipple from which the vacuum hose was disconnected.
(3) Under the engine conditions described below, provide a vacuum by using the hand vacuum pump, and then check.

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

Engine operating condition	Applying vacuum	Result
Idling	50 kPa (14 in. Hg)	Vacuum is maintained
3,000 rpm		

When engine is warm-coolant temperature : 70°C (158°F) or higher

Engine operating condition	Applying vacuum	Result
Idling	50 kPa (14 in. Hg)	Vacuum is maintained
Within 3 minutes after engine start 3,000 rpm	Try applying vacuum	Vacuum leaks
After 3 minutes have passed after engine start 3,000 rpm	50 kPa (14 in. Hg)	Vacuum will be maintained momentarily after which it will leaks.

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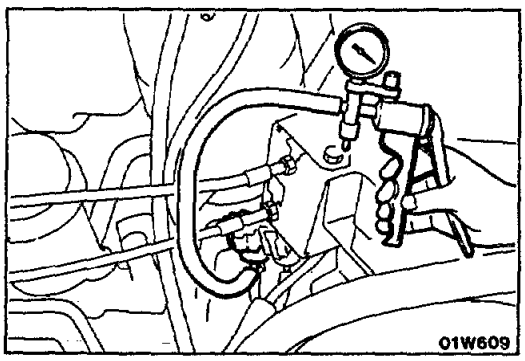
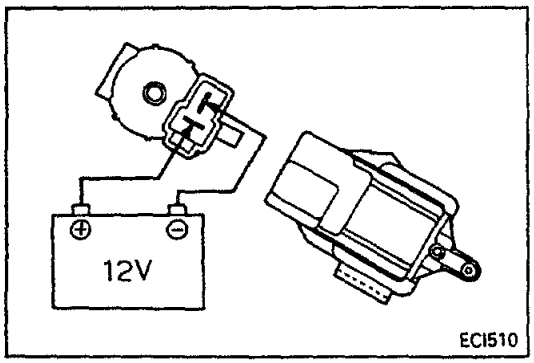
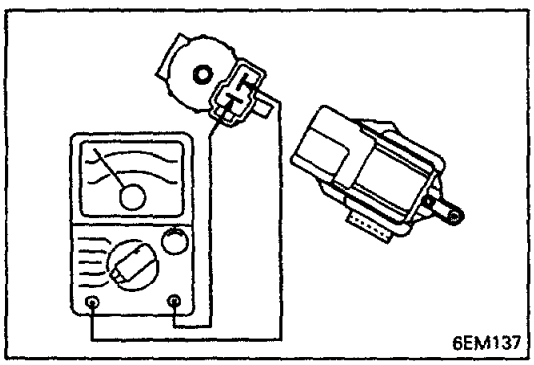






PURGE CONTROL SOLENOID VALVE

INSPECTION

N25IBFC

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 (black with red stripe) from the solenoid valve.
(2) Disconnect the harness connector.
(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 when the voltage is discontinued.

Battery voltage	Normal condition
When applied	Negative pressure leaks.
Negative pressure is maintained.	When discontinued

(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

N25IBGB

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

OVERFILL LIMITER (TWO-WAY VALVE)

N25IBEB

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

CANISTER

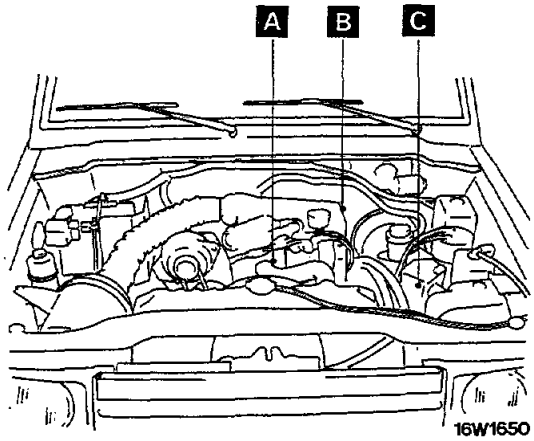
N25IBIB

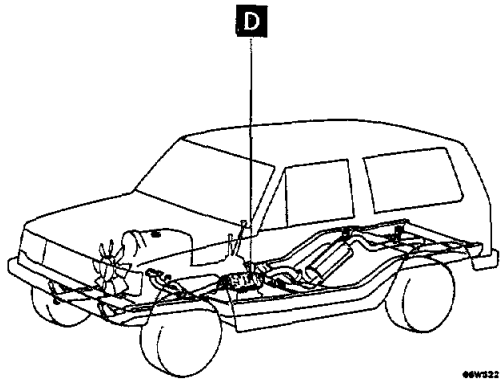
To inspect the canister, refer to GROUP 14 – Fuel Line and Vapor Line.

EXHAUST EMISSION CONTROL SYSTEM

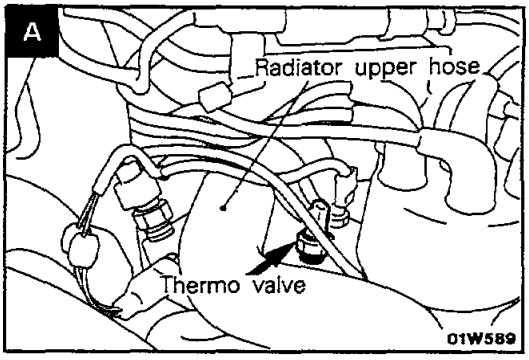
N25IC--

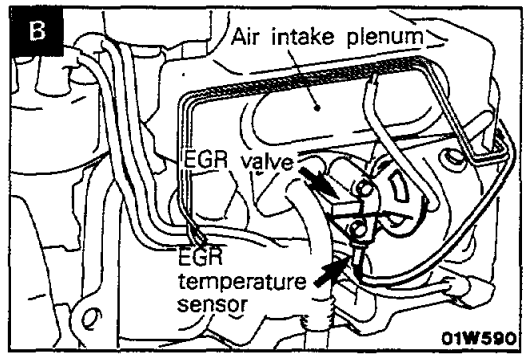
COMPONENTS LOCATION

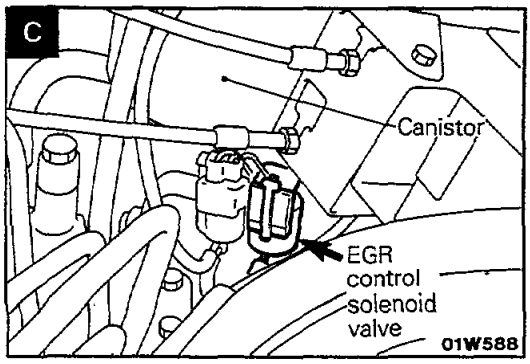


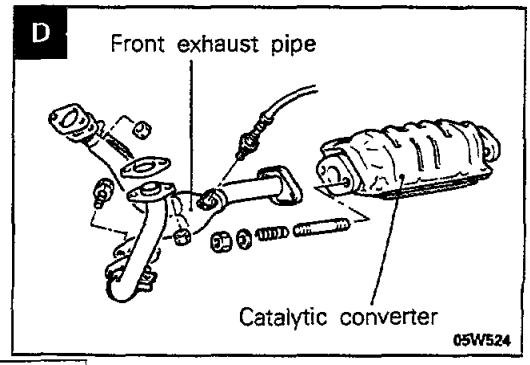


Name	Symbol	Name	Symbol
Catalytic converter	D	EGR valve	B
EGR control solenoid valve <Vehicles with a manual transmission>	C	Thermo valve <Vehicles with an automatic transmission>	A
EGR temperature sensor <California>	B		









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AIR-FUEL RATIO CONTROL (MPI) SYSTEM N25ICAF

- To inspect the air-fuel ratio control (MPI) system, refer to GROUP 14 – Service Adjustment Procedures.
- For detailed information concerning the illumination pattern of the malfunction-indicator light and other aspects of the self-diagnosis function, refer to GROUP 14 – Self Diagnosis.

CATALYTIC CONVERTER N25ICBF

REMOVAL AND INSTALLATION

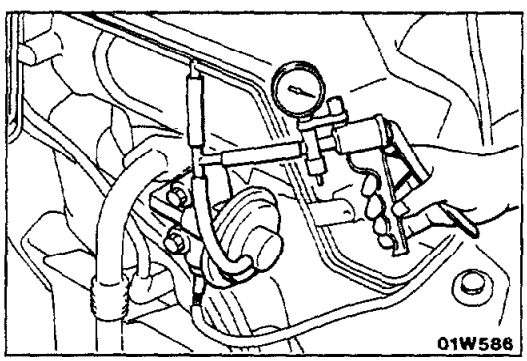
For removal and installation procedures, refer to GROUP 11 – Exhaust Pipes and Main Muffler.

INSPECTION

Check for damage, cracks or fusion and replace if faulty.

Caution

1. **Operation of any type, including idling, should be avoided if engine misfiring occurs. Under this condition the exhaust system will operate at abnormally high temperature, which may cause damage to the catalyst or under-body parts of the vehicle.**
2. **Alteration or deterioration of ignition or fuel system or any type of operating condition which results in engine misfiring must be corrected to avoid overheating the catalytic converters.**
3. **Proper maintenance and tuneup according to manufacturer's specifications should be made to correct the conditions as soon as possible.**



EXHAUST GAS RECIRCULATION (EGR) SYSTEM

INSPECTION <Vehicles with a manual transmission> N25ICJ1

(1) Disconnect the vacuum hose (green stripe) from the EGR valve and connect, via a three-way terminal, a hand vacuum pump.
(2) Check the following points while the engine is cold (engine coolant temperature 60°C (140°F) or lower) and while it is hot (engine coolant temperature 70°C (158°F) or higher).

When engine is cold

Engine condition	Normal condition
Depress the accelerator pedal quickly and race the engine.	Negative pressure (vacuum) no change (barometric pressure)

When engine is hot

Engine condition	Normal condition
Depress the accelerator pedal quickly and race the engine.	Negative pressure (vacuum) temporarily increases to 20 kPa (5.9 in.Hg) or higher.

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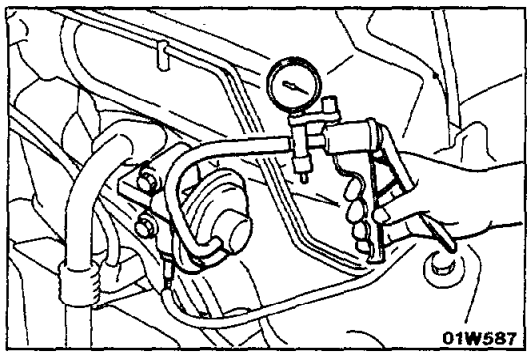
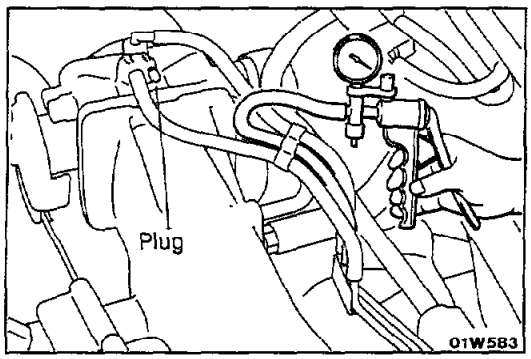




(3) Disconnect the three-way terminal and connect the hand vacuum pump directly to the EGR valve.
(4) Check whether or not the engine stalls or shows idling instability when a negative pressure (vacuum) of 38 kPa (11.0 in.Hg) or higher is applied during idling.

INSPECTION <Vehicles with an automatic transmission>

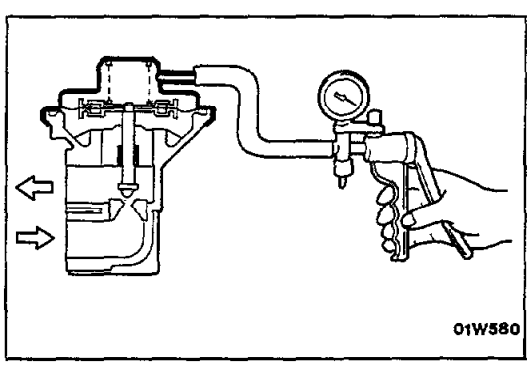
(1) Disconnect the vacuum hose (green stripe) from the throttle body, and connect a hand vacuum pump to the vacuum hose.
(2) Plug the nipple from which the vacuum hose was disconnected.
(3) Check the following points when the engine is cold [coolant temperature 50°C (122°F) or below] and when it is hot [coolant temperature 85–95°C (185–205°F) or higher.]

When engine is cold

Engine condition	Applying vacuum	Normal condition
Idling	Try applying vacuum	Vacuum leaks from thermo valve.

When engine is hot

Engine condition	Applying vacuum	Normal condition
Idling	9.3 kPa (2.8 in.Hg)	Vacuum holds
Changes from idling to slightly unstable.	38 kPa (11.0 in.Hg)	Vacuum holds



EGR VALVE

N25ICKG

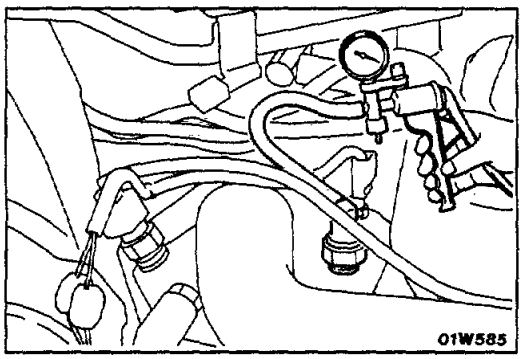
INSPECTION

(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 (19.6 in.Hg) and check air tightness.
(4) Blow in air from one passage of the EGR to check condition as follows.

Vacuum	Normal condition
9.3 kPa (2.8 in.Hg) or less	Air does not blow through
38 kPa (11.0 in.Hg) or more	Air blows through

(5) When installing the EGR valve, use a new gasket and tighten to specified torque.

Specified tightening torque : 17–26 Nm (12–18 ft.lbs.)



THERMO VALVE <Vehicles with an automatic transmission> N25ICBJ

INSPECTION

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

Engine coolant temperature	Normal condition
50°C (122°F) or less	Vacuum leaks.
65°C (149°F) or more	Vacuum holds

REMOVAL

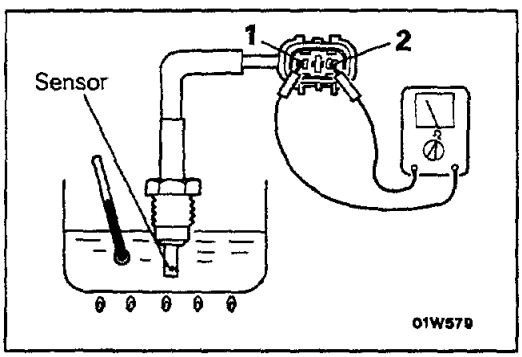
(1) When removing the thermo valve, do not use wrenches or other tools on the resin part.
(2) When disconnecting the vacuum hose, put a mark or the hose so that it may be reconnected at original position.

INSTALLATION

(1) When installing, apply specified sealant to the threads of thermo valve and tighten to specified torque.

Specified sealant : 3M NUT Locking No. 4171 or equivalent
Specified torque : 20–40 Nm (15–30 ft.lbs.)

(2) When installing the thermo valve, do not use wrenches or other tools on the resin part.



EGR TEMPERATURE SENSOR <California> N25ICYB

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 (kΩ)
50 (122)	60–83
100 (212)	11–14

(3) Install the EGR temperature sensor and tighten to specified torque.

Specified tighten torque : 10–12 Nm (7–9 ft.lbs.)

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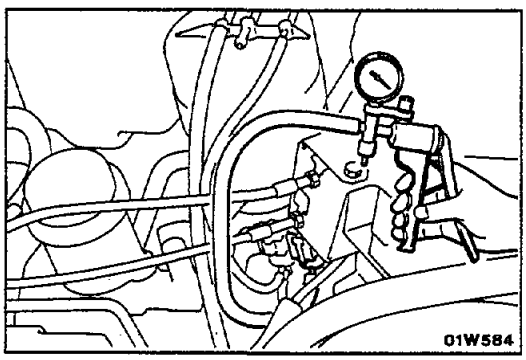
EGR CONTROL SOLENOID VALVE <Vehicles with a manual transmission>

INSPECTION

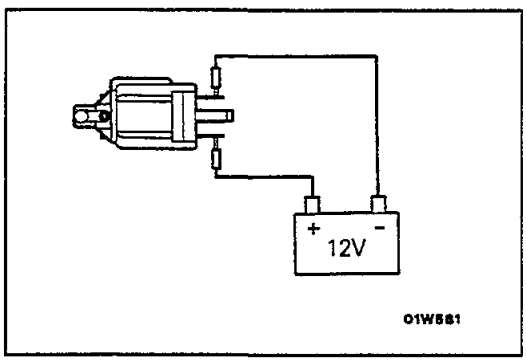
N25IBFE

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.

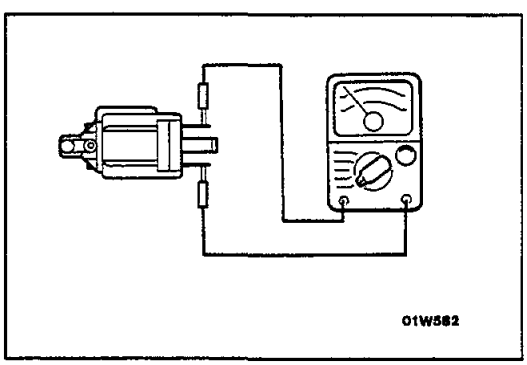


(3) Connect a hand vacuum pump to the nipple to which the green striped vacuum hose was connected.



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

Battery voltage	Normal condition
When applied	Vacuum holds.
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)]

NOTE

NOTE

NOTE