EMISSION CONTROL

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EMISSION CONTROL <Vehicles for General Export: Variable-venturi Carburettor>

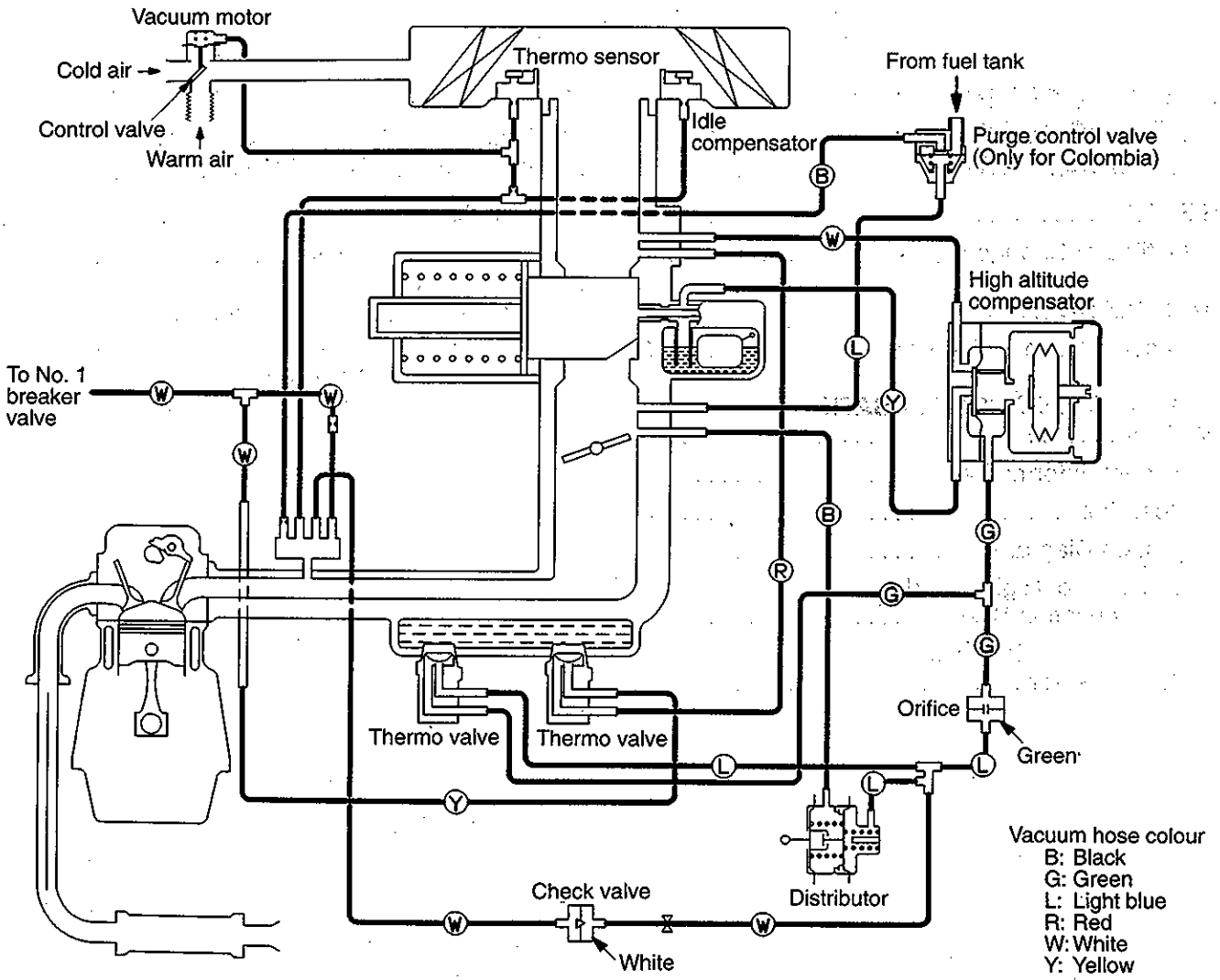
GENERAL

OUTLINE OF CHANGES

A high altitude compensation system has been added to vehicles with 4G1 variable-venturi carburettor engine for Colombia, Bolivia, Ecuador and Peru. The following maintenance service points have been established to correspond to this.

VACUUM HOSE

VACUUM HOSE PIPING DIAGRAM



HIGH ALTITUDE COMPENSATION SYSTEM

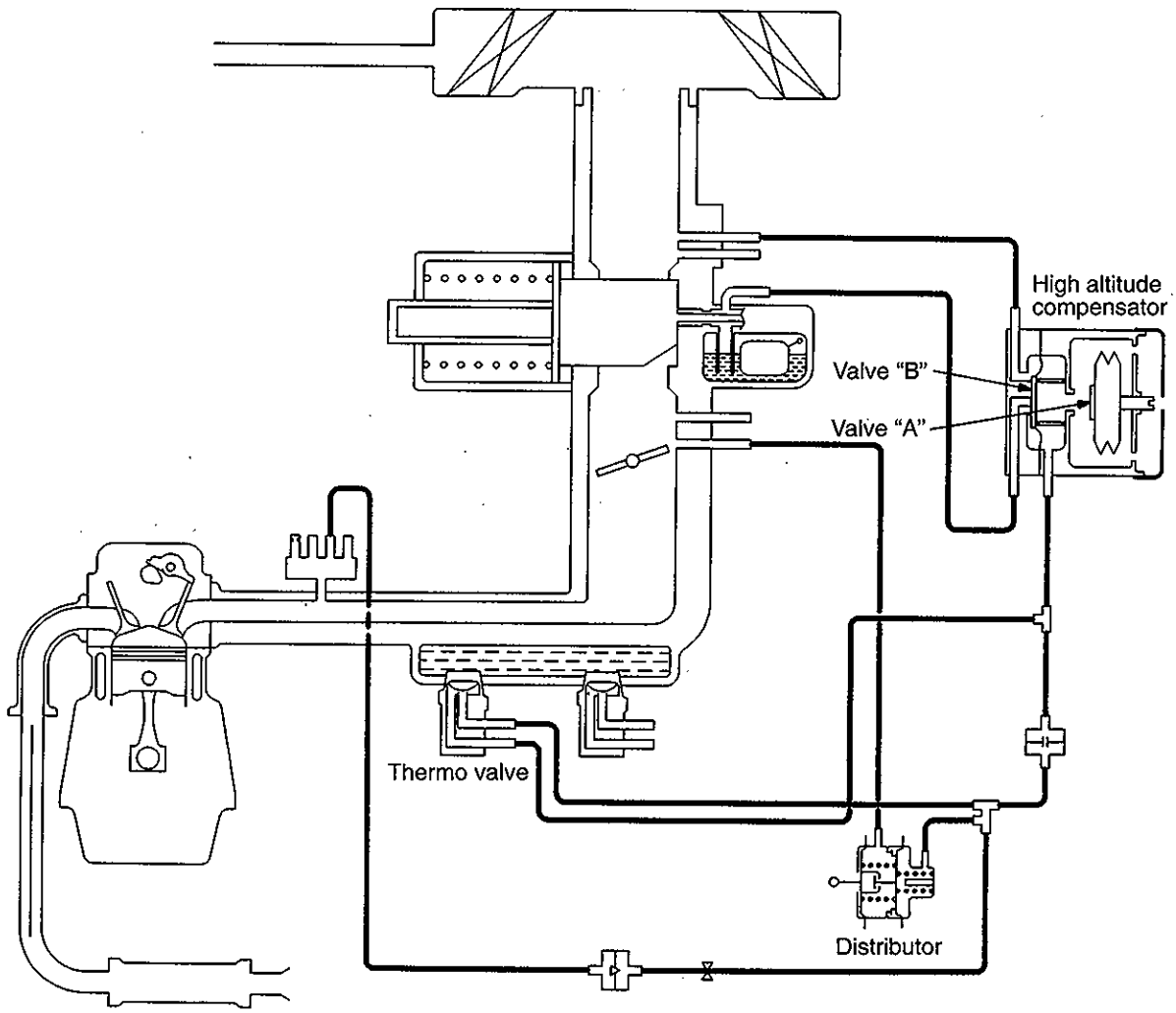
GENERAL INFORMATION

The carburettor meters out the fuel in accordance with the volumetric flow of air, and supplies the resulting air/fuel mixture to the engine. Therefore, even if the air/fuel mixture is optimum at low altitudes, the air is thinner at high altitudes, which means that the air/fuel mixture becomes too rich. Because of this, additional bleed air is supplied to the carburettor main air bleed nipple at high altitudes to make the air/fuel mixture leaner. This prevents the air/fuel mixture too rich.

OPERATION

At low altitudes, the valve A inside the high altitude compensator is open, causing the vacuum inside the intake manifold to leak through the high altitude compensator to the atmosphere. Since the valve B inside the high altitude compensator is closed, the bleed air passage remains closed. As a result, the bleed air is not supplied to the carburettor. At high altitudes, the valve A inside the high altitude compensator closes. Since the vacuum inside the intake manifold causes valve B inside the high altitude compensator to open, the bleed air passage opens. This causes bleed air to be supplied to the carburettor.

SYSTEM DIAGRAM



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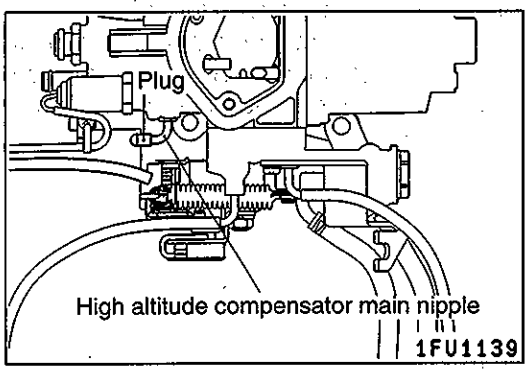
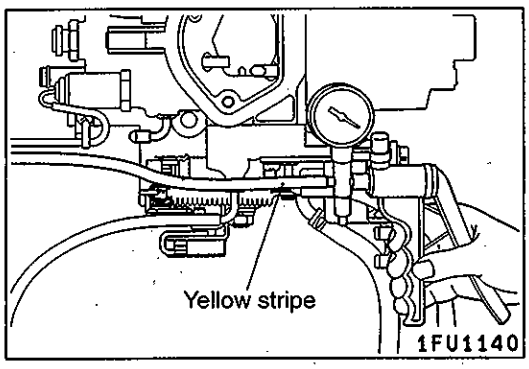
CHECKING OF HIGH ALTITUDE COMPENSATION SYSTEM

NOTE
1. The range between altitudes of 1,500 m and 2,500 m is the range where the high altitude compensator switches from operating to not operating. Thus the operation in this range of altitude will be unstable. Accordingly, do not check the operation of the high altitude compensator within this range of altitude. Move the vehicle to an altitude of either 1,500 m or below, or to an altitude of 2,500 m or above before checking.
2. When disconnecting the vacuum hose, put a mark on the hose so that it may be reconnected at original position.

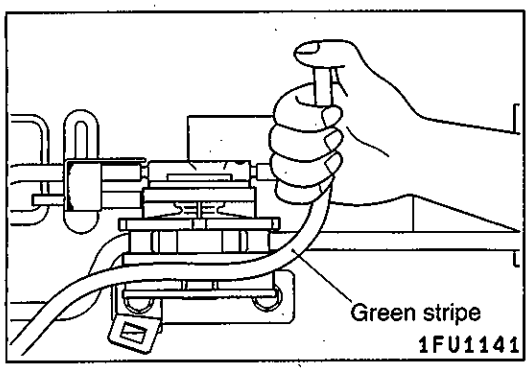
INSPECTION AT ALTITUDE BELOW APPROX. 1,500 m

(1) Remove the air cleaner.
(2) Disconnect the vacuum hose (yellow stripe) from the carburettor high altitude compensator main nipple and the plug the nipple.





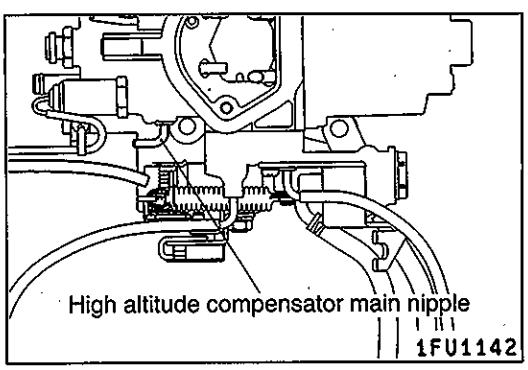
(3) Connect a hand vacuum pump to the vacuum hose and check that vacuum is held when applied while running the engine at idle.
(4) Connect the disconnected vacuum hose to original position.

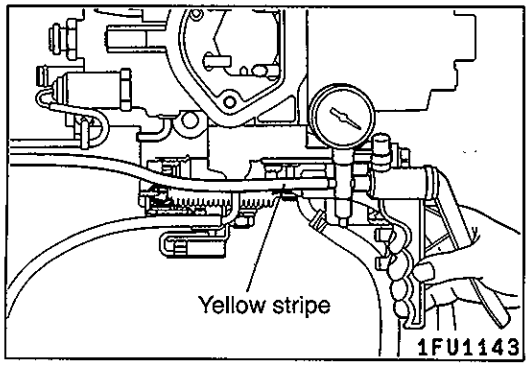


(5) While running the engine at idle, disconnect the vacuum hose (green stripe) from the high altitude compensator and hold a finger at the hose end to check that vacuum is felt.
(6) Connect the disconnected vacuum hose to original position.
(7) Run the engine at approximately 3,000 r/min with no load, and check that the engine runs normally.

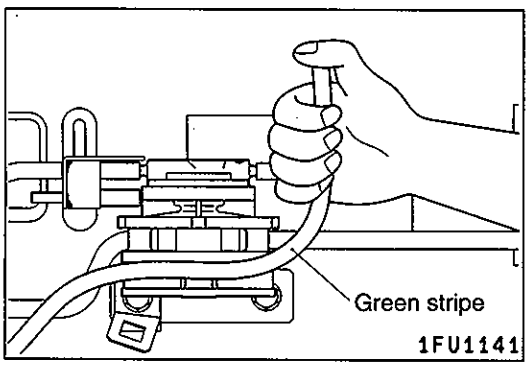
INSPECTION AT ALTITUDE ABOVE APPROX. 2,500 m

(1) Remove the air cleaner.
(2) Disconnect the vacuum hose (yellow stripe) from the carburettor high altitude compensator main nipple.





(3) Connect a hand vacuum pump to the vacuum hose and while running the engine at idle, apply vacuum from the vacuum pump to check that vacuum leaks and does not build up.
(4) Connect the disconnected vacuum hose to original position.



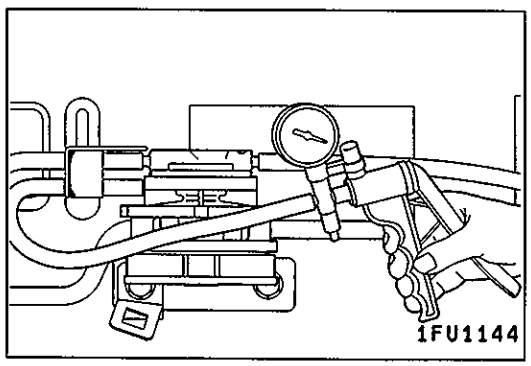
(5) While running the engine at idle, disconnect the vacuum hose (green stripe) from the high altitude compensator and hold a finger at the hose end to check that vacuum is felt.
(6) Connect the disconnected vacuum hose to original position.
(7) Run the engine at approximately 3,000 r/min with no load, and check that the engine runs normally with no black smoke being emitted.

CHECKING OF HIGH ALTITUDE COMPENSATOR

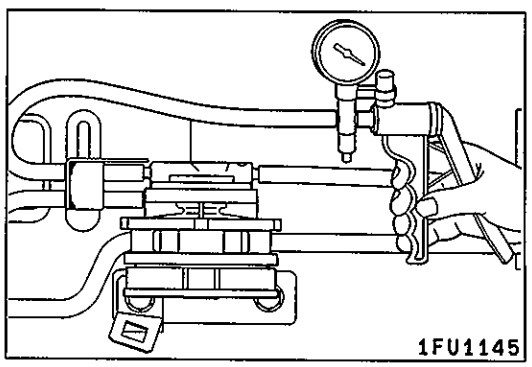
NOTE

1. The range between altitudes of 1,500 m and 2,500 m is the range where the high altitude compensator switches from operating to not operating. Thus the operation in this range of altitude will be unstable. Accordingly, do not check the operation of the high altitude compensator within this range of altitude. Move the vehicle to an altitude of either 1,500 m or below, or to an altitude of 2,500 m or above before checking.
2. When disconnecting the vacuum hose, put a mark on the hose so that it may be reconnected at original position.

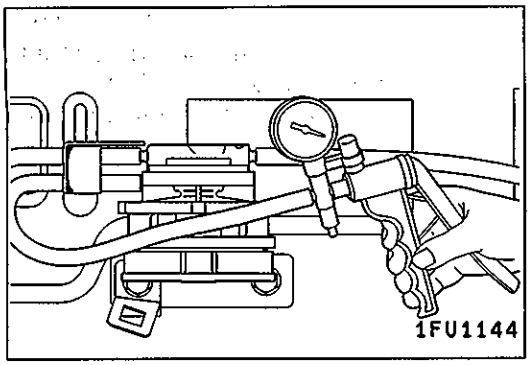
INSPECTION AT ALTITUDE BELOW APPROX. 1,500 m

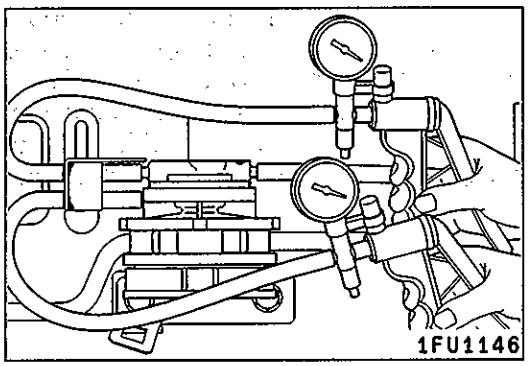


(1) Disconnect the vacuum hose (green stripe) from the high altitude compensator and connect a hand vacuum pump to the high altitude compensator nipple.
(2) Apply vacuum and check that it leaks and does not hold.
(3) Connect the disconnected vacuum hose to original position.



(4) Disconnect the vacuum hose (yellow stripe) from the high altitude compensator and connect a hand vacuum pump to the high altitude compensator nipple.
(5) Check that vacuum holds when applied.
(6) Connect the disconnected vacuum hose to original position.





INSPECTION AT ALTITUDE ABOVE APPROX. 2,500 m

(1) Disconnect the vacuum hose (green stripe) from the high altitude compensator and connect a hand vacuum pump to the high altitude compensator nipple.
(2) Check that vacuum holds when applied.
(3) Disconnect the vacuum hose (yellow stripe) from the high altitude compensator and connect another hand vacuum pump to the high altitude compensator nipple.
(4) Holding the vacuum applied in procedure (2), apply vacuum and check that it leaks and does not hold.
(5) Connect the disconnected vacuum hose to original position.

EMISSION CONTROL <Vehicles for General Export: Electronic Control Carburettor>

GENERAL

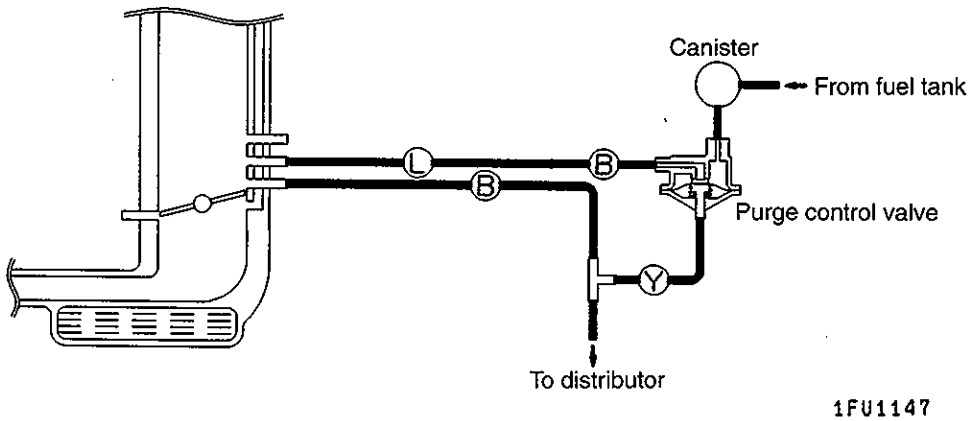
OUTLINE OF CHANGES

A purge control valve has been added. The following service points of maintenance have been established as a result of this.

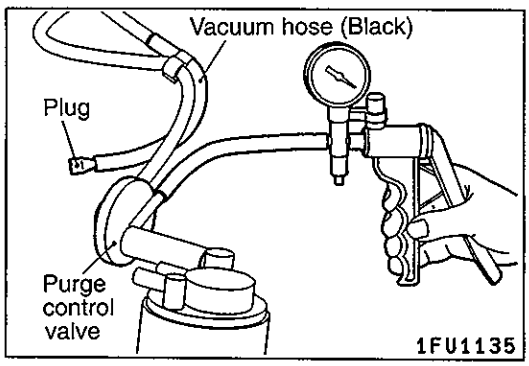
EVAPORATIVE EMISSION CONTROL SYSTEM

PURGE CONTROL SYSTEM

System Inspection



Vacuum hose colour
B: Black
L: Light blue
Y: Yellow

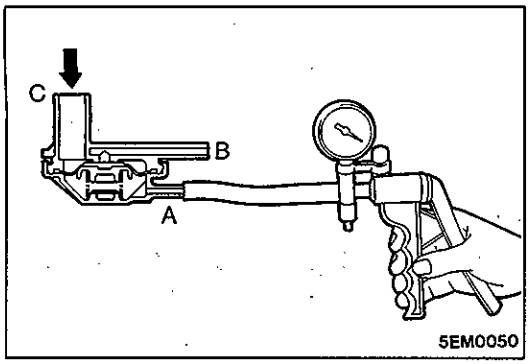


Check condition

- Coolant temperature: 80–95°C

(1) Disconnect the vacuum hose (black stripe) from the purge control valve, and then connect a hand vacuum pump to the nipple of the purge control valve.
(2) Plug the disconnected vacuum hose (black stripe).
(3) Apply a vacuum of 53 kPa and check the condition of the vacuum.

Engine condition	Normal condition
Idle	Vacuum is maintained.
2,500 r/min.	Vacuum is not maintained.



Purge Control Valve Inspection

(1) Remove the purge control valve.
(2) Connect a hand vacuum pump to the nipple A of the purge control valve.
(3) Apply 53 kPa of vacuum, and check to be sure that the vacuum is maintained.
(4) Blow the air from the nipple C and check the air passage.

Vacuum	Passage of air
Not applied	Air is not blown out
9.3 kPa or more	Air is blown out