EMISSION CONTROL

For later models refer to supplement.

INTRODUCTION

To reduce the output level of carbon monoxide, hydrocarbons and oxides of nitrogen, which are the three primary automotive emissions and thus comply with the legislation on the maintenance of clean air, several different types of emission control systems are used in the Subaru range of vehicles.

The systems will be discussed under the headings (1) Positive Crankcase Ventilation (PCV) System, (2) Evaporative Control System, (3) Air Preheat System, (4) Exhaust Gas Recirculation (EGR) System, (5) Coasting by-pass system, (6) Air Injection System, (7) Catalytic Converter System.

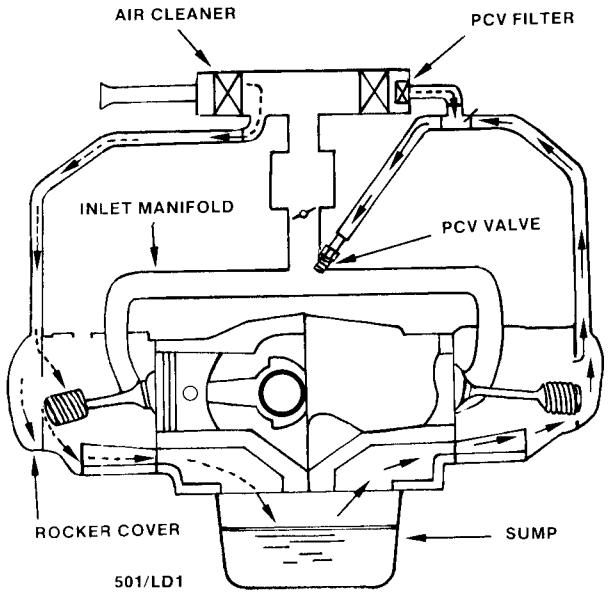
Each system is covered separately, as a combination of some or all of the systems may be applicable to a particular vehicle depending on the local emission control regulations.

1. POSITIVE CRANKCASE VENTILATION (PCV) SYSTEM

DESCRIPTION

To reduce the emission of unburnt crankcase hydrocarbons to the atmosphere a closed type of positive crankcase ventilation system is used.

In a closed type system, the engine draws clean induction air from within the air cleaner assembly through a hose connected between it and one rocker cover. The air then passes through the engine and is fed into the combustion chambers via another hose and a regulating valve (PCV valve) mounted in the inlet manifold. There is a small connecting hose between the air cleaner and the PCV valve hose to prevent engine oil being sucked into the inlet manifold during hard cornering or off road conditions.



Schematic diagram of the positive crankcase ventilation system.

The system is most effective at moderate throttle conditions when a high manifold depression (vacuum) exists which allows the PCV valve to open and all the crankcase vapours to be scavenged.

At wide open throttle, manifold depression is insufficient to scavenge all of the crankcase vapours and the ventilation flow reverses with some of the blow by fumes entering the air cleaner instead of the inlet manifold.

If the engine is excessively worn and blow by is at a high level, then irrespective of throttle operation a certain amount of crankcase vapour will recycle back through the rocker covers and into the air cleaner.

TO SERVICE THE SYSTEM

The system should be regularly serviced with particular attention given to the following:

(1) Check the condition of the rubber hoses ensuring that they are not blocked, collapsed or deteriorated. Renew the hoses or hose clips as necessary.

(2) Check the seals on the engine oil filter cap and the dipstick. Renew the seals if they are damaged or if their sealing quality is suspect.

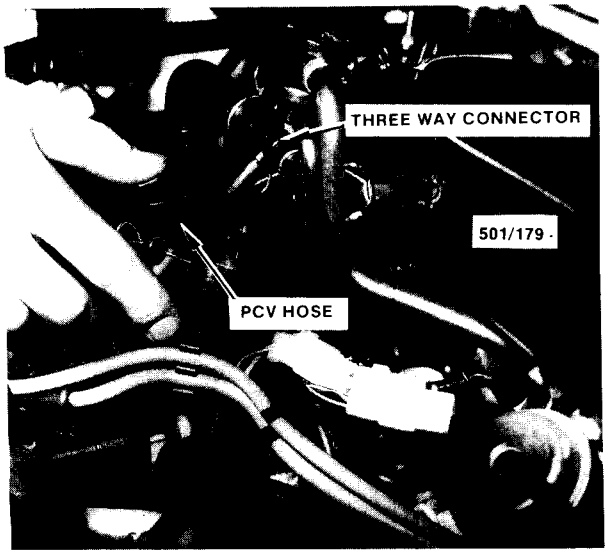
TO CHECK OPERATION

Check the operation of the PCV valve as follows:

(1) With the engine running at a steady idle speed disconnect the PCV valve hose at the three way connector.

(2) Place a finger over the just disconnected hose. A strong vacuum should be immediately felt as the finger is placed over the hose.

(3) Connect the PCV valve hose to the three way connector.



With the engine running disconnect the PCV hose at the three way connector. A strong vacuum should be felt if the PCV system is functioning correctly, 1986 model shown.

(4) Disconnect the large diameter hose that connects one rocker cover to the air cleaner at the air cleaner.

(5) With the engine still at a steady idle speed place a piece of paper over the hose opening. If the system is functioning correctly the piece of paper will be pulled with noticeable force against the hose opening. Stop the engine.

(6) If the valve is found to be partially or fully inoperative, then renew the valve as a complete assembly.

2. EVAPORATIVE CONTROL SYSTEM

Special Equipment Required:
To Test Components — Hot air gun, thermometer, hand vacuum pump

DESCRIPTION

The evaporative control system is another approach in reducing the amount of hydrocarbon emitted to the atmosphere through fuel evaporation.

With the advent of evaporative control systems fuel vapour loss to the atmosphere has been cut to a minimum.

To control vapour loss Subaru vehicles use the absorption regeneration system which utilities either the air cleaner on early models or a canister of activated charcoal on later models to trap and hold any fuel vapours until such time as they can be fed into the induction system for burning in the combustion chambers.

1984–1987 models are equipped with a bowl vent valve to prevent percolation in the float bowl and evaporative loss into the atmosphere.

The basic components of the evaporative control system are:

(a) Fuel tank and vapour separator.
(b) Evaporative line with a two way valve.
(c) Charcoal canister 1981–1984 and all Utility models.
(d) Charcoal canister with thermal vacuum valve (TVV) control 1985–1987 Sedan and Station Wagon models.
(e) Fuel return line 1984–1987 models.
(f) Bowl vent valve 1984–1987 models.
(g) Bowl ventilation system 1986–1987 Sedan and Station Wagon models.

When the engine is at rest vapour through evaporation gradually fills the air space in the vapour separator. The fuel tank is fitted with a sealed filler cap therefore vapour pressure builds up within the system.

The vapour separator is above the fuel tank and its volume is such that expanded fuel is always accommodated and never forced upwards into the remaining parts of the system.

Fuel vapour in the vapour separator will force its way past the two way valve in the evaporative line when a predetermined pressure is reached. The vapour is then routed to the charcoal canister on late models or the air cleaner on early models which absorbs the vapour. When the engine is started vapours stored in the air cleaner or the charcoal canister are drawn into the engine via the purge hose. This is controlled by a TVV on 1985–1987 Sedan and Station Wagon models.

On 1984–1987 models vapours from the carburetor float bowl are also routed to the charcoal canister via the bowl vent valve. These vapours are also purged when the engine in started.

The complete evaporative control system should be checked for damage and deterioration at regular intervals. Renew the charcoal canister at the intervals recommended in the Lubrication and Maintenance section. Special attention should be given to the rubber hoses because any kinking or restrictions in these hoses can cause a serious loss of performance. Test the components applicable to the particular vehicle using the following procedures:

TO TEST TWO WAY VALVE

(1) Raise the rear of the vehicle and disconnect the two way valve from the vapour hose noting the installed position of the valve.

(2) It should be possible to blow into either pipe of the valve with little resistance.

(3) If the valve appears damaged or it has excessive resistance renew the two way valve.

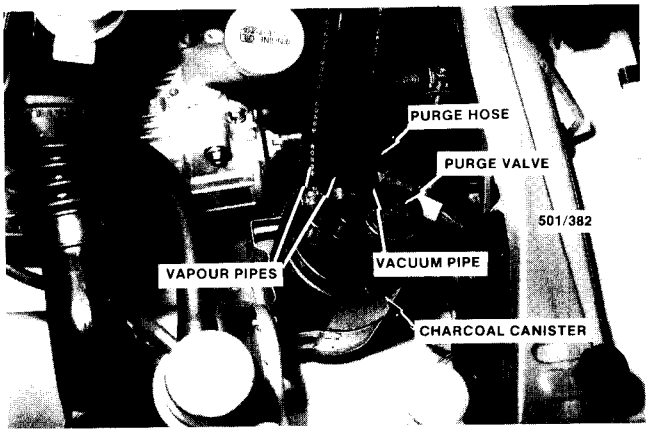
(4) Instal the valve ensuring that the pipe marked "to engine" is connected to the hose that goes to the engine compartment.

TO TEST CHARCOAL CANISTER

(1) Suitably mark and disconnect the charcoal canister hoses.

(2) Visually inspect the charcoal canister for obvious signs of damage and renew if necessary.

(3) Attempt to blow through the purge valve



Installed view of the charcoal canister. 1986 model shown.

vacuum pipe of the charcoal canister. If it is possible to blow through this pipe the purge valve diaphragm has been damaged and the charcoal canister should be renewed.

(4) Attempt to blow through the vapour pipe(s) of the charcoal canister. It should be possible to blow through the pipe(s) with little restriction. If necessary renew the charcoal canister.

(5) Attempt to blow through the purge pipe of the charcoal canister. If it is possible to blow through this pipe renew the charcoal canister.

TO TEST TWO PORT THERMAL VACUUM VALVE (TVV)

(1) Disconnect the negative battery terminal.

(2) Suitably mark and disconnect the hoses from the TVV.

(3) Remove the TVV from the inlet manifold using a suitable spanner.

(4) Connect two rubber tubes to the two ports of the TVV.

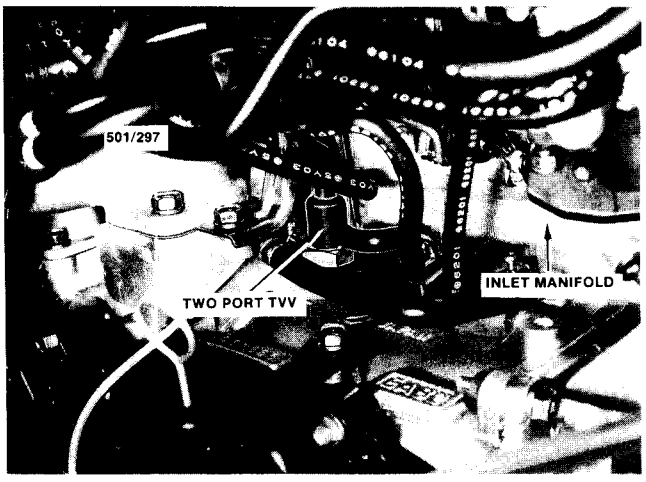
(5) Suspend and immerse the TVV together with a reliable thermometer in a vessel of cold water, ensuring that neither the TVV nor the thermometer are touching the bottom or sides of the vessel.

NOTE: Do not allow water to get inside the TVV.

(6) Progressively heat the water, noting the temperature reading on the thermometer. At the same time attempt to blow air into one of the rubber hoses. Air should flow freely.

(7) Note the temperature reading on the thermometer when it is not possible to blow through the rubber hose. This temperature should be above 40° C for 1986 models and earlier or above 35° C for 1987 models. Renew the TVV if necessary.

(8) Instal the TVV to the inlet manifold and connect the vacuum hoses ensuring that they are not blocked or in bad condition.



Installed view of the two port thermal vacuum valve (TVV).

TO TEST THREE PORT THERMAL VACUUM VALVE (TVV)

The test procedure for the three port TVV is fully covered under the heading EGR system later in this section.

TO TEST FUEL BOWL VENTILATION SYSTEM

Bowl Vent Valve

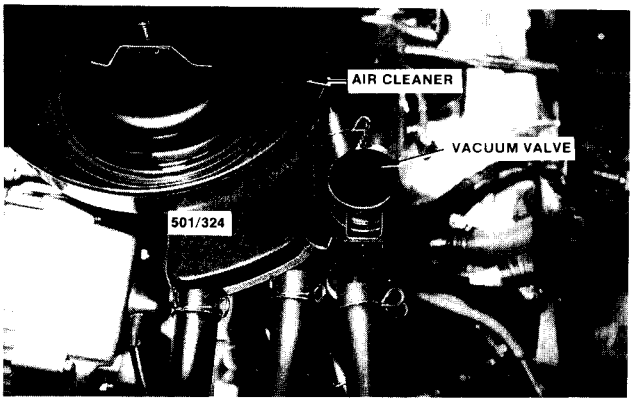
Refer to the Fuel System section for the testing procedure of the bowl vent valve.

Vacuum Valve

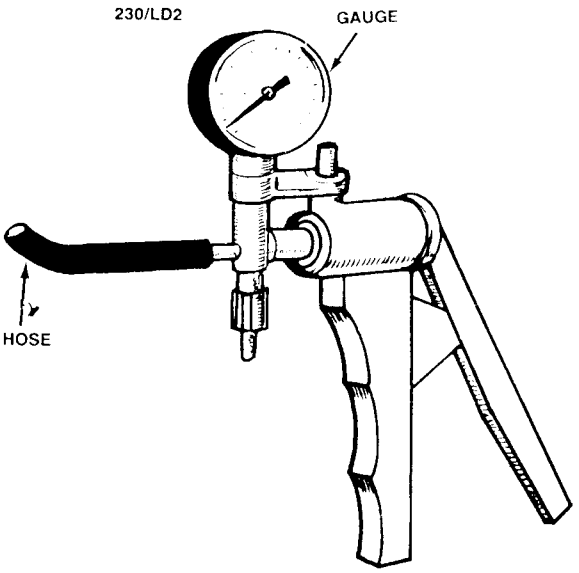
(1) Release the vacuum valve from the air cleaner bracket.

(2) Suitably mark and disconnect the hoses from the vacuum valve.

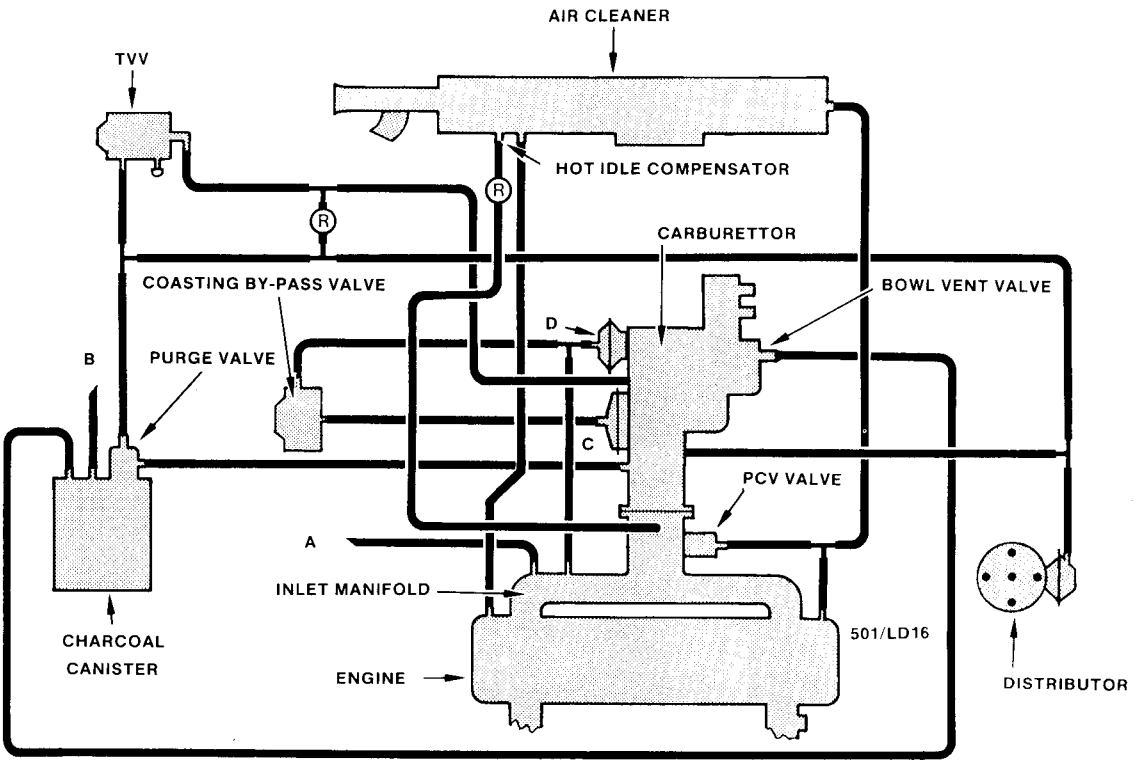
(3) Attempt to blow through the large diameter port then the small diameter port of the vacuum valve. No air should pass. If air does pass through either port of the vacuum valve the valve should be renewed.



Installed view of the fuel bowl ventilation system vacuum valve. 1986 model shown.



Line drawing showing a suitable hand vacuum pump.



Schematic layout of emission control components for 1985 models with two wheel drive and manual transaxle. A = To heater controls, B = To fuel tank, C = Coasting by-pass diaphragm, D = Choke breaker, R = Restrictor.

(4) Using a suitable hand vacuum pump apply a vacuum greater than 200 mm Hg to the small diameter port of the vacuum valve. It should be possible to blow through the large diameter port of the vacuum valve freely if the valve is functioning correctly.

(5) Instal the valve to the air cleaner bracket and connect the hoses ensuring that they are free from obstruction and in good condition.

Air Control Valve

(1) Release the air control valve from the mounting bracket.

(2) Suitably mark and disconnect the hoses from the air control valve.

(3) Attempt to blow through all the ports of the valve except the one that is plugged. No air should pass if the valve is functioning correctly. Renew the air control valve if necessary.

(4) Using a suitable hand vacuum pump apply a vacuum greater than 200 mm Hg to the small diameter port of the air control valve.

(5) Test the valve by blowing air through the middle ports of the valve one at a time with the other middle port blocked. Air should flow freely from the other ports. Renew the air control valve as necessary.

(6) Connect the hoses to the air control valve and instal the valve in the mounting bracket.

Bowl Ventilation Solenoid and Thermal Switch

(1) Remove the spare tyre from the engine compartment.

(2) Suitably mark and disconnect the hoses from the bowl ventilation solenoid.

(3) Connect suitable rubber hoses to the two ports on the bowl ventilation solenoid.

(4) It should be possible to blow through the hose connected to port A as shown on the illustration. The air blown in should flow out of the small filter on the solenoid not the other hose.

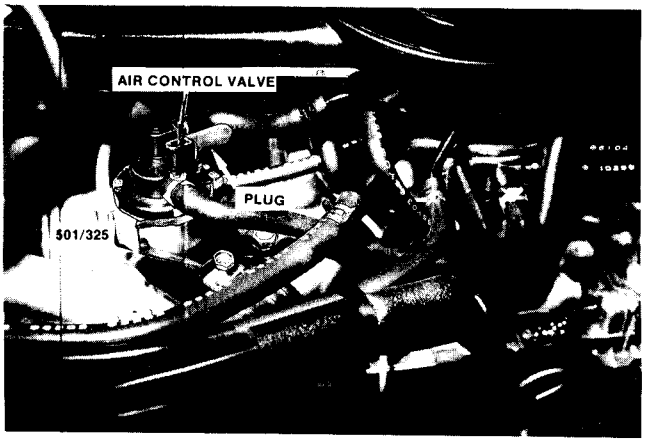
(5) Switch the ignition switch to ON.

(6) Using a suitable hot air gun and a thermometer heat the thermal switch adjacent to the ventilation solenoid to 67°C or more.

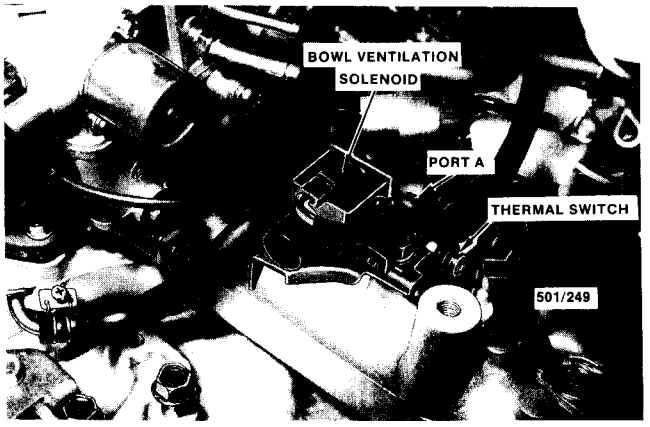
(7) If the bowl ventilation solenoid and thermal switch are operating correctly it should be possible to blow through one hose connected to the solenoid and have air flow from the other hose. No air should come from the filter.

(8) If air does not flow as described in step (7) connect the wire from the thermal switch to a good earth. Air should flow as described in step (7). If air flows renew the thermal switch. If air does not flow renew the bowl ventilation solenoid.

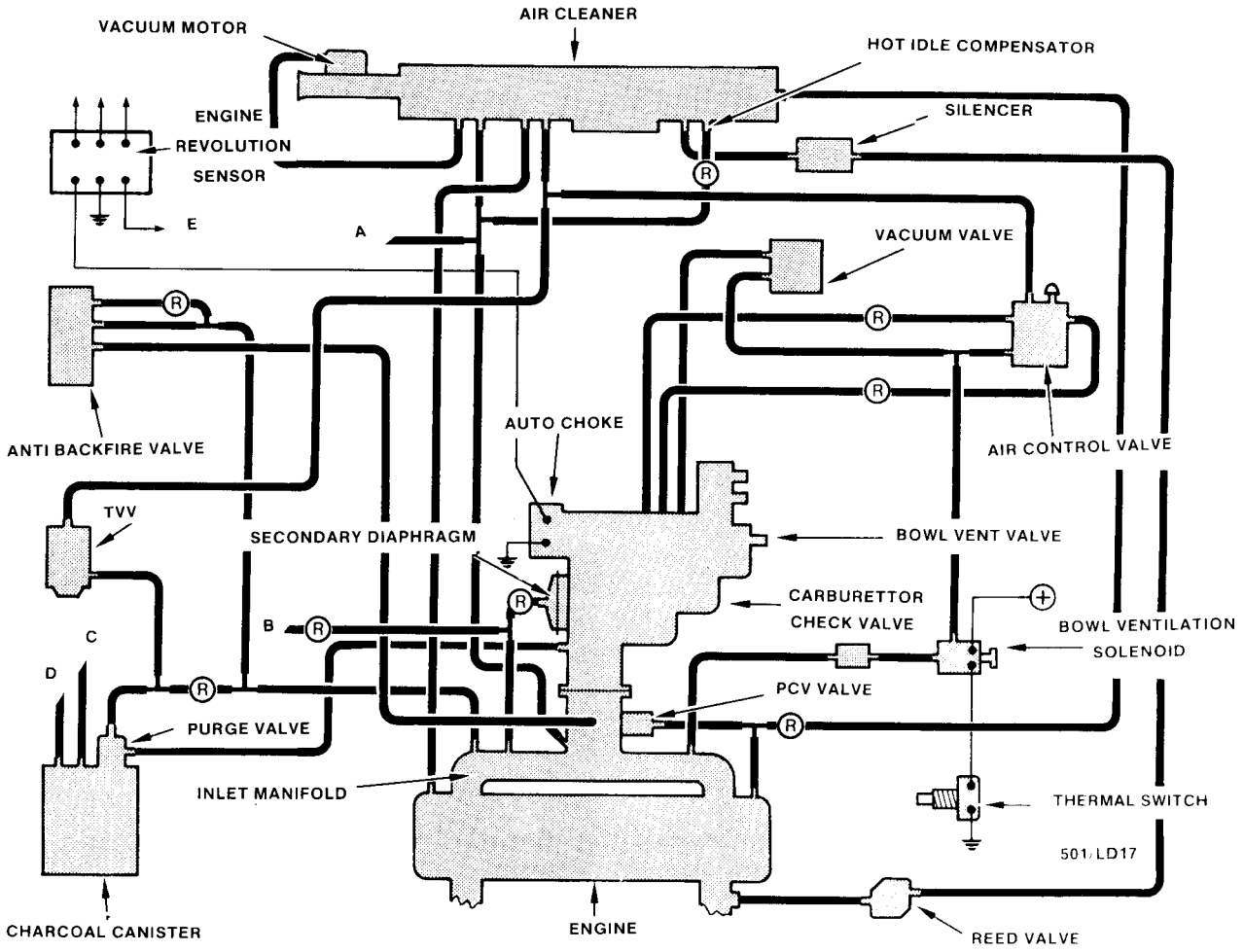
(9) Switch off the ignition and connect the hoses using the marks made previously as a guide.



Installed view of the air control valve. 1986 model shown.



Installed view of the bowl ventilation solenoid and thermal switch. 1986 model shown.



Schematic layout of emission control components for 1986–1987 models. A = To heater controls, B = To automatic transaxle, if applicable, C = To fuel tank, D = To bowl vent valve, E = To fuel pump, R = Restrictor

3. AIR PREHEAT SYSTEM

Special Equipment Required:
To Check Hot Idle Compensator — Thermometer, hot air blower

DESCRIPTION

Efficient combustion of the air/fuel mixture is dependent upon a constant inlet air temperature. An air preheat system is employed to heat the inlet air under cold conditions.

The system allows a quicker warm up cycle and leaner air/fuel mixture, which reduces exhaust emissions.

Two sources of air supply are available at the air cleaner snorkle:

(a) Unheated air.

(b) Preheated air from a stove around the exhaust manifold.

On early model vehicles, selection of the air supply is manually controlled by a flap in the air cleaner snorkle. The flap should be set as shown on the decal to the most suitable temperature range.

On late models selection of the air supply is automatically controlled by a thermosensor and vacuum motor. The thermosensor controls the amount of vacuum to the vacuum motor depending on the temperature of the incoming air within the air cleaner. Therefore, the inlet air temperature is kept constant.

A hot idle compensator is fitted to some models to allow extra air into the engine should the temperature within the air cleaner exceed 55°C. Under hot conditions fuel vapourises more readily, causing a richer mixture particularly at idle. The idle compensator employs a bi-metal strip which controls an air bleed to the inlet manifold in such a way, that, as engine compartment temperatures increase, the bi-metal strip opens the air bleed and extra air is drawn into the engine, thereby leaning the mixture.

This reduces Co and HC emission and also gives a smoother idle.

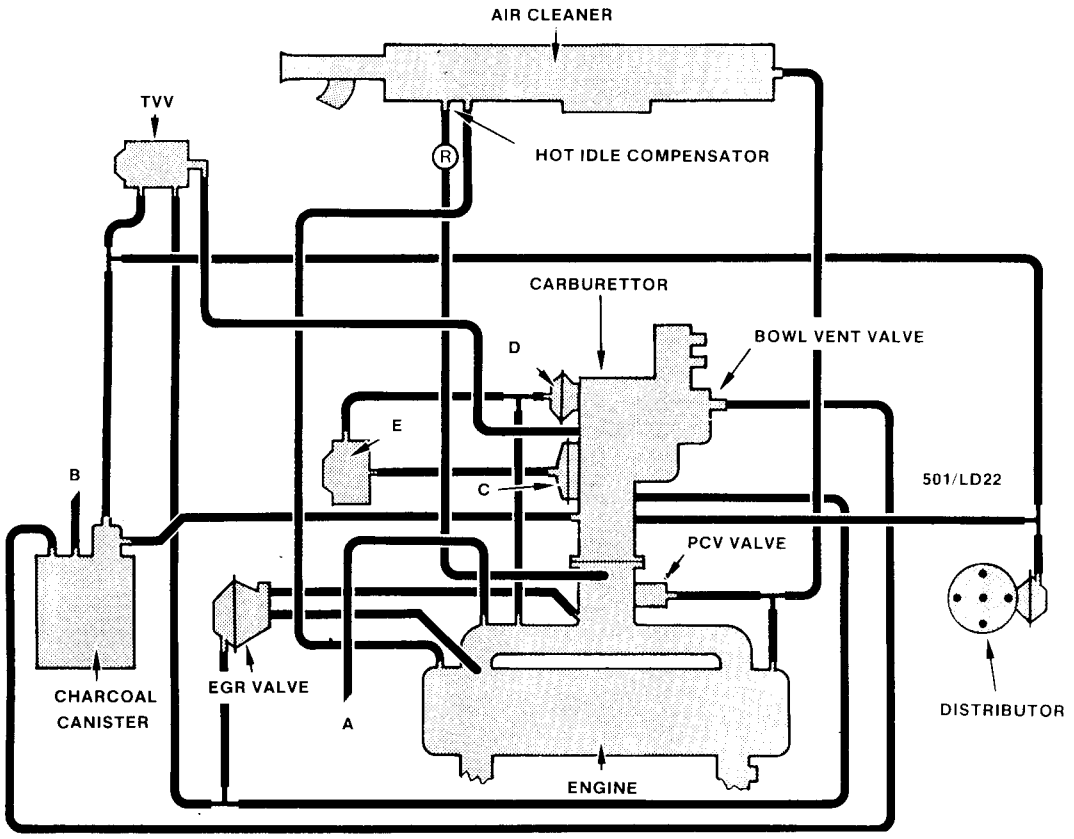
TO CHECK OPERATION

Thermosensor and Vacuum Motor

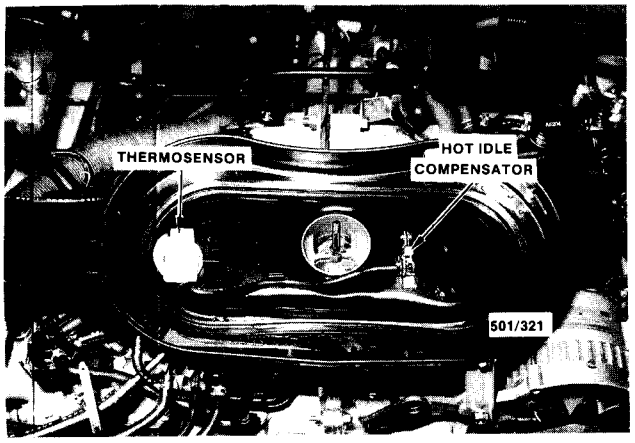
(1) Remove the cold air tube from the air cleaner snorkle.

(2) Check the position of the flap in the air cleaner snorkle. The flap should be in the cold air position with the flap closing off the air supply from the exhaust manifold heat stove.

(3) Start the engine and allow it to idle. The air cleaner flap should rise, allowing hot air from the exhaust manifold heat stove to enter the engine.



Schematic layout of emission control components for 1985 models with four wheel drive and manual transaxle. A = To heater controls, B = To fuel tank, C = Coasting by-pass diaphragm, D = Choke breaker, E = Coasting by-pass valve, R = Restrictor.



View of the air cleaner with top cover removed showing the thermosensor and hot idle compensator. 1986 model shown.

NOTE: The success of this test depends upon ambient temperature. The optimum time to conduct the test is when the engine is cold and the ambient temperature is low, although the test will work at higher temperatures to varying degrees.

(4) If the flap does not rise, stop the engine and detach the vacuum hose from the vacuum motor. On models fitted with a hot idle compensator in the air cleaner, suitably crimp the hose from the hot idle compensator between the air cleaner connection and the tee piece.

(5) Connect a vacuum gauge to the hose disconnected from the vacuum motor or hold a finger over the hose, restart the engine and note the amount of vacuum produced.

(6) If a satisfactory amount of vacuum is produced then the system is functional to this point. Check the vacuum motor assembly or flap linkage and renew if necessary.

(7) If little or no vacuum is produced, check the vacuum hoses or the thermosensor in the air cleaner. Isolate the thermosensor by detaching the hose to the thermosensor and taking a vacuum reading at this point.

If the vacuum at this hose is low then either the hose or the vacuum fitting is blocked. Repair or renew the component concerned.

(8) If operation 3 was satisfactory, allow the engine to run until normal operating temperature is reached. As the engine temperature increases the air cleaner flap should fall allowing cold air to enter the engine.

Hot Idle Compensator

(1) Remove the air cleaner as described in the Fuel System section.

(2) Remove the top cover and the air cleaner element from the air cleaner.

(3) Using a suitable hot air gun and a thermometer heat the hot idle compensator to 55°C. The hot idle compensator should open. If the idle compensator fails to function as described it should be renewed.

NOTE: The idle compensator is factory preset and no attempt should be made to disassemble it or alter the tension of the bi-metal strip.

4. EXHAUST GAS RECIRCULATION (EGR) SYSTEM

Special Equipment Required:
To Test EGR Valve — Hand vacuum pump
To Test TVV — Thermometer

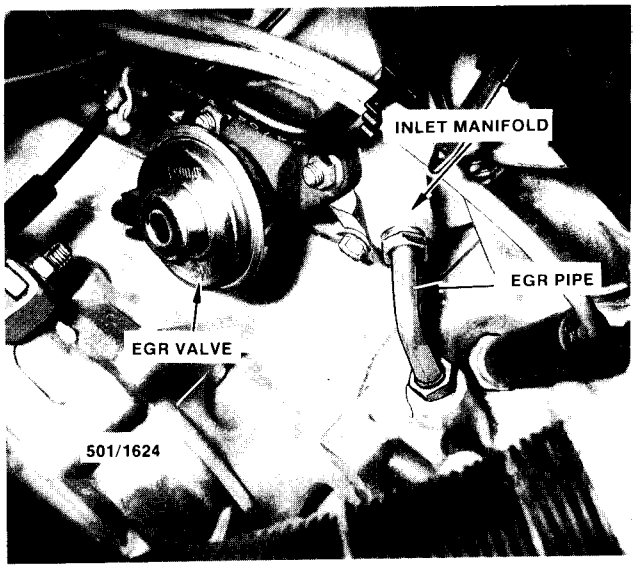
DESCRIPTION

The exhaust gas recirculation (EGR) control system is fitted in order to lower combustion temperature and so reduce the level of oxides of nitrogen (Nox) in the exhaust gas.

Part of the exhaust gas is metered from an exhaust port in one cylinder head and is routed to the inlet manifold by the EGR valve.

The EGR valve is operated by manifold vacuum. On some models the valve is regulated by a thermal vacuum TVV or the combination of a TVV and a speed switch. When a TVV is installed the EGR circuit does not operate at low engine temperatures therefore improving driveability. When a speed switch is installed the EGR circuit does not operate at speeds over 80 km/h thus improving fuel economy.

The operation of the EGR system should be checked every 12 months or 20,000 kilometres and the valve should be removed and cleaned if necessary.



Installed view of the EGR valve and pipe with the pipe cover removed, 1985 model shown.

TO TEST EGR VALVE

(1) Run the engine until it is at normal operating temperature.

(2) Disconnect the vacuum hose from the EGR valve.

(3) Connect the hand vacuum pump or another suitable source of vacuum to the vacuum pipe on the EGR valve.

(4) Run the engine at approximately 2,000 rpm and slowly apply vacuum to the EGR valve using the hand vacuum pump. If vacuum cannot be produced the EGR diaphragm is leaking. Renew the EGR valve.

NOTE: Do not apply more than 800 mm Hg vacuum to the EGR valve otherwise damage may occur to the diaphragm.

(5) Engine speed should drop or the engine stall as vacuum is applied if the EGR valve is working correctly. Switch off the engine.

(6) If no change is noted in engine speed remove the EGR valve from the inlet manifold by removing the retaining bolts.

(7) Clean any deposits from the EGR valve shaft and body using a sharp object and a wire brush. Do not oil the valve.

(8) Apply vacuum to the vacuum pipe on the EGR valve using the hand vacuum pump again. The EGR valve shaft should move. If the shaft does not move, renew the EGR valve.

(9) When satisfied that the EGR valve is working correctly instal the valve to the inlet manifold using a new gasket and tighten the retaining bolts securely.

(10) Ensure that the vacuum hose to the EGR valve is not blocked or leaking before it is connected.

TO TEST THREE PORT THERMAL VACUUM VALVE (TVV)

(1) Disconnect the negative battery terminal.

(2) Remove the air cleaner assembly. Refer to the Fuel System section if necessary.

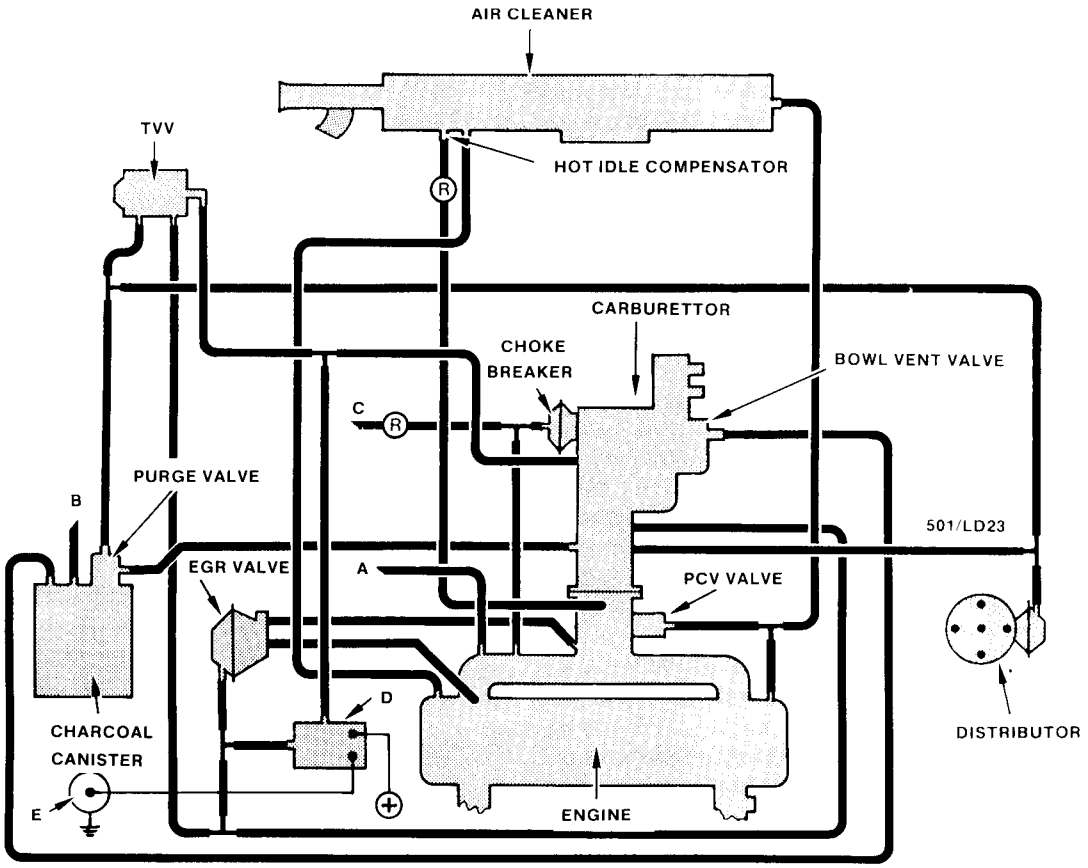
(3) Suitably mark and disconnect the hoses from the TVV.

(4) Remove the TVV using a suitable spanner.

(5) Connect two rubber tubes to the two ports of the TVV furthest from the threaded portion.

(6) Block the port of the TVV nearest the threaded portion using a suitable rubber cap.

(7) Suspend and immerse the TVV together with a reliable thermometer in a vessel of cold water,



Schematic layout of emission control components for 1985 models with automatic transaxle. A = To heater controls, B = To Fuel tank, C = To automatic transaxle, D = Speed switch solenoid valve, E = Speed switch, R = Restrictor.

ensuring that neither the TVV nor the thermometer are touching the bottom or sides of the vessel.

NOTE: Do not allow water to get inside the TVV.

(8) Progressively heat the water, noting the temperature reading on the thermometer. At the same time attempt to blow air into one of the rubber hoses. Air should flow freely.

(9) Note the temperature reading on the thermometer, when it is not possible to blow through the rubber hose. This temperature should be between 45°–55° degrees C. Remove the TVV from the water. Renew the TVV if necessary.

(10) Remove the cap from the port nearest the threaded portion of the TVV and instal it on the port furthest from the threaded portion of the TVV.

(11) Instal the rubber hose on the port nearest the threaded portion of the TVV.

(12) Cool the TVV to a temperature below 10° degrees using an ice cube. Attempt to blow through the rubber hose. This should not be possible. Renew the TVV if necessary.

(13) Immerse the TVV again and heat the water while blowing into one of the rubber hoses. Note the temperature on the thermometer when it is no longer possible to blow through the hose. This temperature reading should be between 45–55 degrees C. Remove the TVV from the water and renew it if necessary.

(14) Instal the TVV and connect the vacuum hoses ensuring that they are not blocked or in an unserviceable condition.

TO TEST SPEED SWITCH SOLENOID VALVE

(1) Disconnect the solenoid valve wires at the connector.

(2) Disconnect the hoses to the solenoid valve and connect a rubber tube to one of the switch ports. Attempt to blow through the rubber tube, this should not be possible.

(3) Using jumper leads and a 12 volt battery connect the positive lead to one connector of the solenoid valve and the negative lead to the other. Attempt to blow through the rubber tube. This should be possible. Renew the solenoid valve if necessary.

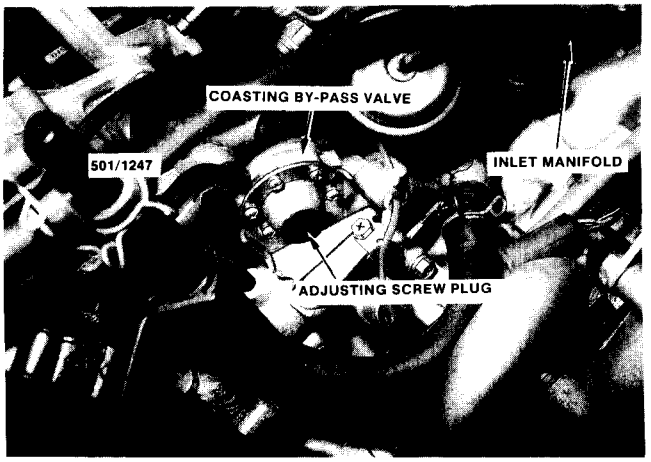
(4) Connect the solenoid wires and the hoses when the test procedure is complete.

5. COASTING BY-PASS SYSTEM

DESCRIPTION

High manifold vacuum during deceleration causes an increase in HC emission due to incomplete combustion of the fuel/air mixture.

The coasting by-pass valve is a vacuum actuated by-pass valve which meters additional fuel/air mixture to the inlet manifold during deceleration to assist in the complete combustion of the mixture, thereby reducing HC emissions.



Installed view of the coasting by-pass valve that is fitted to some models.

TO CHECK OPERATION

The coasting by-pass valve and diaphragm will normally not require checking or adjustment, however if it does become necessary proceed as follows:

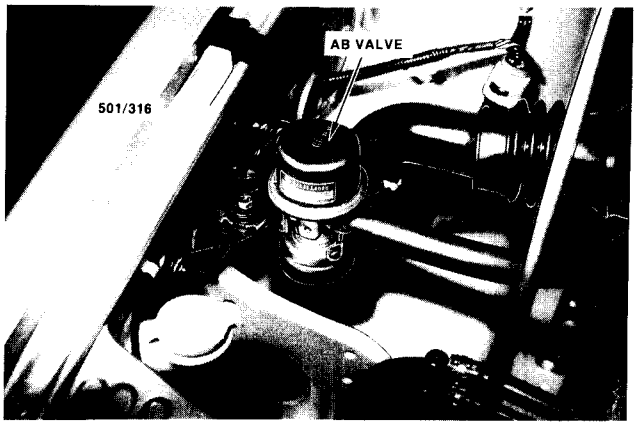
(1) Run the engine until normal operating temperature is reached, ensure that the ignition timing and the carburettor idle speed and mixture are set to Specifications

(2) Remove the air cleaner top cover.

(3) Using a tee piece and a suitable piece of hose, connect a quick response type vacuum gauge in the line between the inlet manifold and the coasting by-pass valve.

(4) Run the engine at 3,000 to 4,000 rpm and then release the throttle lever. When the throttle lever is released a change in tone should be heard at the carburettor throat. This change in tone indicates that the coasting by-pass system is working.

(5) Repeat step (4) several times and take a reading on the vacuum gauge when the change in tone first occurs. The change in tone should occur at 550 mm Hg.



Installed view of the anti-backfire (AB) valve. 1986 model shown.

(6) If the change in tone is not occurring or it is occurring at a vacuum higher than 550 mm Hg. Remove the rubber plug from the coasting by-pass valve and turn the adjusting screw clockwise. If the change in tone is still not occurring remove the diaphragm assembly from the carburettor and ensure that its plunger is drawn in when a vacuum is applied. Renew the components as necessary.

NOTE: Do not apply pressure to the adjusting screw.

(7) If the change in tone is occuring at a vacuum lower than 550 mm Hg. Remove the rubber plug from the coasting by-pass valve and turn the adjusting screw anti-clockwise. Retest the valve and renew it if necessary.

6. AIR INJECTION SYSTEM

DESCRIPTION

To aid complete combustion of the air fuel mixture before being discharged from the exhaust system to the atmosphere, extra oxygen is introduced into the exhaust system by way of the air injection system. In doing so, the emission of hydrocarbons (HC) and carbon monoxide (CO) to the atmosphere is reduced.

The system comprises of a silencer, a reed valve, a tuned length air injection pipe and an anti-backfire (AB) valve with associated hoses.

Due to the design of the exhaust system the pulsations of the exhaust create a vacuum in the air injection pipe, drawing filtered air from the air cleaner via the silencer and the reed valve, thereby enriching the exhaust gases with oxygen.

When pressure in the exhaust system exceeds the air pressure in the air injection system, due to engine speed increase, or due to a mechanical failure such as a poor hose connection, air leak etc., the back pressure closes the reed valve and prevents hot exhaust gases from entering the air cleaner.

To prevent a temporarily rich mixture from entering the engine and then igniting in the exhaust the AB valve is used. The AB valve supplies additional air to the inlet manifold when vacuum is high, for instance when the vehicle is coasting down hill or being rapidly decelerated. The AB valve is non repairable and can only be renewed as a complete unit.

REED VALVE

To Remove and Instal

(1) Disconnect the negative battery terminal.

(2) Remove the spare wheel from the engine compartment.

(3) Using a suitable spanner loosen the air injection pipe union at the reed valve.

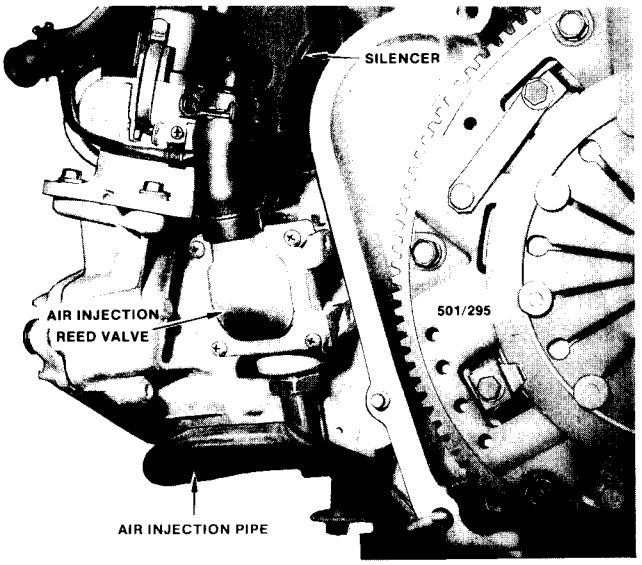
(4) Remove the bolts retaining the silencer to the engine block.

(5) Disconnect the hose between the reed valve and the silencer and position the silencer clear of the work area.

(6) Remove the bolts retaining the reed valve to the engine block.

(7) Manoeuvre the reed valve from the air injection pipe and out of the engine compartment.

Installation is a reversal of the removal procedure.



View of the air injection reed valve. 1986 model shown.

To Check and Inspect

(1) Remove the reed valve as previously described.

(2) Attempt to blow through the port on the reed valve that connects to the silencer. Air should flow freely. If not dismantle the reed valve as described in step (4).

(3) Attempt to blow through the port on the reed valve that connects to the air injection pipe. Air should not flow if the reed valve is functioning correctly. Dismantle the reed valve as described in step (4) if necessary.

(4) Remove the screws retaining the reed valve top cover to the body. Remove the top cover and discard the gasket.

(5) Remove the reed valve from the body and clean all components in a suitable cleaning solvent.

(6) Inspect all components for distortion, damage and cracks and renew any components as necessary.

(7) Assemble the reed valve using a new top cover gasket. Tighten the top cover screws securely.

(8) Test the valve as described in steps (2) and (3) and instal the valve to the engine as previously described.

7. CATALYTIC CONVERTER SYSTEM

On unleaded petrol models a catalytic converter is located in the exhaust system at the join of the two engine pipes. The catalytic converter converts hydrocarbons (HC) and carbon monoxide (CO) present in the exhaust gases into carbon dioxide, water and heat.

The catalytic converter does not require maintenance or replacement under normal circumstances, however it can be damaged or 'poisoned' with leaded petrol and raw fuel. Therefore certain devices are fitted to protect the catalytic converter. These devices are as follows.

(1) A small diameter fuel filler neck with a spring loaded trap door, to prevent the use of leaded petrol.

(2) A non adjustable idle mixture screw, to prevent incorrect mixtures which will 'poison' the converter.

To prevent damage to the catalytic converter, or fires, the following precautions should be observed.

SERVICE PRECAUTIONS

(1) Do not push or tow start the vehicle.

(2) Do not "prime" the carburettor by pouring fuel down the carburettor throat.

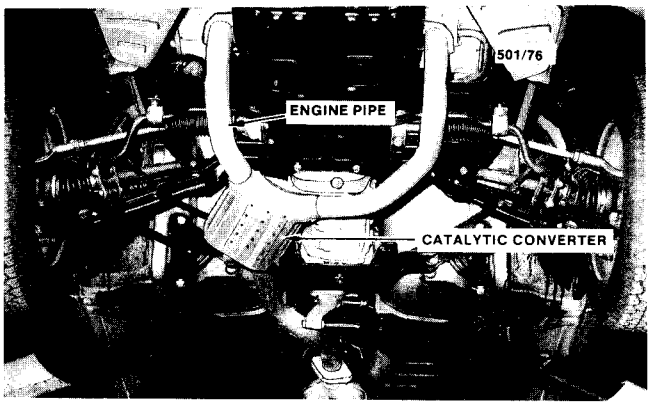
(3) Do not disconnect the ignition system while the vehicle is in motion and the transaxle is in gear, i.e. do not switch off the ignition while in gear.

(4) Do not allow the engine to run with any ignition high tension leads disconnected.

(5) Do not allow the engine to run for prolonged periods if the engine is misfiring or idling roughly.

(6) Do not apply underbody sealer to the exhaust heat shields.

(7) Do not park the vehicle over long grass or dry leaves, the high temperatures produced in the catalytic converter may cause these to ignite.



Installed view of the catalytic convertor fitted to 1986–1987 models.