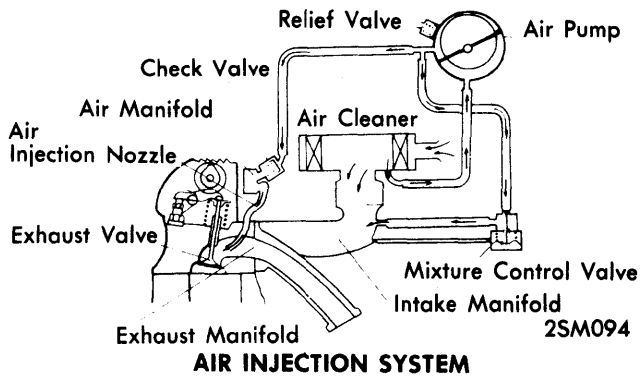


## CHEVROLET LUV AIR INJECTION

LUV Pickup (1972-73)

### DESCRIPTION

The air injection system is designed to inject prepressurized air near the exhaust valves to burn them before they are exhausted. The system also includes a mixture control valve that helps prevent an over rich air/fuel mixture during deceleration. The system consists of the following components: Air pump, check valve, air injection nozzles and manifold, a relief valve, a mixture control valve and hoses and pipes which connect the components.



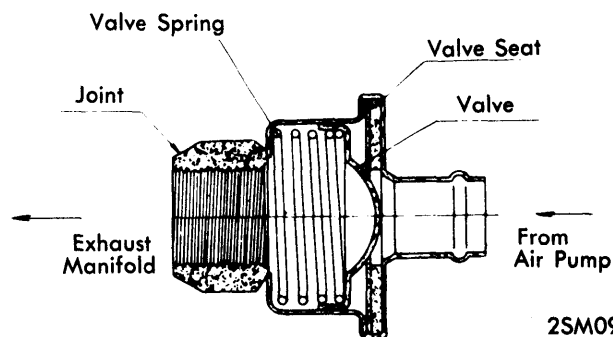
**AIR INJECTION SYSTEM**

### OPERATION

The air pump supplies air, through the check valve, to the air injection manifold, and then to the individual injection nozzles by the exhaust valves. Air is continually supplied while the engine is running.

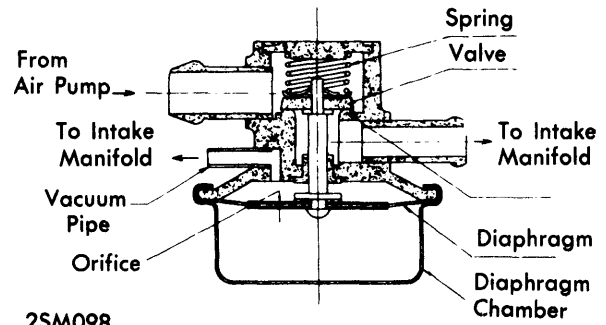
**Air Pump** – Pump is of the two vane type and is belt driven. A relief valve is press-fitted into position on the outlet chamber and is held closed under normal operating conditions by a spring. If air pressure at the outlet exceeds 6.12 lb. sq. in., the tension of the spring will be overcome and the valve will open to release the excess air.

**Check Valve** – Valve is designed to allow air to pass through in only one direction. The valve is pushed open when the pressure of the air supplied by the pump overcomes the valve spring tension, but closes when there is a reverse flow of exhaust gas from the manifold. This protects the air pump and hoses from damage in case of a broken drivebelt or if backfire occurs within the exhaust system.



**CHECK VALVE**

**Mixture Control Valve** – Valve is designed to supply air into the intake manifold during deceleration. Under normal running conditions, the valve is held closed, but when vacuum in the intake manifold increases rapidly, the valve opens to allow air from the air pump into the intake manifold. When the pressure of air acting on both sides of the mixture control valve diaphragm is balanced, the diaphragm is forced back to its original position by spring pressure. This causes the valve to close.

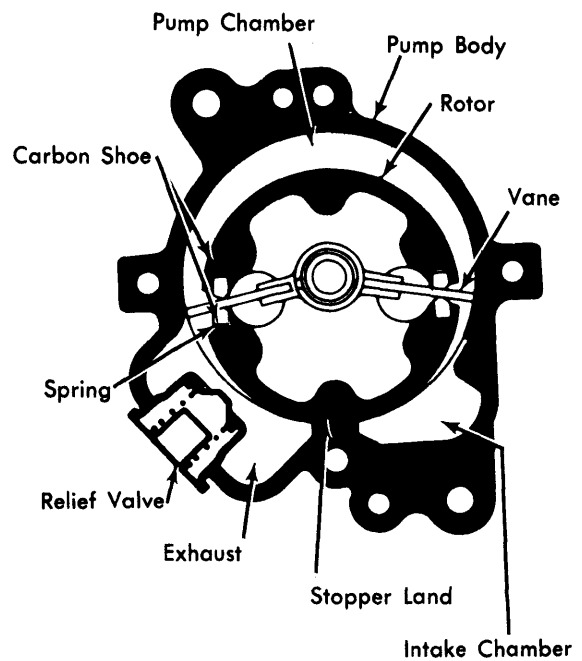


**MIXTURE CONTROL VALVE**

### SERVICE PROCEDURES

**Air Pump** – If air pump makes an abnormal noise and cannot be corrected without removing pump from vehicle, check the following points in sequence:

- 1) Turn pulley  $\frac{1}{4}$  turn in clockwise direction and then  $\frac{1}{4}$  turn in counterclockwise direction. If pulley binds and rotation is not smooth, the bearing is defective and must be replaced.



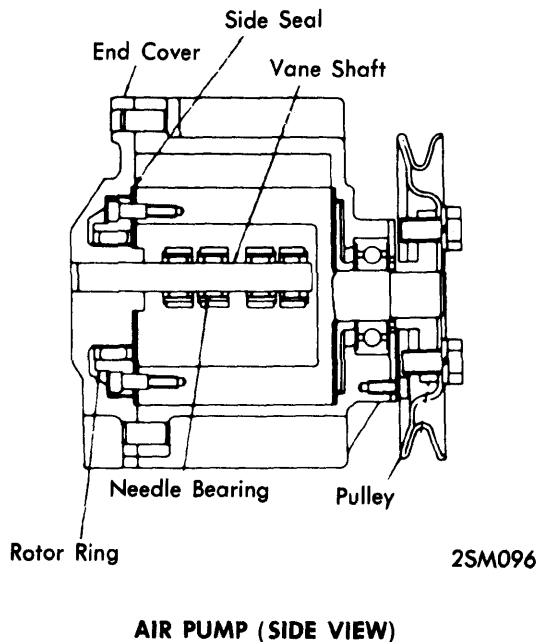
**AIR PUMP (END VIEW)**

# Exhaust Emission Systems

## CHEVROLET LUV AIR INJECTION (Cont.)

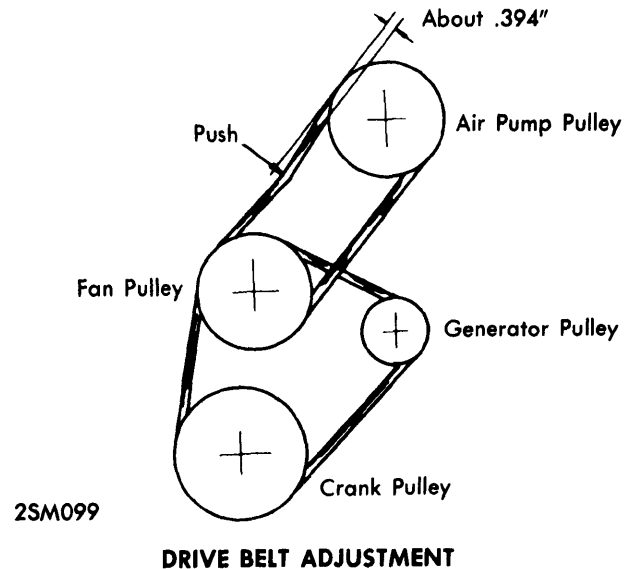
- 2) Check inner wall of pump body, vanes and rotor for wear. If rotor has excessive wear, replace air pump.
- 3) Check needle roller bearing for wear or damage. If bearings are defective, air pump should be replaced.
- 4) Check rear side seal and replace if there is noticeable wear or damage.
- 5) Check vanes and needle roller bearing for wear or damage. Replace bearings as necessary.
- 6) Check carbon shoes and replace if worn or damaged. A deposit of carbon particles on the inner wall of pump body and vanes is normal, but should be removed using compressed air.

**Relief Valve** – Air should not blow out of relief valve until engine speed exceeds 2,000 RPM. If leakage of air is noted, replace valve.



**Check Valve** – Remove check valve from air manifold and test it for leakage by blowing air into the valve from the air pump side and then from the air manifold side. If check valve is normal, air should pass only from air pump side. If air passes from the air manifold side, the check valve should be replaced. A small amount of air leakage may be overlooked.

**Mixture Control Valve** – Disconnect rubber hose connecting control valve to intake manifold, and plug intake manifold side of valve. If valve is normal, air will continue to blow out from the mixture control valve for a few seconds when accelerator pedal is depressed all the way to the floor and then released quickly. If air blows out for more than 5 seconds, replace mixture control valve.



**Air Pump Drive Belt Adjustment** – When properly adjusted, drive belt should have a deflection of about  $\frac{3}{8}$  -  $\frac{7}{16}$ \" with firm finger pressure applied between air pump and fan pulley.

**Service Intervals** – All components of air injection system should be inspected every 24,000 miles. Drive belt tension should be checked and adjusted, if necessary, every 6,000 miles.