SUBARU COASTING BY-PASS SYSTEM

All Models

DESCRIPTION

The purpose of this system is to control HC emissions during deceleration. This is done by supplying proper air/fuel mixture through the by-pass opening to maintain suitable combustion. System consists of a vacuum control valve, servo diaphragm, by-pass valve, by-pass jet, by-pass air bleed and, on some models, a solenoid valve.

OPERATION

During coasting, vacuum develops in intake manifold due to closed throttle valve. This vacuum is transmitted to the vacuum control valve which, in turn, opens the poppet valve.

The vacuum reaching the servo diaphragm of the carburetor forces the by-pass valve in the carburetor to open. The by-pass passage connects the air horn with the secondary throttle bore slightly below the secondary throttle valve.

With by-pass valve open, air is admitted to by-pass valve from air horn. At the same time, the by-pass jet and by-pass air bleed allow additional air/fuel mixture to be metered and thus maintain proper fuel supply.

On Federal Hatchback models, Sedan DL models and Hardtop DL models with manual transmission, the coasting by-pass system is overridden until the vehicle reaches a speed of approximately 10 MPH. Below this speed, vacuum to the vacuum control valve is shut off by a solenoid valve.

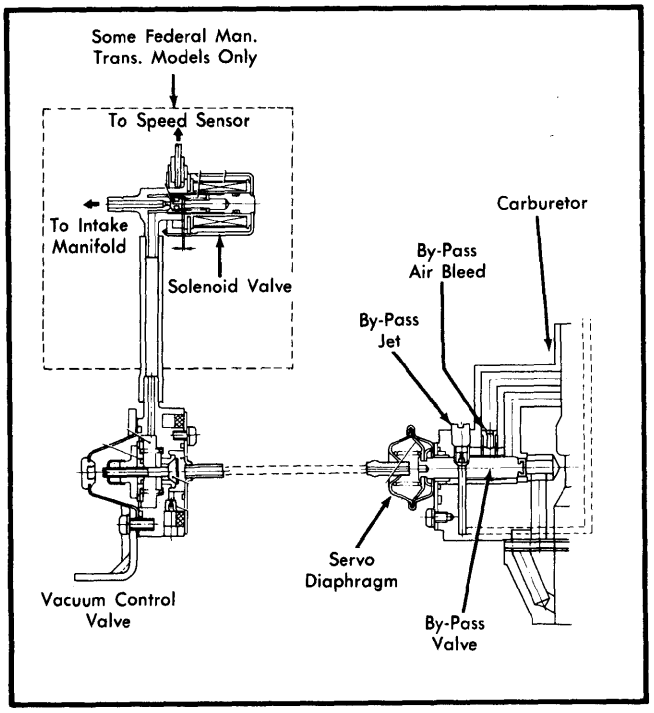

Fig. 1 Coasting By-Pass System Components

TESTING

MODELS WITHOUT CATALYTIC CONVERTER

1) Using a "T" connector, connect a vacuum gauge to vacuum control valve-to-intake manifold vacuum line. Remove air cleaner cover. With engine at normal operating temperature, raise engine speed to 3000-4000 RPM without load, then immediately release throttle.

2) Measure vacuum at the moment that a "fizzing" noise can be heard. This noise indicates that the vacuum control valve is functioning.

- If noise cannot be heard, remove adjusting screw cover from vacuum control valve and turn screw clockwise until "fizzing" noise occurs.
- If noise can be heard with engine at idle, turn adjusting screw counterclockwise until the noise disappears.

3) Vacuum reading in step **2)** should be as follows, if not turn vacuum control valve adjusting screw to obtain specified vacuum:

- At an altitude of 0 to 2000 ft., vacuum should be 19.7±.4 in. Hg.
- At an altitude of 2000 to 4000 ft., vacuum should be 18.1±.4 in. Hg. After adjustment, turn screw ¼ turn counterclockwise.
- At an altitude above 4000 ft., vacuum should be 16.5± .4 in. Hg. After adjustment, turn adjusting screw ¾ turn counterclockwise.

MODELS WITH CATALYTIC CONVERTER

Testing and adjusting procedures for these models is identical to models without catalytic converter, except for the following:

- Disconnect hoses as necessary so that direct intake manifold vacuum is applied to vacuum control valve, then connect vacuum gauge to intake manifold-to-control valve vacuum line.
- Connect vacuum line to distributor vacuum retard inlet so that distributor is fully retarded.