1982 Exhaust Emission Systems

DATSUN INTAKE MANIFOLD VACUUM CONTROL

Pickup, 200SX

DESCRIPTION

The Intake Manifold Vacuum Control system is installed to reduce HC emissions during deceleration. On Pickup models, the system consists of a fender mounted boost control system and carburetor mounted air by-pass control system.

In addition, all California models are equipped with altitude compensators. On 200SX models, the system consists of a vacuum control unit mounted on the intake manifold.

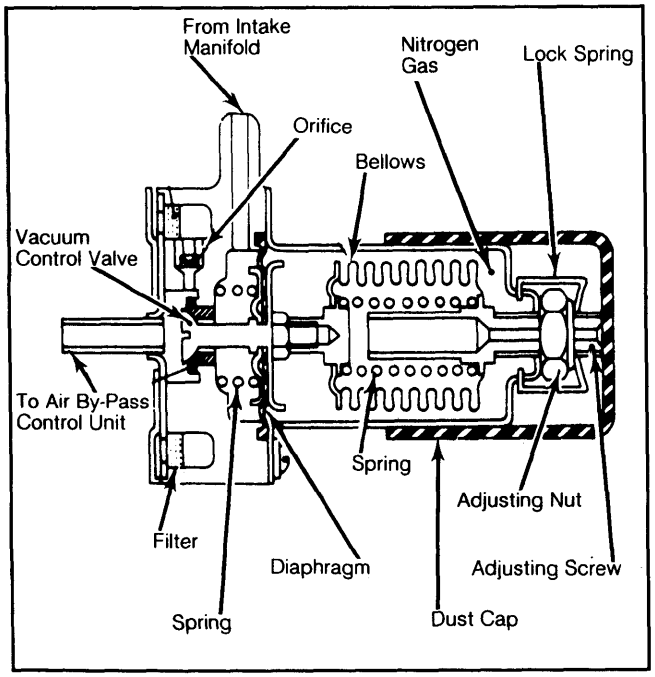
OPERATION

BOOST CONTROL UNIT

Pickup Models

The boost control system is nitrogen filled and contains a diaphragm and control unit. When intake manifold vacuum exceeds a pre-determined value, the diaphragm opens the control unit. This allows manifold vacuum to act upon the air by-pass control system.

Fig. 1: Datsun Pickup Boost Control Unit Schematic



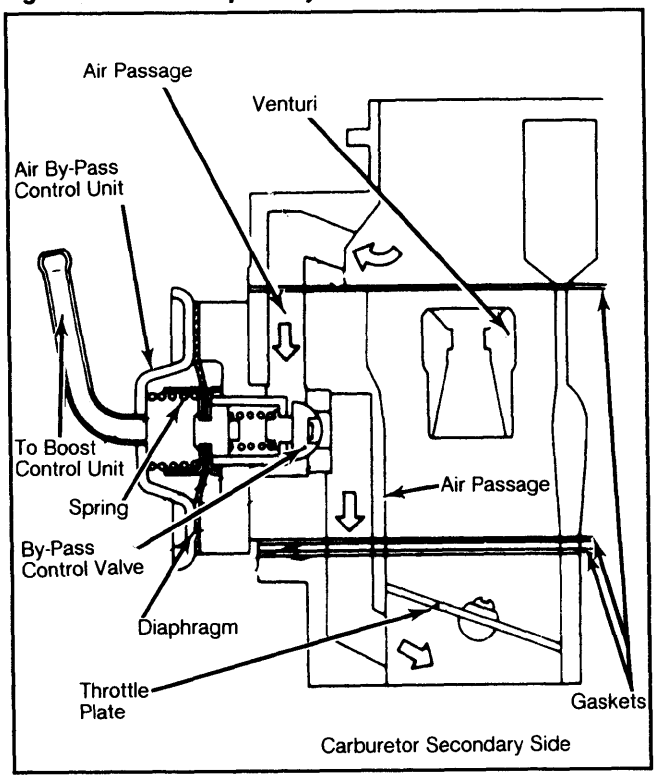
AIR BY-PASS CONTROL UNIT

Pickup Models

The air by-pass control system consists of a diaphragm and air control unit. When intake manifold vacuum by-passes the boost control system, it activates the diaphragm. The diaphragm opens the air control unit which supplies additional air into the intake manifold.

The amount of air entering the manifold is controlled by servo-action of the air control unit and vacuum control unit. Manifold vacuum can be kept very close to the pre-determined value during deceleration by this tightly controlled circuit.

Fig. 2: Datsun Pickup Air By-Pass Control Unit Schematic



VACUUM CONTROL UNIT

200SX Models

The vacuum control unit consists of a diaphragm and control unit. When intake manifold vacuum exceeds a pre-determined value, the diaphragm opens the control unit and allows air to by-pass the throttle chamber directly into the intake manifold.

TESTING

BOOST CONTROL UNIT

Pickup Models

1) To check pressure, engine should be at normal operating temperature, idle speed set to specifications and transmission in Neutral. Connect a tachometer to engine and a vacuum gauge to intake manifold.

2) Run engine under no load and note vacuum reading. Increase engine speed to 1500-2000 RPM, then quickly close the throttle. Manifold vacuum should increase to 23.6 in. Hg or more and then gradually decrease to level noted at idle.

BOOST CONTROL UNIT OPERATING PRESSURES (At Sea Level)

Application	Pressure (In. Hg)
Pickup	22.8-24.4

3) If boost control unit operating pressure at idle is not as specified, *see ADJUSTMENTS in this article.*

DATSUN INTAKE MANIFOLD VACUUM CONTROL (Cont.)

VACUUM CONTROL VALVE

200SX Models

1) With engine at normal operating temperature and transmission in Neutral, disconnect vacuum hose (3-way connector) from air regulator.

2) Accelerate engine to 3500-4500 RPM and allow engine to return to idle. Manifold vacuum should be felt at air hose. If vacuum is not felt at end of hose, replace vacuum control valve.

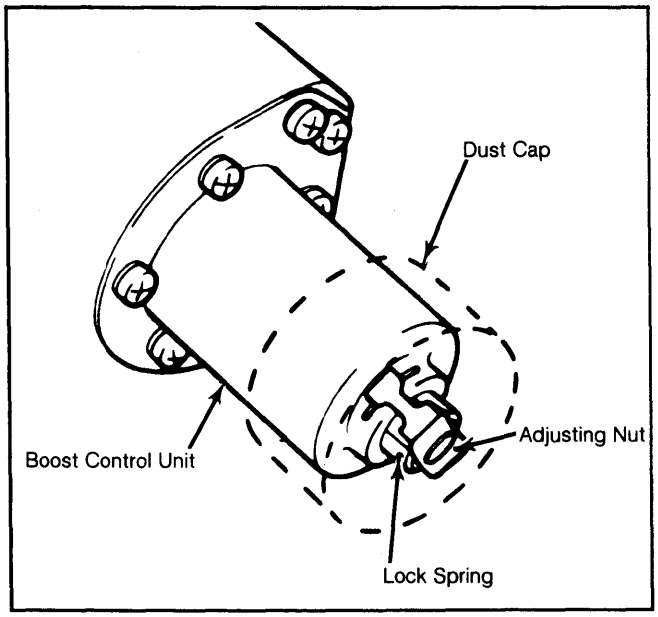
ADJUSTMENT

BOOST CONTROL UNIT

Pickup Models

1) Turn adjusting nut as necessary until operating pressure is obtained. *See Fig. 3.* Turning adjusting nut clockwise decreases operating pressure and counterclockwise increases pressure.

Fig. 3: Datsun Pickup Boost Control Unit Operating Pressure Adjustment



Turn adjusting nut clockwise to decrease or counterclockwise to increase pressure.

2) After setting pressure to specified range, accelerate engine and check adjustment. If lower than specified level, turn adjusting nut until specification is correct.

3) Accelerate engine again and check adjustment. If engine speed cannot be decreased to idle when checking control unit operating pressure, proceed as follows:

4) Turn adjusting nut counterclockwise so operating pressure is .98 in. Hg higher than specified, then turn adjusting nut clockwise so pressure drops to specification.

5) If operating pressure cannot be observed in step **4)**, turn adjuster counterclockwise so operating pressure is 1.97 in. Hg higher than specified. Then turn adjuster ½ turn clockwise so pressure drops to specifications.

NOTE: The boost control unit operating pressure must be set to specifications after above adjustment procedure, even if engine speed cannot be decreased to idling RPM.

6) If operating pressure cannot be adjusted, unit must be replaced as an assembly. Ensure model numbers and identification marks match when replacing unit.