

DATSUN MIXTURE RATIO SYSTEM

210 (Calif. Only)
310 (Calif. Only)

NOTE — Function check connector is located under left side of instrument panel.

DESCRIPTION

The mixture ratio system controls the air/fuel mixture ratio, which reduces fuel consumption and improves engine performance while reducing hydrocarbon (HC) and carbon monoxide (CO) emissions. This system is controlled by engine coolant temperature and vehicle speed. System consists of a mixture ratio control solenoid valve, speed detecting switch and amplifier, and a coolant temperature switch.

OPERATION

When engine coolant is below the predetermined temperature of the coolant switch, the mixture ratio valve leans out the air/fuel mixture. When engine coolant is above the predetermined temperature of the coolant switch and vehicle speed is above the predetermined speed of the speed switch, the mixture ratio valve is activated and leans out the air/fuel mixture. When engine coolant is above the predetermined temperature of the coolant switch and vehicle speed is below the predetermined speed of the speed switch, mixture ratio valve is deactivated and air/fuel mixture is richened.

MIXTURE RATIO CONTROL SOLENOID VALVE

This valve, controlled by an electrical signal, changes the air flow passage size and controls air flow to the main air bleed to change the air/fuel ratio.

COOLANT TEMPERATURE SWITCH

This switch is installed on the rear of the cylinder head. Temperature switch senses coolant temperature for the mixture ratio control solenoid valve.

SPEED DETECTING SWITCH AND AMPLIFIER

This speed detecting switch is installed in the speedometer and the amplifier is installed on the back side of the instrument panel. The speed detecting switch changes vehicle speed into an electrical pulse signal. This signal is detected by the amplifier which then sends an electrical control signal to the mixture ratio control solenoid valve.

TESTING

System Check — 1) Visually check mixture ratio system. Check all hoses and electrical connections for proper installation.

2) Start engine and run until it reaches normal operating temperature. Connect voltmeter positive lead to Blue/Red wire and negative lead to Black wire (210 models) or positive lead to Green/Yellow wire and negative lead to Black wire (310 models) at function check connector.

3) Coolant temperature switch functions properly if voltmeter reads 12 volts when coolant temperature is below 95°F (35°C), or if voltmeter reads 0 volts when coolant temperature is above 95°F (35°C).

4) Disconnect mixture ratio control solenoid valve connector. With engine running, apply 12 volts to valve. If valve is operating properly, a clicking sound can be heard from valve and engine speed will change. If not, replace mixture ratio control solenoid valve.

5) Lift rear of car high enough so that wheels turn freely, support rear of car with safety stands, and block front wheels. Start engine and place transmission in high gear. Connect voltmeter positive lead to Blue/Red wire and negative lead to Black wire (210 models) or positive lead to Green/Yellow wire and negative lead to Black wire (310 models) at function check connector.

6) Speed detecting switch is operating correctly if voltmeter reads 12 volts when vehicle speed is above 40 MPH, or if voltmeter reads 0 volts below 40 MPH.

CAUTION — Be sure that vehicle speed does not exceed 55 MPH.

Mixture Ratio Control Solenoid Valve — 1) Remove hoses, wire connector, and attaching screws from valve. Remove valve.

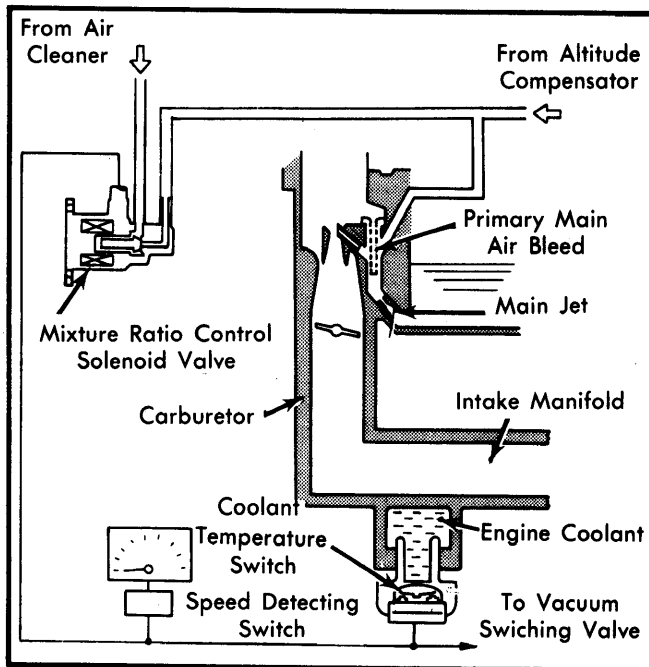
2) Apply 12 volts directly to valve. Air should flow through valve. If it does not, replace mixture ratio control solenoid valve.

Coolant Temperature Switch — 1) Drain engine coolant, disconnect wiring, and remove coolant temperature switch.

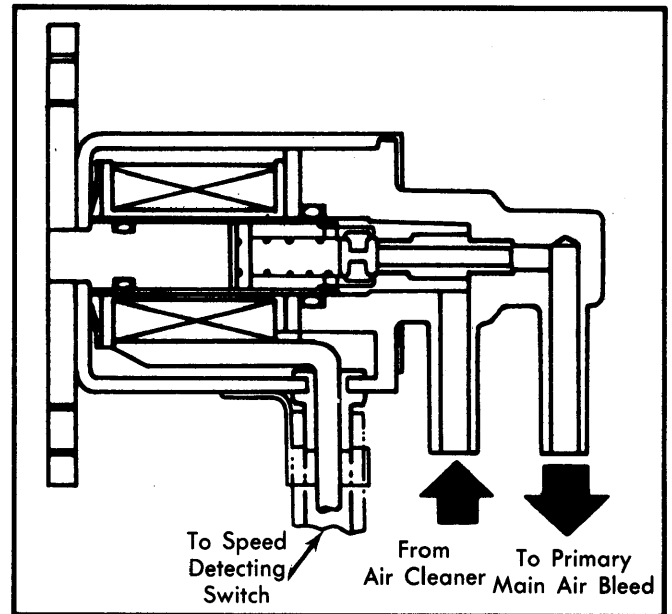
2) Connect ohmmeter leads to switch and place end of switch in a pan of water. When water temperature is below 68°F (20°C), ohmmeter should show continuity. When water temperature is above 104°F (40°C), ohmmeter should not show continuity. If switch does not operate within specifications, replace.

Speed Detecting Switch and Amplifier — If mixture ratio control solenoid valve and coolant temperature switch are operating correctly and system still does not function properly, the speed detecting switch and amplifier should be replaced.

DATSUN MIXTURE RATIO SYSTEM (Cont.)



**Fig. 1 Datsun Mixture Ratio System
(210 Calif. & 310 Calif. Only)**



**Fig. 2 Datsun Mixture Ratio Control
Solenoid Valve**