DATSUN EXHAUST GAS RECIRCULATION

240 Z (1973)

DESCRIPTION

The Exhaust Gas Recirculation System (EGR) recirculates exhaust gases into combustion chamber to reduce combustion temperature. This reduction in temperature acts to reduce Nitrogen Oxide (NOx) emissions produced during the combustion process. This system consists of a balance tube, control valve, solenoid valve, thermo switch, EGR tube, vacuum hose, and a water hose.

OPERATION

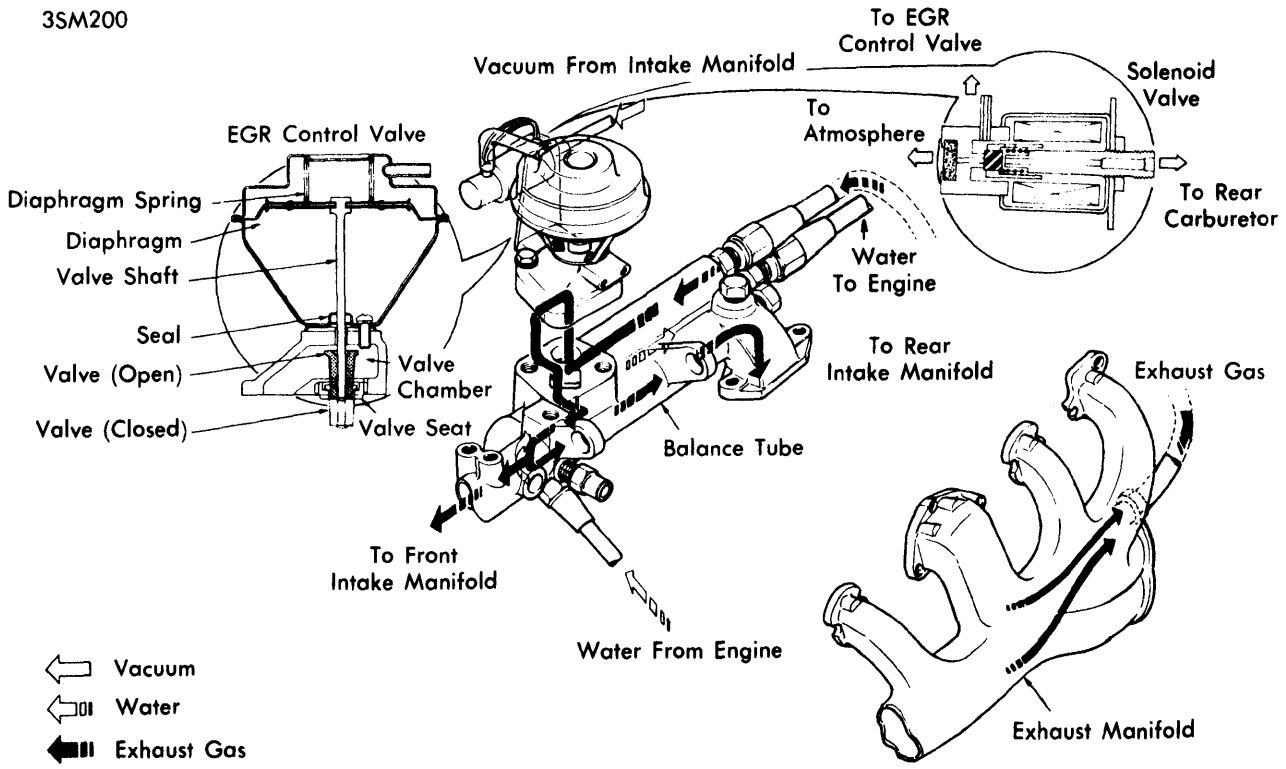
Exhaust gases flow out of exhaust manifold, through EGR tube into rear of balance tube then into EGR control valve. From EGR valve, gases flow through center of balance tube to be distributed to front and rear intake manifold. Exhaust gases passing through balance tube are cooled by engine coolant. Flow of exhaust gases are controlled by a control valve which is operated by carburetor vacuum. At idle, vacuum is insufficient to operate control valve and exhaust gases are not recirculated. When throttle valve of carburetor opens, vacuum is increased and exhaust gases begin to recirculate. However, when throttle is opened fully and vacuum drops below 2 in. Hg (50.8 mm Hg) valve will again close. To improve starting ability and driveability of engine in cold weather, a thermo switch, located in passenger compartment, operates solenoid valve on EGR control valve. When passenger compartment temperature is below 30°F (-1°C), current flows through solenoid and shuts off vacuum passage. This prevents exhaust gases from recirculating. When temperature is over 52°F (11°C) current does not flow through solenoid and exhaust gas is allowed to recirculate.

TESTING

System Test – With ambient temperature above 55°F, increase engine speed from idle to 3000-3500 RPM and check that plate and valve shaft of EGR control valve move upward as speed is increased. Disconnect wire from EGR solenoid and connect solenoid directly to battery. Repeat above test. EGR valve should not move. With engine running at idle, push up by hand on bottom of EGR control valve diaphragm. Engine should begin to run rough.

EGR Control Valve Tests – Remove EGR valve and check that vacuum line is not deformed, replace if necessary. Apply 6 in. (152 mm) of vacuum to EGR control valve. Valve should move to full up position. With vacuum pinched off, control valve should remain in up position for more than 30 seconds. Visually check control valve and if necessary clean valve and valve seat with a soft wire brush. Check for good seal between valve and valve seat. If valve does not perform as indicated above, replace valve as unit cannot be disassembled.

Balance Tube Tests – Remove idle speed adjusting screw block to check for clogging of EGR passage of balance tube. Visually inspect EGR valve mounting flange and balance tube, clean if necessary.



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