1973 MAZDA 618 ENGINE MODIFICATION

Mazda 618 (1973)

DESCRIPTION

The exhaust emission control system consists of an air injection system and a deceleration control system.

Air Injection System – The system consists of an air pump, check valve, air by-pass valve, air injection manifold and an air injection nozzle for each cylinder.

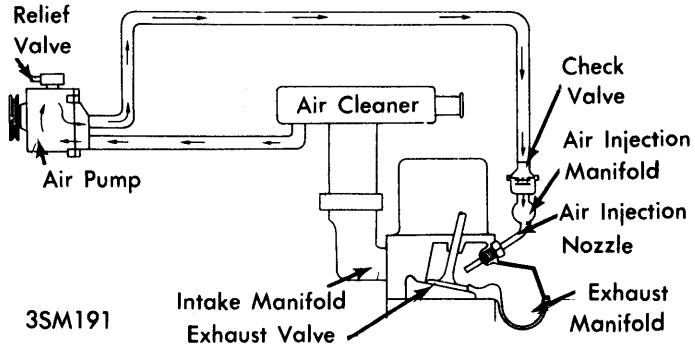
Deceleration Control System – The system consists of an anti-afterburn valve, coasting richer valve, speed switch, and accelerator switch. Manual transmission models also include a clutch switch.

OPERATION

AIR INJECTION SYSTEM

Air Pump – A two-vane type driven by a "V" belt mounted on the crankshaft. A pressure relief valve is incorporated into air pump.

Check Valve – Prevents exhaust gas from backflowing into air pump. When air pressure from air pump is higher than exhaust gas, the difference in pressure pushes and opens valve so air from air pump can flow into air injection manifold. When pressure decreases for any reason, the valve closes to prevent exhaust gas from entering and damaging air pump or rubber hoses.



AIR INJECTION SYSTEM

Air By-Pass Valve – Valve is connected by cable to choke control knob. When choke is pulled out, air supply to air injection nozzles is cut off. This prevents overheating of the exhaust pipe when warming up engine.

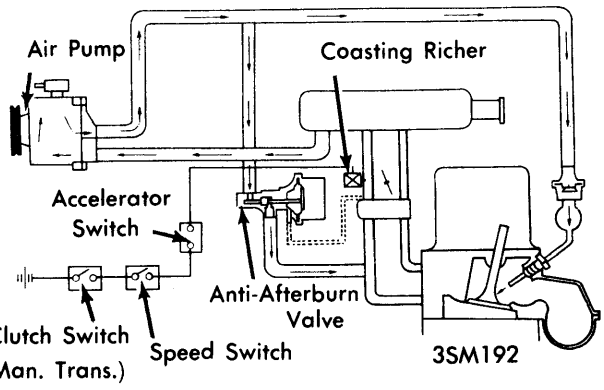
Air Injection Nozzle – A nozzle is installed in each exhaust port and is connected to the air injection manifold by retaining screws. Nozzle injects air into each exhaust port to oxidize the unburned part of the exhaust gas.

DECELERATION CONTROL SYSTEM

Anti-Afterburn Valve – Valve allows fresh air to flow from air pump into intake manifold during overrich conditions of deceleration. This prevents excess burning in the exhaust system. When intake manifold vacuum suddenly increases, valve opens to allow air flow.

Coasting Richer Valve – Valve is attached to carburetor and works during deceleration to open fuel passage to secondary stage of carburetor. This supplies an additional amount of fuel to bring the lean mixture to a more optimum ratio in order to improve combustion at deceleration. Operation is controlled by the accelerator switch, speed switch and clutch switch. Valve operates only when all switches have closed circuits to coasting richer. This occurs when both accelerator pedal and clutch pedal are released, and at speeds of more than 16±3 MPH.

Accelerator Switch – Switch located on accelerator linkage and closes coasting richer circuit when pedal is released. Depressing pedal breaks circuit.



DECELERATION CONTROL SYSTEM

Speed Switch – Located on the speedometer to close the circuit to coasting richer at speeds of over 16±3 MPH, and open circuit when speed is below 16±3 MPH.

Clutch Switch (Man. Trans. Only) – Switch is located on clutch pedal. Circuit is closed to the coasting richer while clutch pedal is released, and opened when pedal is depressed.

CHECKING & ADJUSTMENT

AIR INJECTION SYSTEM

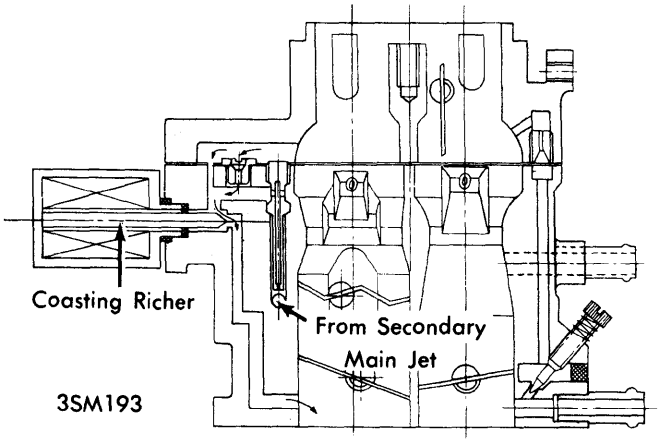
Air Pump – *See Mazda & Toyota Air Injection Pump in EMISSION Section.*

Relief Valve – With engine operating at idle speed no air should flow from valve. Increase engine speed to 3000 RPM. Air should now flow from relief valve. If valve is defective, replace air pump assembly.

Check Valve – Disconnect air inlet hose from check valve and remove valve. Blow through check valve from both sides. Air should pass in only one direction. If defective, replace valve.

By-Pass Valve – Pull stopper of valve all the way to the right as shown in illustration. Hold stopper in position with a lock screw. Make sure there is no play in wire between air by-pass valve and wire bracket. Correct tension by adjusting wire bracket and then tighten the screw.

1973 MAZDA 618 ENGINE MODIFICATION (Cont.)



AIR BY-PASS VALVE

DECELERATION CONTROL SYSTEM

Anti-Afterburn Valve – Disconnect anti-afterburn valve inlet hose from valve and race engine rapidly. The moment accelerator pedal is released, some air should be sucked into valve for a few seconds. If time of suction is more than three seconds, replace valve.

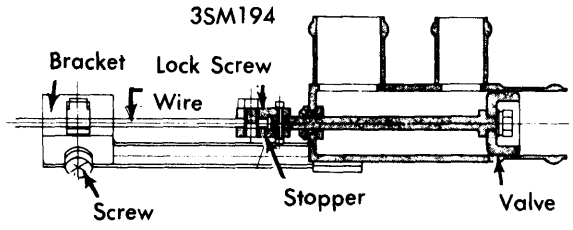
Coasting Richer Valve – Remove coasting richer from carburetor and check to see that solenoid valve is attracted when wires are connected to battery terminals. If valve is attracted, operation is satisfactory.

Accelerator Switch – 1) Using suitable circuit tester, check to make sure that switch is on when accelerator pedal is fully released, and off when pedal is depressed.

2) To adjust switch, make sure that throttle valve is completely closed and then loosen adjusting screw of the switch. Make sure switch is in off position and gradually tighten adjusting screw until a clicking sound is heard. Tighten adjusting screw an additional 1 1/2 turn.

Speed Switch – Switch may be checked with rear wheels lifted off of ground or under road test conditions. Connect circuit tester to switch and make sure that switch is on at speeds of over 16±3 MPH, and off at speeds below 16±3 MPH.

Clutch Switch (Man. Trans. Only) – Using suitable circuit tester, check to make sure that switch is on when clutch pedal is fully released and off when pedal is depressed.



COASTING RICHER