MAZDA PISTON ENGINE DECELERATION CONTROL SYSTEM

GLC
626
B2000

DESCRIPTION

The Deceleration Control System is designed to maintain a balanced air/fuel mixture during deceleration. Upon initial deceleration, rapid closing of throttle plates can cause overly rich fuel mixture. This sytem consists of an anti-afterburn valve (air by-pass valve on 626 and Calif. B2000) and throttle positioner system (except Federal GLC and Calif. GLC with Man. Trans.). Throttle positioner system consists of servo diaphragm, engine speed switch and 3-way solenoid valve. The air by-pass valve (626 and Calif. B2000), part of the air pump type air injection system, functions during deceleration to assist in emission control.

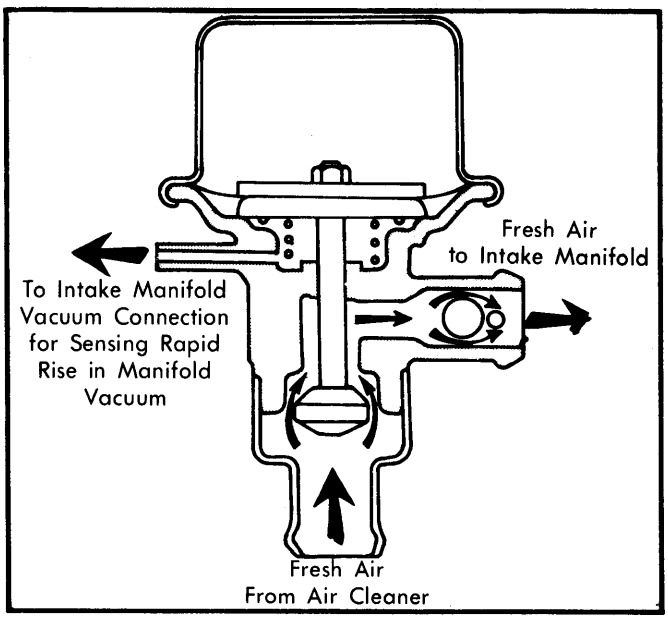

Fig. 1 Showing Air Flow Through Anti-Afterburn Valve

OPERATION

ANTI-AFTERBURN VALVE (EXC. 626 AND CALIF. B2000)

Located between air cleaner and intake manifold, this valve adds fresh air directly to intake mainfold from air cleaner to balance air/fuel mixture and prevent afterburning.

THROTTLE POSITIONER SYSTEM (EXC. FEDERAL GLC & CALIF. GLC w/MAN. TRANS.)

During deceleration, mixture will lean out after initial rich setting when plates close due to lack of fuel entering carburetor. This system holds throttle plates slightly open to maintain balanced air/fuel mixture. Throttle valve will be held open when decelerating at pre-determined RPM. See "Throttle Positioner System Operating RPM" table. Component parts are described below:

Throttle Positioner System Operating RPM

Application	RPM①
GLC	
Calif. Auto. Trans.	1100-1300
626	1600-1800
B2000	
Federal	900-1100
Calif.	1000-1200

① — Auto. Trans. in "D".

Servo Diaphragm — Mechanically linked to throttle plate, servo diaphragm is positioned in response to vacuum signal through 3-way solenoid. In turn, diaphragm positions throttle plate.

3-Way Solenoid — This electro-vacuum valve has connections from intake manifold vacuum and to servo diaphragm. Solenoid portion is energized by electrical connections to

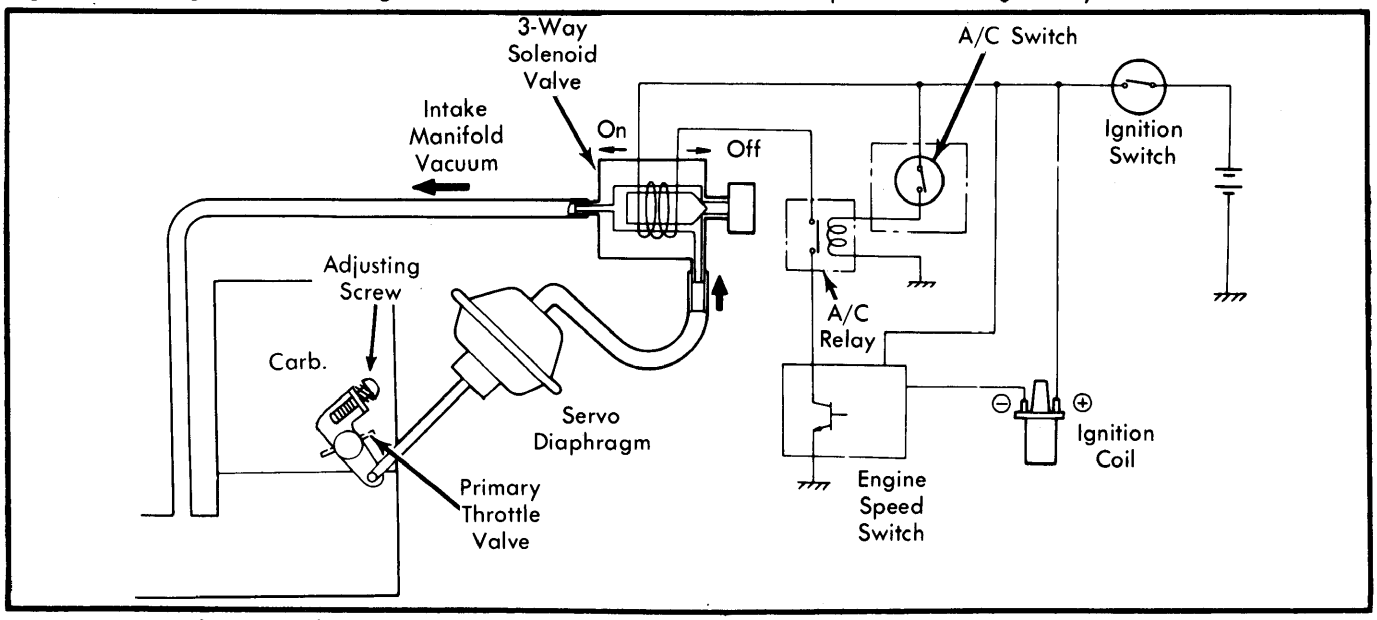

Fig. 2 Schematic of Mazda Throttle Positioner System — Exc. Federal GLC and Calif. GLC w/Man. Trans.

MAZDA PISTON ENGINE DECELERATION CONTROL SYSTEM (Cont.)

engine speed switch (air conditioning relay on models so equipped) and ignition switch. As engine speed switch senses engine RPM within operating range, it will open 3-way solenoid to allow passage of intake manifold vacuum which positions servo diaphragm. This causes throttle plate to open slightly.

NOTE – *On models with air conditioning, the air conditioning relay is in-line ahead of engine speed switch. Whenever A/C is in "ON" position, this relay will activate throttle positioner system, allowing slightly higher idle speeds.*

Engine Speed Switch – Switch determines engine RPM and completes electrical circuit to 3-way solenoid when operating RPM range is sensed.

AIR BY-PASS VALVE (626 AND CALIF. B2000 ONLY)

During normal operation, air pump system air passes through by-pass valve to exhaust ports. On deceleration, large amount of unburned air/fuel mixture reaches exhaust port area. Adding fresh air would cause afterburn. When by-pass valve manifold connection senses high vacuum level, by-pass valve momentarily diverts part of air pump air back to inlet side of air pump while part is directed into intake manifold to help balance air/fuel mixture during deceleration.

TESTING & ADJUSTMENT

ANTI-AFTERBURN VALVE

1) Disconnect air hose at air cleaner from anti-afterburn valve. Start engine and idle.

2) Block off hose opening with finger. Engine RPM should NOT change. Cycle throttle to increase engine RPM and quickly release throttle.

3) Suction should be felt at open end of anti-afterburn valve hose.

4) If no suction is present, or excessive suction lasts for more than 3 seconds, replace valve.

THROTTLE POSITIONER SYSTEM

Servo Diaphragm – 1) Connect tachometer to engine. Start and warm engine to normal operating temperature. Stop engine. Remove air cleaner.

2) Detach intake manifold vacuum hose from 3-way solenoid and detach 3-way solenoid vacuum hose from servo diaphragm. Connect intake manifold vacuum hose directly to servo diaphragm.

3) On Calif. GLC with Auto. Trans., detach and plug distributor-to-carburetor vacuum tube at distributor.

4) On all models, start engine, run to high speed then decrease to idle. With servo diaphragm hooked directly to intake manifold, engine should idle at RPM shown in "Throttle Positioner System Operating RPM" table. If vehicle is equipped with air conditioning, it will idle at approximately 1200 RPM.

5) If speed is not to specifications, turn throttle positioner adjusting screw located on linkage near end of servo diaphragm link on carburetor. If setting cannot be obtained, replace servo diaphragm.

3-Way Solenoid – 1) Remove vacuum sensing tube from servo diaphragm. Remove intake manifold vacuum tube from 3-way solenoid. Detach wire from 3-way solenoid which comes from engine speed switch. Ground 3-way solenoid at disconnected terminal using jumper wire.

2) Turn ignition switch "ON" (engine off). Blow air through vacuum hose disconnected from servo diaphragm and note that air should come out 3-way solenoid filter (cap can be removed for easier checking).

3) Turn ignition switch "OFF". Blow air into same vacuum tube and note that air should now come from intake manifold nipple. If valve does not function as described, replace 3-way solenoid.

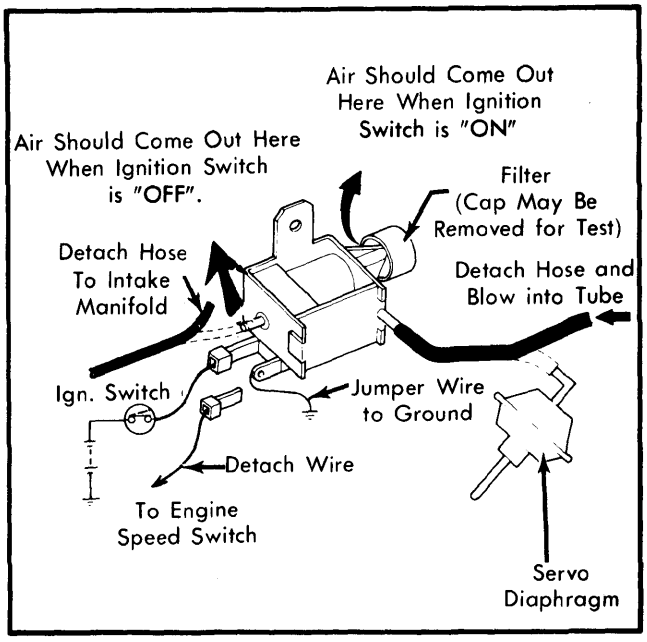

Fig. 3 Testing 3-Way Solenoid

AIR BY-PASS VALVE (626 AND CALIF. B2000 ONLY)

NOTE – *For additional information on by-pass valve and air pump system, see appropriate article in this section.*