

## 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 system consists of an anti-afterburn valve (air by-pass valve on 626 and Calif. B2000 models) and throttle positioner system. The throttle positioner system consists of servo diaphragm, engine speed switch and 3-way solenoid valve.

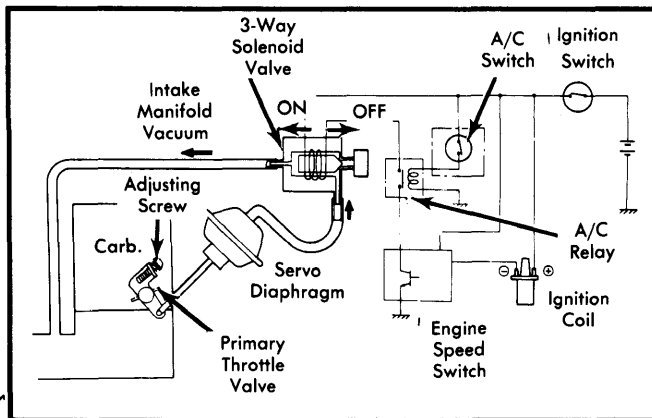


Fig. 1 Mazda Throttle Positioner System

### OPERATION

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

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

#### 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.

#### THROTTLE POSITIONER SYSTEM

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 engine speed. Component parts are described as follows:

**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 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.

### TESTING & ADJUSTMENT

#### ANTI-AFTERBURN VALVE

1) Disconnect anti-afterburn valve-to-air cleaner hose at anti-afterburn valve (if equipped). Start engine and run at idle. Place finger over hose (intake port). Engine speed should not change. Increase engine speed and quickly release accelerator.

2) Suction should be felt at air intake port. If no suction is present or suction lasts for more than 3 seconds, replace anti-afterburn valve.

#### AIR BY-PASS VALVE

1) Disconnect air by-pass valve-to-"T" fitting hose (air by-pass valve-to-air control valve on 626) from air by-pass valve. Start engine and run at idle. Place finger over air by-pass valve outlet and make sure air is escaping.

2) Increase engine speed and quickly release accelerator. Air should stop flowing for a few seconds. If air does not flow out or air flow lasts for more than 3 seconds, replace air by-pass 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) Start engine, run at 2000 RPM, then decrease to idle. With servo diaphragm connected directly to intake manifold vacuum, engine should idle at RPM shown in Throttle Positioner System Operating RPM table.

**NOTE** — If vehicle is equipped with air conditioning, engine should idle at 1100-1300 RPM with air conditioning operating.

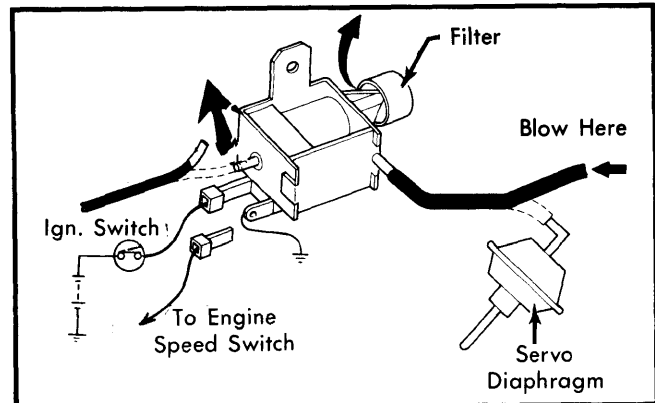
4) If speed is not to specification, turn throttle positioner adjusting screw located on linkage near end of servo diaphragm

## MAZDA PISTON ENGINE DECELERATION CONTROL SYSTEM (Cont.)

link on carburetor. If specification cannot be obtained, replace servo diaphragm.

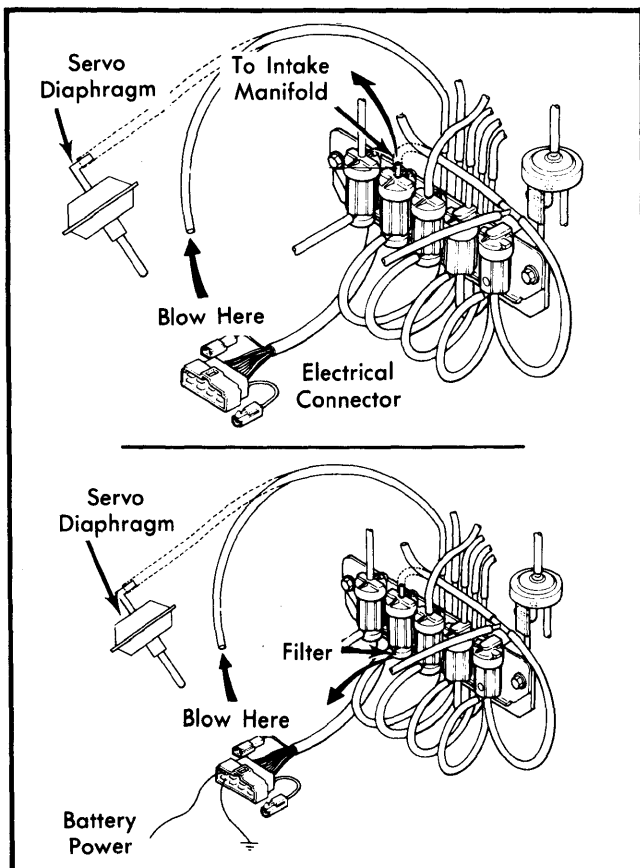
Throttle Positioner System Operating RPM	
Application	① RPM
B2000	
Federal .....	900-1100
California .....	1000-1200
All Others .....	1100-1300

① — Auto. Trans. in Neutral.



**Fig. 3 Testing 3-Way Solenoid Valve (Exc. 626 Models)**

**3-Way Solenoid Valve – 1)** Disconnect vacuum sensing tube at servo diaphragm. Disconnect intake manifold vacuum tube at solenoid valve. On 626 models, disconnect electrical connector and connect battery power as shown in Fig. 2. On all other models, disconnect wire which comes from engine speed switch and ground terminal as shown in Fig. 3.



**Fig. 2 Testing Mazda 626 Three-Way Solenoid Valve**

**2)** Turn ignition switch on. Blow air through hose disconnected from servo diaphragm; air should escape at solenoid filter. Turn ignition switch off and blow through hose again; air should escape from intake manifold vacuum inlet port. If valve does not respond as outlined, replace 3-way solenoid valve.

### ENGINE SPEED SWITCH

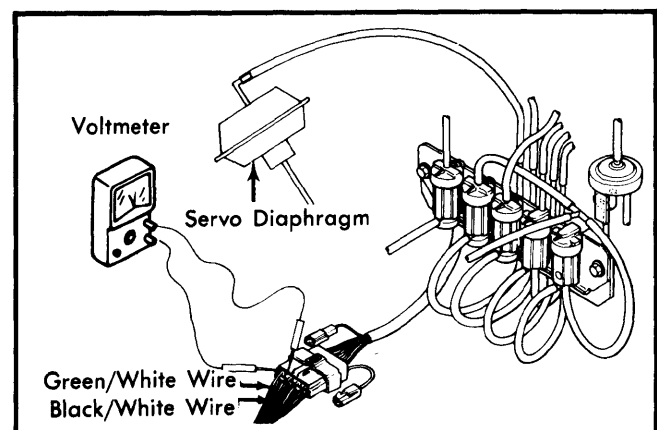
**1)** On GLC Wagon and B2000 models, connect voltmeter probes to throttle positioner 3-way solenoid electrical terminals without disconnecting electrical connector. On GLC models, connect voltmeter probes to Brown/White and Yellow/Black terminals of engine speed switch. On 626 models, connect voltmeter probes to Green/White and Black/White wires of throttle positioner system electrical connector.

**2)** On all models, start and run engine at 2000 RPM (3000 RPM on GLC). Slowly decrease engine speed and note speed at which current flows to circuit (does not flow on GLC). Engine speed should be 1400-1600 RPM on GLC Wagon and 626 models, 1600-1800 RPM on B2000 models and 2000-2200 RPM on GLC models.

**3)** On GLC and GLC Wagon models, increase engine speed again (2000 RPM on GLC and 2500 RPM on GLC Wagon), then decrease engine speed. Current should flow to circuit at 1430-1570 RPM on GLC models (2000-2200 RPM on GLC Wagon models).

**4)** On B2000 and 626 models, slowly increase engine speed and note speed at which current does not flow to circuit. The difference between the recorded speeds should be 150-250 RPM on B2000 models and 50-250 RPM on 626 models.

**5)** If engine speed switch does not operate as outlined, replace engine speed switch.



**Fig. 4 Testing Mazda 626 Engine Speed Switch**