MAZDA ROTARY ENGINE IGNITION CONTROL SYSTEM

RX7
(Exc. Calif. Man. Trans.)

DESCRIPTION

The Ignition Control system is used to regulate vacuum advance of leading and trailing distributor systems. In addition, this system helps reduce CO and HC emissions by aiding pellet converter warm-up during cold engine starts. System consists of leading and trailing components of distributor, vacuum control solenoid valve (except California models with manual transmission), No. 1 water temperature switch and connecting wiring and tubing.

OPERATION

The Ignition Contol system operates when engine is cold and running between 1000-1200 RPM and when engine is hot during quick deceleration from 3000 RPM.

TESTING

NOTE – *For additional information and adjustments on distributor spark timing, see appropriate information in "Mazda Rotary Engines Systems & Tune-Up Service Procedures" article in this section.*

VACUUM CONTROL SOLENOID VALVE

1) Disconnect vacuum sensing tubes from vacuum control solenoid valve (Orange color dot). Blow through solenoid valve from vacuum tube "B" shown in *Fig. 1*. Air should escape at front port.

2) Disconnect electrical connector from solenoid valve and connect battery power to terminals on valve. Blow through hose again; air should escape through air filter at rear of valve. If valve does not respond as outlined, perform signal check.

VACUUM CONTROL SOLENOID VALVE SIGNAL CHECK

1) Warm engine to normal operating temperature. Stop engine and connect tachometer to engine. Connect voltmeter to terminals of vacuum control solenoid valve (do not disconnect coupler). Place transmission in "PARK" (neutral on manual transmission). Start engine and run at idle speed. Current should flow to solenoid terminals. If transmission is shifted to any forward or reverse gear position, current should stop flowing.

2) Increase engine speed to 2000 RPM. Slowly decrease engine speed from 2000 RPM and watch voltmeter. Current should begin flowing to solenoid terminals when engine speed is 1000-1200 RPM. Stop engine and disconnect No. 1 water temperature switch connector (located behind alternator). Connect a jumper wire between terminals of water temperature connector.

3) Start engine and set engine speed at 2000 RPM with choke knob. Watch voltmeter and disconnect No. 2 water temperature switch connector (located on top of radiator); current should stop flowing to solenoid valve. Reconnect No. 2 water temperature switch connector and return choke knob to release position.

4) Stop engine and remove jumper wire from No. 1 water temperature switch connector. Reconnect No. 1 water temperature switch. Start engine and run at 3000 RPM. Quickly decelerate to idle speed. Current should flow to solenoid valve during deceleration and idle. If solenoid does not respond as outlined, replace vacuum control solenoid valve.

NOTE – *Before replacing vacuum control solenoid valve, check auxiliary control unit, No. 2 water temperature switch, choke switch and choke relay as described in "Mazda Rotary Engine Auxiliary Control Device" article in this section. Also check throttle sensor as described in "Mazda Rotary Engine Deceleration Control System" article in this section.*

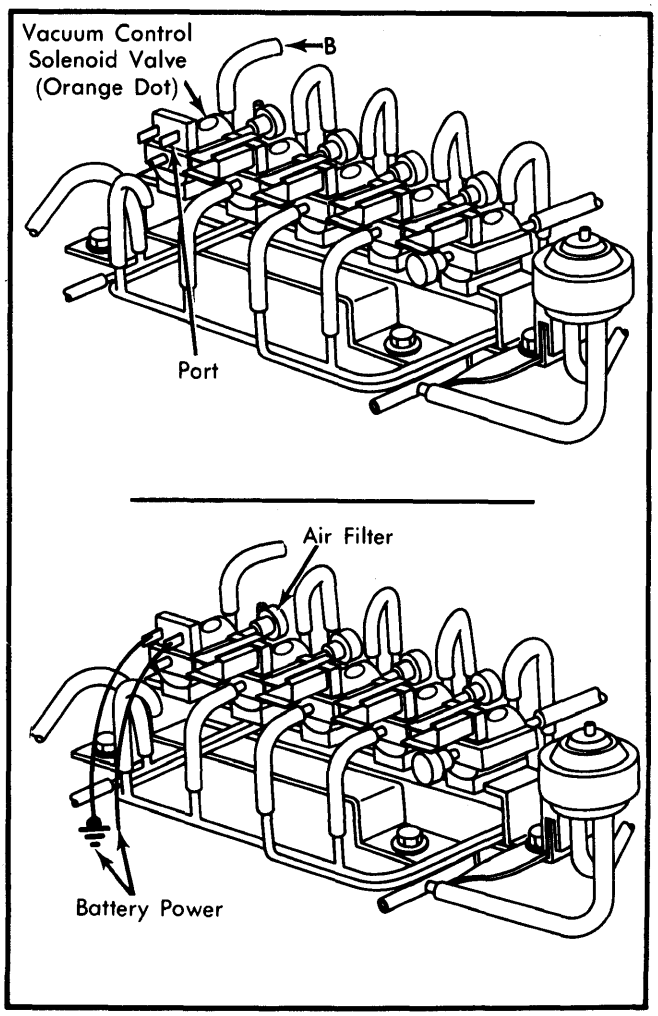

Fig. 1 Testing Vacuum Control Solenoid Valve