1982 Exhaust Emission Systems

MAZDA RX7 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 system, vacuum control solenoid valve (except Calif. man. trans.), No. 1 water temperature switch and connecting wiring and tubing.

OPERATION

The Ignition Control 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 RX7 Tune-Up Service Procedures," article in this section.

VACUUM CONTROL SOLENOID VALVE

1) Disconnect vacuum sensing tubes from vacuum control solenoid valve (Orange 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 perform 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 auto. trans. vehicles in "PARK", man. trans. vehicles in Neutral.

2) Start engine and run at idle speed. Current should flow to solenod terminals. If transmission is shifted into any forward or reverse gears, current should stop flowing.

3) 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.

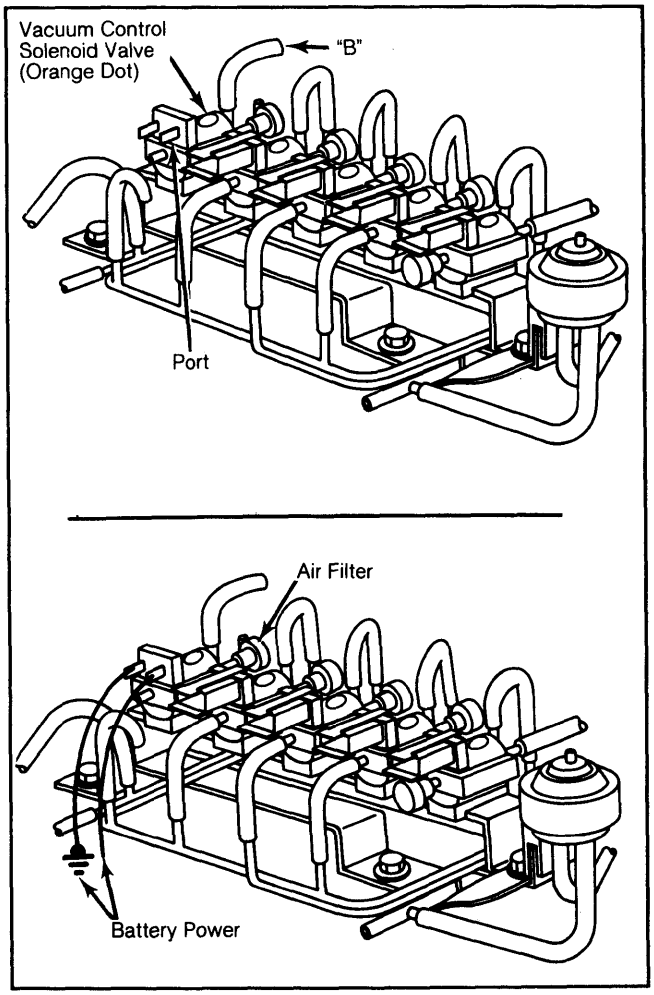
4) Stop engine and disconnect No. 1 water temperature switch connector (located behind alternator). Connect a jumper wire between terminals of water temperature connector.

5) Start engine and set engine speed at 2000 RPM with choke knob. Disconnect coupler from No. 2 water temperature switch (located on radiator). Current should stop flowing to terminal. Disconnect jumper wire and connect coupler to No. 1 water temperature switch.

6) Quickly decelerate engine speed from 3000 RPM. Current should start flowing and continue to flow during deceleration and at idle speed. If valve does not respond properly to tests, replace 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 RX7 Auxiliary Control Device," article in this section. Also check throttle sensor as described in "Mazda RX7 Deceleration Control System," article in this section.

Fig. 1: Testing Vacuum Control Solenoid Valve



Voltmeter and tachometer required for tests.