

## MAZDA ROTARY ENGINE

RX-7

### DESCRIPTION

System prevents escape of fuel vapors into atmosphere. Components consist of a non-vented fuel tank, vapor valve, check and cut valve (located at fuel tank), charcoal canister (located in air cleaner), an air vent solenoid, an air ventilation and check valve and connecting hoses and pipes.

### OPERATION

When engine is not running, fuel vapors formed in the fuel tank pass through a vapor valve. Those vapors that do not condense to liquid fuel are routed through vent lines to the charcoal canister where they are absorbed. When engine is running, filtered air is drawn into the system through the air cleaner, mixed with gases and vapors that blow by the rotor and are drawn out through a ventilation valve and into the intake runner to be burned. The ventilation valve operates as the PCV and check valve in this system.

**Air Vent System** — An air vent solenoid is installed on the carburetor to prevent carburetor bowl evaporated fuel from collecting in the intake manifold after a hot engine is shut off. When the ignition is turned off, the solenoid closes an air vent in the carbon canister, effectively trapping the evaporated fuel.

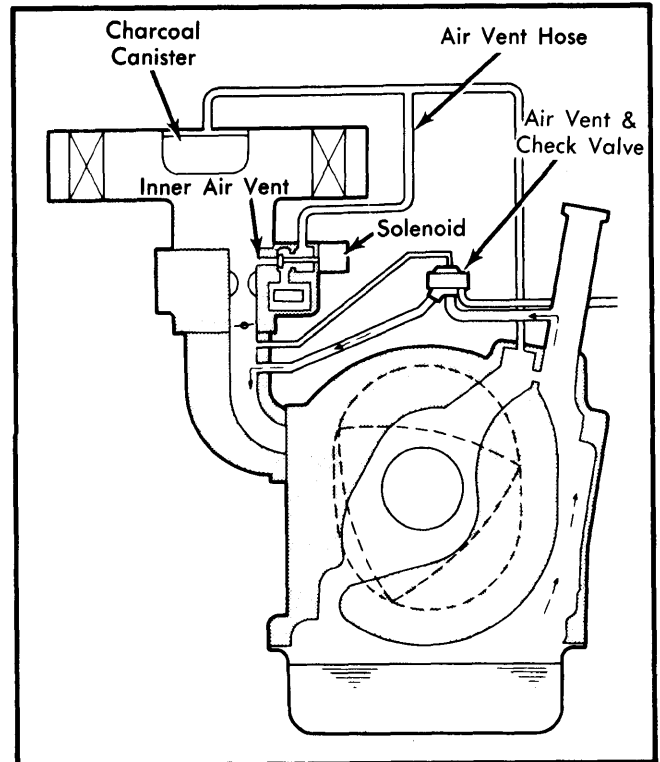


Fig. 2 Air Vent System

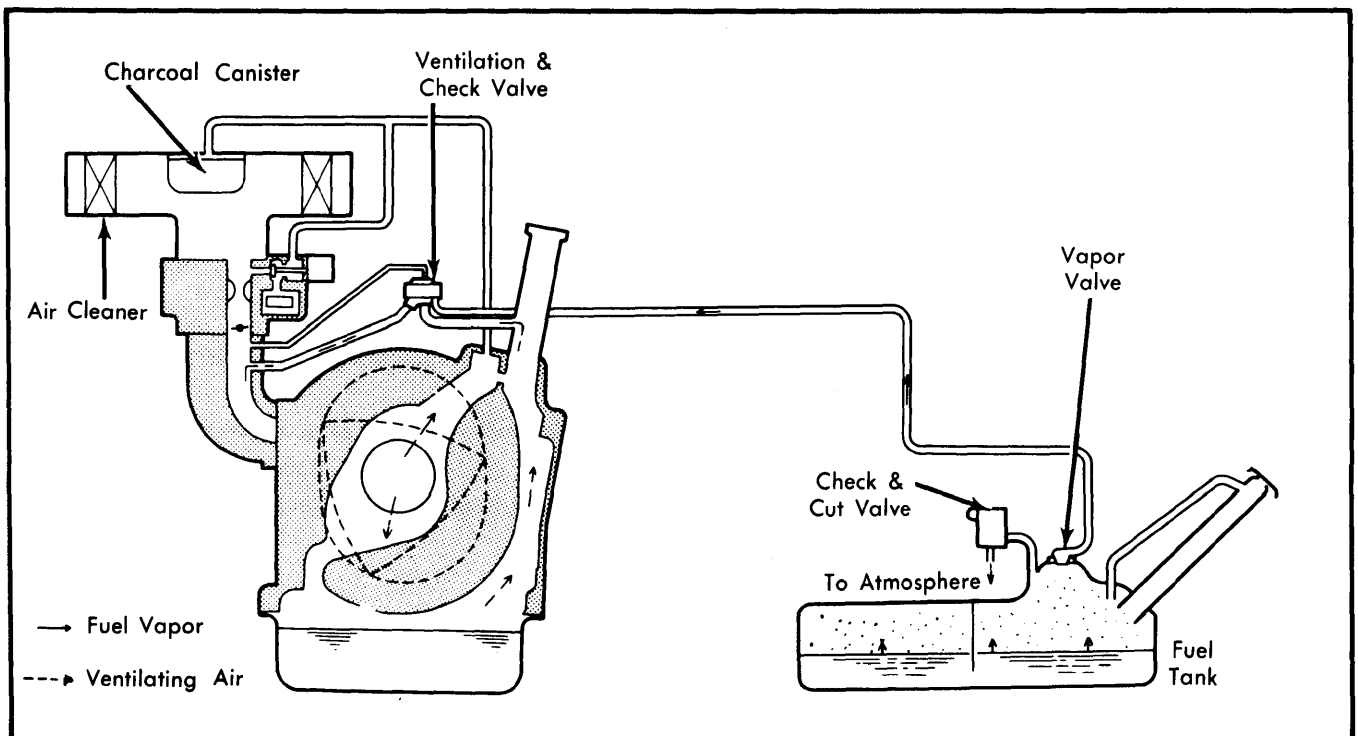


Fig. 1 Mazda RX-7 Fuel Evaporation System

# 1980 Fuel Evaporation Systems

## MAZDA ROTARY (Cont.)

**Ventilation and Check Valve** — If fuel system is normal, vapors are drawn through ventilation valve to air cleaner where they are stored in charcoal canister. When engine is running, these vapors, along with blow-by gases are drawn to ventilation valve and into the intake runner to be burned.

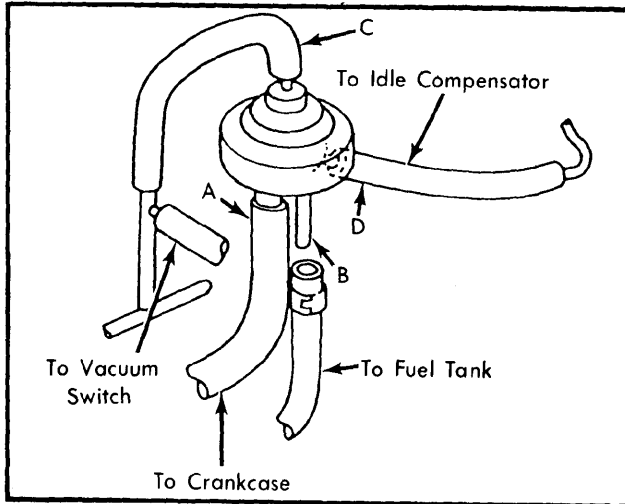


Fig. 3 Mazda RX-7 Ventilation & Check Valve

**Check & Cut Valve** — This valve has 3 functions. When pressure in fuel tank becomes too high, valve releases pressure to atmosphere to prevent damage. When vacuum becomes too high, valve opens to allow air into tank to prevent tank from collapsing. If the vehicle is overturned, the valve prevents fuel leakage by sealing the line with a check ball.

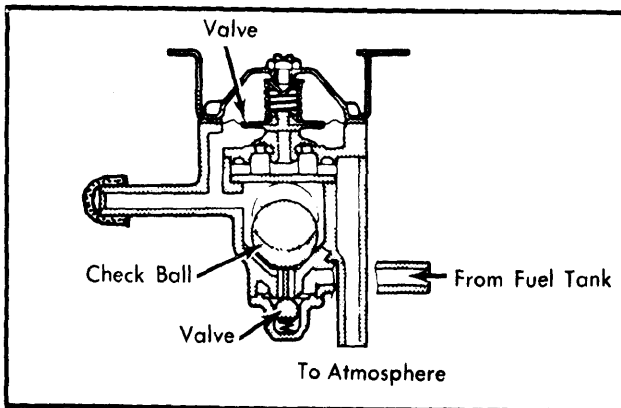


Fig. 4 Mazda RX-7 Check & Cut Valve

### VAPOR VALVE

A fuel vapor valve is installed between fuel tank and ventilation and check valve to prevent liquid fuel from flowing through evaporation line into engine.

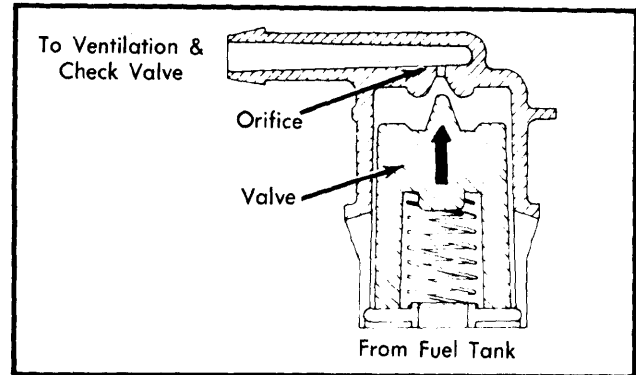


Fig. 5 Mazda RX-7 Vapor Valve

### TESTING

#### EVAPORATIVE LINE CHECK

**NOTE** — Ventilation line test is performed in the same manner as on piston engine. See "Evaporative Line Check" in "Mazda Piston Engine" article in this section.

#### CHECK & CUT VALVE

**NOTE** — Check and cut valve test is performed in the same manner as on piston engine. See "Check Valve (Exc. Federal B2000)" in "Mazda Piston Engine" article in this section.

#### VENTILATION & CHECK VALVE

- 1) Disconnect hoses "A" & "B" from valve. Start engine and idle. Check vacuum at port "A". If vacuum is present, place finger over port "A" and check vacuum at port "B". If vacuum is present, continue holding finger over port "A" and disconnect port "C", making sure there is no vacuum at port "B".
- 2) Stop engine. Disconnect hose "D" and attach suitable length of hose. Blow through valve and make sure air does not pass through. If any of above tests fail, replace valve.

#### AIR VENT SOLENOID

- 1) Check air vent hose for cracks or deterioration. Disconnect air vent hose from ventilation pipe.
- 2) Slowly blow through hose. Air should pass through solenoid. Turn ignition "ON" and blow through hose again. Air should not pass through valve. If solenoid does not respond as described, replace air vent solenoid.

### MAINTENANCE

Check entire system for proper functioning every 15,000 miles. Check valve should be tested every 25,000 miles. Replace parts as necessary.