1982 Exhaust Emission Systems

SUBARU IGNITION CONTROL SYSTEM

All Models

DESCRIPTION

Ignition control system is designed to reduce emissions by controlling ignition timing. System consists of a vacuum advance unit on the distributor, thermal vacuum valve (also operates EGR system), vacuum lines and orifice/check valve (1600 models and 1800 Hardtop, Hatchback and Sedan models with 5-speed Man. Trans.).

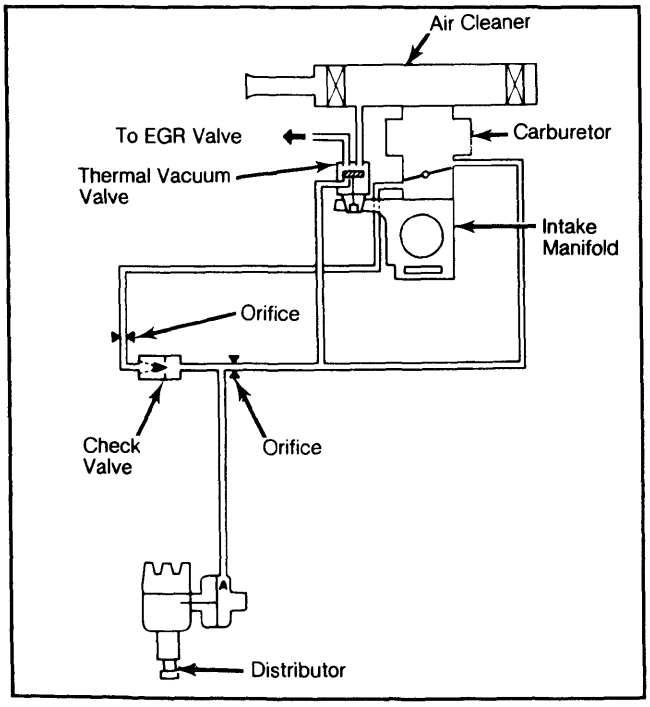
OPERATION

The distributor is equipped with both vacuum and centrifugal advance. Centrifugal advance is constantly operative. Vacuum advance is controlled by engine temperature and throttle position to provide timing that minimizes exhaust emissions.

1600 MODELS & 1800 HARDTOP, HATCHBACK & SEDAN MODELS WITH 5-SPEED MAN. TRANS.

When intake manifold temperature is between 59-95°F (15-35°C), thermal vacuum valve opens distributor lines to atmosphere. No advance is applied. When engine is operating above or below these temperatures, vacuum is applied through check valve and obtained at a below-throttle vacuum port (with engine idling) or applied through orifice and obtained at an above-throttle vacuum port (engine above idle).

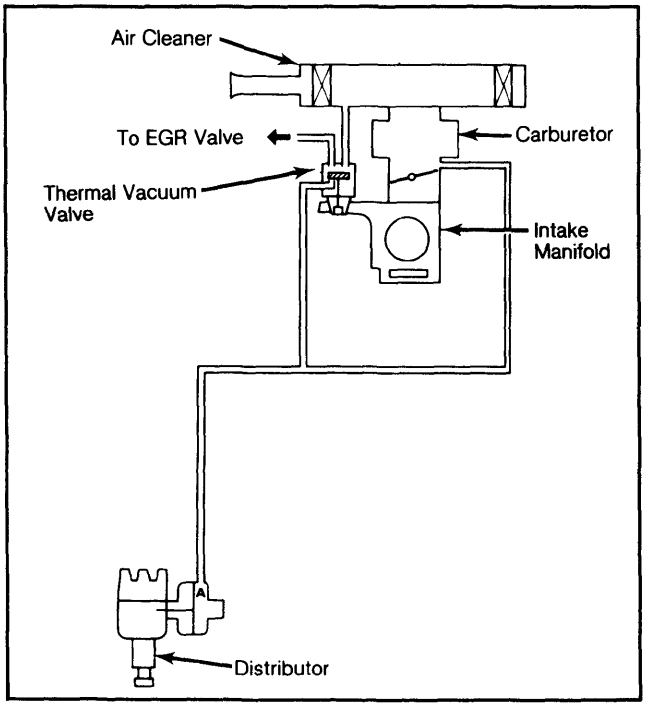
Fig. 1: Subaru 1600 Models & 1800 Hardtop, Hatchback, & Sedan Models with 5-Speed Man. Trans. Ignition Control System



1800 MODELS EXC. HARDTOP, HATCHBACK & SEDAN WITH 5-SPEED MAN. TRANS.

When intake manifold temperature is between 59-95°F (15-35°C), thermal vacuum valve vents distributor vacuum line to atmosphere so no vacuum advance is applied. When engine is below or above these temperatures, vacuum is obtained from a throttle port above throttle valve and applied to vacuum advance unit.

Fig. 2: Subaru 1800 Models Exc. Hardtop, Hatchback & Sedan with 5-Speed Man. Trans. Ignition Control System



TESTING

THERMAL VACUUM VALVE

1) Remove valve from manifold and attach hoses to 2 lower ports. Cap upper port on valve. Submerge valve in container of water.

CAUTION: Do not let water enter valve.

2) With water temperature below 50°F (10°C), valve should be closed and air should not pass through hoses. With water above 68°F (20°C), valve should be open. If not, replace valve.

CHECK VALVE

Remove valve from vacuum hoses. Air should flow when blowing into valve from distributor side to carburetor side, but not in opposite direction. Replace valve if it is not operating properly.

1982 Exhaust Emission Systems

SUBARU IGNITION CONTROL SYSTEM (Cont.)

REVOLUTION SENSOR & FUEL PUMP CONTROL

1) Locate revolution sensor under left side of dash. Disconnect connector. Turn ignition on and ensure 12 volts are present on Black/White and Blue/Black wires.

2) If not, check ignition switch and related circuits. If 12 volts present, turn ignition off. Using an ohmmeter, ensure Black wire has continuity to ground.

3) Turn ignition on and jumper Blue wire to ground. Ensure the solenoid valve clicks. If not, check solenoid resistance, 12 volts present on Black/White wire and related circuits.

4) Turn ignition off. Reconnect harness to revolution sensor. Start engine. If fuel pump does not operate, check for a tachometer signal (voltage pulses) on Yellow wire. If tachometer signal is present, replace revolution sensor. If no tachometer signal, check ignition switch, fuses, ignitor and related circuits.

5) Start engine and warm to operating temperature. Using a DVOM, backprobe the Blue or Blue/Yellow wire at the revolution sensor. Ensure there is over 5 volts. If not, check solenoid and related circuits for open or short.

6) Increase engine speed to over 3500 RPM. DVOM should now show 0-4.5 volts at Blue or Blue/Yellow wire. If not, replace revolution sensor.

Fig. 3: Wiring Diagram for Federal 4WD Models with Hitachi Carburetors