1974-79 EXHAUST EMISSION SYSTEMS
Subaru Thermostatic Air Cleaners

All Models

DESCRIPTION

The thermostatic air cleaner reduces exhaust emissions by maintaining a uniform intake air temperature. System consists of the air cleaner housing, an air stove on exhaust pipe and an air intake hose between air cleaner and manifold stove. The air cleaner housing contains an air control diaphragm, an air control valve, a temperature sensor valve, a flame arrester, an air cleaner element and connecting tubes and hoses.

OPERATION

When underhood air temperature is below 100°F (38°C), temperature sensor valve is closed. This directs manifold vacuum to air control diaphragm, which opens air control valve. With valve open, pre-heated air flows into air cleaner from heat stove.

When underhood air temperature is 100°-127°F (38°-53°C), temperature sensor valve is partially open. This reduces vacuum applied on air control diaphragm, and results in a smaller air control valve opening. In this condition, intake air is a blend of direct underhood and pre-heated air.

When underhood air temperature rises above 127°F (53°C), the temperature sensor valve opens fully to cut off all vacuum to air control diaphragm. In this condition, air control valve is closed and only underhood air flows into air cleaner.

TESTING

AIR CONTROL DIAPHRAGM & VALVE

1) With engine stopped, place a mirror at end of air cleaner snorkel and observe position of air control valve. Position is correct if valve is closed (hot air inlet blocked). If valve is not fully closed, check valve linkage and pivot points for binding.
2) Remove vacuum hose from air control diaphragm, attach another hose and apply vacuum to diaphragm. Valve should rise to open position (hot air inlet uncovered, fresh air inlet blocked).
3) If diaphragm holds vacuum but valve does not open, check valve linkage and pivot points for binding. If diaphragm does not hold vacuum, replace it.
4) With valve in open position, pinch hose to trap vacuum. Valve should remain open for at least 30 seconds. If valve closes too soon, replace air control diaphragm.

TEMPERATURE SENSOR VALVE

NOTE: Engine must be cold before performing this test.

1) Start engine, allow to idle and use mirror to observe position of air control valve. Valve should be open (hot air inlet uncovered, fresh air inlet blocked).
2) Continue to observe valve as engine warms up. Air control valve should gradually move to the closed position (hot air inlet blocked). If valve does not respond as specified, replace temperature sensor valve assembly.

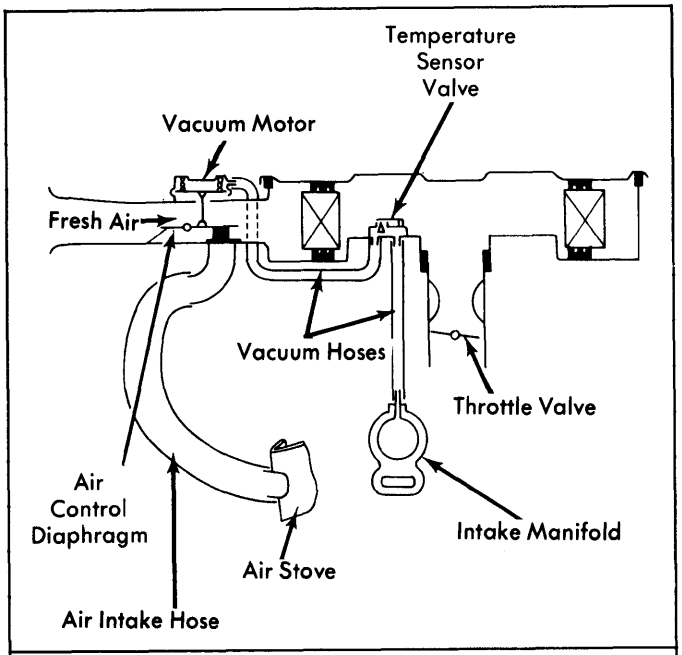

Fig. 1: Cutaway View of Thermostatic Air Cleaner

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