1974-79 EXHAUST EMISSION SYSTEMS
Chrysler Corp. Ignition Timing Control System

1976-78 All Models

DESCRIPTION

The Ignition Timing Control System (ITCS) is used on 1976-78 2600 cc California and high altitude vehicles to reduce the possibility of engine overheating during high temperature operations by suspending spark timing retard.

OPERATION

1976 MODELS

When manifold vacuum is high, vacuum is supplied to retard side of distributor diaphragm to retard ignition timing. As engine speed and/or load increases, manifold vacuum increases and ported vacuum increases, this allows advance side of distributor to advance ignition timing.

When coolant temperature exceeds 203°F (95°C), thermo valve will open and vent intake manifold vacuum, stopping ignition retard and allowing engine to cool by advancing ignition timing.

1977-78 MODELS

When engine coolant temperature reaches 203°F (95°C), a thermo valve (located at water jacket of intake manifold), opens automatically to relieve intake manifold vacuum, being applied on the retard side of distributor vacuum control unit, to the atmosphere to suspend the spark timing retard. The thermo valve returns to the closed position as coolant temperature becomes lower than 203°F (95°C).

The thermo valve contains two valves which open and close according to coolant temperature. One valve controls intake manifold vacuum to distributor and the other controls EGR operation.

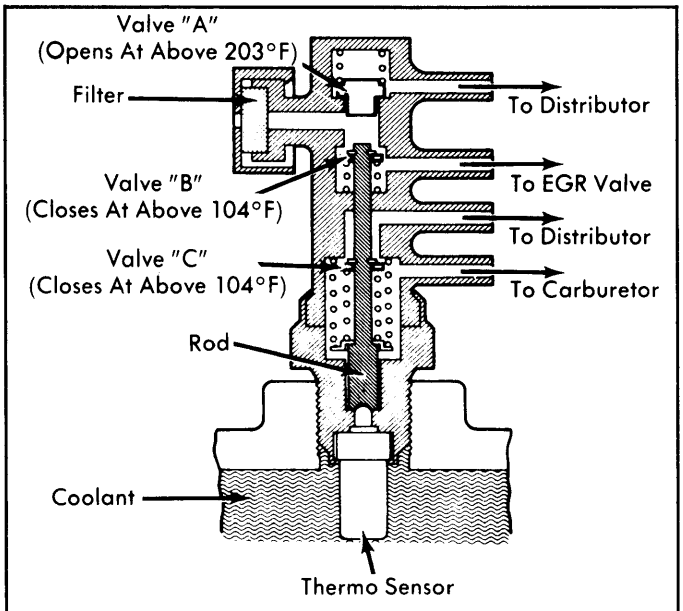

Fig. 1: Cutaway View Of 1977-78 Thermo Valve

TESTING

THERMO VALVE

1976 Models - 1) Remove thermo valve from intake manifold and allow it cool to room temperature. *See Fig. 2.* Check valve by blowing into vacuum fitting. Valve is working properly if EGR fitting allows air to pass freely and distributor fitting is blocked.

2) Immerse thermo valve in water heated to 140°F (60°C), for at least one minute. Valve is working properly if no air flows through either fitting. Remove thermo valve and continue heating water until it boils.

3) Immerse thermo valve in water for at least one minute. Valve is working properly if distributor fitting allows air to pass freely and EGR fitting is blocked. Replace thermo valve if it fails any test.

NOTE: For test purposes, thermo valve fittings are numbered 1 through 4, with port No. 1 at bottom and port No. 4 at top.

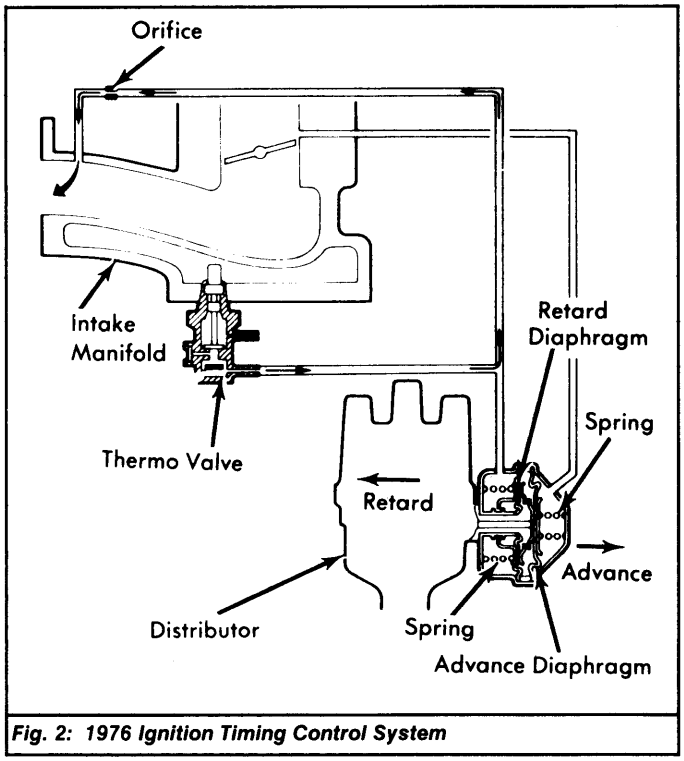

Fig. 2: 1976 Ignition Timing Control System

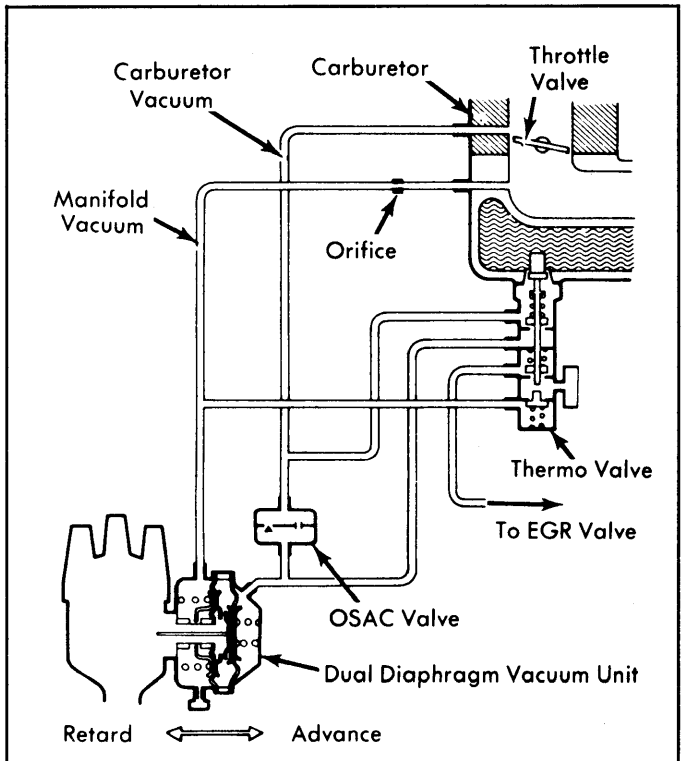

Fig. 3: 1977-78 Ignition Timing Control System

1974-79 EXHAUST EMISSION SYSTEMS
Chrysler Corp. Ignition Timing Control System (Cont.)

1977 Models - 1) With engine cold, disconnect all vacuum hoses from thermo valve. With vacuum pump connected to valve fitting No. 1, no vacuum should be produced. If vacuum is produced, internal valve "C" is stuck in closed position or passage is clogged.
2) With vacuum pump connected to valve fitting No. 3, no vacuum should be produced. If vacuum is produced, internal valve "B" is stuck in closed position or passage is clogged.
3) Connect vacuum pump to valve fitting No. 4, operate valve, and raise vacuum to 8-11 in. Hg. If there is no vacuum drop or leak, thermo valve is working properly.
4) Run engine at fast idle until coolant temperature rises to at least 140°F (60°C) and connect vacuum pump to valve fitting No. 1. If vacuum rises, thermo valve is working properly.
5) Connect vacuum pump to valve fitting No. 3 and operate valve. If vacuum rises, thermo valve is working properly. If vacuum does not rise, valve is stuck open and should be replaced.
1978 Models - 1) With engine at normal operating temperature, attach tachometer and timing light to engine. Remove rubber cap from distributor vacuum retard unit. *See Fig. 3.*
2) With rubber cap removed, timing should advance. Reinstall cap and recheck timing. Timing should retard. If timing remains advanced with cap in place, replace thermo valve.
3) With rubber cap still in place, cover radiator to increase engine coolant temperature. With temperature above 203°F (95°C), timing should advance. If ignition timing does not advance, replace thermo valve.