SAAB 1970-73 ENGINE MODIFICATION (Cont.)

Saab V4 (1970-73)

DESCRIPTION

Saab V4 improved combustion exhaust emission control system consists of; a deceleration valve, carburetor with revised jet sizes and deceleration section, a modified distributor advance curve, and a thermostatically controlled air cleaner.

OPERATION

Deceleration Valve – Assembly is connected to intake manifold. Valve body contains a spring loaded diaphragm which is held in place by the bottom cover. Diaphragm is subjected to manifold vacuum on top side and to atomospheric pressure on underside (by a bleed hole in cover). During periods of deceleration, intake manifold vacuum is sufficient for diaphragm to overcome spring loading and lift deceleration valve off its seat. With valve open, vacuum draws a metered amount of air and fuel from fuel pick up tube and air bleed, which flows from outlet tube through deceleration valve and into manifold. This additional air/fuel mixture, coupled with other engine modifications, provides improved combustion. The air/fuel supply needed for combustion is feed to engine through a hose which connects deceleration valve to deceleration section of the carburetor.

Thermostatically Controlled Air Cleaner – Air cleaner incorporates a valve assembly, which comprises a metal box fed by two air inlets, one for normal cold air intake and the other forming a hot air intake from separate heat stove around the exhaust pipe. Enclosed in the box is a spring loaded flap valve which pivots to control proportions of hot and cold air entering engine. A thermostatic bulb is connected through a spring linkage to flap valve. As engine warms up, air is drawn through hot air intake over thermostatic bulb and into air cleaner. When air temperature reaches approximately 90°F, thermostatic bulb expands and begins to force flap valve down. This allows cold air to enter and mix with hot air. Hot air intake is completely closed when intake air temperature reaches 95° to 105°F.

TESTING

Deceleration Valve – *NOTE – Air cleaner must be installed.*

1) With engine idling at normal operating temperature, disconnect hose between carburetor and deceleration valve and check for vacuum passing through valve. If vacuum is present, adjusting screw on deceleration valve has to be screwed in further until valve is closed. Reconnect hose between carburetor and deceleration valve.

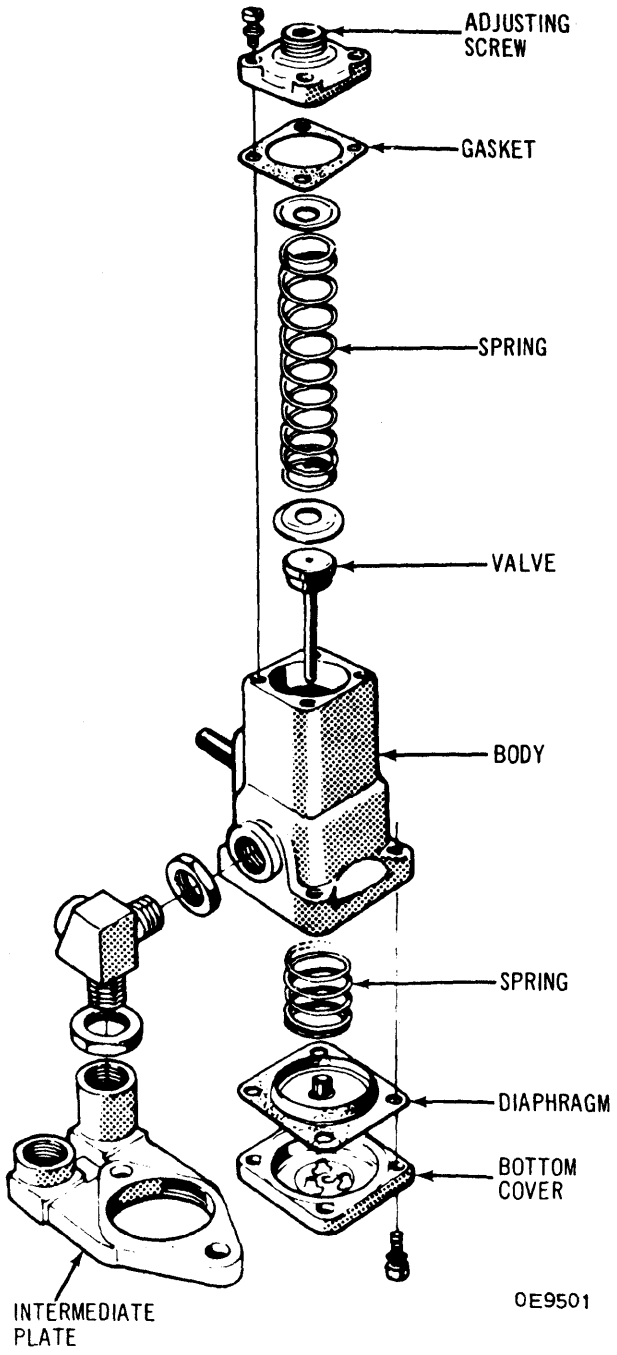
2) Connect a tachometer and adjust idling speed to 900 RPM. Open throttle to obtain 3000 RPM. Release throttle and measure time required for engine speed to drop from 3000 RPM to idle. If deceleration valve is correctly adjusted, time should be between 7-8 seconds. If not between 7-8 seconds, valve must be adjusted.

Thermostatically Controlled Air Cleaner – 1) Remove front hose. With valve assembly in position, engine cold, and an ambient temperature (in engine compartment) of 85°F or less, flap valve should be in forward position shutting off cold air intake.

2) Start engine and run at fast idle for 2-6 minutes. When ambient temperature (under hood temperature) reaches 95-105°F, plate will move towards back position and completely shut off hot air intake.

ADJUSTMENT

Deceleration Valve – If required time for engine to decelerate from 3000 RPM to idle is more than 7-8 seconds, deceleration valve adjusting screw should be turned clockwise. If required time is less than 7-8 seconds, adjusting screw should be turned counterclockwise until desired time is reached.



SAAB DECELERATION VALVE

SAAB 1970-73 ENGINE MODIFICATION (Cont.)

MAINTENANCE

Idle Adjustment – Idle adjustment must not be carried out until engine has reached normal operating temperature.

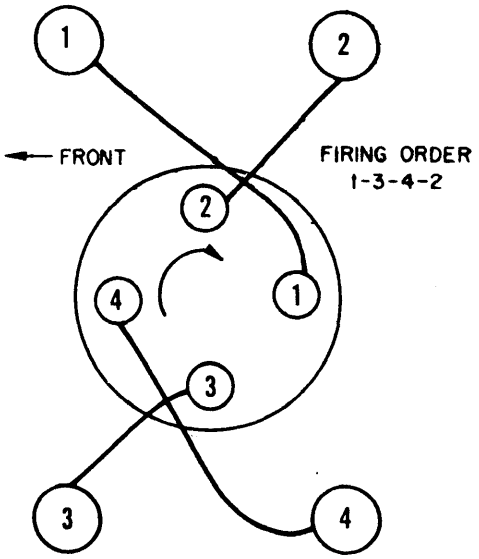
1) Attach tachometer and suitable exhaust gas analyzer. Set idle adjustment to 900 RPM with headlights on and in low beam position.

2) Adjust mixture control screw to obtain a reading of 1.5-2.0% CO. Turn screw clockwise to obtain a lower CO content and counterclockwise to increase it. Recheck idle speed and adjust if necessary.

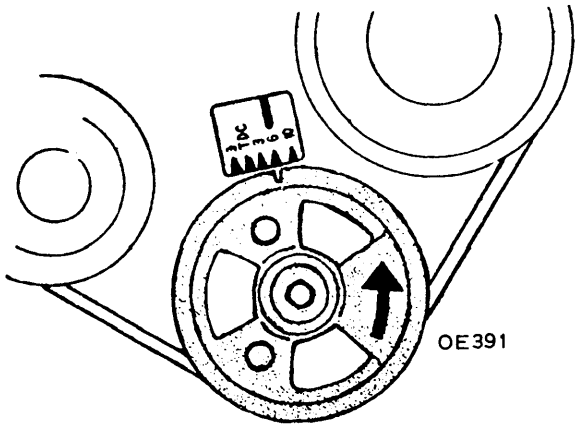
Fast Idle Adjustment – 1) Connect tachometer, remove air cleaner. With engine at normal operating temperature, set stop tang of throttle valve on third step of fast idle cam (indicated by mark on cam). *NOTE – Slightest touch of accelerator linkage will actuate throttle arm, returning it to original position.*

2) With throttle in above position, warm engine should now operate at a speed of 1900-2100 RPM. If adjustment is necessary, stop engine and bend throttle arm stop tang.

Ignition Timing – Set timing to 3° BTDC at 800 RPM (max.) with both vacuum hoses disconnected.



V-4 FIRING ORDER



V-4 TIMING MARKS