

FIAT SERVICE LETTER

SUBJECT : IGNITION TIMING

**VEHICLES : 128 MODELS
X1/9**

GENERAL INFORMATION: The distributor on the above 1974 models is equipped with a vacuum operated "Retard Diaphragm. The following mechanisms have been incorporated to control the diaphragm.

1. Vacuum outlet located on carburetor below throttle butterfly.
2. A thermovalve located on cylinder head just above #3 spark plug.
3. A vacuum delay valve, located in vacuum line between thermovalve and vacuum chamber of distributor.

The vacuum line runs from the outlet on the carburetor to one of the nipples of the thermovalve. It continues from the remaining nipple of the thermovalve over it to the white nipple of the delay valve. From the black nipple of the delay valve it continues over to the vacuum chamber of the distributor (delay valve will not work correctly if hooked backwards).

READ, INITIAL AND PASS ON

Service Manager	Parts Manager	Service Writer	Technician			

OPERATION OF SYSTEM

1. When the engine is cold the thermo valve is closed, so vacuum cannot pass through. In this condition the spring located in vacuum chamber depresses the diaphragm which is connected mechanically to the moveable arm of the point set. In this condition the points are in 10° advance position.
2. After engine has started and the thermo valve is warmed by the water of the cooling system to a temp. of 65° F. the valve opens allowing vacuum to pass through. At this time the delay valve comes into play. This valve regulates the vacuum so the pull on the vacuum chamber diaphragm is even and softens the change in ignition timing. It takes 7 seconds for full vacuum to reach vacuum chamber.
3. Now that full vacuum has reached the vacuum chamber, the vacuum has overcome the spring tension and has pulled diaphragm forward and in turn has pulled the moveable arm of the point set back 10° (Retard Position).

Timing should now be at T.D.C.

CHECKING TIMING & VACUUM RETARD OPERATION

1. Timing should be set with completely warm engine.
2. Adjust idle to 800 RPM and set timing at T.D.C.
3. With engine running, disconnect vacuum line from the retard diaphragm. Pinch the line closed to avoid a vacuum leak.

With timing light, observe ignition timing advance. It should advance 10 degrees. (The advance may be a few degrees more due to the increase in engine RPM, causing the centrifugal advance weights to operate.) By temporarily readjusting the idle speed to 800 RPM the advance should return to 10 degrees B.T.D.C.
4. Reconnect the vacuum line and observe the timing; it should return to the retarded (T.D.C.) setting.
5. Readjust idle speed to the recommended 850 RPM after completing the above checks.

Ignition Control System

