1974-79 EXHAUST EMISSION SYSTEMS
Ford Motor Co. Dual Diaphragm Unit

1975-78 Capri, Capri II

DESCRIPTION

The dual diaphragm unit consists of two independently operating diaphragms. The outer (primary) diaphragm utilizes carburetor vacuum to advance ignition timing. The inner (secondary) diaphragm is actuated by intake manifold vacuum to provide additional ignition timing retard during periods of closed throttle operation. Thereby assisting in reduction of hydrocarbon emissions.

OPERATION

The outer diaphragm is coupled to the movable breaker plate. An increase in vacuum pressure moves the diaphragm against advance diaphragm spring tension, causing the movable breaker plate to pivot opposite to distributor rotation. Thus ignition timing is advanced, and this is to occur during normal road-load operation, but not during deceleration or idle. When intake manifold vacuum is applied to inner diaphragm (retard) it moves inward toward the distributor. This allows the advance diaphragm to move, causing the movable breaker plate to pivot in the same direction as distributor rotation. This retard of ignition timing automatically occurs during engine idle or deceleration.

TESTING

VACUUM ADVANCE

Disconnect vacuum lines from both outer and inner diaphragms. Plug line removed from inner diaphragm. Using a tachometer, increase idle speed by using first step of fast idle cam. Using a timing light, observe ignition timing setting. Connect carburetor vacuum line to outer diaphragm. Timing should advance immediately.

VACUUM RETARD

Adjust engine idle speed to 550-600 RPM. Using a timing light, observe ignition timing setting. Remove plug from manifold vacuum line and connect line to inner diaphragm. Timing should retard immediately. Replace dual diaphragm unit if either of the diaphragms are leaking or if the retard portion is out of calibration.

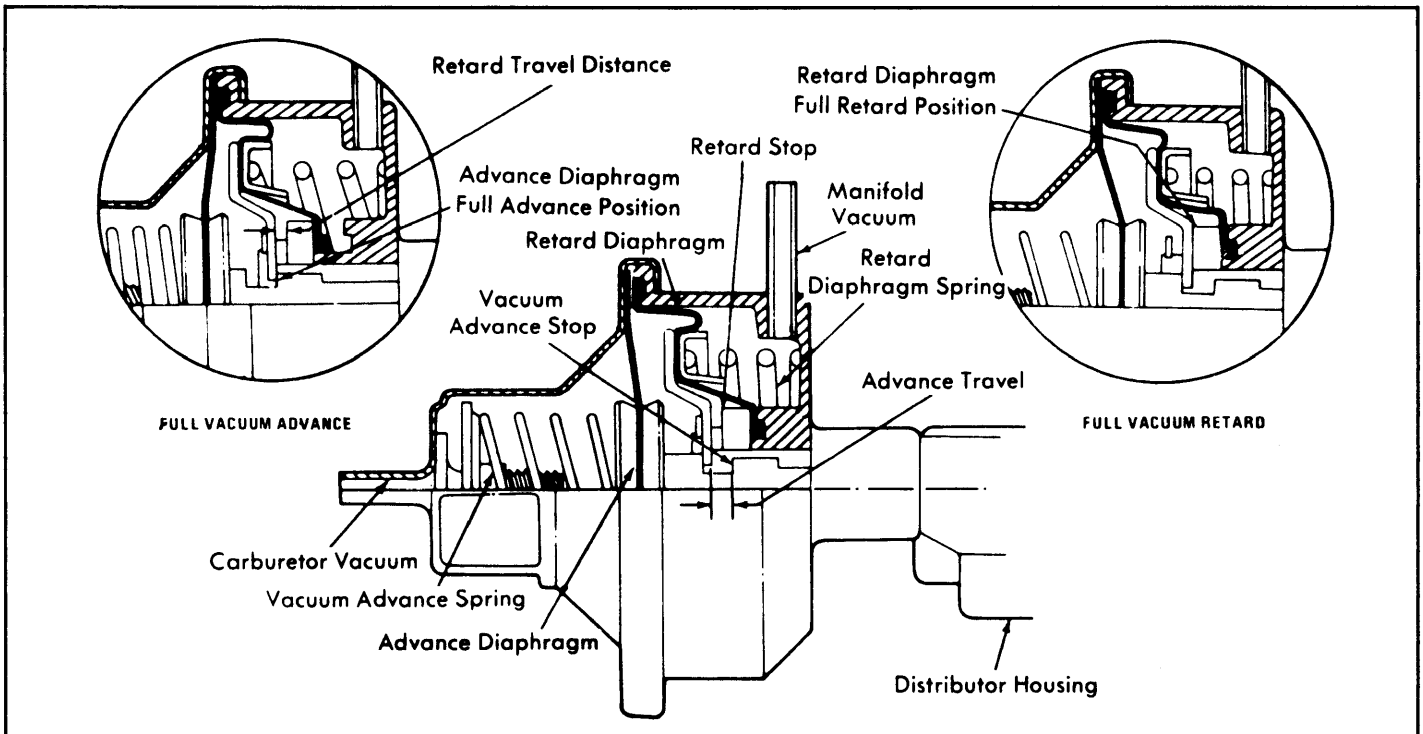

Fig. 1: Dual Diaphragm Vacuum Advance & Retard Unit