1975-79 EXHAUST EMISSION SYSTEMS
Ford Motor Co. Dual Diaphragm Distributor

DESCRIPTION

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

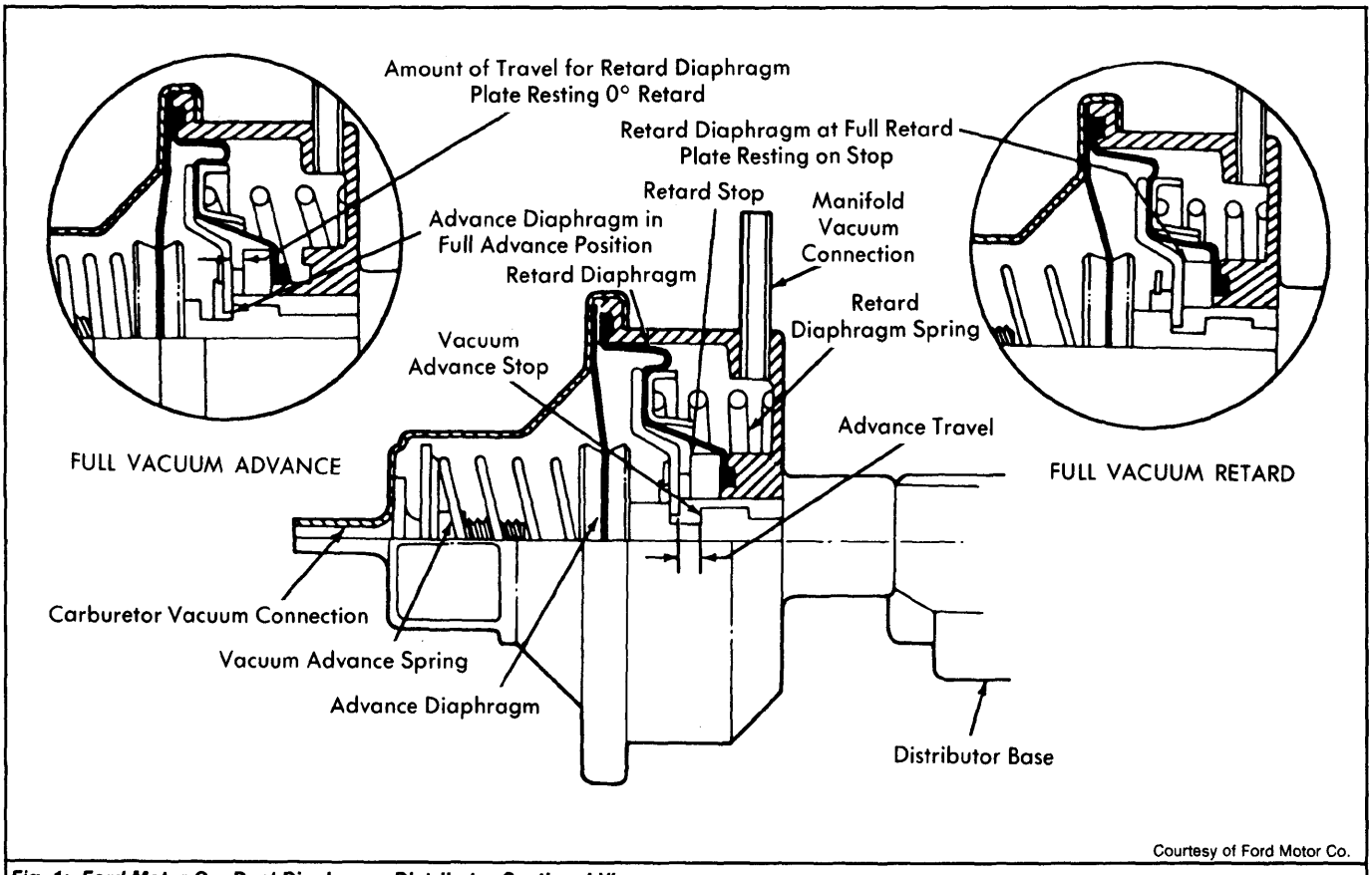
OPERATION

When ported vacuum is applied to the outer diaphragm, the distributor plate is pulled against distributor rotation advancing the spark timing. During deceleration and idling, intake manifold vacuum is stronger than ported vacuum. This moves the inner diaphragm inward toward the distributor, retarding spark timing.

TESTING

Vacuum Advance - Disconnect vacuum lines from both outer and inner diaphragms. Plug line removed from inner diaphragm. Increase idle speed by using first step of fast idle cam. Using a timing light, observe ignition timing setting. Connect carburetor ported vacuum line to outer diaphragm. Timing should advance slowly as vacuum equalizes through spark delay valve.

Vacuum Retard - Readjust engine idle speed to 550-600 RPM. Using a timing light, observe timing. 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. The advance (outer) diaphragm on some models is adjustable. If vacuum advance is working okay but not to specifications, disconnect advance hose and adjust using an Allen wrench through vacuum nipple opening. See appropriate article in DISTRIBUTORS & IGNITION SYSTEMS section for specifications.



Courtesy of Ford Motor Co.

Fig. 1: Ford Motor Co. Dual Diaphragm Distributor Sectional View