



Installation and Operation Instructions **Adjustable Vacuum Advance Kit**

For Ford-Mercury V-8, 1973-85 with Electronic Ignition.

Legal only for pre-1966 California and pre-1968 Federally certified passenger cars.

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Automotive ignition timing advance consists of three components: Initial timing, centrifugal advance, and vacuum advance.

INITIAL TIMING - Is the point where the distributor is set in the engine prior to start up. This timing can be advanced or retarded by moving the distributor.

CENTRIFUGAL ADVANCE - Is a function of the engine RPM, and will increase as the engine's RPM increases. The centrifugal advance is controlled by the weights and springs inside the distributor.

VACUUM ADVANCE - Is a function of the engine manifold vacuum. As the engine vacuum decreases, the vacuum advance will decrease. At full throttle, engine vacuum is zero and vacuum advance is zero.

TOTAL ADVANCE - Is the total of initial advance, centrifugal advance, and vacuum advance added together.

The following instructions are designed to allow you to re-curve your distributor in the vehicle. This procedure may also be done on a distributor machine, if a predetermined curve is desired.

Check ignition timing for reference. It will be necessary to re-time engine after the new adjustable vacuum advance unit is installed.

Engine must be in proper tune. It would not be possible to achieve the correct ignition curve if the engine is out of tune. Several things may cause premature spark knock. Some of them are:

Compression ratio too high for the combination. Excessively lean fuel air ratio (above 14.7 to 1). Higher than normal engine temperature. Also some aftermarket manifolds with very small runners will not tolerate increased ignition timing as will a malfunctioning or inoperative EGR system. A properly functioning EGR system will lower combustion chamber temperature 400°-500° at light throttle cruise allowing increased ignition spark for better economy and performance without spark knock.

Because of the difficulty of changing centrifugal advance springs in this distributor, it is recommended to check for full throttle spark knock with vacuum advance vacuum source disconnected and plugged before going further. If audible spark knock occurs at stock, two or four degrees advance from stock timing specs, your centrifugal advance curve is correct for your application. If this is the case, disregard steps for removal and replacement of centrifugal advance springs.

1. Open hood or remove engine cover, if so equipped.
2. Check initial timing for reference. It will be necessary to re-time engine after new vacuum unit is installed and/or air gap has been reset.
3. Remove necessary obstructions i.e., air cleaner, to make distributor accessible. Cover carburetor and around base of distributor to protect against dropping of small parts.
4. Remove cap with wires and set aside. Some engines may require disconnecting of some plug or coil wires, if so, mark them accordingly (FIG. 1).
5. Remove rotor and disconnect vacuum line and unplug wires to magnetic pick up.



FIG. 1

6. Remove reluctor, using two screwdrivers 180° apart with the tips under the reluctor, pry down on the distributor housing forcing the reluctor up. In some cases where rust is a factor, an appropriate puller may be needed. Take care not to crush or damage pick up coil or wires. (FIGS. 2 & 3)



FIG. 2



FIG. 3

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7. A locating keeper pin in the reluctor will not normally stay in the reluctor. Some reluctors may have more than one slot for the keeper pin. Look first and mark which slot has the pin in the event it may fall out. The reluctor must be installed back in the original position.

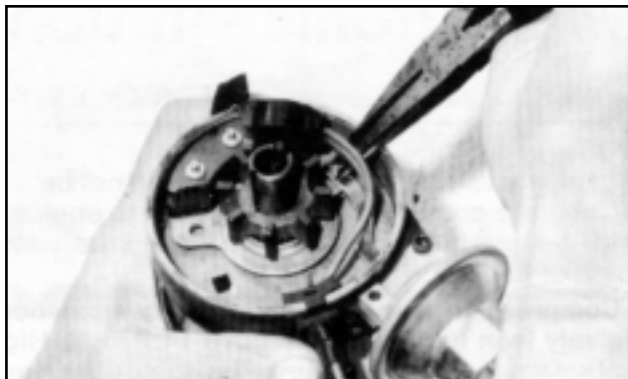


FIG. 4

8. Remove C clip, and remove vacuum advance unit (2 screws). (FIGS. 4 & 5)

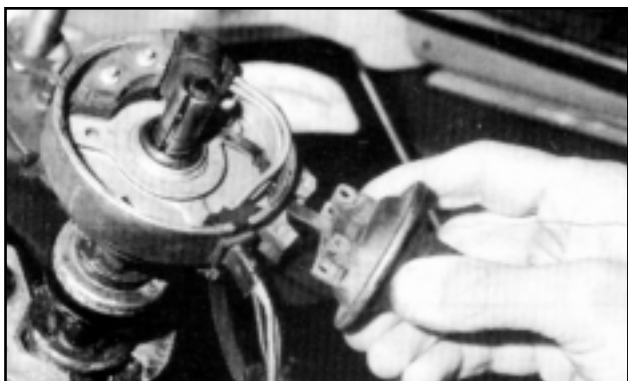


FIG. 5

9. Remove screw and pull wire and grommet out of slot in distributor housing. (FIG. 6)



FIG. 6

10. Upper and lower plate will be removed together, don't take them apart. Remove plate assembly with pick-up coil (2 screws), make reference mark on plate and housing before removing. (FIG. 7)
11. Remove the felt plug in the center of the governor and remove lock ring using long needlenose pliers. Grab one side of lock ring and lift up with a rotating motion. (FIGS 8 & 9)

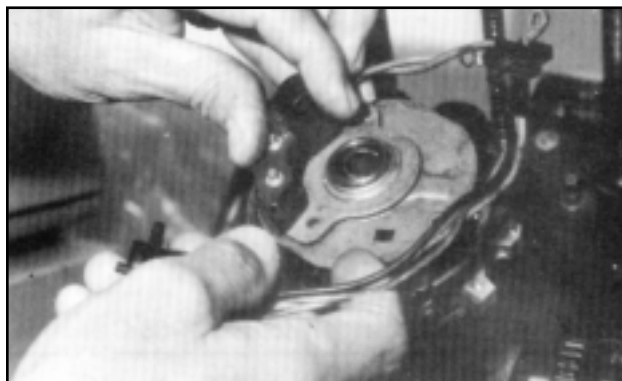


FIG. 7



FIG. 8



FIG. 9

12. Remove springs, and then remove governor. In some cases rust may be present under felt plug from lack of oil. Some CRC or equivalent may be applied into center of governor to assist in its removal. (FIG 10)



FIG. 10

13. Inspect, clean and lubricate, springs, weights, and pivots, if necessary.

The Ford centrifugal advance curve utilizes a two stage type of curve. Your stock centrifugal advance springs consist of one light closed loop spring and one heavy spring with a closed loop on one end and a long loop on the other end. This long loop spring is the only spring you may need to change. There are three springs to choose from in the kit. The recommended combinations are on the chart below. There are a couple of factors that can change these figures. They are: (1) Using a different length (measured in degrees) governor slot. We recommend using the shortest slot of the two available on your governor (FIG. 11) for the best economy and street performance. (2) Bending the spring tang on the lower plate in or out can also change the centrifugal curve even more.

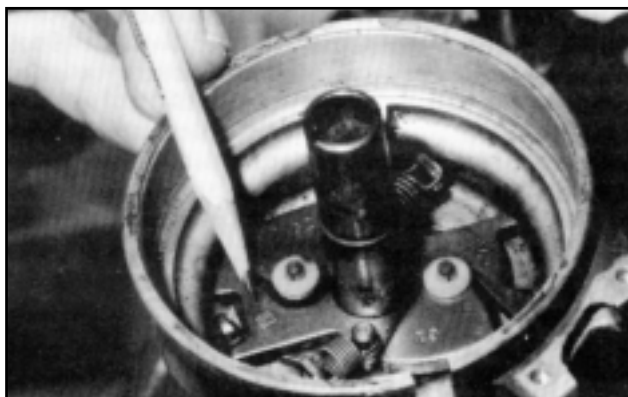


FIG. 11

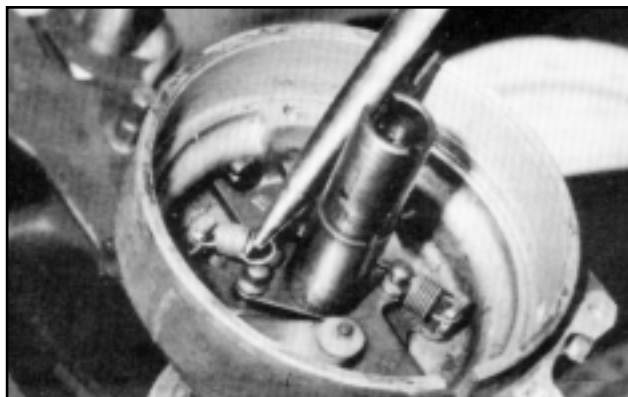


FIG. 12

SPRING COMBINATIONS

SPRING COMBINATION	START ADVANCE ENGINE RPM	FULL ADVANCE ENGINE RPM
Yellow - Stock Light Spring8003800
Silver - Stock Light Spring8003500
Yellow - Yellow8002600

NOTE: Because of optional length slots in governor, the RPM at which you reach total advance may differ from above specs.

14. Make sure thrust washer is on shaft between weights before installing governor. (FIG. 13)



FIG. 13

15. Install governor, press down and align the pin in the lower plate into the slot in the governor until governor contacts the thrust washer. (FIG. 10) Choose and install the correct springs.
16. Install new snap ring over shaft in center of governor. Two small screwdrivers work well installing this snap ring. Re-install felt plug and add 4-5 drops of motor oil.
17. Install plate and pick up coil assembly. Holding plate even and flat on the machined step in the distributor housing. Push wire form grommet back into slot in housing. Install and tighten the two screws previously removed. (FIG. 14)

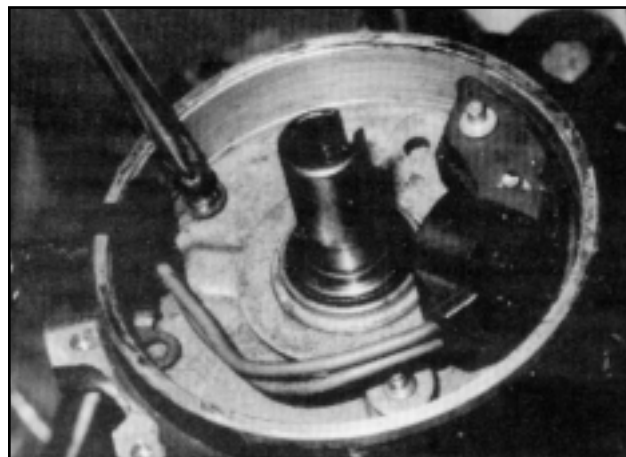


FIG. 14

18. Install reluctor. Make sure roll pin is in correct slot on reluctor as removed. Align the correct slot in the reluctor with the slot in the governor, and then push the small roll pin into the hole. A screwdriver and a small hammer works well to tap the roll pin into place. (FIG. 15)
19. Install new adjustable vacuum advance unit with two screws previously removed. Install C clip. (FIG. 16)
- NOTE:** Because of possible change of plate position, air gap should be checked .007" with a non-magnetic gage.
20. Reconnect plug from distributor to connection in wire form.
21. Install rotor and cap with wires
22. With the vacuum hose disconnected and plugged, set the initial timing at 2° advance from factory specifications and make full throttle acceleration runs, listening for audible

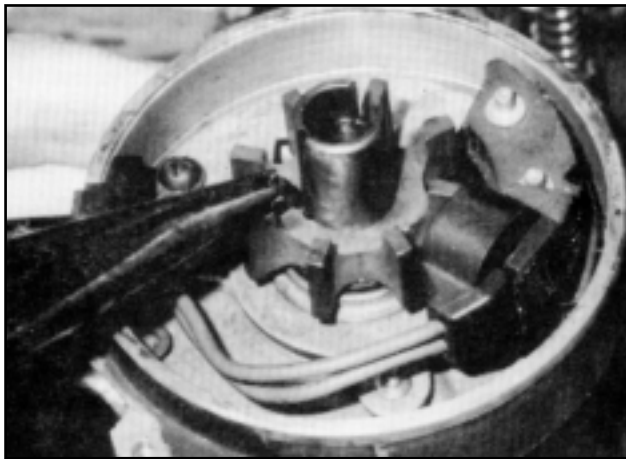


FIG. 15

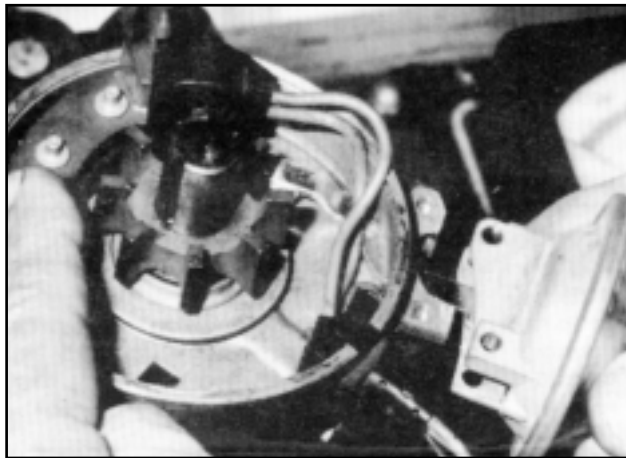


FIG. 16

spark knock. If spark knock occurs, then retard the initial timing 2° and check for spark knock by making another full throttle acceleration run. If spark knock stops, you have the ideal centrifugal advance curve. If spark knock continues, then select the next heavier spring combination and repeat the test procedure. If no spark knock occurs on the first test, select the next lightest combination and repeat the test

Due to the ever lowering octane rating of gasoline in the US, we recommend you choose a centrifugal spring on the heavy side rather than light.

23. Check for full clockwise adjustment and connect the adjustable vacuum advance unit to the manifold vacuum source. (FIG. 17)

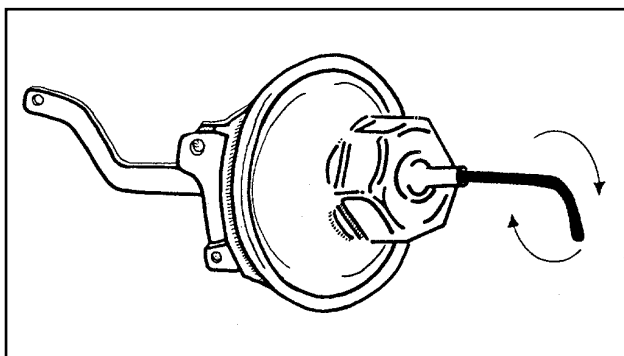


FIG. 17

24. Test-drive the vehicle in the city and on the highway while listening for audible spark knock under heavy load and part throttle. If spark knock occurs under part throttle conditions, a change in the vacuum advance curve is needed. This adjustment is made by inserting the $3/32$ " allen wrench into the vacuum advance unit and turning the adjuster counterclockwise two turns at a time, testing the vehicle after each change, until part throttle spark knock is eliminated.

The curve you have achieved is designed to give you the best economy and performance.

In general, cars and trucks originally equipped with Ford Electronic distributors will be able to use a total advance of 45° to 55° . Some factors may limit the amount of total ignition timing your vehicle can use. These factors are increased compression, declining octane rating of gasoline, certain intake manifolds that will not tolerate increased ignition timing, lock-up torque converters, extremely heavy loads, and lean fuel mixture.

