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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.

1. Remove the air cleaner (if necessary) and cover the carburetor and around the base of the distributor to protect against the dropping of small parts into the engine (FIG. 1).



FIG. 1

2. Remove the tachometer (if any), battery, and distributor connections from the distributor cap (FIG. 2)



FIG. 2

3. Remove the distributor cap (FIG. 3). (NOTE: Some engines may require the disconnecting of spark plug and/or coil wires. If so, mark them accordingly.)



FIG. 3

4. Remove the rotor and check the condition of all parts, and replace as needed (FIG. 4).



FIG. 4

5. Remove the centrifugal advance springs (FIG. 5) and inspect the weights and pins at the pivot points (FIG. 5A). Replace the weights and pins if they show rust or extreme wear. Stock GM weights are recommended. (NOTE: Be sure to lubricate pivot points when installing new parts.)



FIG. 5



FIG. 5A

6. Install a blue (heavy) and silver (medium) spring in the distributor in place of the stock springs (FIG. 6). This combination will be ideal for most applications, and is recommended as a starting point.

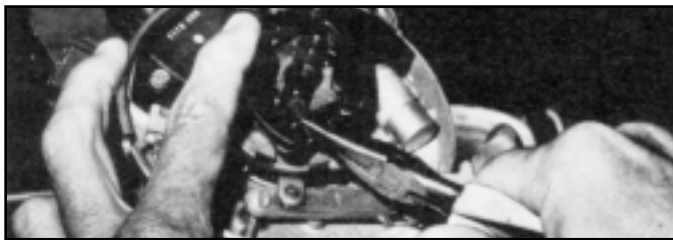


FIG. 6

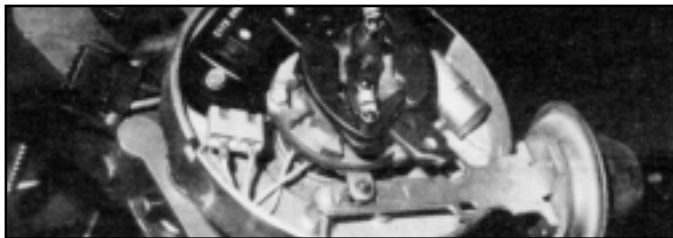


FIG. 7



FIG. 7A

8. Using the 3/32" allen wrench (included with the kit), insert the wrench through the vacuum port and adjust to maximum clockwise position (FIG. 8A). Leave the vacuum hose disconnected and plugged. Replace distributor rotor cap, and all wires previously removed (FIG. 8B-8C).

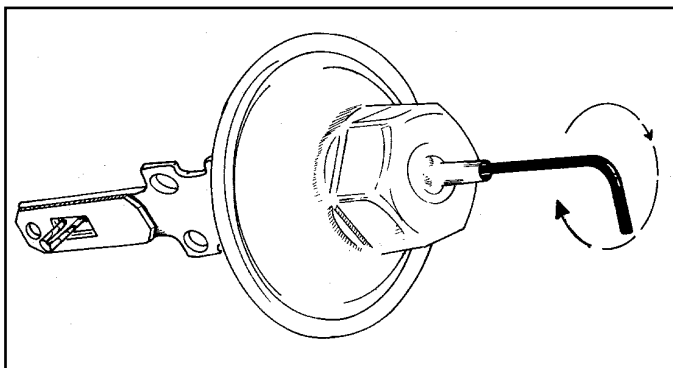


FIG. 8A



FIG. 8B



FIG. 8C

9. 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 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.
10. Connect the adjustable vacuum advance unit to the manifold vacuum source.
11. 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.

SPRING COMBINATIONS

SPRING COMBINATION	START ADVANCE ENGINE RPM	FULL ADVANCE ENGINE RPM
Blue/Blue	.800	.3200
Blue/Silver	.800	.2800
Blue/Yellow	.800	.2600
Silver/Silver	.600	.2200
Silver/Yellow	.500	.1800
Yellow/Yellow	.500	.1600
BLUE - HEAVY	SILVER - MEDIUM	YELLOW-LIGHT

In general, GM cars and trucks originally equipped with HEI 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.

NOTE: The GM HEI distributor has a centrifugal advance of 20 crank degrees with stock weights. Using advance weights other than stock may change the centrifugal advance curve and total advance.