VACUUM ADVANCE:

The 1948 and earlier Ford engines have a different type of vacuum advance than we normally encounter. Intake manifold vacuum is routed to an internal brake inside the distributor. The amount of brake that's applied to the centrifugal weight advance mechanism controls the degrees of advance. When vacuum drops, the brake spring overcomes the vacuum that is holding the brake away from rubbing against the centrifugal advance mechanism. The more spring tension there is being exerted against this brake, the sooner the brake is activated and the sooner the centrifugal advance mechanism is stopped, thereby controlling the amount of advance. To increase the spring tension and decrease the amount of centrifugal advance, turn the advance screw inwards. To decrease the spring tension and increase the amount of centrifugal advance, turn the advance screw outwards.
The vacuum advance screw is used to eliminate detonation.
To adjust initial (static) advance, loosen the lock screw on the side of the distributor and move the advance screw/plate up or down. As viewed from the front of the engine, moving the advance screw & plate clockwise advances the timing.

SETTING STATIC TIMING ON '42-'48 V-8 DISTRIBUTORS:

Stock Ford specifications call for the initial (or static) timing to be set at 4 degrees BTDC (Before Top Dead Center). This is best set on a distributor machine. In the absence of one, it can be set using common tools. The following is from a Ford service bulletin for '42-'48 distributors.

[1] Remove the distributor and adjust both sets of points to 0.014". Loosen the vacuum brake screw lock nut and back the screw out several turns. Loosen the advance screw/plate screw on the side of the distributor and verify it moves up and down fairly easily. We have to move this advance screw/plate to set the timing, so we need it to move easily.

[2] Connect up a continuity test light. Connect one lead of the test light to the screw stud the wire from the coil is connected to. The other test lead is grounded to the distributor housing.

[3] Now turn the distributor upside down so you're looking at the back of it. Notice how the distributor drive has a wide side and the tang is offset? Turn the distributor drive so the wide side is towards the condenser. Position a straight edge on this wide side (holding it snug up against the tang) in such a way that the straight edge extends to the outside of the driver's side of the distributor housing. Rotate the distributor drive and straight edge until there is exactly 3/8" from the top of the driver's side distributor mounting hole to the straight edge. This is 4 degrees BTDC. Holding the distributor drive and distributor firmly so they cannot move, slide the advance screw/plate up and down until the continuity light just flickers. This is when the left set of points are just breaking open, and is when the distributor fires. Tighten the advance screw/plate.

In Denver, I just adjust the vacuum brake adjuster out until the engine pings (detonation) under 35-40 mph high gear acceleration and then turn it back in one-half turn. This adjusts for altitude as well as the type of fuel we're using. The vacuum controlled centrifugal weights should be adjusted to be 25 to 28 degrees at 2000 rpm at sea level.

DETONATION:

Detonation is the uncontrolled burning of fuel during combustion. It can lead to pre-ignition, "running on", burned pistons, cracked piston skirts, and deform piston ring grooves/lands. Sometimes it's hard to detect light detonation while driving due to road noise etc.. However, detonation will leave its mark in the spark plugs. This appears as a dark ring around the porcelain on the inside of the plug. If a detonation ring is present, retard the spark or possibly go to a colder plug or possibly increase the main jet size or increase the octane of the fuel you're using, or do a mixture of them all! If your compression is really high like mine, I have to add an octane enhancer when I go down to a lower altitude. My 9.95:1 compression really sounds off when I get near sea level!!!!!!

COIL CONNECTIONS:

On a positive ground system, the feed from the ignition switch is to connect to the negative marked terminal on the coil. If connected wrong, the coil output will be about 14% less at idle. This percent of reduced coil output increases to as much as 30% as rpm's increase. The decreased coil output causes hard starting and poor performance.

COIL TESTING USING OHMS:

Coils can be checked using the Ohm function of a VOM. To measure primary resistance, connect one lead to the ignition terminal of the coil and the other to the distributor terminal of the coil. The resistance should be between 0.7 and 0.8 Ohms.

To measure the secondary resistance, connect one lead to either the distributor or ignition terminal of the coil and the other lead is inserted into the high-tension tower. It must make contact with the metal inside. The resistance should be 6500 to 7500 Ohms. If either measurement falls outside these values, the coil is probably on its way to being junk or has already arrived. These ohm values are only for genuine Ford coils, since each manufacturer has different values for their product. This is not a fail-safe test, but I've used this for years as a guide for coils with good results. It's especially quick and easy for use at a swap meet.