

## M38A1 Timing for Novices

First a word of caution. Gross errors made in ignition timing can destroy engines. The timing error can cause serious pre-ignition and run-on after shut down which can damage pistons and the crank. Errors in the opposite direction can cause overheating and valve damage. Now with that said, here we go. Varying timing is accomplished by rotating the distributor body causing the ignition points to open sooner (advanced) or later (retarded). The three ways to do it are: 1-the right way with the necessary adaptors and a timing light. 2- the emergency way with a simple electric circuit test lamp. 3- the "by ear method". All three must start with checking the point gap.

Setting point gap. Open the top cover of the distributor by removing the 6 screws. Pull the rotor off the distributor shaft, Turn the engine by hand with the fan and until the rubbing block of the points is on a high point of the cam. The points will be open the widest at this spot. The points are fastened to the plate with a small bolt and then you'll see a common head screw which if turned either direction will open or close the point gap. Using that screw and the .020 feeler gage set the gap to the tightness where you feel a slight resistance as you slide the feeler gage out from between the point contacts. Now while holding the eccentric adjusting screw (so the setting won't change) tighten the small bolt.

Using method # 2 for timing. Get a small circuit continuity test probe. These have a small light in them and are powered by their own little internal battery, they usually have a see thru handle so you can see the lamp, a pointed probe and a short test lead with a clip. On the front timing gear cover you will see a small pointer with 2 lines or cuts about a 1/4" apart just above the passenger side of the crank pulley. On the edge of the crank pulley you'll see a notch. With a piece of bright chalk or crayon mark the notch and the lowest of the two pointer lines. The lower line is the 5 degrees before Top Dead Center mark. Now with a helper and all four spark plugs removed, one of you hold your finger tightly in the # 1 plug hole (front one) the other rotates the engine fan (clockwise while viewed from the front) and apply down pressure to the belts (halfway between the water pump and the generator) as the partner feels a lot of pressure forcing his finger off the # 1 plug hole this means the #1 piston is coming up on it's compression stroke and is about ready to fire. You will confirm this by watching the pulley notch as it lines up with the pointer about the same time as the piston gets to the top of it's travel.. Now with the two colored marks aligned the next step is to adjust the distributor body so the points are just opening. Beneath the distributor's upper body you will see a clamping device. Loosen the bolt at the adjusting slot and slowly rotate the distributor housing counter clockwise until the points are close. Now clip your tester lead to the ignition points where the two wires are connected. Now touch the probe to the distributor's point mounting plate. Your tester light will be on. Now very slowly rotate the distributor body clockwise and stop the instant your test light goes out. The points have just started to open. Now lock down the adjusting plate by tightening the screw in the slot.

Finish: Remove the tester, Put the rotor back on. Put the distributor cap back on. Re-install the plugs and leads.

Some things you should have checked during this procedure is the condition of the points contacts (if badly pitted replace them) and the condition of the plugs.

Now fire her up and see what you've got.

This would be a good time to Buy a service manual. You should have as a minimum the TM 9-8014 "Operation and Organizational Maintenance". It would also be nice to have the TM 9-8015-1 "Engine and Clutch" and TM 9-8015-2 "Drive Train" and ORD 9 SNL G758 Parts Manual. These will caost from \$45 to \$20 each in paper back. The Military Media CD set is only \$20 and has all 4 of these plus the same sets for the WWII Jeeps, The M38, The M151 and The Hummvee.

Here's the sites

<http://www.portrayal.com/>

<http://www.military-media.com/>