

# Tach-Drive Distributor Reconditioning

Joe Fisher

PDF prepared by Dave Zuberer

[Link to Thread on the Corvette Forum \(C1-C2\)](#)

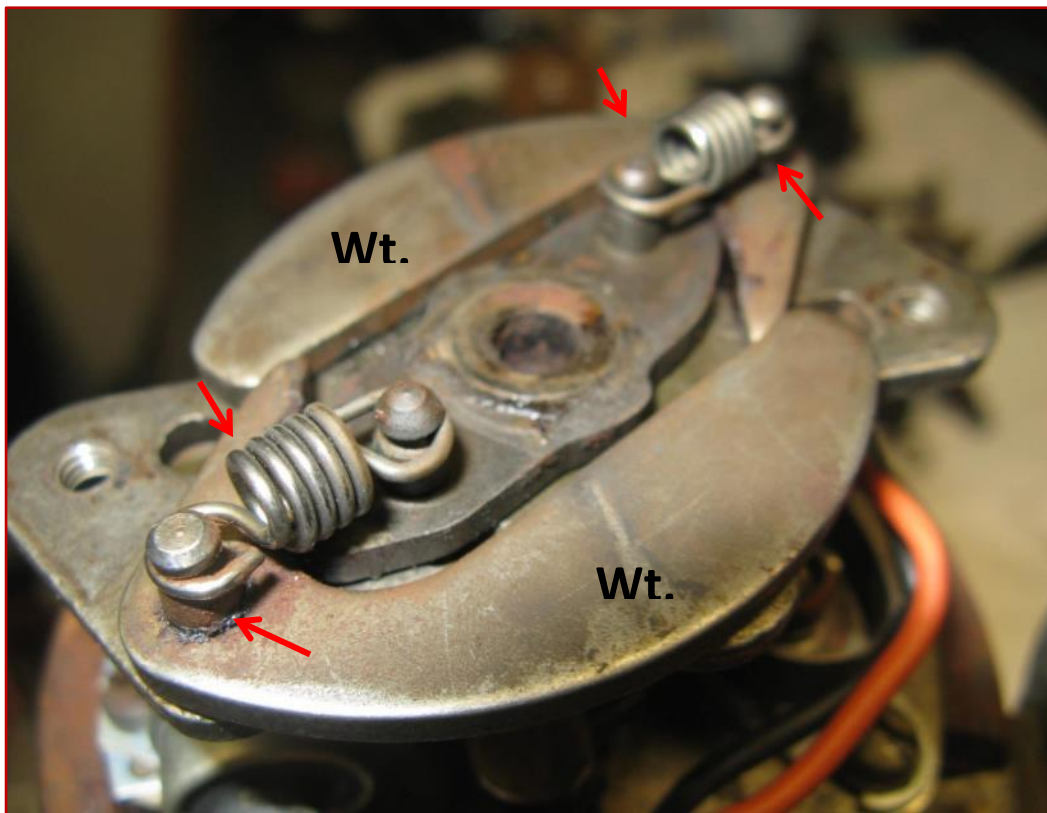
I just finished two Corvette tach-drive distributors. One was a '71 small block and the other was a 427 390hp. Here is how I went about the process. If anyone has any comments please make them constructive. I am also putting this in a Word document and I will convert it to a PDF at a later date. It takes some time so be patient. If I am being too descriptive please say so. You will notice I used pictures from both distributors. Joe

This is the process that I use when I recondition a distributor. This is done on a distributor that does not need the bushings replaced. If the bushings need replacement, they normally have to be reamed to put the upper and lower bushing into alignment.

## Dis-assembly

Begin by inspecting all components for wear or damage and check for excessive play in the upper and lower bushings.

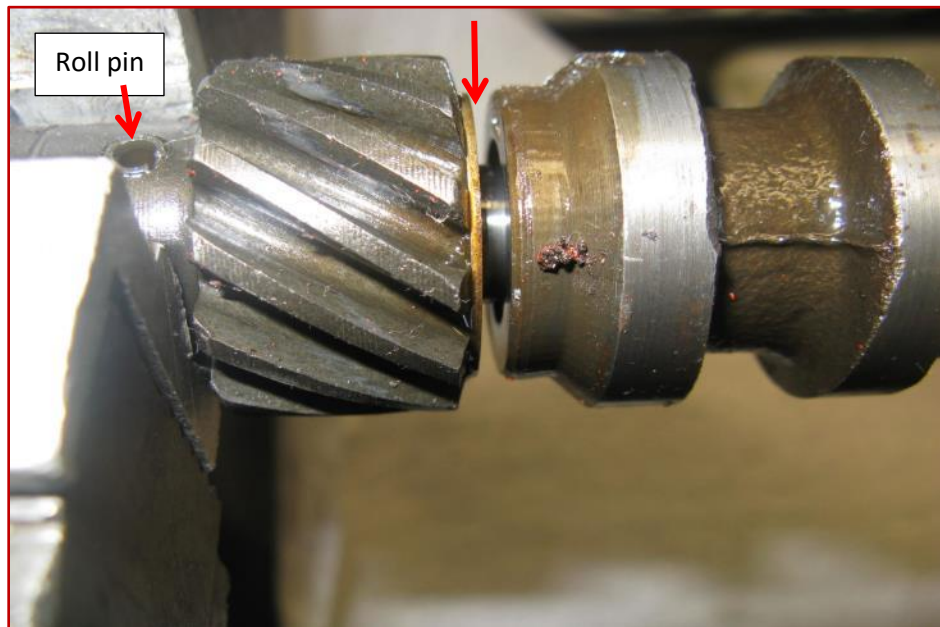
Remove springs and centrifugal weights and inspect the pivot pins for wear. Notice heavy springs on this one.



Using a large flat screw driver remove the cross shaft gear support; I made a tool from a socket I had in my tool box.

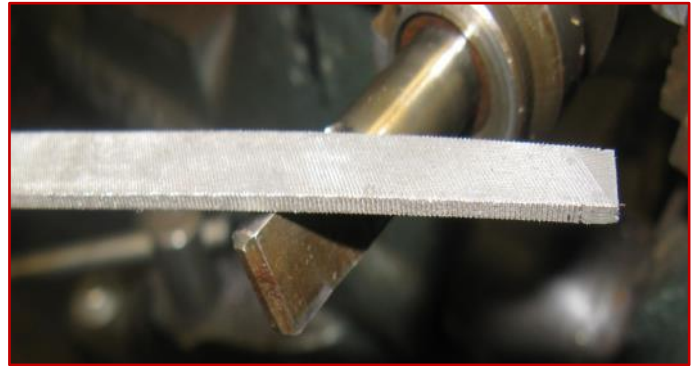
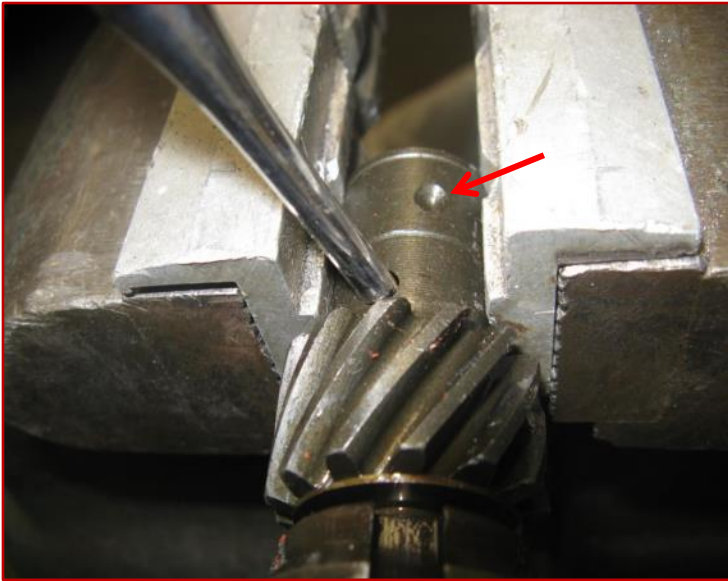


This distributor had an end play of .074".



Drive the 3/16-inch roll pin from the drive gear **noting the dimple to rotor tip relationship**, more on this later (see page 11).

Before I pull the shaft out I de-bur the end where it drives the oil pump. If the shaft does not want to come out I spray penetrating oil or carburetor cleaner on it to dissolve the varnish that might have accumulated on the shaft. **Spray it on the shaft and work it up and down and repeat as necessary until it comes out.**



Once the shaft is out, clean and inspect it for wear, also inspect the lower bushing area and the tachometer and cross shaft gears. **This distributor needed a new shaft and cross gear**



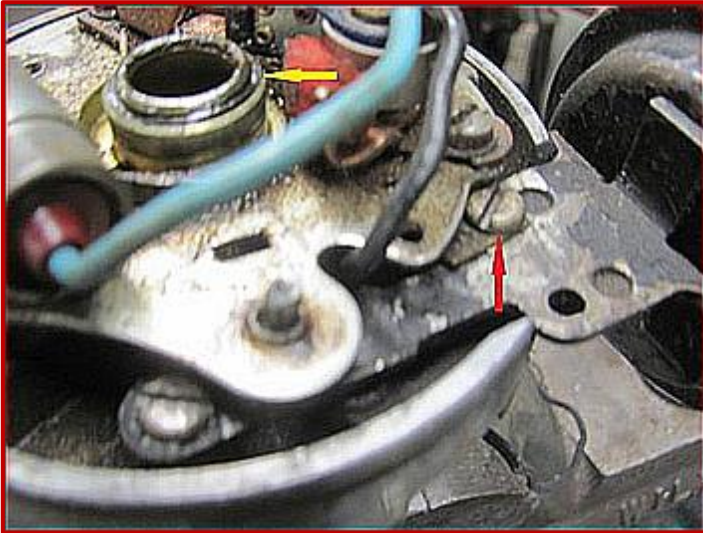
Scoring on the shaft



Tach-drive cross gear and shaft badly damaged.

Remove the points and condenser.

Remove the screw closest to the vacuum chamber (red arrow) which holds the ground wire; it will be easier if you apply vacuum to chamber to allow access to the screw. If the advance is bad just use a flat blade screwdriver to move the plate over.



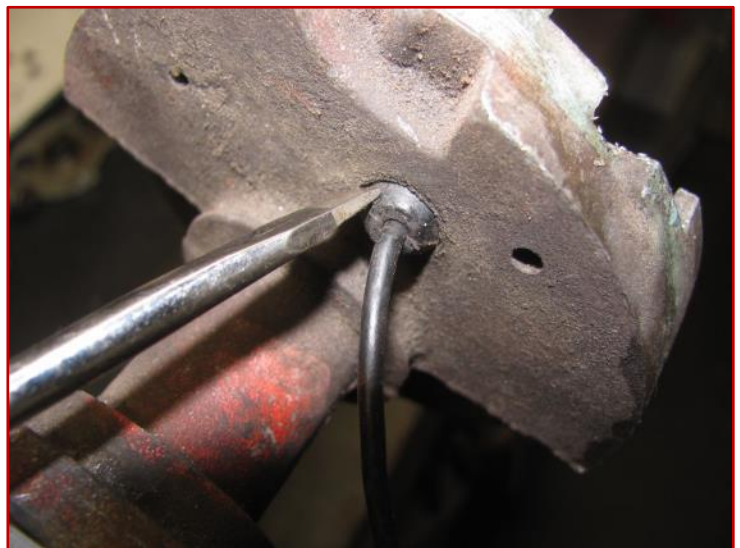
Remove the small wave retainer clip holding the breaker plate down, yellow arrow.



Now remove the breaker plate.  
Remove the remaining screw holding the vacuum advance on and remove the chamber.



Remove the grommet (red arrow in previous photo) and primary lead.



Remove the felt washer.



Note the sawdust looking stuff under the well cover; it was originally oil-soaked sawdust-like material that the factory used.\*



Carefully remove the plastic well cover, I use a sharp pick.



Thoroughly clean the chamber and make sure the oil hole/holes in the bushing are clean.

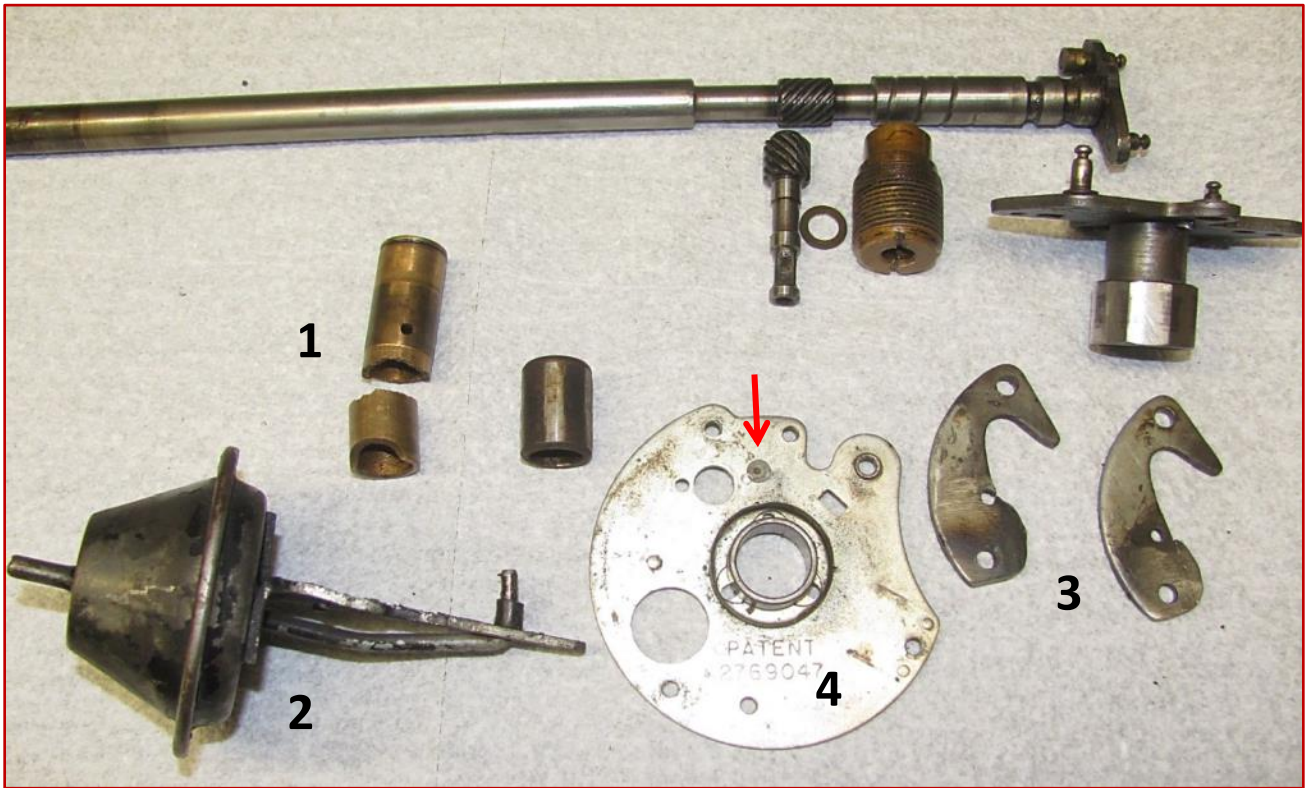


**\*Note from Joe Lucia on the NCRS TDB:**

The original lube was something like sawdust saturated with an oil. In SERVICE GM did once offer some specialty lubes for this but they are all long-since discontinued. I recommend that you fill the cavity with a general chassis lube like GM #12377985 or Mobil 1 grease.

Clean the rest of the distributor parts and inspect.

These are some of the parts from the big block distributor. Notice the broken upper bushing (1), the damaged vacuum chamber (2), the modified weights (3) and the missing ground wire on the breaker plate (4).



Distributor rebuild kits are available from various vendors. This one below is from Wilcox Corvette.



## Re-assembling the distributor:

[Link to thread on the Corvette Forum \(C1-C2\)](#)

After cleaning, inspecting and collecting all the necessary parts I start the assembly process.

I use cotton in the well; some people use gauze. I first put some oil in the well and then place the cotton.



I then soak the cotton with more oil.



Next, I re-install the plastic retainer over the lube well.



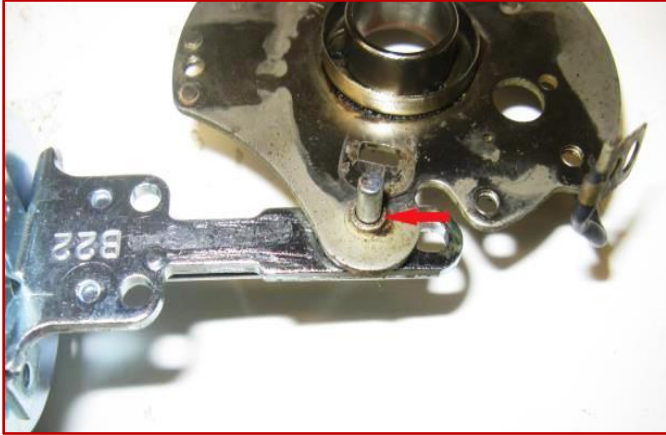
Install the felt washer and apply oil to it.



Check to make sure the ground wire is firmly attached to the breaker plate and the wire and terminal are in good condition.



I check for excessive play between the vacuum advance rod and the hole in the breaker plate (arrow).



If there is too much play I gently tap the raised portion of the hole until the rod fits snug but still moves freely.



Here is the screw holder I use when replacing the screws in the distributor.



Install the primary lead and grommet and the vacuum-advance screw closest to the rod first.



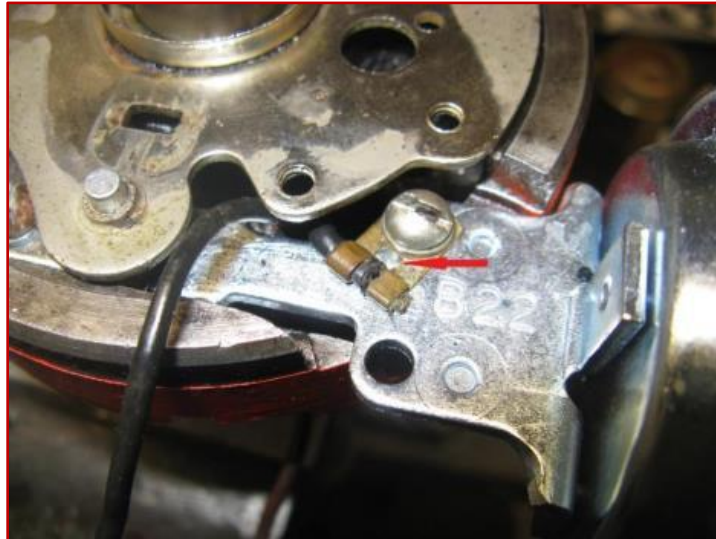
Put some oil on the outside of the bushing and install the breaker plate and wave retainer.





Install the other vacuum advance hold-down screw making sure the hole in the terminal goes over the raised nub (arrow) on the chamber mount.

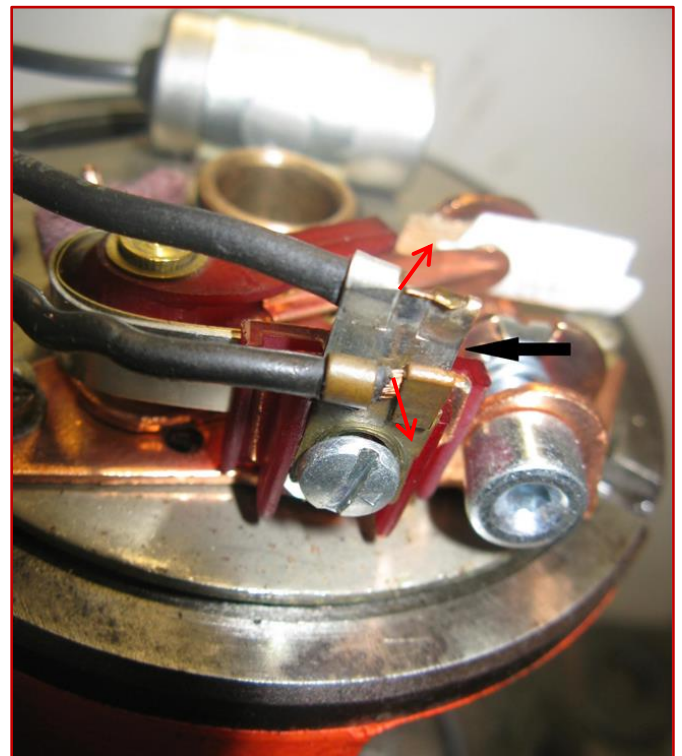
Using a hand-held vacuum pump on the vacuum advance (e.g., Mityvac), which will move the breaker plate out of the way, will make it easier to install the screw.



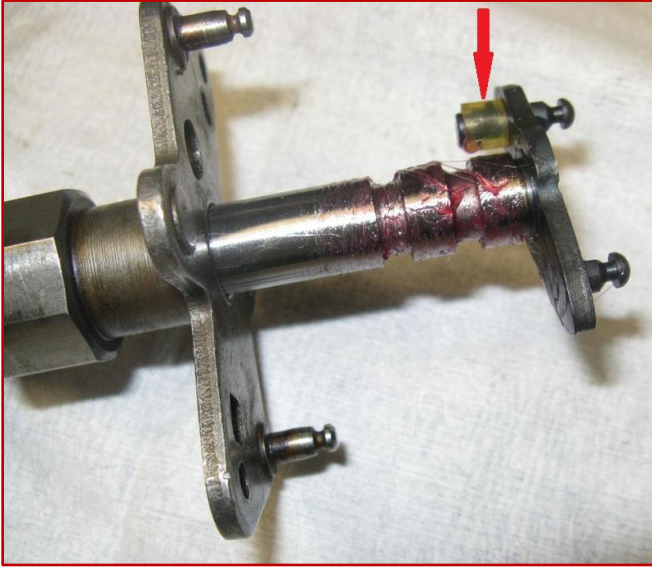
At this point I install the condenser and points. Make sure the point set sits flat on the breaker plate; notice the small nub on the plate that goes into the hole in the point set.

Note the small piece of folded paper between the points. This keeps the rubbing block away from the cam lobes when I install the shaft and cam. Make sure the two terminals (condenser and primary lead) are installed as shown in the photo.

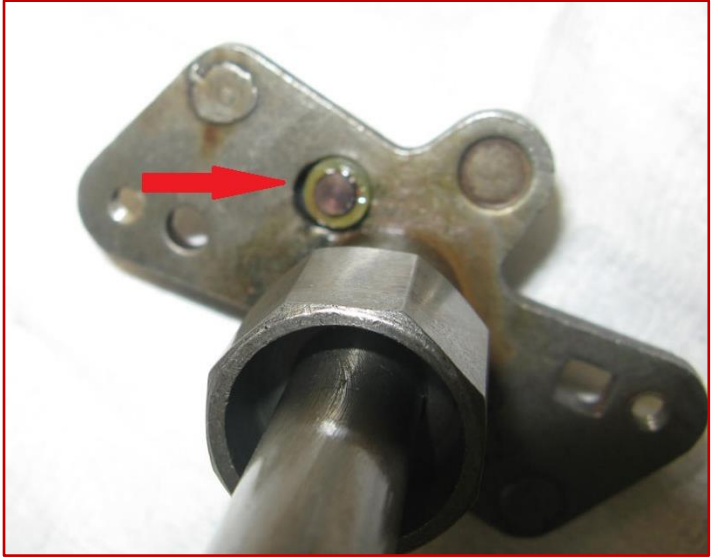
Notice the crimps are facing in opposite directions so that the smooth sides fit nicely under the screw on the point set.



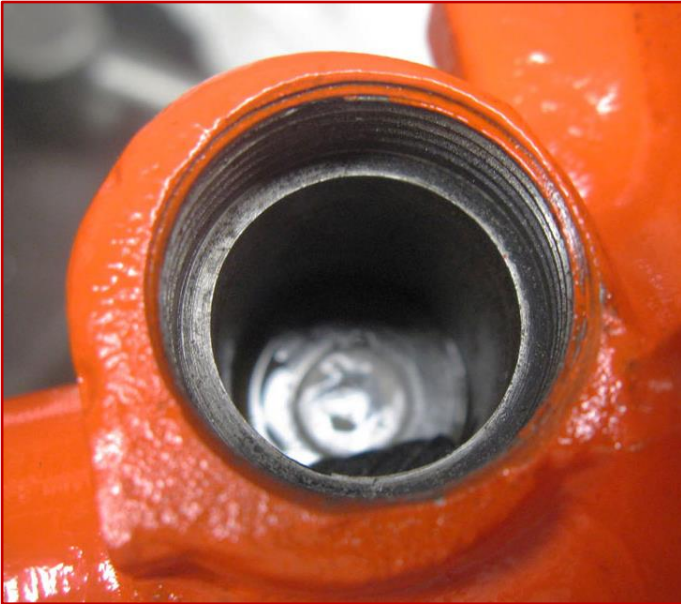
Install the cam plate with the bushing on the pin. I use light grease on the shaft as shown. DO NOT use white grease as I have seen it harden over time.



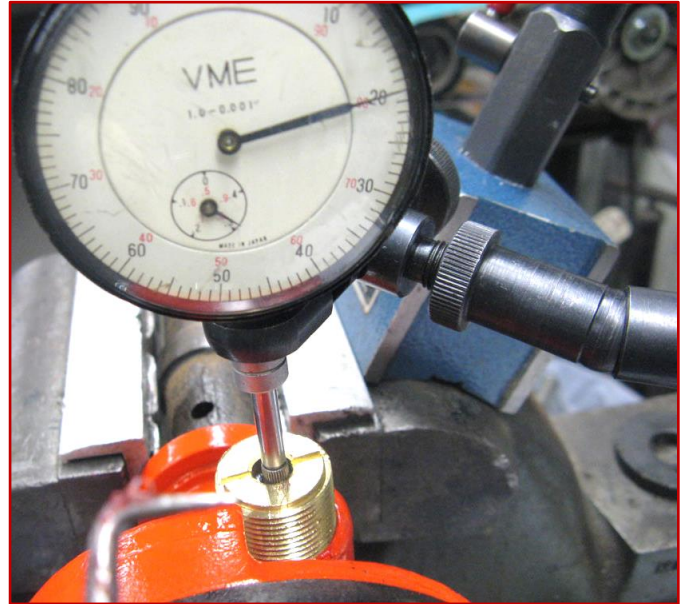
This bushing came with the new shaft but as you can see it is much too large. After running it up on my machine I removed it to get more timing advance.



Inspect the area in the distributor where the cross shaft rides for excessive damage, if it is damaged it will have to be machined and a bushing installed. This one used a nylon bushing which I replaced.



Before I install the shaft I check the cross gear end play. From my research I determined that up to .040 is acceptable.

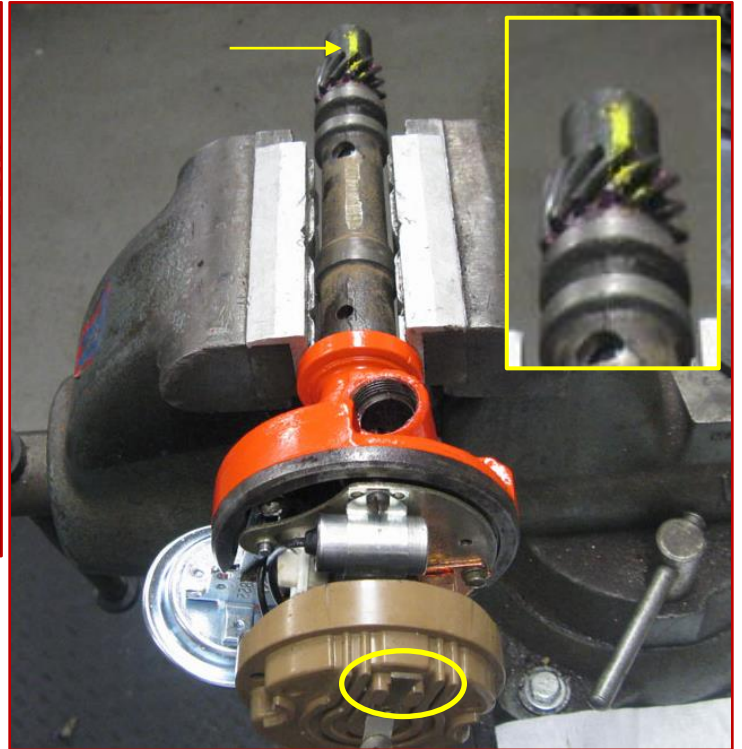
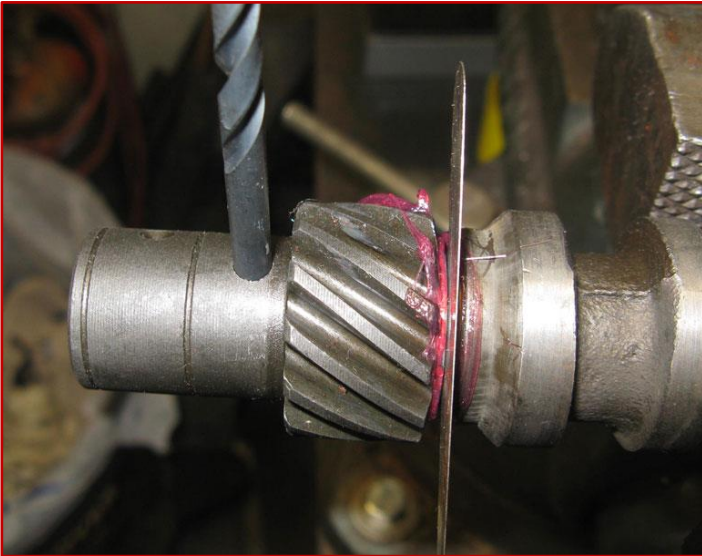


If everything is good, oil the main shaft and install it in the distributor.

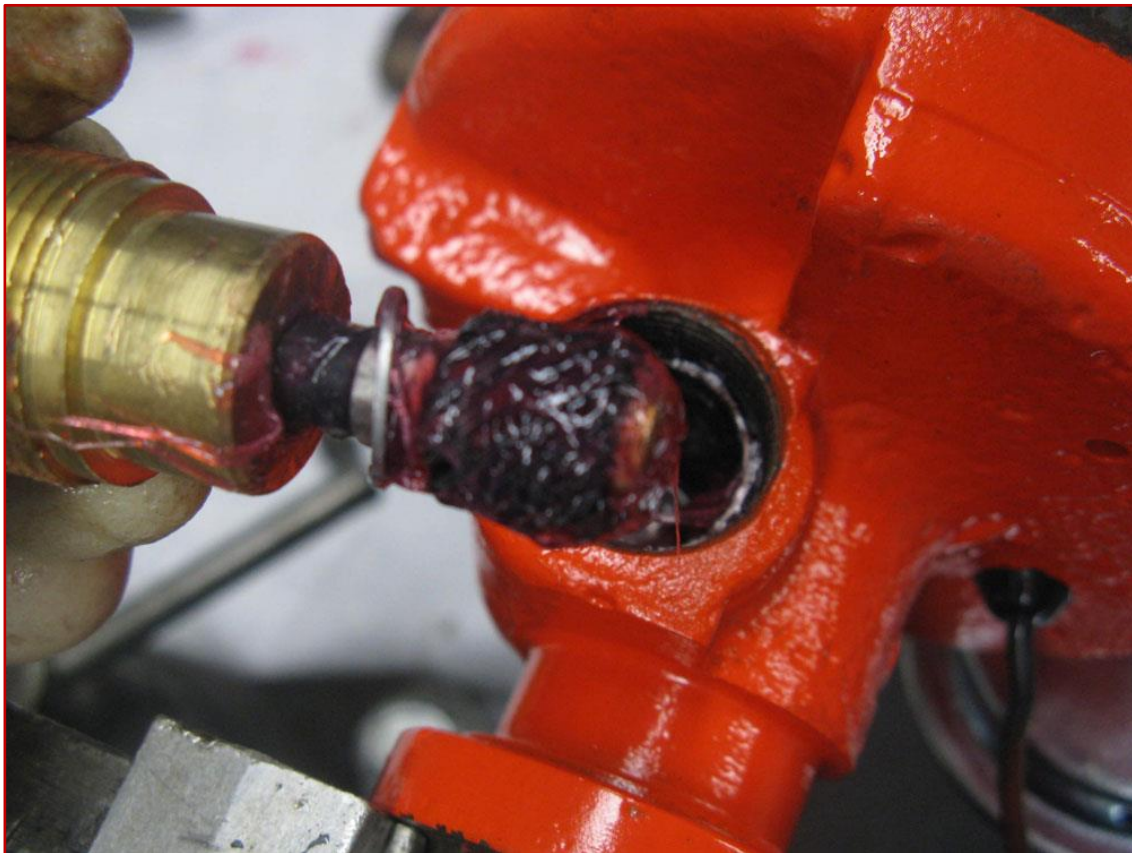
Install the lower gear and check the end play. I use a 3/16" drill bit to mount the gear so I do not have to drive the roll pin in and out.

**I shoot for .007" to .010" play.**

Once the end play has been set, install the lower gear **with the dimple aligned with the rotor tip.** The yellow mark on the gear is where the dimple is.

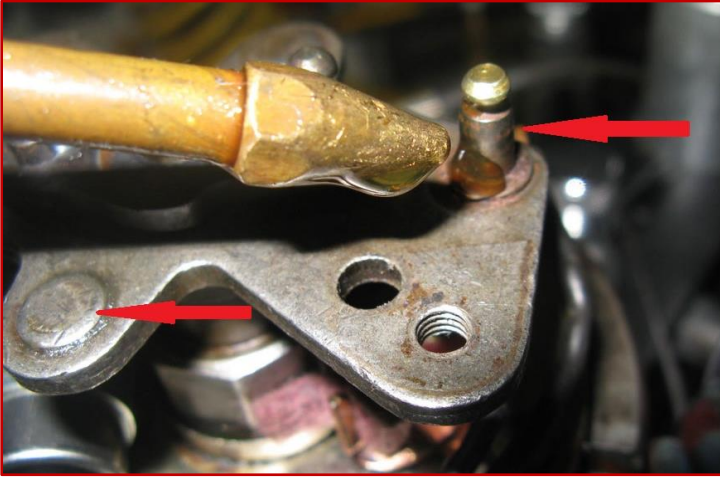


Grease the tach-drive cross gear and install the shaft, with the shim, in the distributor.

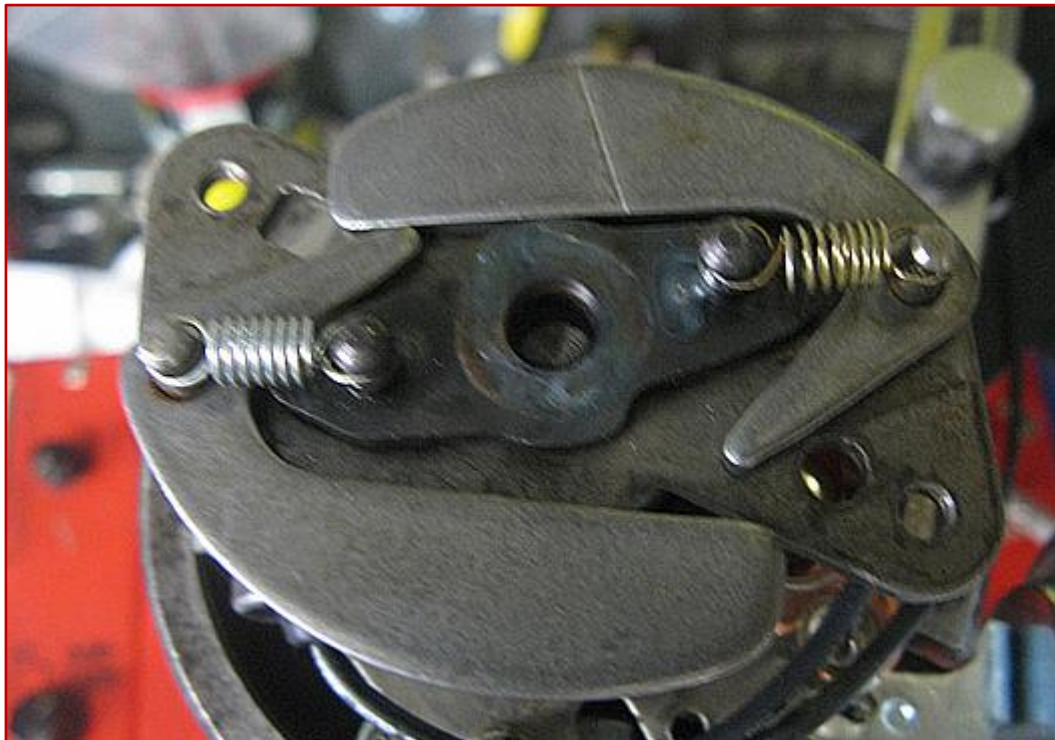


I apply a little oil to the weight pivot pins and the pads that the weights ride on.  
Every time I remove the distributor cap from any of my cars I always add a drop to the pivots.  
This was standard procedure when I was tuning cars for a living.

Here is a typical weight/spring kit.

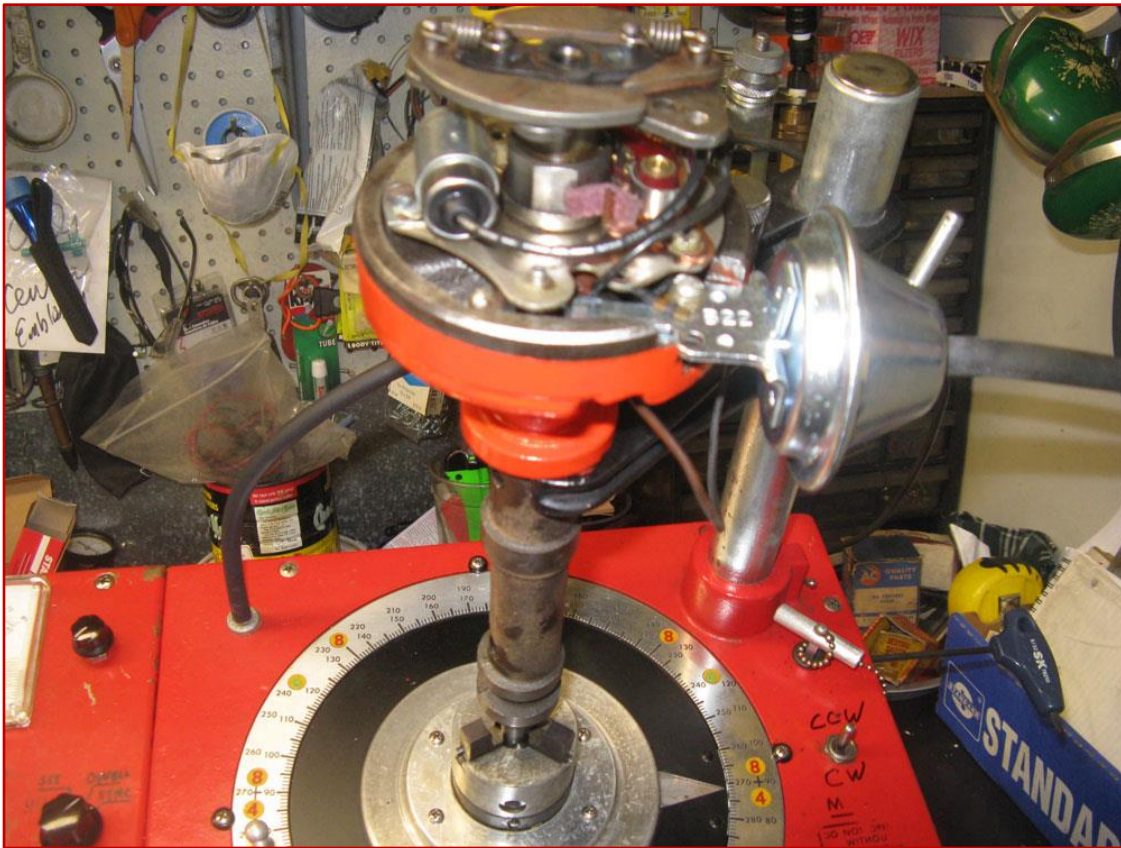


For this distributor I used a light and heavy spring,

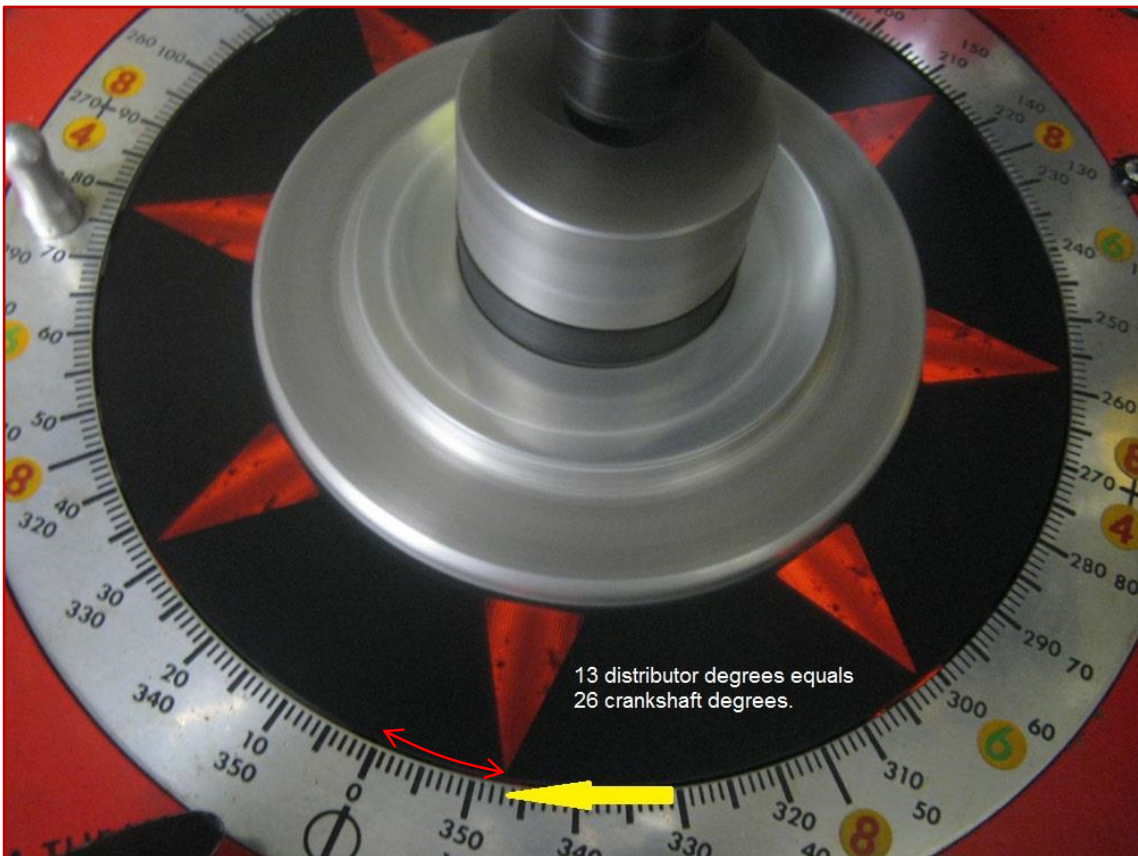


This completes the assembly of the refurbished distributor.  
At this point, I "dial" in the timing curve using my distributor machine.

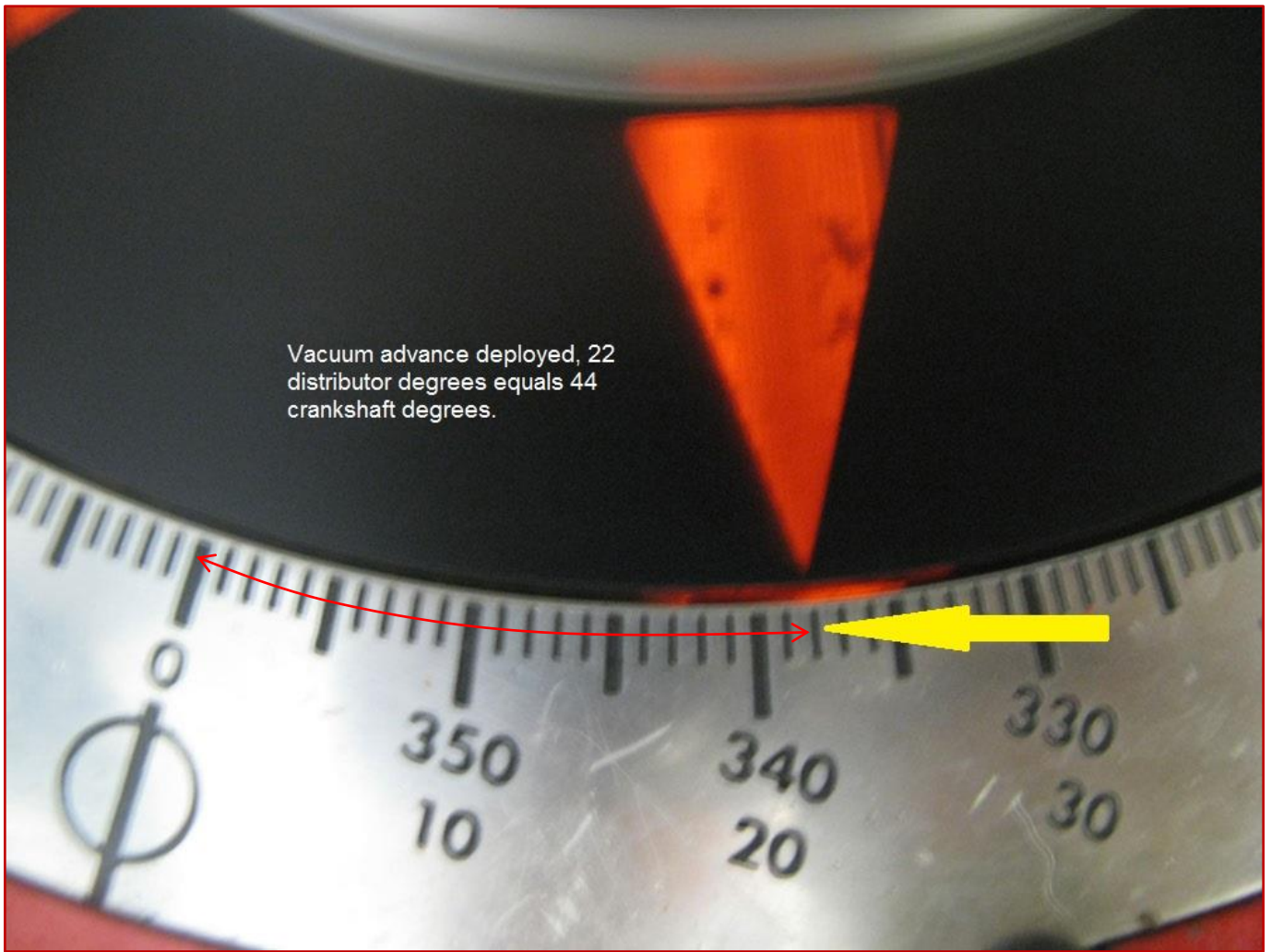
Here is the distributor ready to be run up on the machine.



Here is the distributor spinning at 3000 RPM and the centrifugal advance is all in at 13 degrees distributor, which is 26 degrees crank. If the initial is set at 10 degrees that gives you a total centrifugal of 36 degrees.



Here I have applied vacuum to the advance and now there is a total distributor advance, centrifugal and vacuum, of 22 distributor degrees which is 44 crankshaft degrees, add 10 degrees initial and you have 54 total timing at 3000 RPM.



There have been many papers and threads explaining mapping a curve so I will not go into that here. People such as Lars (Lars Grimsrud), Duke Williams and John Hinckley (John Z). have more knowledge on the subject than I do and have done a great job at documenting it. My intention has been to give the reader a basic procedure for disassembly and reassembly of a distributor.