Chevrolet Distributor advance curving from two Blogs I found with a few notes added from me on 8/15/12

I used to work in a speed shop where I did mostly tune-ups on Chevy v8's. The first thing we always did was pull the distributor and chuck it up in the Sun distributer machine. You don't need one to correctly curve your distributor though. (If your harmonic balancer doesn't have the 32-34 degree marks on it, buy a degree tape for your diameter balancer). I seldom found a GM unit that was correct from the factory; they normally didn't have enough mechanical advance in them for any kind of performance set-up. You want about 20 -22 degrees of mechanical advance. First you need to make sure the shaft isn't seized up. Clean it and grease it. If everything moves freely you can install lighter springs and see what your total is at 2500 to 3000 rpm. If it's not enough you need to grind the slot out carefully with a die grinder until you get enough. Or you can remove the bushing on the stop pin if there is one. Grind some and re-check it until you have 20 - 22 degrees mechanical. A typical small block at sea level would use a 12 degree slot (that's 24 degrees engine) and a initial setting of 10-12 degrees making the total at 36 degrees.
34-36 seems to be the accepted good number of advance for these engines.
Using a machine you can make the curve come in where you wish and have a "perfect " setting each time, tons of horse power and gas mileage is lost by not having it correct...so get with it.
At high altitudes you can run more advance. At 4500 feet above sea level we could get away with 40 degrees total (initial + mech.) but that will detonate at sea level.

Disassemble distributor and read the numbers on the underside of the weight support plate. Note the number like "524" CCW. To get the distributor advance spec divide the last two numbers by 2. Ex+ the 524 is a 12 degree advance. ***This is distributor degrees***; the number means engine degrees.
Each engine application is different based on engine, gear ratio, camshaft, horse power, type of transmission etc.

So this is what usually works well at sea level: 10-12 initial at idle, 20-22 mechanical, all in by 2500 - 3000 rpm (use different strength springs to adjust this), and 6 - 8 of vacuum advance for no-load cruising. You can install an adjustable vacuum advance which adjusts with an allen wrench in the vacuum port. You can also install a stop to limit the vac advance, if you get pinging at cruise. If you get pinging on acceleration then back the initial down a couple degrees. You can also install one of those bushings on the pin to limit mechanical if you have too much. You should run the maximum amount of advance that you can without detonation in your engine. This is an easy way to get max performance. You can do all of this with a timing light. Find TDC on #1 and put a paint mark on your balancer and timing tab. Use that mark and start tuning. Most HEI's distributors don't have enough advance in them from the factory either. Have fun with the free horsepower.