

It almost the first of November and at the risk of repeating myself - where does the time go? It is all a complete blur sometimes, because my days start at 6:30 am and often end past midnight. Seventeen hours is a long time to be on your feet and this is almost an everyday occurrence. I am not complaining but rather trying to understand where the time goes so fast. At initial glance the first set of pictures show some short rods of different length, which look to be quite simple. In fact, the three shafts on the left side of the picture are for the oil pump, the fourth from the left is the water pump shaft, and the larger of the shafts is for the distributor. Not only did each shaft have to be the exact length, but each was ground to .0005 under size. That is not 5 thousands but rather 5 ten-thousands of an inch. There will be a series of flats machined on each end and then the gears will be attached to each shaft. Speaking of gears, pictures #3 & #4 show the gears after they have been lapped. This process brings them to the exact thickness, which is critical to maintain oil pressure. The gears are purchased in 4 foot length and then machined. The finished gear with the small hole is not driven via a shaft but is the counterpart for completing the oil pump. It is becoming very evident that this engine is requiring more than originally anticipated. One would think that since I designed the engine I would be aware of all that was needed. Keep in mind when you only make one pump for the prototype, it was not too difficult, but when you need to make 50+ everything changes. There are almost 60 parts that go into each pump and this is only one component of the engine.

The final two pictures show the net result of over 3 solid days and sleepless nights. The supercharger impellers must be EXACT! Although you might think this would be simple operation with the CNC equipment, in fact this program was probably one of the hardest that I have ever had to complete. It literally started last Friday morning and consumed the entire weekend. Monday morning was used to make the final changes and I can say that the pieces are coming out perfect. Because of the clearance that must be maintained, there are over 600 lines of code to machine the outside contour of each impeller section. Once finished the square is removed from the bottom end, then a shaft and two pieces of chrome-moly tubing are pressed into two identical pieces. The gears are attached, and then two sets of completed rotors are timed. Once again, this process must be exact. If not, then the impellers could come in contact with each other which could be catastrophic. Not only must the clearance between rotors be maintained, the rotor to housing clearance is just as critical. More about the assembly of the supercharger will be in later updates.

Pic #1



Pic #2



Pic #3 (oil pump gears)



Pic #4



Pic #5 (Barb fittings)



Pic #6 (supercharger impellers and blanks)



Pic #7 (semi-finished supercharger impeller)

