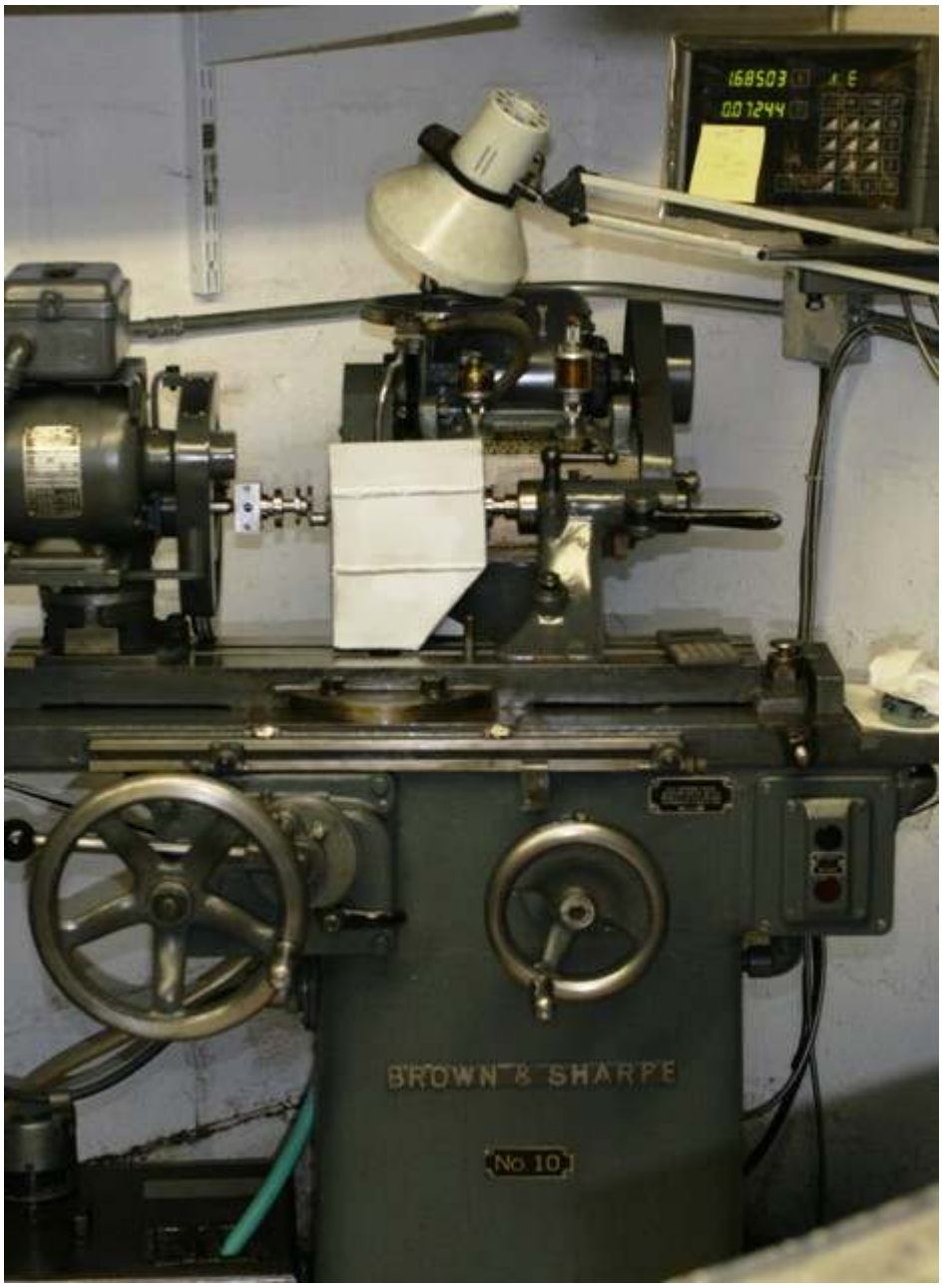
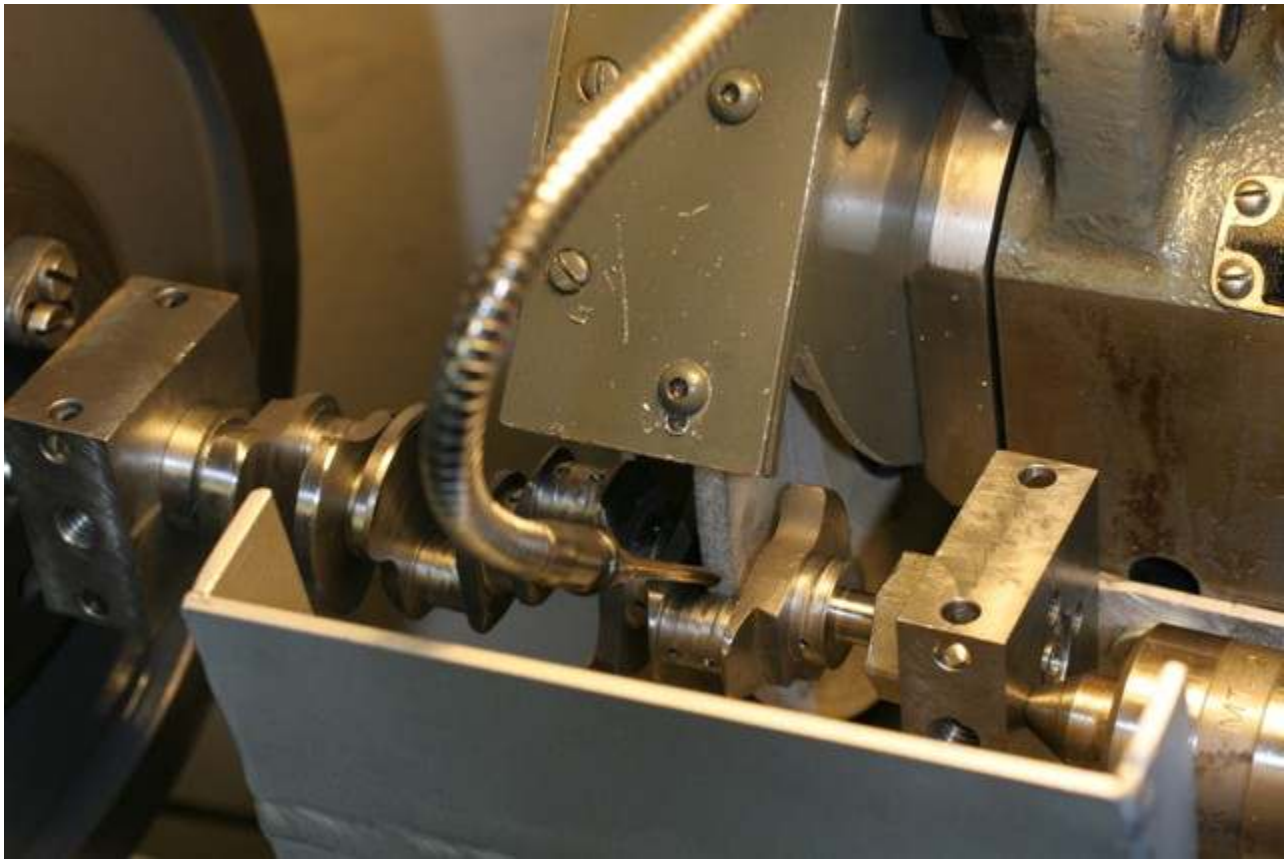
(03 March 2008)

Pic #1

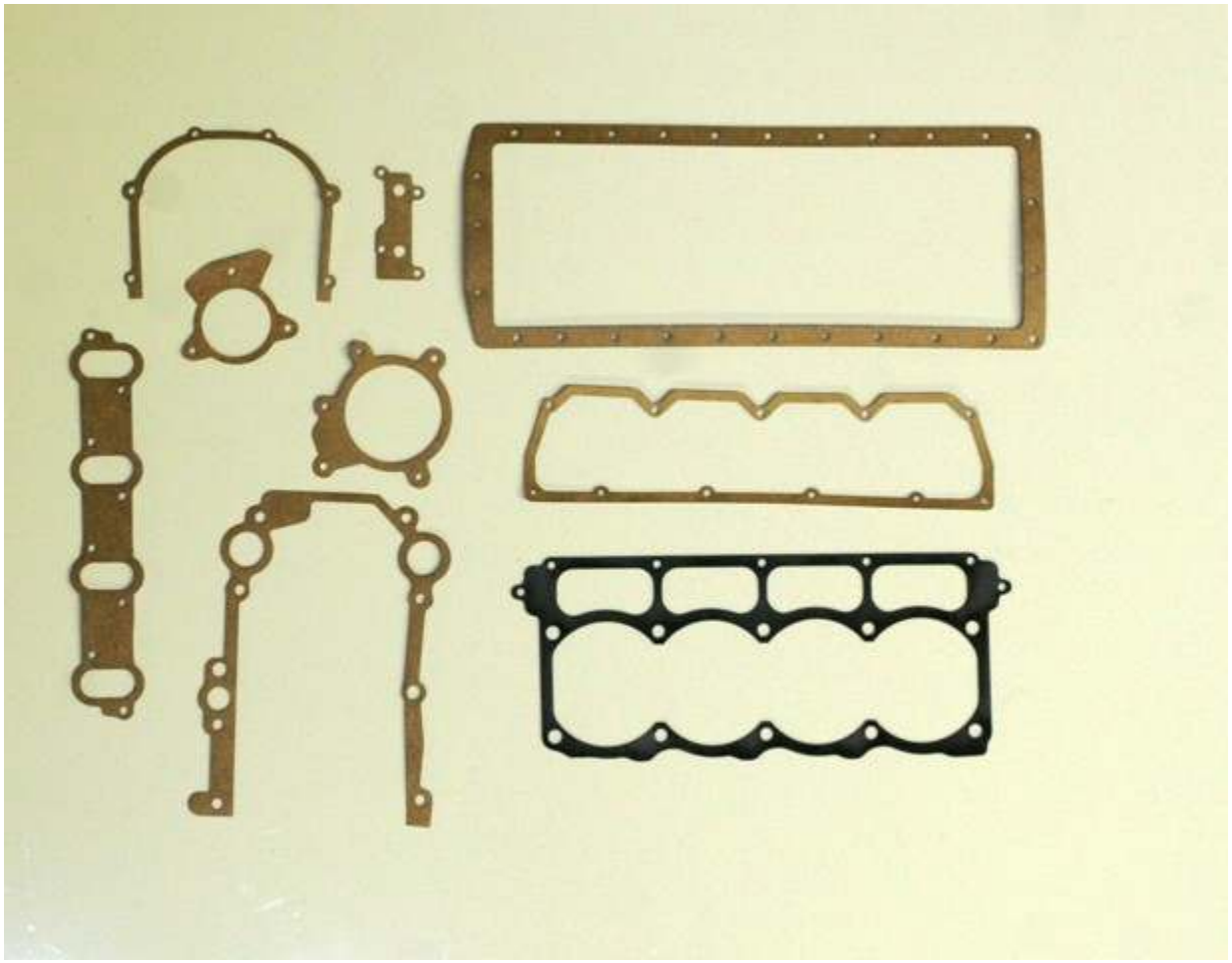


Pic #2



Pic #3

Pic #4



The past two weeks have been very hectic. When I ground my first prototype crank, it was done without cooling. Unfortunately, on a production run, I immediately realized that grinding the cranks "dry" was not a practical solution. Even though the machining process to remove all the excess material on previous operations had allowed only about a .030 cleanup, it was still too much to grind without cooling. Picture #1 shows my OD grinder setup. Although this machine is relatively old, it is a dedicated tool in "mint condition" that has been updated with a digital readout and will grind to .0002. To put this into perspective, a human hair is about .003. At first glance the aluminum box and spray nozzle that is seen clearly in Pic #2 may look relatively simple, but in actuality is the culmination of about 4 days worth of work. It was designed to allow for a "flood" system of grinding. There is a rolling tank that sits next to the grinder that re-circulates and filters the cutting fluid. Each crankshaft take about 25 minutes to grind the four throws. The square steel block on each end of the crank is used to not only hold the crank but to index each throw to the exact position. This repeatability is absolutely critical to make sure that each crankshaft is identical. When finished the throws measured about .0007 deviation from end to end. That, my friends, is close. Picture #3 shows the throws after finish grinding. This week will be spent completing the throws. The grinding process for the mains should be relatively easy, when compared with the throws.

Picture # 4 show all of the laser cut gaskets. After several hours of testing the engine, I discovered the material used for three of the gaskets needed to be change. The valve cover, head, and pan gaskets were modified and remade. This little mistake cost me about $500.00 to rectify. Sometimes you win, sometimes you loose. The end result is a far superior product. Although I could have used the original gaskets, it was an area that I felt strongly needed to be changed. Once again, it goes back to my original statement, "it is easier to explain a delay, rather than apologize for the quality".