

(29 April 2008)

Pic #1



Pic #2



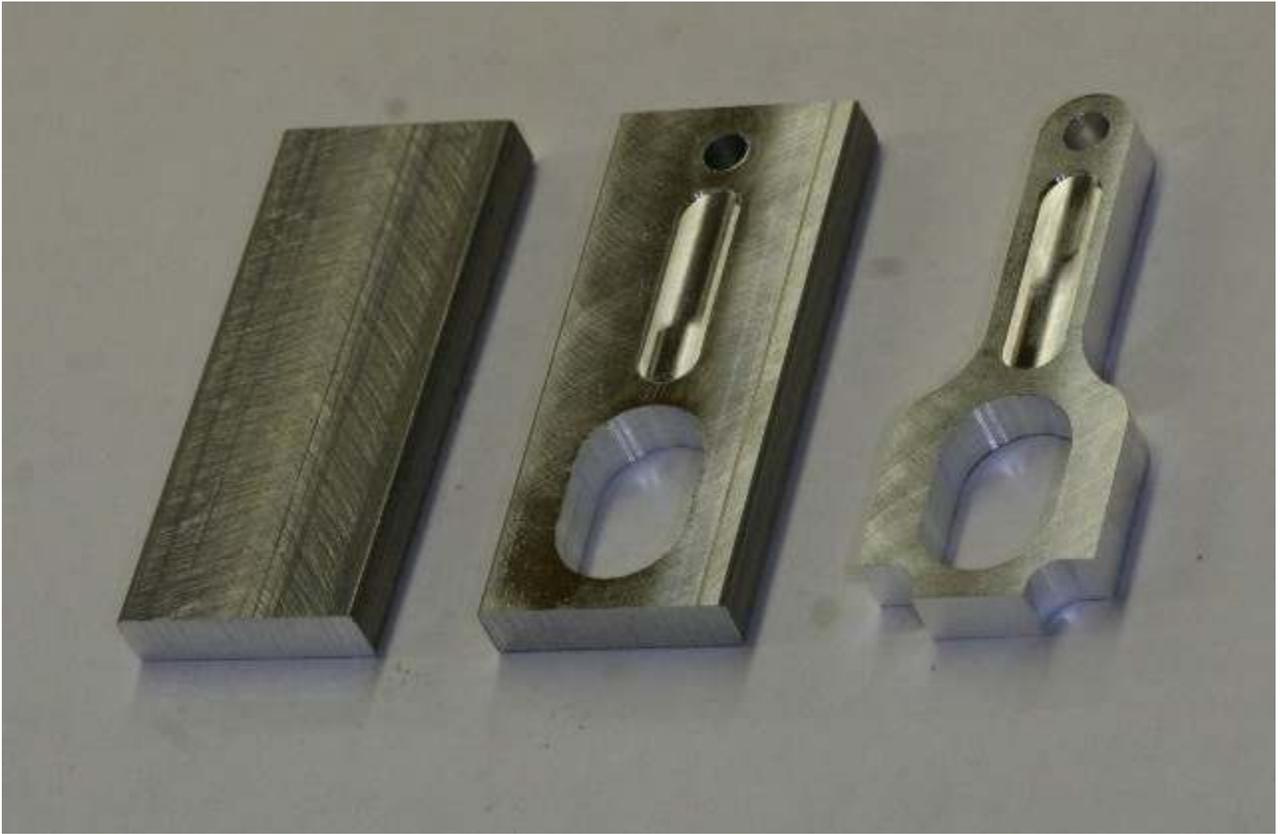
Pic #3



Pic #4



Pic #5



Pic #6



I would first like to thank everyone for the kind words concerning the injury to my hand. Everything is healing pretty good, but it will be nice when the feeling and senses return. Time will tell ! After the show Toledo Model Show, I was test running the engine for a prospective customer and noticed that there seemed to be a little more smoke coming from the exhaust, than normal. Although it is impossible to control all the oil and "smoking", and my ever continuing search for perfection, I thought this may be a good time to completely tear down the engine and check for wear and possible problem areas. What I discovered was a little unsettling. The reason for the excess smoke was the cylinder liners were deeply scratch as were the pistons, rings, main bearings, and rod bearings. Not knowing where the problems was, I removed the old cylinders and replace them with new ones The pistons and rings were also replaced along with the rods and main bearings. After starting the engine, the smoke was still there. Once again, I completely dismantled the engine and discovered the cylinder liners and pistons were deeply scratched again. After some sleepless nights and a conversation with my good friend, Paul Knapp, I found out that the wrong aluminum had been used, not only for the pistons but the main bearings and connecting rods. When selecting the correct aluminum the first area that I look for is the tensile strength and machineability. Unfortunately, the aluminum that was selected was high in copper. This oversight on my behalf (and a wrong suggestion from another source) resulted in extremely fast wearing for these components. Keep in mind, the piston speed is extremely high in small engines. The new aluminum selected does not have any copper but unfortunately cost about 4 times more. To give you an idea of the addition cost, a 6 foot length of 1" diameter aluminum is about \$72.00. On a more positive note, every other component in the engines was performing perfectly. The camshaft which runs directly in the aluminum block (the same method that the full size Viper engine does) showed zero wear. The rocker arms, valves, valve seats, valve guides, valve seals, gaskets, lifters, and pushrods are all working perfectly. Once again, people want to know why it takes so long to get the engine ready for shipping, this is just another example. It would have been easy to finish the engines with the other material

and most of you would never have known, but if my name goes on the product, IT WILL BE THE BEST THAT I CAN DO! "Perfection is almost good enough".

Picture #1 shows the initial set-up. Firstly, the side of each connecting rod is machined to the proper thickness. The holes are then drilled for the wrist pin and pilot hole for the rod journal (picture #2).

The initial internal shape is machined (picture #3). The outside contours are then machined (picture #4). The three items in picture #5 shows the initial bar stock (left) and finished profile (right). The holes are drilled for the rod bolts and then each rod is put into another jig where a milling cutter separates the upper part of the rod from the rod cap. This makes for a perfect match. The rod body is then tapped, the caps replaced and then each rod is honed to the exact dimension. Picture #6 shows the complete set of 8 rods.