

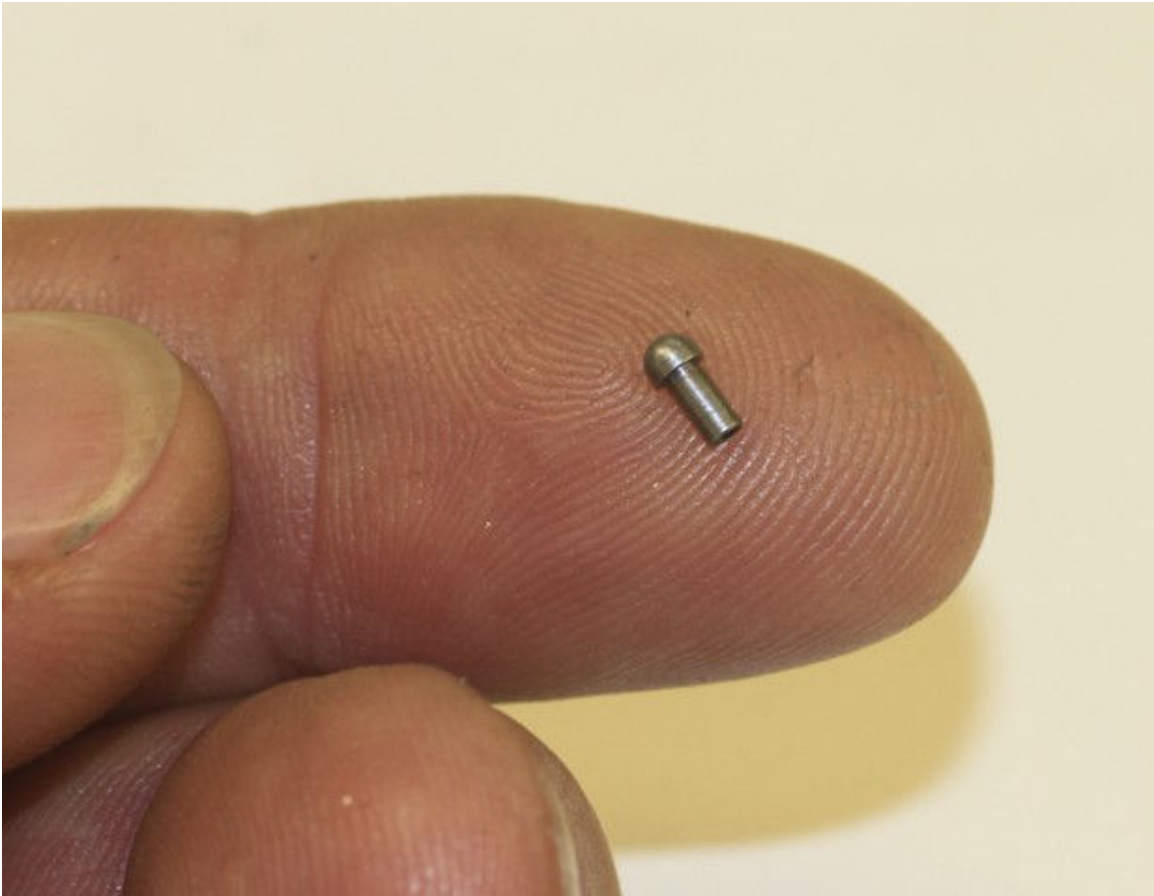
Once again, where has the time gone? This statement has been said numerous times before but now that I am nearing completion, everything seems to be going even faster. The assembly of the pushrods would seem to be a relatively straight forward operation; after all, the only thing that needed to be done was to cut the stainless steel tubing then press in the “ball pivot” in each end. Not so simple. Once the stainless steel tubing was cut, each piece had to be de-burred inside and out. Keep in mind there are over 700 tubes with an outside diameter of .082. This was not simple task. The next operation was not simple task. If you look at picture #1 you will see just how small the “ball pivot” truly is. Imagine now trying to pick-up this then carefully pressing it in the end of each push rod tube. After several failures, I decided to make a special assembly fixture and can be seen in picture #3. First of all, each “ball pivot” slides over a pin, which has a diameter of .0315. This pin was pressed into the center of a ball depression which matches the diameter of the “ball pivot” and makes sure the hole remains open and clean. Are you still with me? Once in place the entire assembly is mounted vertical then a special split alignment sleeve slides over the top. Next, a hollow pushrod is inserted into the top. The reason for the alignment sleeve is to make sure the push rod does not bend when the pneumatic cylinder pushes the rod onto the “ball pivot”. Unfortunately there are no books to tell me how to make this jig. Once all 700+ push rods have the “ball pivot” in each end, a similar process takes place on the opposite end. And you thought this was going to be simple! NOT.

While all of this was taking place, I was making the windage trays for each engine. For those of you who have no idea of what I am talking about – a windage tray fits on the bottom of the main bearings caps and is in very close proximity to the rotating crankshaft and rods. As the engine spins the oil that has lubricated the bearings has to go somewhere, so it is expelled around the edge of the rod and main bearings. Because of the high rpm, this oil would be sprayed onto the bottom of the cylinder liners which would slide by the rings and result in a lot of smoke out the exhaust. You can readily see just how difficult designing a model engine can be. Take into consideration the piston speed, ring gap, ring tension, ring design, piston design, and the fact that the oil molecules cannot be scaled down, it is easy to understand the difficulties that I faced. By this time my engineering staff of “One” is getting pretty tired. As before, I need two jigs for each operation – one to hold the blank while machining and the other for loading. Picture #7 shows these two jigs. If you look closely you will see the lower jig has a finished windage tray in place.

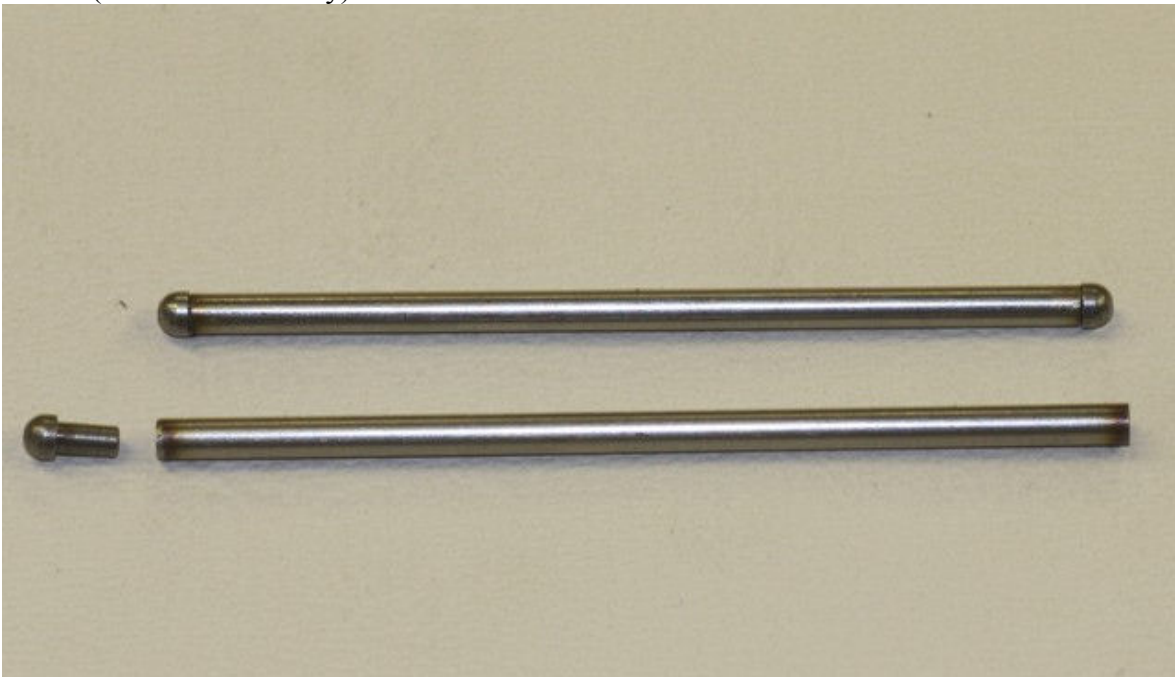
The 4130 steel rods for the inside of the supercharger impellers have been ground and can be seen in picture # 10. If you remember the individual impeller sections were finished some time ago. Each completed impeller consists of two separate pieces with a steel tube pressed into each lobe. It would be difficult if not impossible to machine the impellers in one piece because of the length. The impellers will then be cut to the exact length of the case, less .006 to .008. This will allow the clearance when the end plates are installed. Once again, if anyone wants to try and make a production run of a model V-8 engine, good luck.

Next week I will be making the camshaft thrust plate and internal timing cover thrust plates. Getting closer each day! Now I am going to stop and have a Margarita.

Pic #1 (Ball Pivot)



Pic #2 (Push rod assembly)



Pic #3 (Partial assembly jig with “Ball Pivot” in place)



Pic #4 (Jig ready for push rod tube to be pressed into place)



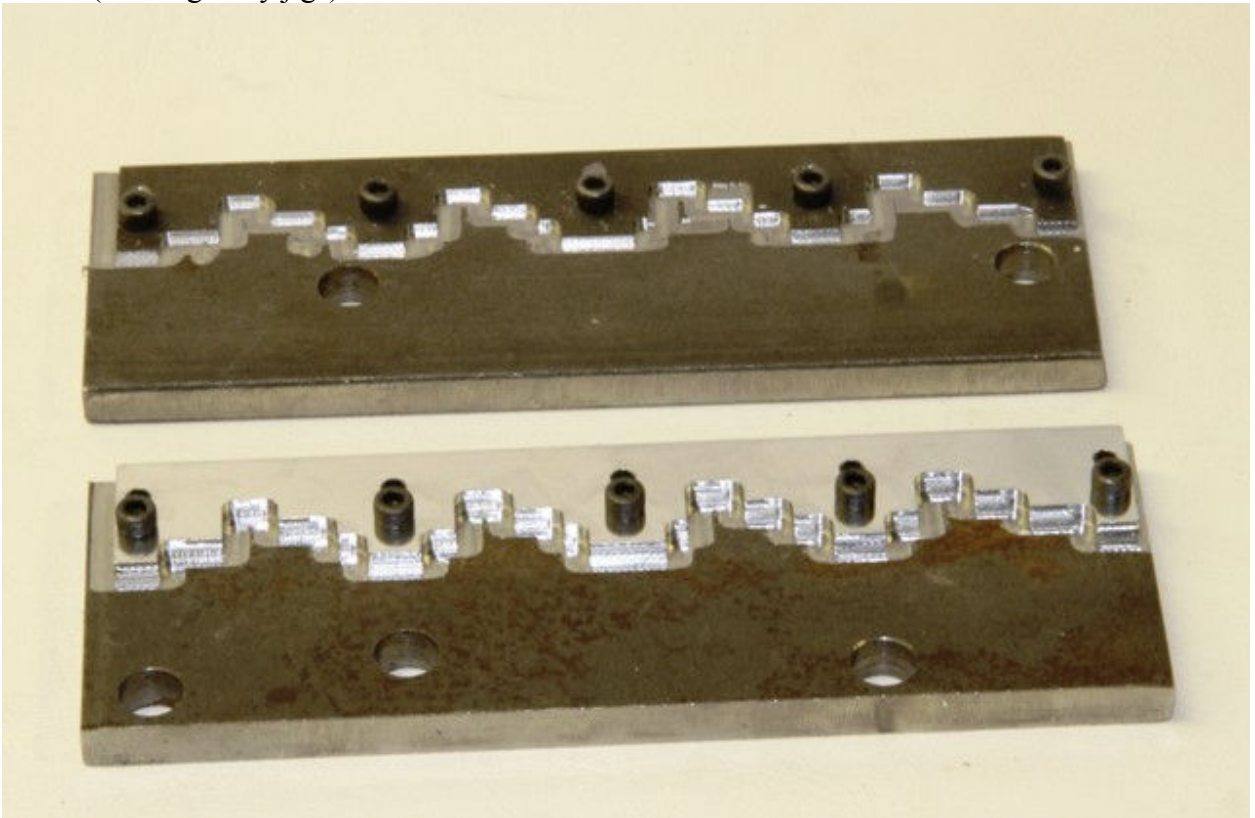
Pic #5 (Push rod assembly fixture – notice the alignment sleeve in place)



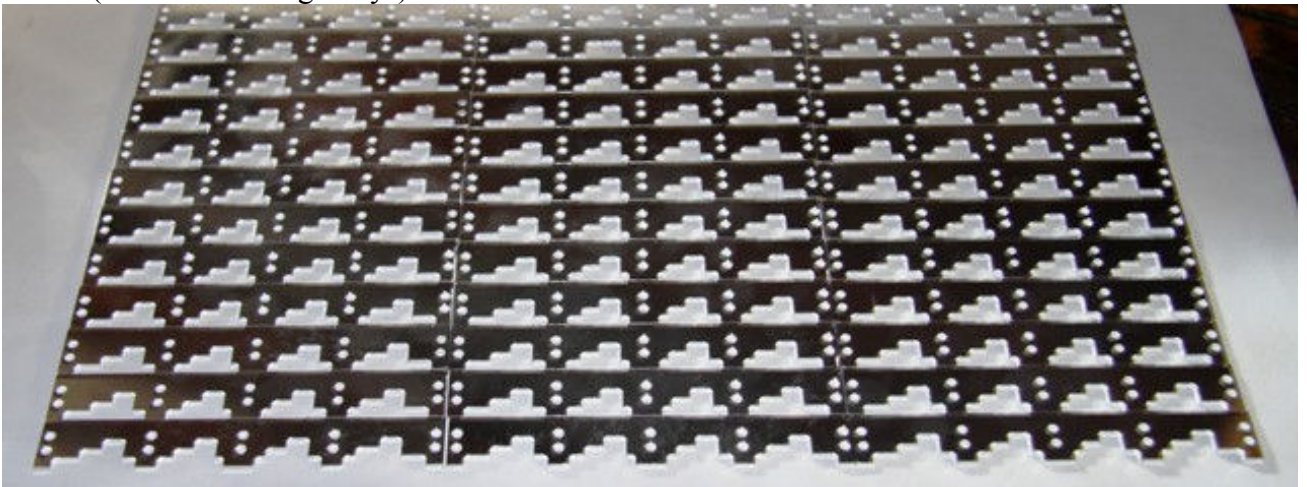
Pic #6 (Finished push rods ready for installation)



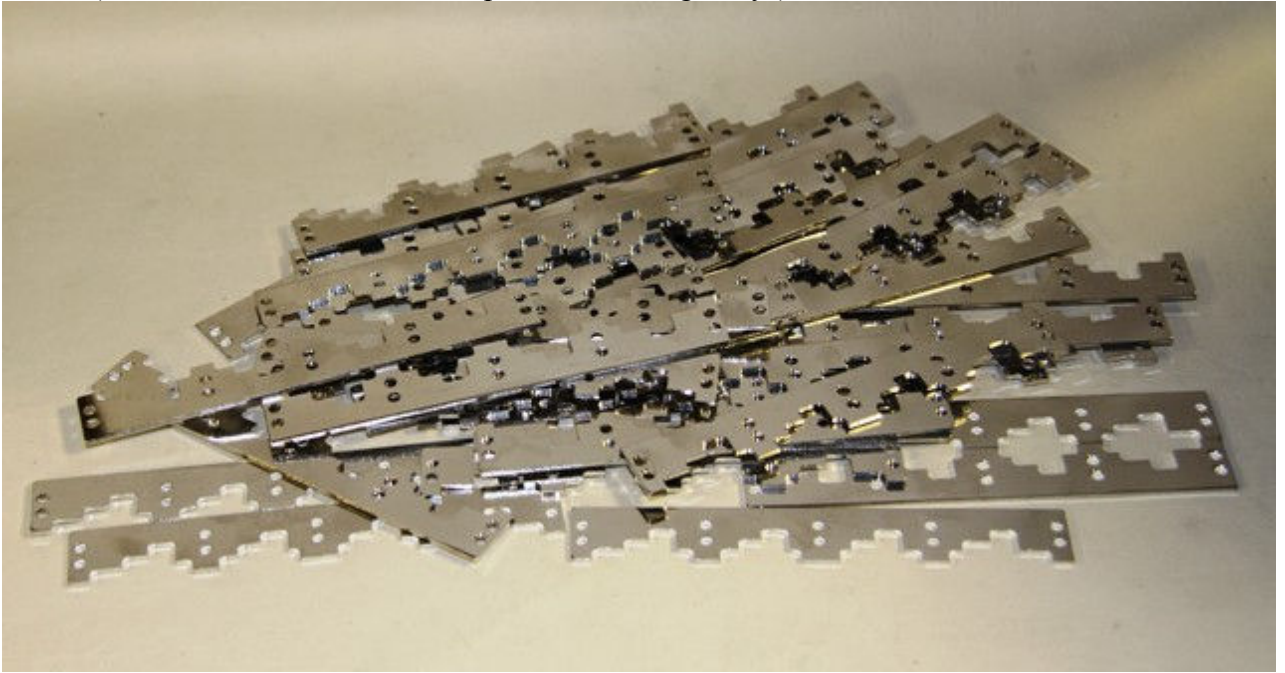
Pic #7 (Windage tray jigs)



Pic #8 (Finished windage trays)



Pic #9 (Another view of finished and polished windage trays)



Pic #10 (Finished and ground supercharger impeller alignment tubes)



Pic #11 (Finished impeller and individual components)



Pic #12 (1st operation of supercharger impeller halves)



Pic #13 (Hydraulic press used assemble supercharger impellers)



Pic #14 (Close up of pressing procedure)

