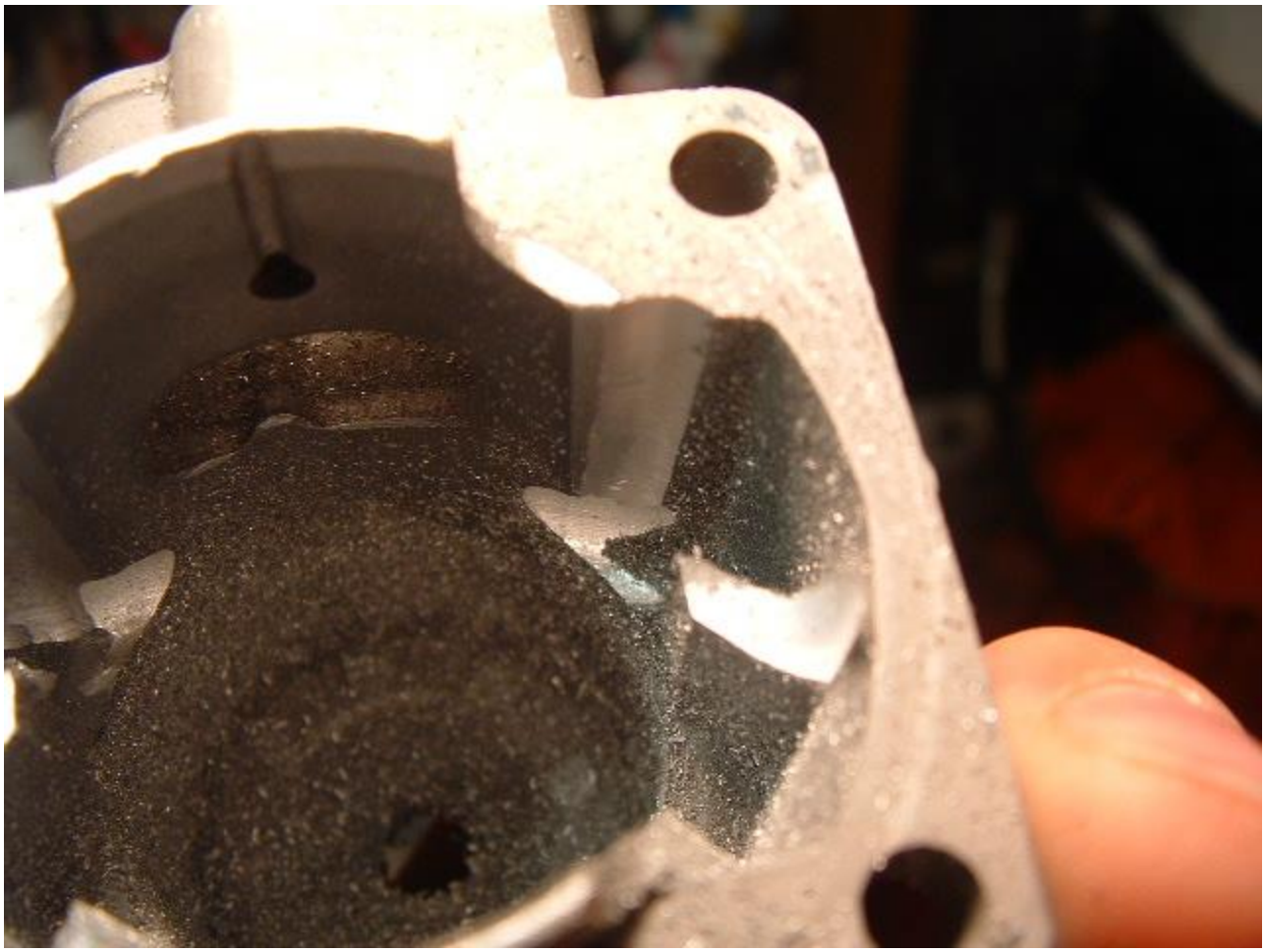
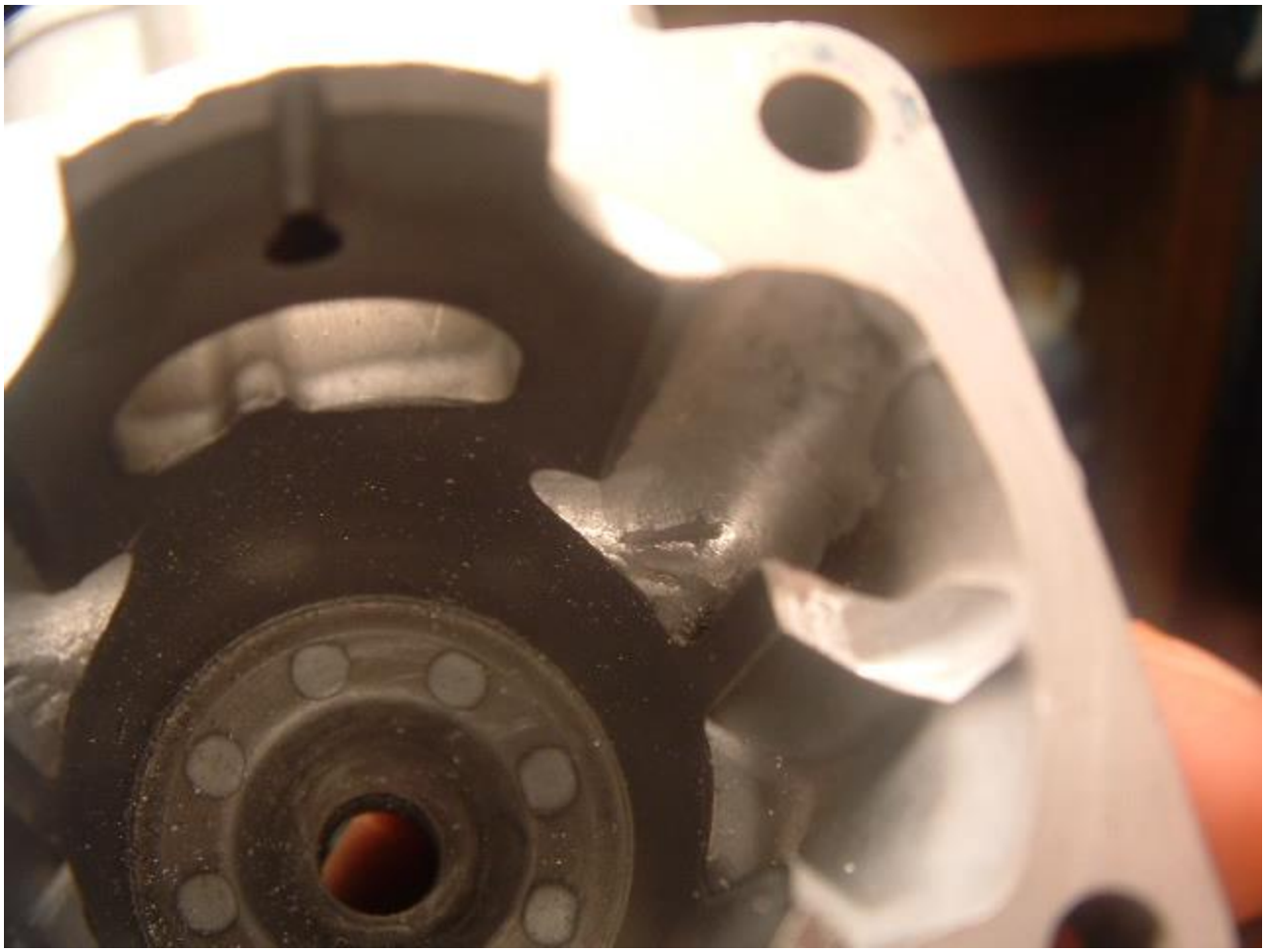
Because of on going requests for something more step by step,
I followed my porting tasks today by taking photos so you can see the sequence.

This first photo is of the tooling marked 1 thru 4..... And referenced at each photo to one used.

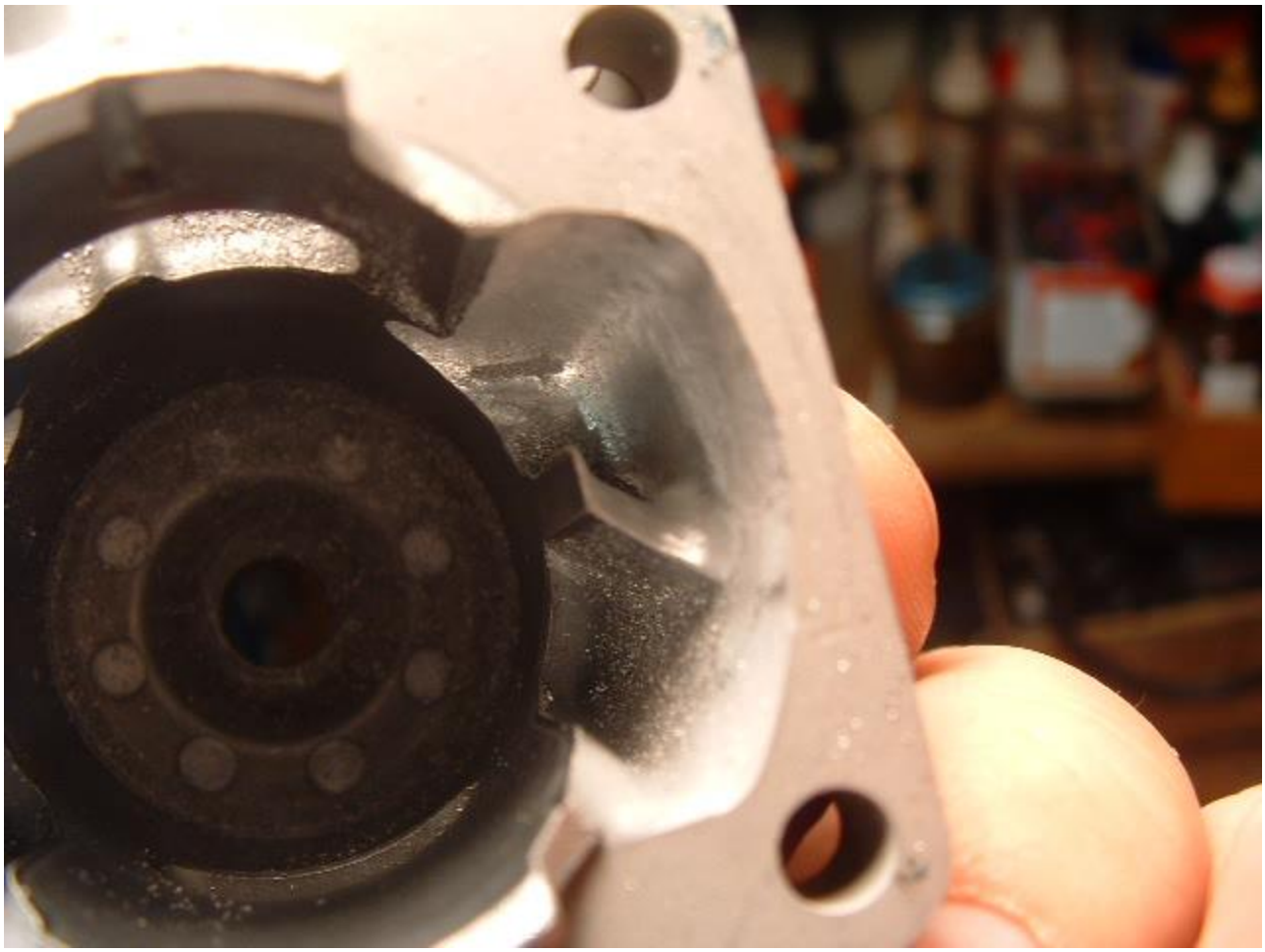
#1) a 1/2" elliptical on 1/4" shank
#2) a 1/4" ball end cylinder
#3) a 1/4" ball on 1/8" shank
#4) a 1/8" ball end cylinder
All being CARBIDE with chip breaker profiles.



This shows 3 steps, 1st being the transfer bridge has been cut down @ 1/2" from cylinder base.(In a mill) 2nd the eyebrow cut made to transfer window facing intake port.(cutter #3) 3rd a vertical cut made to meet eyebrow so entire vertical edge of port can be opened up & blended into eyebrow area.(cutter #2)

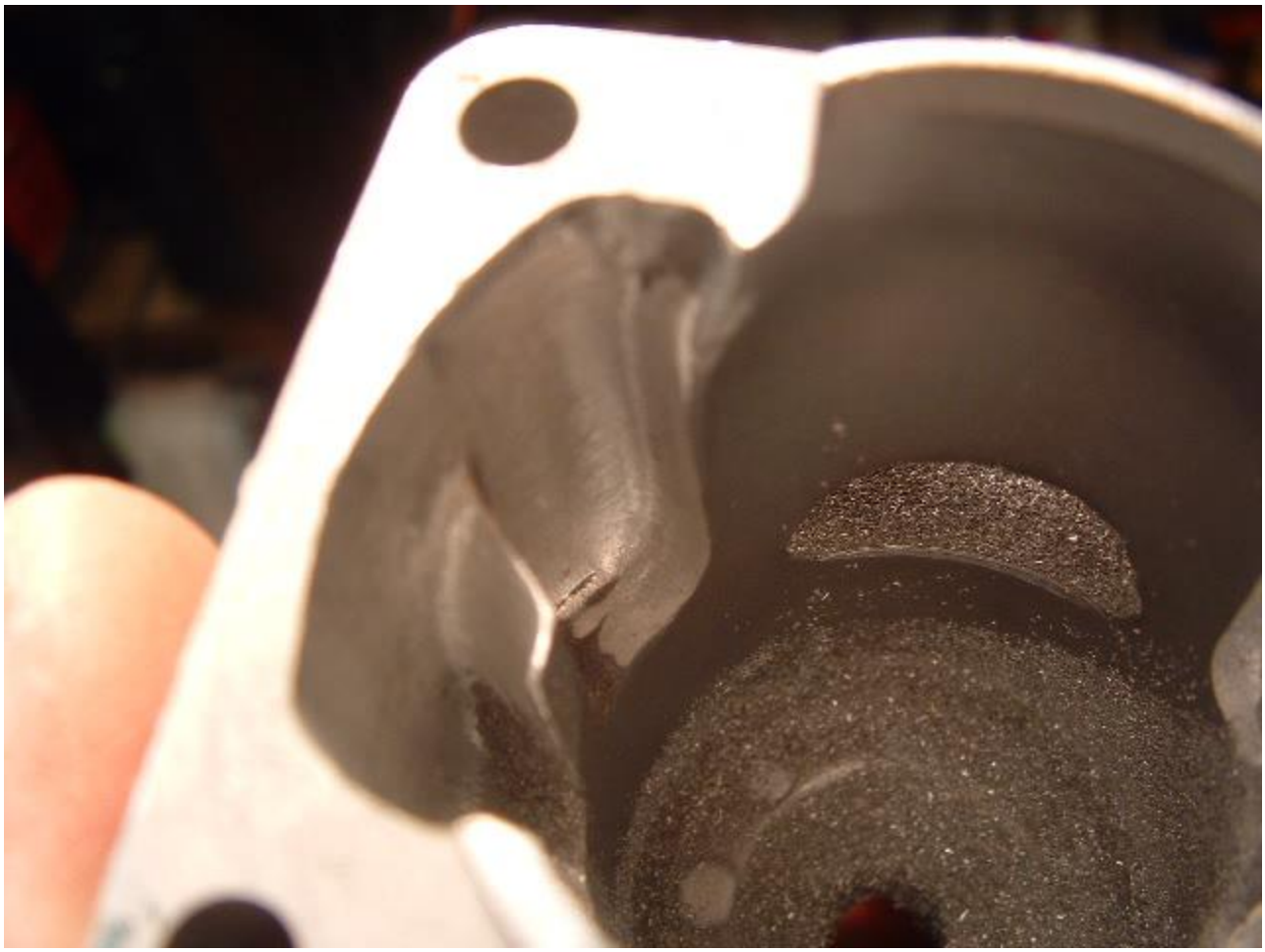


This photo the intake side transfer runner all cut and blended into eyebrow. (blended in with cutter #4)

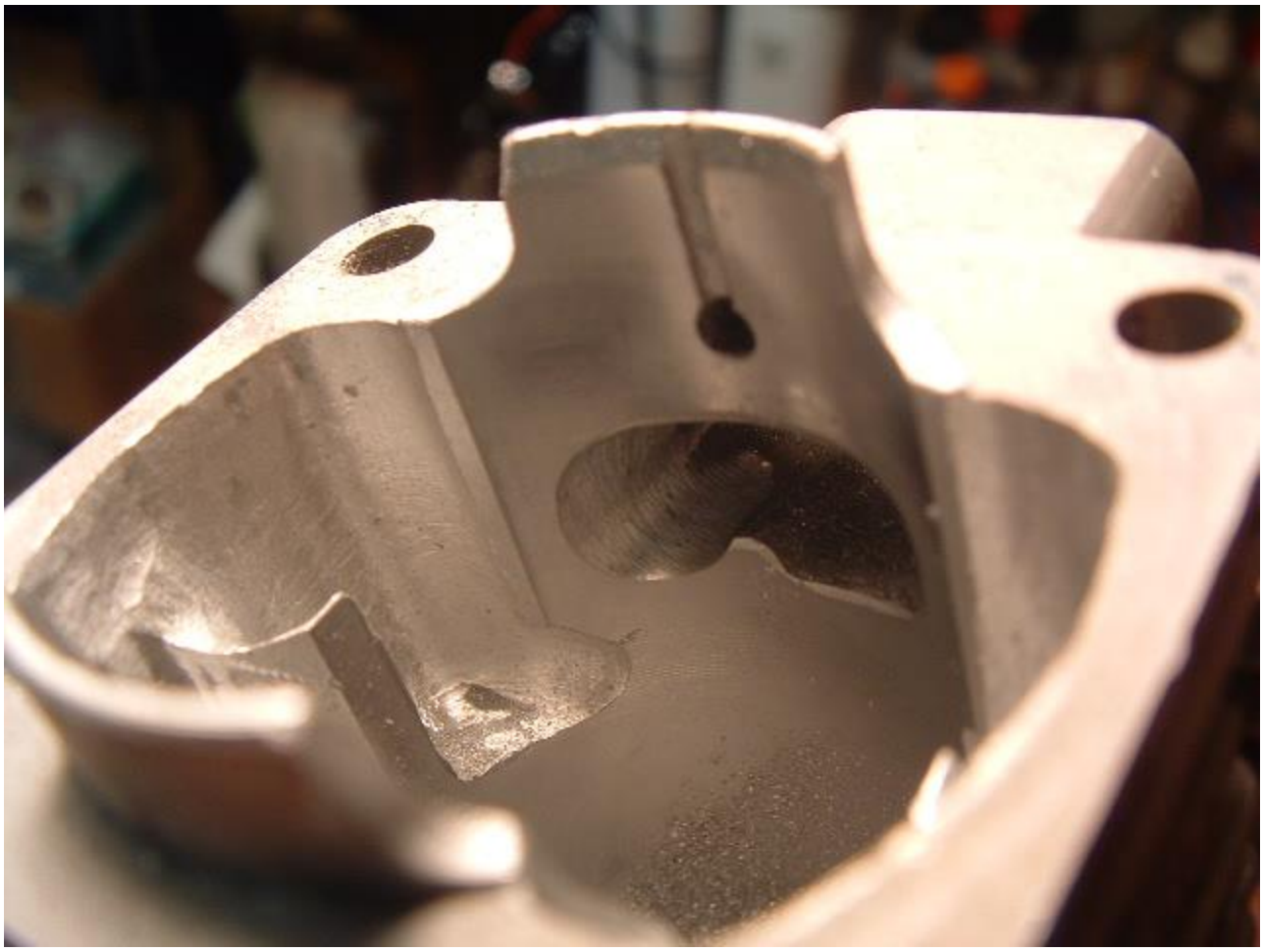


The shortened transfer passage bridge is sharpened. (cutter #4)

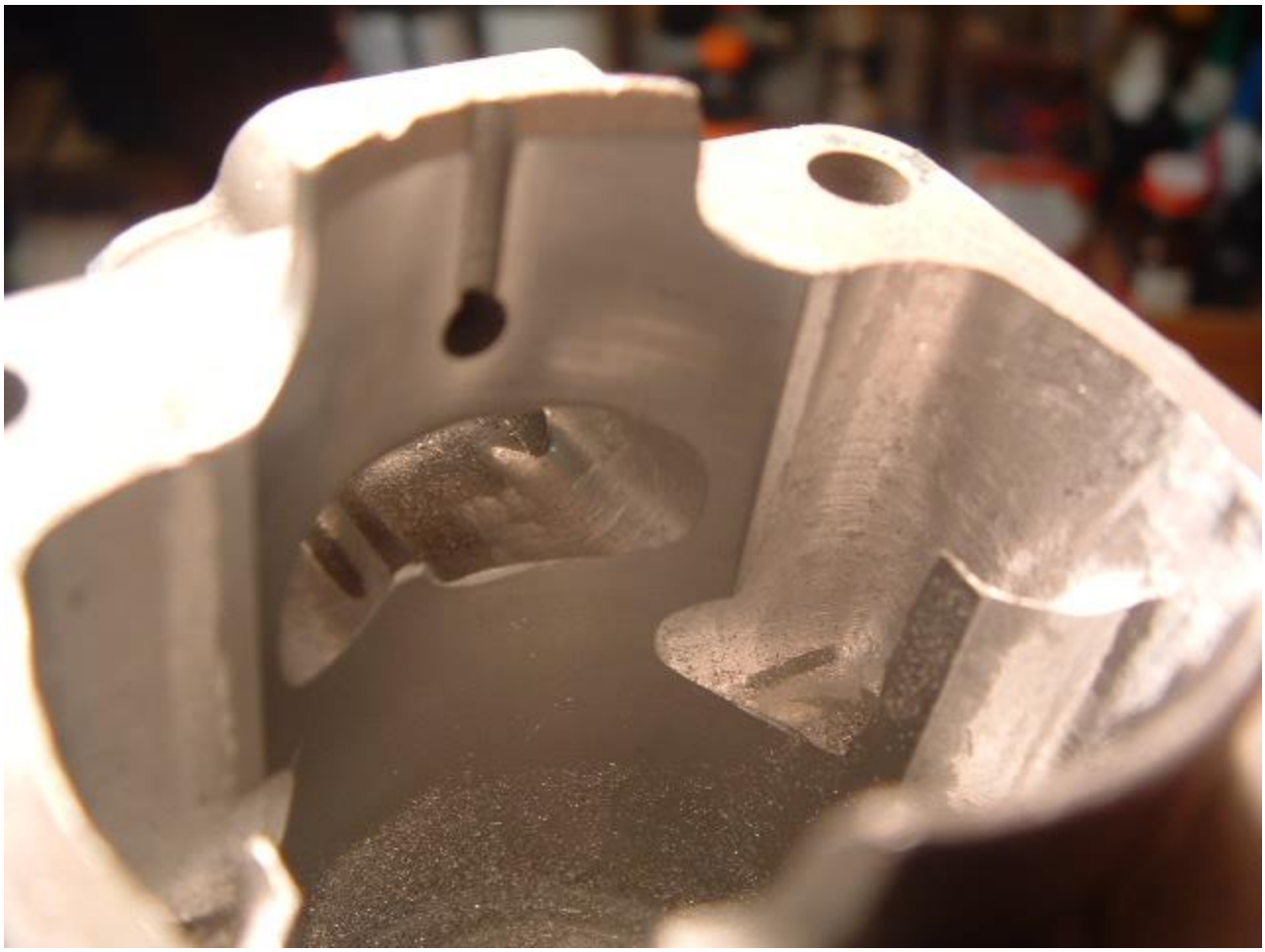
***** This next step DO WITH CAUTION !! ... If unsure you can be VERY steady & use the right cutter, Omit this step & leave Ex side transfer passages alone *****



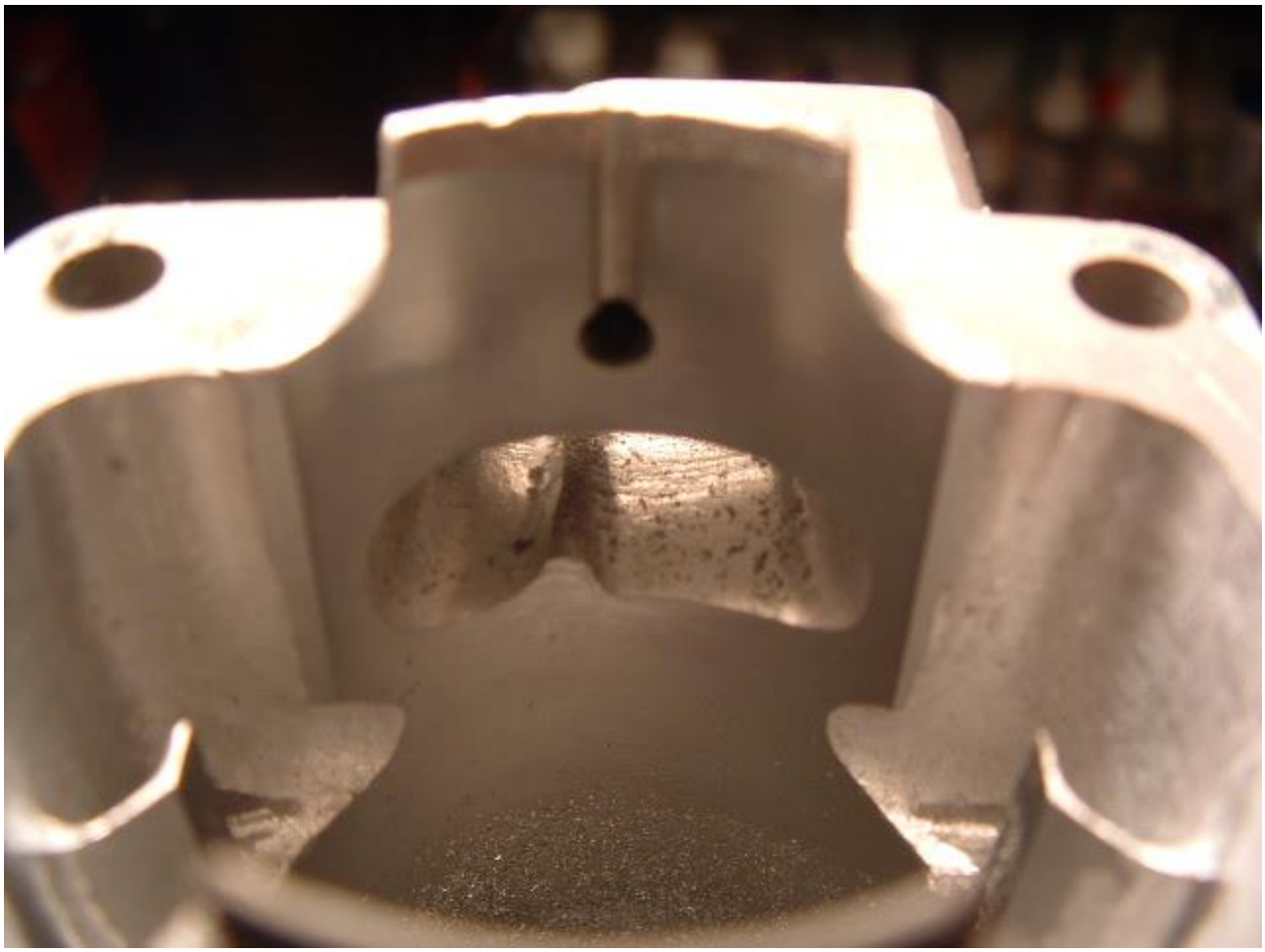
Now we have moved to the Exhaust side transfer passages & cut out the EX edge of upper transfer area to increase the width (This done with a 1/4 ball end cylinder (cutter #2) Keep cutter against outside area of transfer passage so the radius of the cutter makes an undercut edge that maintains the flow away from ex port. (See above *****)



Now the intake window, raised slightly next to ring nub & widened to give @ 1/8" sealing edge width. (cutter #2)



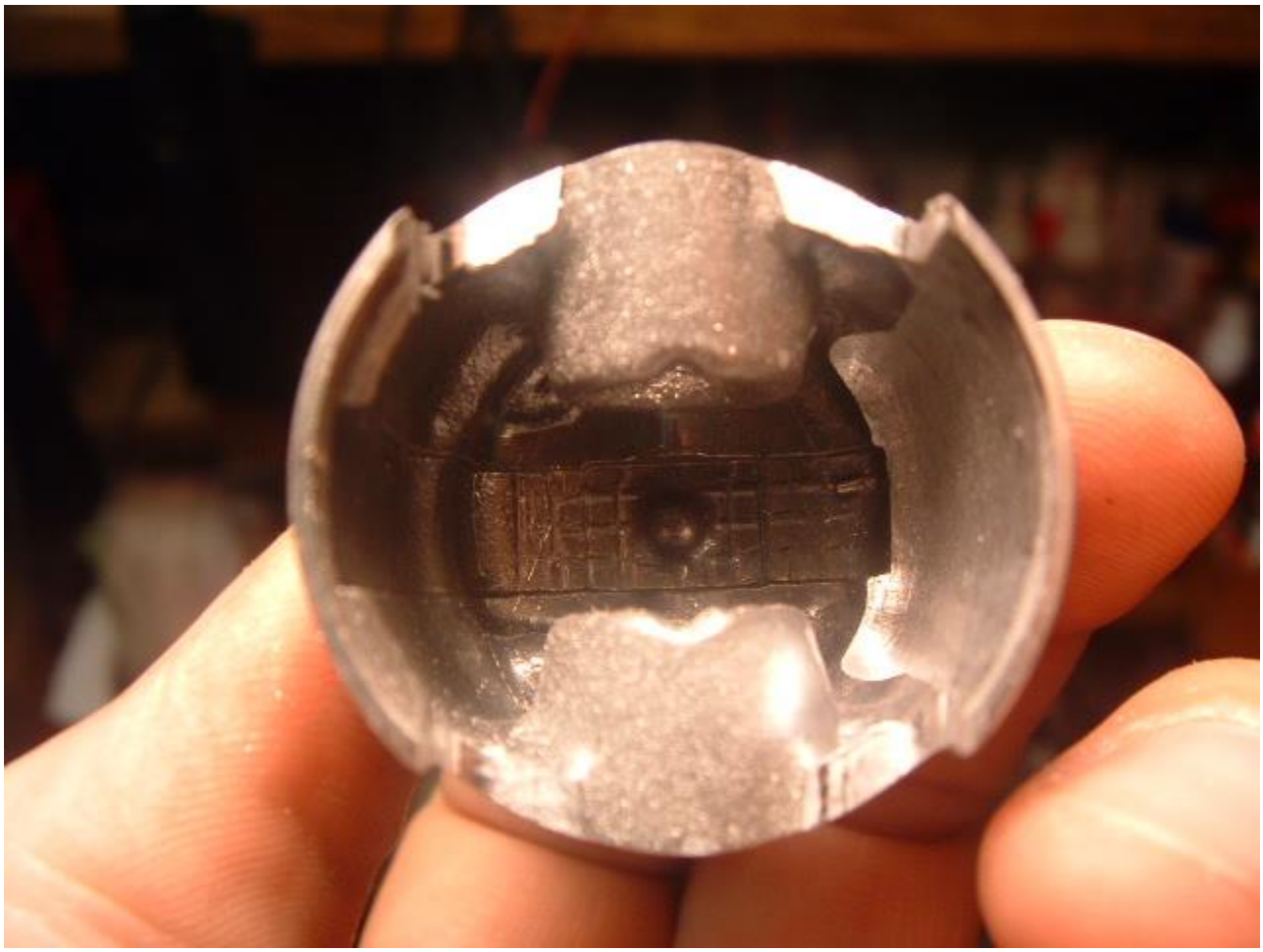
The other side of intake port, just widened. (cutter #2)



View once intake port was cleaned up and finished. (cutter #2 & #4)

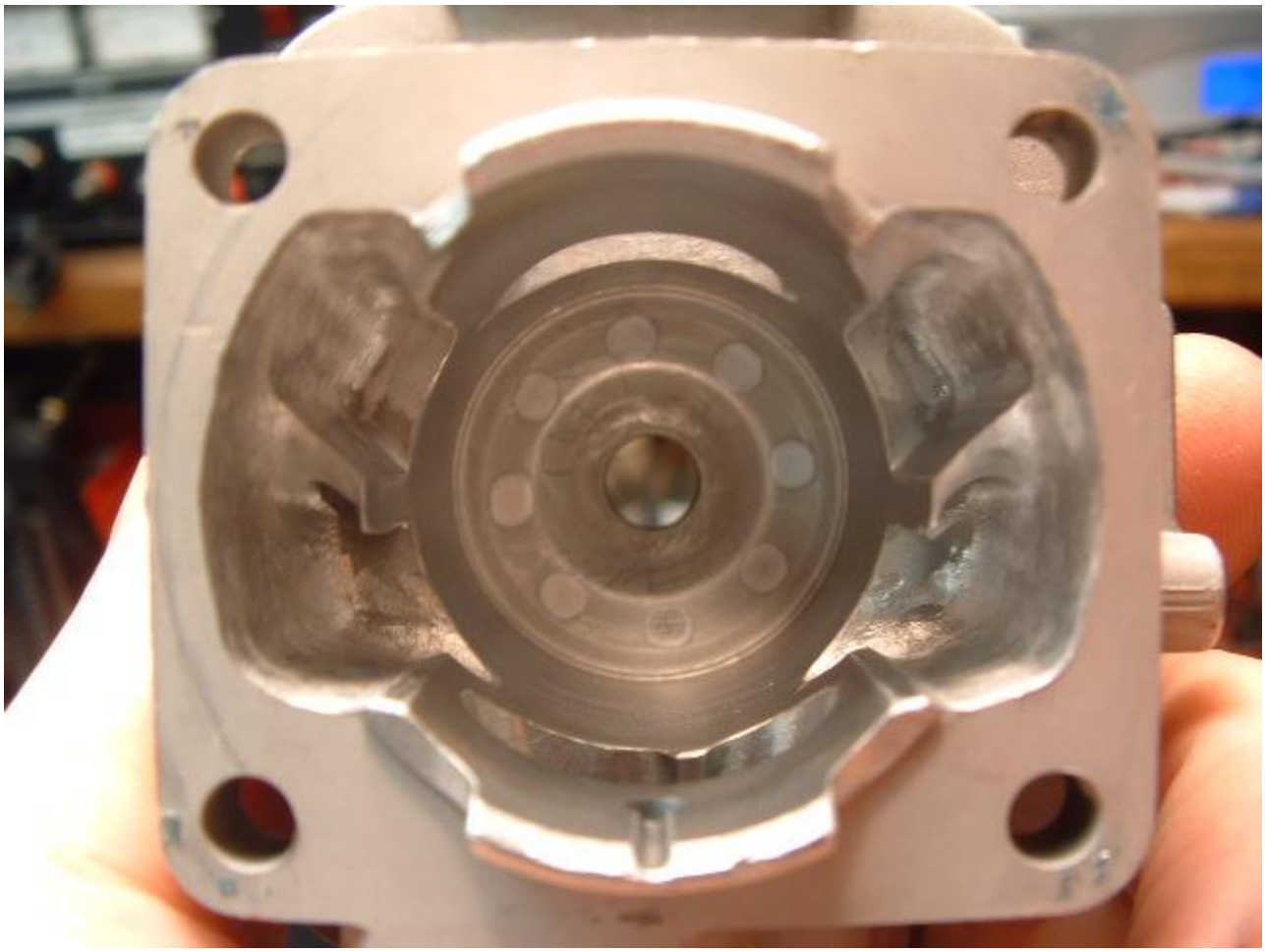
Stock exhaust port & once modified to @178 degrees. (cutter #2)

.002" cut made on top of piston (Total of .004" of diameter)



V shape cut out to increase area, also 1/2 of lightening process removing materal that would support a second ring. Other side not done yet. (cutter #2)

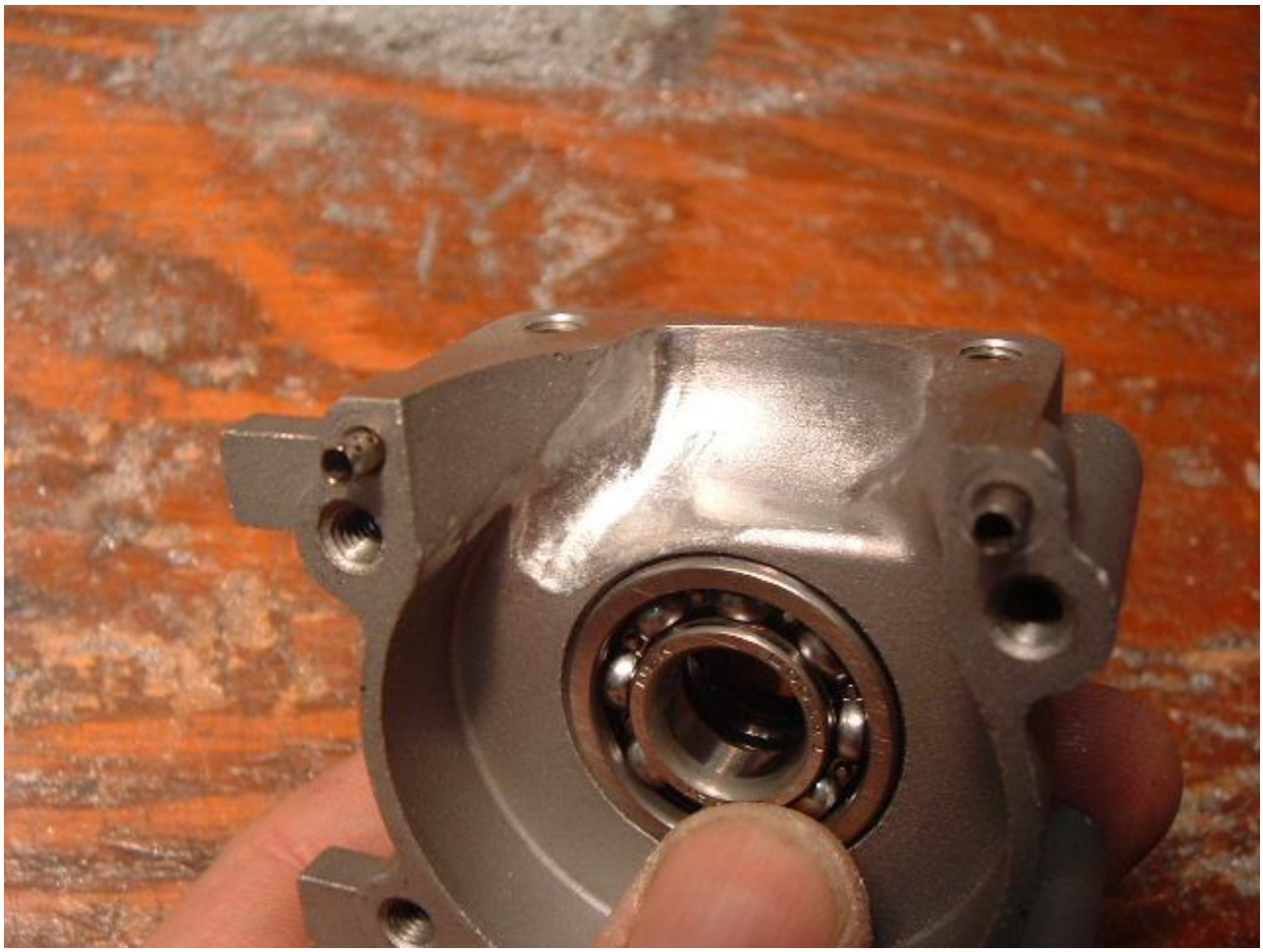
Area outside of pin boss area cut to force flow outward into transfer passages. (cutter #2)



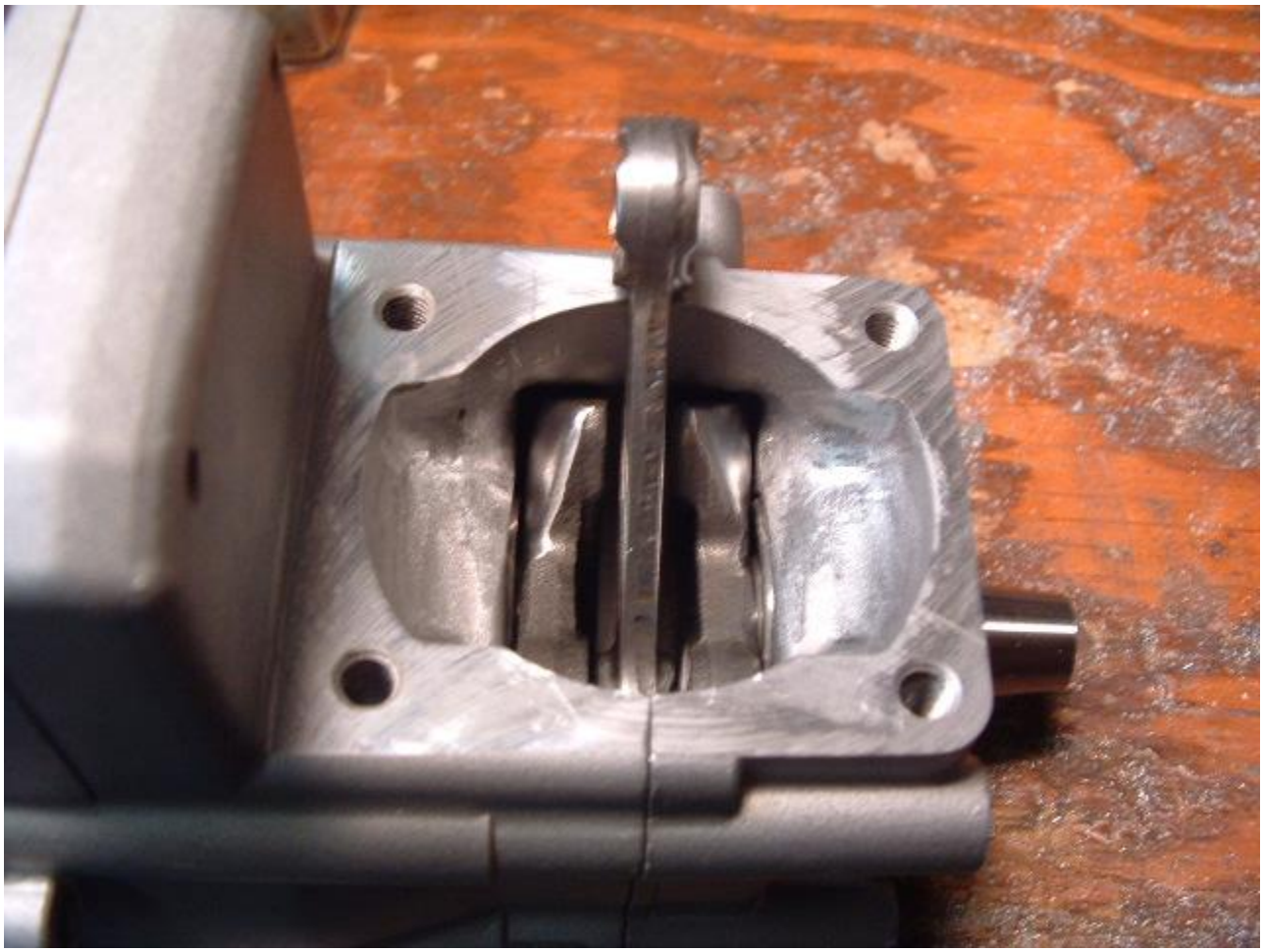
The finished cylinder having had ALL the finishing blending work done & port edges chamfered. (cutters 2,3 & 4)
Port chamfering done by hand with 220 then 600 wet dry paper.

Crankshaft Turbo mod, shown with a stock one. (1" belt sander)

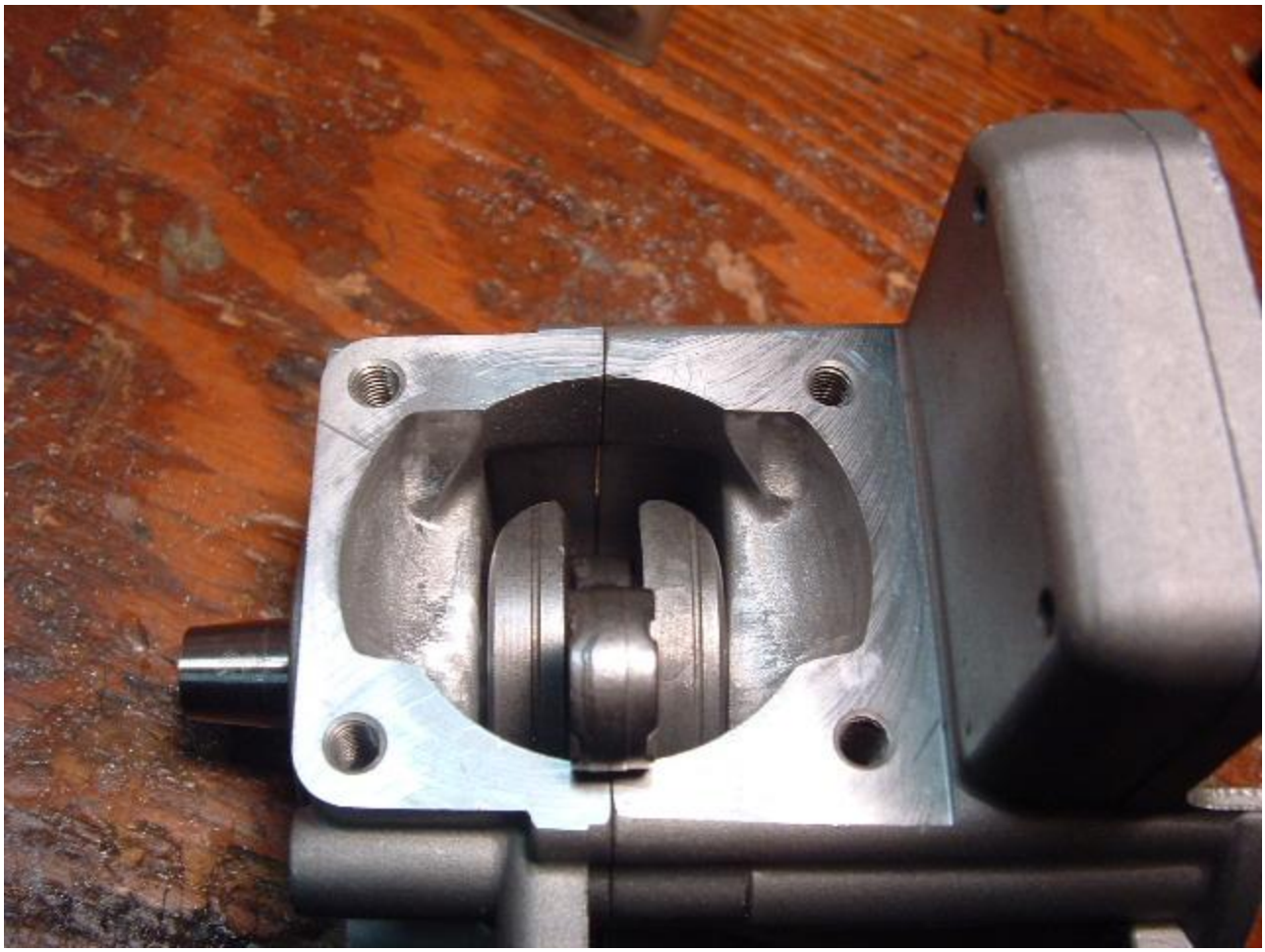
Close up of the finished turbo crank mod.



The crankcase done like this on both halves.(cutter #1)



How cases look with crank installed. (view is crank position 90 degrees BBDC)



Crank position just BBDC (Note : factory ramps in cases left there & for GOOD reason) ramps direct charge up Ex side transfer edge.

The intake manifold opened up to match cylinder & carburetor end opened up to .625" diameter. (cutter #2)

A pile of chips from this job that’s 1/4" deep and bigger than a silver dollar !! @ 2 1/2" around (50 cent shown)

That’s all folks .... Have fun!