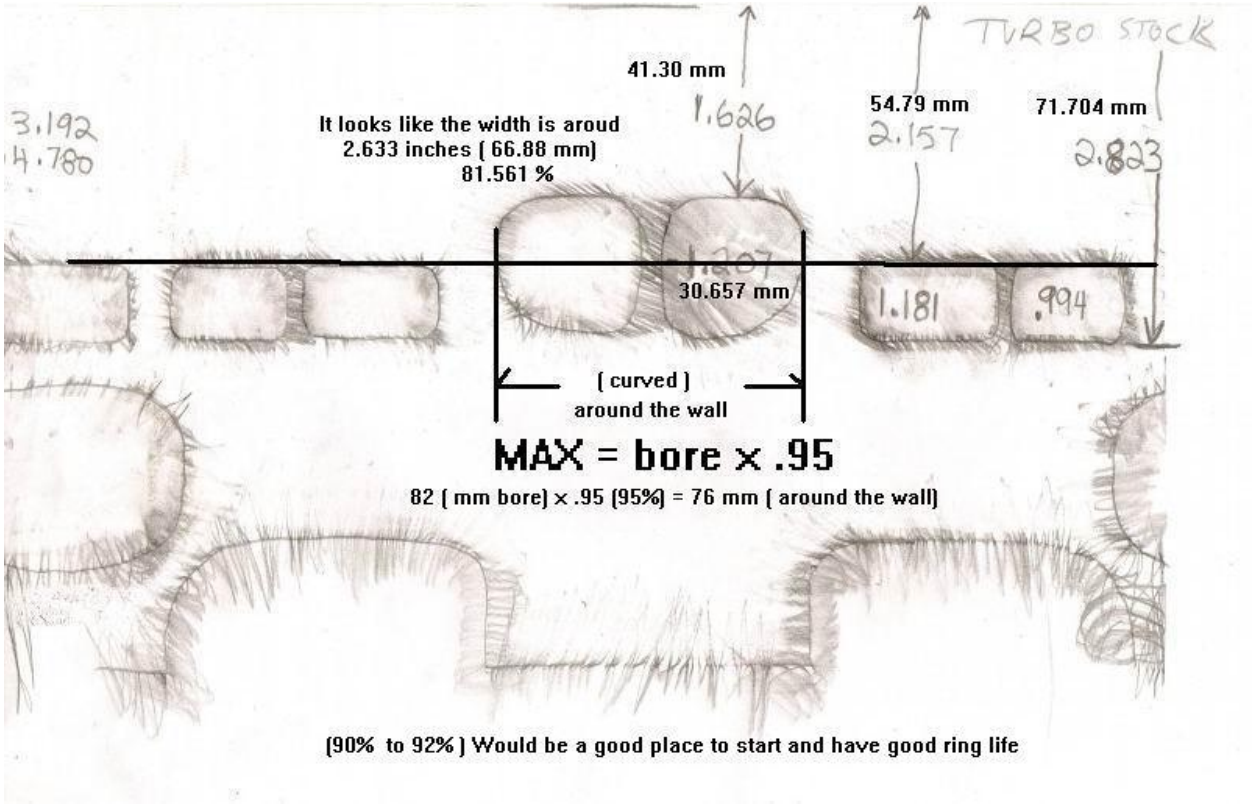


Bore: 82mm

Stroke: 68mm

Rod : 125.4mm

If we look at the map 71.704 mm to the bottom of the transfer port and we know if the base of the cylinder has not been turned down or the port lowered there is another mm or so to the piston crown edge at BDC. Since we do not have that information we will assume a few facts for this discussion. FACT

(1) 71.704 mm to piston crown at BDC from deck.

(2) No gudgeon pin offset (wristpin) even though there is some.

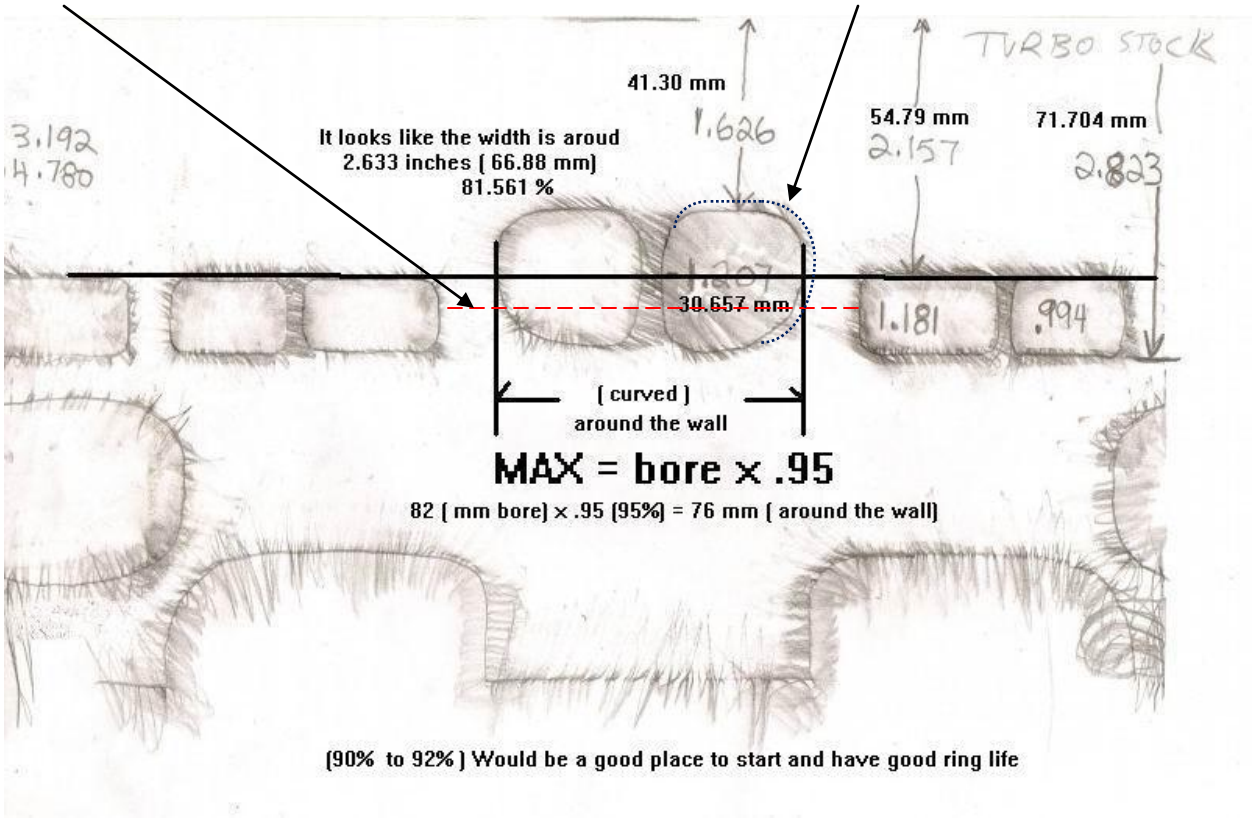
(3)71.704-68=3.704mm of negative deck clearance.

(4) 41.30 mm from deck to EXO

(5)41.30 – 3.704 =37.596 mm or 88.153 degrees for EXO

Now armed with this we can calculate the mean line for the exhaust port for mm squared for use in the ports angular area calculation. We take 180-88.153= 91.847 then divide that by 2 or 45.9235 degrees BBDC. Then we turn that into mm from deck or 63.7569 mm (2.510 inches). Then apply that to the map or the transfer to graph paper.

AAML (approximate) Original port area (approximate)



Now for blow down degrees, EXO is 88.153 degrees and the TRO is 54.79mm from minus deck of 3.704mm = 51.086 mm or 112.6570 degrees, 112.6570-88.153= 25.504 degree of blow down which is poor for performance. This most likely got worse from over bore to 82mm from 78.5mm. This effect (T) or the amount time the port is open. This is calculated by way of duration of the port open in degrees. As discussed before anything tapered gets smaller as you over bore. In this case the roof and the side of the port toward the main transfer. So we loose width and height or area and time. The height change effects duration and time as well as blow down. If we take our example above of 88.153 in EXO we have a duration of 360-(88.153x88.153) = 183.694 degrees of duration. Let take an example in rpm of 7800 rpm, 183.694/ (7800 x 6) =.00039250 for (T). Now let's assume we used a restored port height of 40 mm for EXO or 86 degree ATDC and a new duration of 188 degrees for the exhaust port. Let's run the new (T), 188 / (7800 X 6) =.0004017. This is an increase in time that the exhaust port in open. With the increase in bore and restored stock time area the port time area has diminished due to the increase in pressure (larger bore) and an increase in time and area (TA) of the exhaust port is required to operate at the example rpm of 7500. This takes us into angular area which is based upon port duration and the cm^2/cm^3. Cm^2 is mm^2 of the export above the AAML then divided by 100. Cm^3 is cc's or displacement. If you maintain stroke and rod length than the displacement increases with a bore increase. Now you can see how bore is brought into this equation.

With the cm^2/cm^3 you take this number and times by duration to get angle area for the port. You can now see how the shrinking time area and increase in bore effects the angle area. This will reduce the rpm that the port is good for.