



Picture 6 Jims Machining makes a cool tool

make slight adjustment's by using shims under the lower spring seats. This is done because I know from experience that the valve springs will take a "set" after they go thru a couple of heat cycles and the spring pressure will decrease by about 15%.

The heads are cleaned for a final time and all clearances are double checked with the parts to be used as they are installed and assembled. We now check to see if the valve springs have adequate clearances to the lower rocker boxes with the heavier springs we are using. Alterations to the lower rockers are made at this time to make sure that .060 clearance at a minimum is present between the springs and rocker boxes. We set the cylinder heads aside for now. I will be replacing the lifters with units from S&S simply because of the mileage on the stock ones. The S&S lifters use small axle's and the larger bearing rollers unlike many others that use large axles and small bearing rollers. I have never seen an axle in a lifter break on a street engine, but have seen a lot of the big axle/small bearings fail in lifters so I rest my case on this subject.

We change out the cam gear with the stock gear to provide the same gear mesh as before. (PIC6) for this operation that allows for the cam gear timing

to be set correctly or altered by 1 degree at a time + or - up to 4 degrees if desired. With the parts in hand from S&S I proceed with reconditioning the lower end of the connecting rods and lap the rods to obtain a .0006 bearing clearance, the wrist pin bushings are well within wear limitations so they are left as is.

The flywheels are final inspected for any burs and cleaned up and the assembly of these components begins. The flywheel halves are trued individually to the installed shafts and the higher end of the torque specifications from S&S are used on the nuts. Then the complete assembly is trued up as it is tightened in steps up to 350 lbs on the crankpin. The final truing has .0005 on the right side and .001 on the left side at this high torque. We also paint the timing marks with a bright yellow to make the dynamic timing of the engine easier to see with the timing light. The sprocket shaft bearing races are removed and a new set is carefully installed. The bearing end play is checked and the inner spacer size changed to set the bearing/crankshaft end play @ .0015-.002. The crankcases are assembled without the flywheels to line lap the pinion bearing race to the sprocket bearing and oversize bearings are selected to fit the pinion bearings to the pinion shaft with a .0006 bearing clearance.



Picture 7

The new stroker pistons are checked over and measured and the sizes and placements are etched on the bottom of them (PIC7). The cylinders are honed oversize to provide a "close running fit" of .0025 and because the piston sizes are not exactly the same the bores are slightly different by .0003, hence the reason for the marking of the pistons. With the flywheels slid into the right side of the crankcases', I place the pistons on the connecting rods and then place the cylinders down on the right crankcase and check for the proper clearances between the pistons at BDC and the clearances between the connecting rods and the crankcase. The flywheel is rotated 360 degrees, if any clearances are inadequate now is the time to adjust them.

With these checks done we assemble the lower end of the engine following the recommended torque and cross pattern of the case bolts, re check the straightness of the connecting rods with all of the new parts. The pistons are again placed on the rods and the cylinders are placed down on the cases and tightened with the base gaskets to be used in place. We are checking for the piston height @ TDC at this time. We are looking for a "best" and precise clearance between the piston and cylinder head here and determining if any problems will arise when the engine is completed. We use a fixture that I made up back in my days of building competitive race engines for this check. With a determination made as to acceptability of the piston heights or not and whatever machining or changes in parts to be made to get the pistons to the same predetermined position at TDC. Now we send the pistons out to our piston coating specialist in North Carolina for the special coatings that we use. Now is as good of time as any to take a break in our story, and we will continue next month when the pistons get back, for now we will cover the engine as it sits to keep it CLEAN until we start up on it again. Mikey

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