

CHAPTER 7: CAM, FOLLOWERS, OIL PUMP BACK IN

Posted on the Wildguzzi forum by Pete Roper: December 22, 2005:

Contents: Start assembling the engine. Cam, followers and oil pump in

Introduction to assembling the engine:

If you have blasted the block it is VITAL that every trace of the blasting medium is removed. The best way to approach this is with a steam cleaner/ Gerni, lots of compressed air and a whole load of 'Elbow Grease'. If you don't have a compressor you can buy compressed air in cans from 'Wottalatacrap Auto' or sports shops that sell 'Hooters' for sporting events. You can easily put a nozzle on these bottles to get the air you need for this sort of project! If you have doubts though? Don't blast! Remember that the crankcase has lots of little nooks and crannies that dust can accumulate in. This is the reason it is so important to make sure it is ***THOUROUGHLY*** clean before you start assembling other parts into it!!!!

If you don't have access to this sort of equipment then I suggest using the laundry tub and LOTS of hot water and keep re-washing until everything is clean!!!! No trace of grittiness remaining!!!!

Threaded holes, of which there are lots, require special attention. Buying a can of 'Carby Cleaner' and using it's nozzle to rinse out the threaded holes, (especially the ***Blind*** ones.) pays dividends here. If you have any doubts run a tap through the holes. Cheap taps and dies aren't worth having but there are plenty of moderately priced ones that will work fine for the purposes of 'Home Mechanics'. If you don't know what taps and dies are, sing out and I'll post a demo. If the taps try to 'Bind' Then there is still blasting medium in the hole. Withdraw it and wash again, and again, and again.... It's this sort of stuff that makes having your engine ***Professionally*** rebuilt that will cost you as much as the knowledge of the mechanic doing the work!!!!

Pic 7-1:

Start by sliding the front main bearing back into the crankcase. Don't forget the oil feed dowel!!!! Note that both on the front and rear mains the dowels are located at 12 O'clock but if you are worried just make sure that all the oil feed galleries line up on the bearings and the case! Then torque the bolts in a crosshatch pattern to the required torque. Note that on this motor, which is using a Valtech type tensioner the tensioner mount has to be installed with the two bolts at three and five-thirty O'Clock!



Pic 7-2:

Next the oil pump can be installed. Note that the drive shaft of the pump goes ***upwards***, ie higher, than the driven shaft. The pump can be bolted on either way but you feel like a right prat when you try to put the sprockets on if you get it the wrong way. Torque the bolts to spec but using a drip of loctite and doing 'em up 'Hand Tight' is fine, you can see I haven't use a torque wrench here!



Pic 7-3:

Dunno why I'm showing you this? It's a tube of the wonderful Penrite assembly lube that I lavishly apply to anything that is going to spin, rub or biff when i'm reassembling an engine. Any sort of Molybdenum Disulphide paste will work fine. Todd can probably tell you what's available in the USA!



Pic 7-4:

Once smeared on it just looks like black goo. Don't worry, this is *good* black goo! Don't forget to liberally coat the back bearing for the camshaft too, it's in the back of the case and is sealed by the wretched welch plug that you can see in the front of the bell housing.



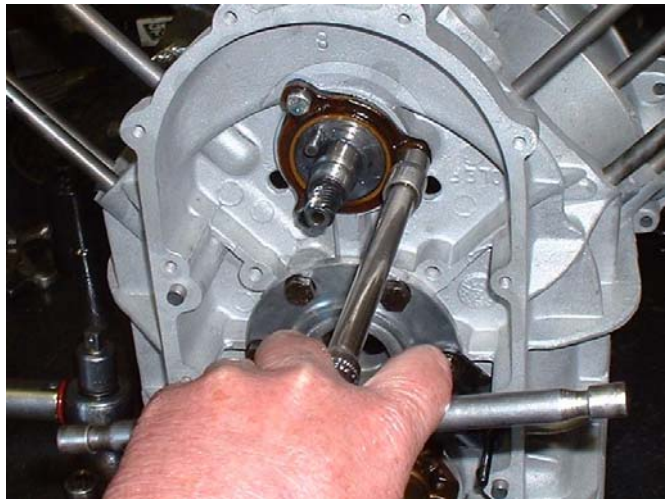
Pic 7-5:

Then coat the camshaft, lobes and bearing journals, liberally with the stuff. Note the camshaft has an oil gallery down the middle of it and holes that spray oil out along its length. Give it a good wash out with Kerosene and blow dry before coating with the assembly lube and installing!



Pic 7-6:

Then re-install the retainer/thrust plate. The bolts are 6mm steel with lock washers, they don't need a lot of torque so just *firm* by hand with a dab of Loctite 243 is fine. If in doubt use the 'Book' spec for torque.



Pic 7-7:

Once the cam is in the followers can be re-inserted in the block. Coat them well with moly paste too! Make sure if you are re-using followers they go back matched to the right lobe!



Pic 7-8:

This is a bit further on and I'll re-cover it, but at this point the crank can be re-inserted. What I'm showing here is the crank with the sprocket installed and the nut torqued down to it's required tightness. Once this is done the crank can be tapped forward with a dead-blow hammer until the front web is against the thrust face of the front main bearing. At this point a feeler gauge can be used to measure the end float between back of the sprocket and the front of the bearing. NOTE. Guzzi never specifies an end float figure anywhere. Ideally it should be between 6 and 12 thou. Anything much more than that and crank movement fore and aft will exert a side thrust on the rods and pistons in service. In this case, (Which isn't the crank that will be used in this engine!) it was spot on 7 thou! Ideal!!!!



Pic 7-9:

Finally, a pic looking through the back of the crankcase at the back of the front main bearing. Note the two milled slots running across the back face of the bearing itself. These are the galleries that allow oil spilling out of the front main to lubricate the front web of the crank when pressure is applied to it when the clutch is engaged. On big blocks there is rarely wear on the back of the thrust face. Smallblocks however have *removable* thrust pieces and they are quite prone to wear.

