

Top End Reassembly

Tools needed:

- - 13mm open end wrench
- - 13mm base nut torque wrench (available at RPE)
- - 3/8" drive 5mm Allen wrench (to fit your torque wrench)
- - torque wrench 0 - 250 in/lbs.
- - 6mm Allen wrench cut short for exhaust manifold
- - 5mm Allen wrench cut short for intake manifold
- - sparkplug socket 5/8" or 13/16"
- - ring compressor

Materials needed:

- - blue loctite 242 or 243
- - acetone or paint thinner (cleaning mating surfaces)
- - top end gasket set ALWAYS USE NEW GASKETS
- - new circlips NEVER USE CIRCLIPS OVER (if pistons removed)
- - high temp antiseize (optional for head, exhaust bolts, and sparkplugs)
- - straight 2 cycle oil for assembly lube
- - hylomar gasket dressing PN #25249 (optional to be used on paper gaskets only)

Procedure:

1. Make sure all parts are clean.
2. Clean mating base gasket surfaces with acetone or thinner and install base gaskets.
3. If run, put the same cylinder with same piston.
4. Lube all connecting rod bearings with straight 2 cycle oil.
5. Put on piston with new circlips if removed THE ARROW ON TOP OF THE PISTON MUST POINT TOWARD EXHAUST PORT (the electric starter side of the engine is the exhaust side or exhaust port side, when putting in circlips ALWAYS support the back side of piston to reduce the risk of bending the connecting rod when pushing.
6. Lube piston and cylinder with straight 2 cycle oil.
7. Turn piston rings to line up opening with the pin in the piston.
8. Compress rings with ring compressor with one hand and with other hand put the cylinder over the piston. DO NOT FORCE IT, it should slide on freely.
9. Remove ring compressor.
10. Place cylinders down against base gaskets, and put on all four washers and cylinder base nuts using blue loctite, DO NOT tighten completely, tighten the nuts enough that the cylinder can only shift slightly when grabbed a hold of. MAKE SURE THE ARROW ON THE TOP OF THE PISTON STILL POINTS TOWARD THE EXHAUST PORT.
11. Put on exhaust manifold WITHOUT gaskets and tighten down, this insures that the cylinders are mating the rigid exhaust Y manifold perfectly so there are no leaks. NOTE: if you have a single carb engine use the intake manifold to do this process.
12. Now you are ready to tighten down the base nuts using a criss cross torque pattern in 1/3 increments with the final torque being 19 ft/lbs. (Proper base nut criss cross torque pattern depicted on page 11).
13. Once you have completely torqued down the cylinders, remove the exhaust manifold and put back on with gaskets, and torque down.
14. You are now ready to put on your intake manifold system using blue loctite on all the intake mounting bolts
15. Put on the cylinder heads, make sure both mating surfaces are completely clean, start all the head bolts and tighten until you can still move the head slightly from side to side, center the head in the movement and begin torque down in 1/3 increments in a criss cross torque pattern with the final torque being 96 in/lbs., then do one final pass at 96 in/lbs, in a circle around the head to insure complete torque down.
16. Finish up by putting any accessories back on such as air guide, exhaust, carbs or fuel injection, sparkplugs, etc.

NOTES:

1. Since you have had the engine apart, you should consider going through a short break in to ensure everything is put back together correctly.
2. If you have installed new the rings and / or pistons, it is recommended that you go through a complete break in to break in the rings.
3. Also since you have had the engine disassembled you should go through a regular re-torque schedule as if the engine were new. Pay special attention to the head bolts and base nuts. Form 17335