

Big Bore Kit Install Instructions

Before installing a big bore kit, you should first install a high volume oil pump. A high volume oil pump will deliver up to 300% more oil to your top end which will only help preserve the life of your engine. To install the big bore kit you will need to:

1. Stuff a CLEAN rag behind the piston to seal off the crankcase.
2. Install a c-clip into one side of the piston. When installing the c-clip, compress the c-clip just enough to get it into the piston. Note the position of the c-clip once it is installed.



3. Install the thin retaining rings and the wavy oil ring onto the bottom of groove on the piston. Carefully slide one thin retaining ring on, then the wavy oil ring, and then the other thin retaining ring. Make sure that the gap on each ring faces the opposite direction as shown in the picture.



4. Install the lower piston ring (which is flat black in color) onto the lower groove in the piston. After the lower ring has been installed, install the upper ring, which is shiny in appearance. Note that the gap opening on each ring faces the opposite direction.



5. Lightly coat the wrist pin with clean motor oil.
6. Install the piston onto the crankshaft and secure it into place with the wrist pin. Make sure that the "IN" marking on the piston faces upwards.



7. Carefully install the second c-clip onto the piston to lock it into place. Once again, compress the c-clip just enough to secure it into the piston. Note the position of the installed c-clip.



8. Install the cylinder gasket.



9. Install a small black seal into the lower hole.



10. Install two knock pins.



11. Apply a small amount of CLEAN oil into the cylinder and slide the cylinder over the studs. Compress the first piston ring with one hand while CAREFULLY sliding the cylinder over the ring. Do not force the cylinder into place. Repeat the process for each ring until the cylinder is in place.



12. Install the black cam chain roller, the cam chain roller bolt (10mm), and the cylinder side bolt (10mm) finger tight.



13. Now it's time to remove the camshaft. To remove the old camshaft, loosen the tappets all the way. Lightly screw one of the camshaft gear bolts into the camshaft and pull the camshaft out.



14. Install the new camshaft and make sure that the cam lobes are facing downwards.



15. Install two knock pins into the cylinder.



16. Install the cylinder head gasket.



17. Install the green gasket onto the bottom left cylinder stud and place a black gasket into the recessed hole.



18. Install the cylinder head. Make sure to pull the cam chain all the way through and temporarily lock it into place with a small screwdriver.



19. Install the cylinder head gasket and the cylinder head cover. Note the location of the copper washer. Torque each of the cylinder head bolts to 8 ft. lbs.



20. Tighten the cam chain roller bolt, the cylinder head side bolt and the cylinder side bolt to 8 ft. lbs.



At this point you are now ready to install the cam gear and set the valve clearance. Before installing the cam gear, double check that the engine is at top dead center by lining up the "T" on the flywheel with the notch on the engine case. Once the "T" is lined up, look into the spark plug hole with a flashlight and you should be able to see the top of the piston. If everything checks out, then do the following:

1. Install the cam gear onto the camshaft and make sure that the "o" which is stamped into the cam gear lines up with the notch on the head (the notch is located around the 9:00 position). Getting the cam gear aligned can be tricky, so take your time.



2. Starting with the upper tappet, use a .05mm (.002) feeler gauge to set the valve clearance. Once the gap has been set, tighten the tappet bolt (9mm) to 80 in. lbs. Repeat the process for the lower tappet.



3. After the valve clearance has been set, grab the flywheel and turn the engine over counterclockwise TWICE and re check the valve clearance. If you have done everything correctly, there should be NO gap clearance. If there is a gap, you will need to repeat this step until no gap is present.
4. Install the upper and lower tappet covers (17mm).
5. Install a new gasket on the cam cover and install the cam cover. Tighten the bolt (10mm) to 9 ft. lbs.



Congratulations! Your new top end is now complete.