



## HARLEY DAVIDSON QUICK-INSTALL PUSHROD

### INSTALLATION INSTRUCTIONS

#### Included in kit: (figure 1)

2 ea. Intake Pushrods

2 ea. Exhaust Pushrods

4 ea. Bases

1 ea. Adjustment Fixture (to hold pushrod cover up while adjusting pushrod)

1 ea .5 ml tube 271 loctite



Figure 1

You will need (2) 7/16 and (1) 3/8 open end wrenches of your own.

1. To make the job easier we recommend raising the bike up on a motorcycle floor jack for ease of access as well as being able to rotate the rear wheel when adjusting the piston position in the cylinders. We also recommend removal of the spark plugs to make engine rotation easier.

2. After securing and lifting the bike on the stand, remove the spark plugs and the pushrod tube uppers so the lower portion of the tube can be raised exposing the pushrods that will be removed. Place transmission into second gear and rotate rear tire until you see the front exhaust pushrod go all the way down into the lifter block. If it begins to come back up, reverse rotate the tire in the opposite direction until the pushrod (and lifter) are at the lowest point. Stuff a clean rag or something into the hole of the lifter block so no debris can get into the exposed area during removal of the old pushrods. Use a set of bolt cutters and cut the pushrod off above the lifter block and remove the upper portion along with the pushrod tube. (fig 2) You now have access to the bottom piece of the pushrod and can remove it as well.



Figure 2

3. Repeat step 2 for the remaining three pushrods.
4. Make sure the lifter is riding on the base circle of the cam (the lowest point on the lobe) before beginning installation of the pushrod. One way to make sure is to watch and when the exhaust lifter is just beginning to come up, the intake should be at the bottom and when the intake lifter comes up and is going back down, the exhaust should be at the bottom.
5. Begin installation of your new Smith Brothers pushrods by applying a couple drops of thread locker around the top of the inside of the threads on the base. Make sure the threads are clean and dry on both the screw and the base. Don't use too much as it can get down in the bottom and plug the oil hole. Also, only apply it when you are ready for installation and only to that particular one. It can begin to harden before you're ready to install the next one and so on.
6. Drop one base (with thread locker applied) into the lifter block and make sure it's setting in the pocket of the lifter. Again, make sure the exposed threads on the pushrods are clean and dry (no oil or solvent present) and make sure you install the exhaust rods in the exhaust position and the intake rods in the intake position. They are marked. Insert the pushrod into the pushrod tube then insert the top portion of the pushrod up into the rocker box and feel for when it is seated in the rocker arm. Swing the bottom portion of the pushrod into position and just set the threaded end into the opening of the base. This next step will be easier if you use the fixture provided to hold the pushrod cover up out of the way. (fig. 3) Move the bottom O-ring above the lip on the cover so it's out of

the way. Using your fingers, get the screw started into the base and it can be faster to just keep screwing the 2 parts together by hand. If it's not easy for you that way, once you get the screw started you can use your end wrenches and keep screwing the parts together that way. You may have to loosen the jam nut from the tube portion of the pushrod and unscrew it some (a few turns) then snug the jam nut back up so you can make sure the screw bottoms out in the base. Once the screw bottoms out apply a drop of thread locker to the junction of the base and screw then run the jam nut down to the base. Use your end wrenches and "jam" the two parts together. This action creates a mechanical bond by exerting pressure on the threads in opposite directions. Don't overdo it as it's not necessary. The thread locker will do the rest.

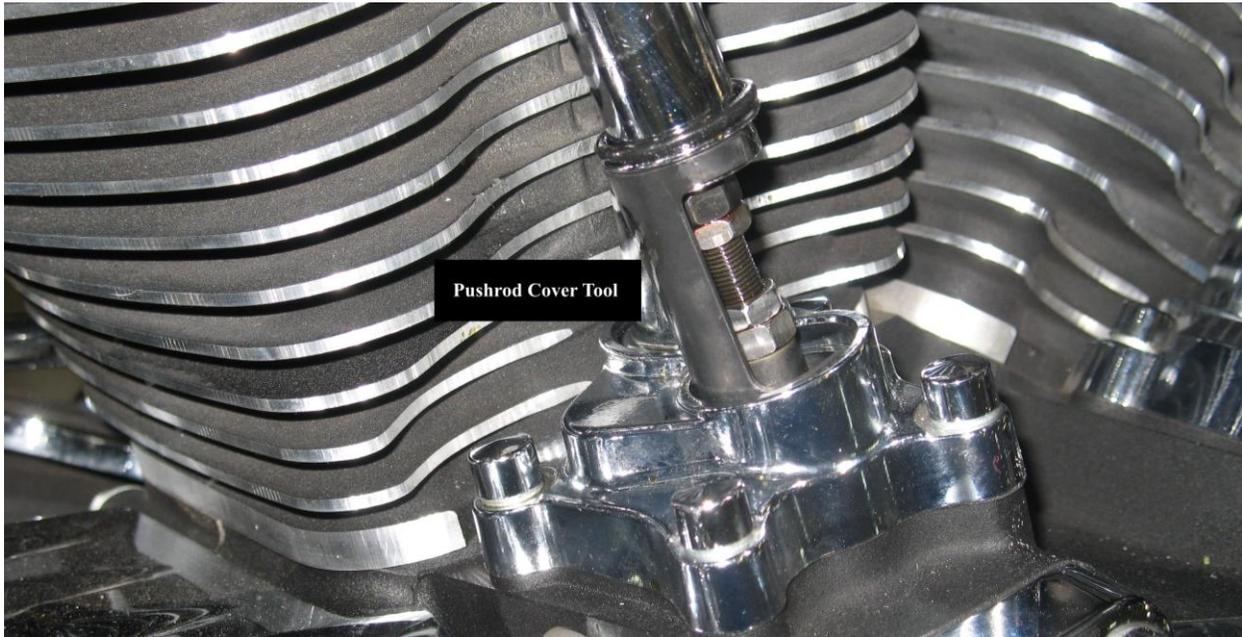


Figure 3

7. Now you can adjust the upper portion. Loosen the upper jam nut and unscrew the tube from the base assembly which in effect makes the pushrod get longer. Adjust it up until the top is snug in the rocker and the bottom is snug in the lifter but without any pre-load. Once you are to this point, you can set the preload by using your 2 end wrenches and holding the base stationary with one wrench, use your other end wrench to unscrew the top portion for 4 full turns (6 flats = 1 full turn so you need a total of 24 flats). That will give you .125 preload on your lifter. Put a drop of thread locker on the screw where it goes into the tube, run the jam nut up to the tube and using two 7/16 wrenches lock the two together. Again, you just need to "jam" the two together---don't overdo it). Do just one on that cylinder then take a break and give the lifter time to bleed down as there is the possibility that your valve is being held open at this time. Once you feel confident that the lifter has collapsed (you can kind of tell by wiggling and/or twisting the pushrod---it will begin to feel loose---it can take up to 15 minutes) you can move to the other pushrod and repeat the process. Wait for that one to collapse as well then you can rotate the engine to get the other lifter into position.
8. Once all 4 pushrods are installed and adjusted and time has been allowed for the lifter plungers to bleed down, you can rotate the engine with the rear wheel and watch for anything looking abnormal. You shouldn't find anything but it's a good idea to check before putting the pushrod tubes back together. After inspecting, go ahead and finish the re-install of the pushrod tubes (don't forget to move the bottom O-rings back down below the lip of the covers), put the transmission back into neutral and re-install the spark plugs and wires. Wait until the next day to fire it up so the thread locker has time to set. You're all done. Wasn't that easy!