Instruction Sheet #5000
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Instructions for Installing All S&S Pushrod Kits

Before beginning work, carefully read instructions to familiarize yourself with required steps.

Kit Part Number*	Required Steps
93-5029, 93-5030, 93-5040, 93-5042, 93-5059	1, 2, 6, 9, 10
93-5050, 93-5060	1, 2, 5, 6, 8, 10
93-5058, 93-5067, 93-5068, 93-5069	1, 2, 4, 6, 9, 10
93-5033, 93-5076	1, 3, 6, 7, 8, 10

* Part numbers shown are for stock length pushrod kits. Refer to catalog for part numbers for special lengths.

NOTE - All installation and adjustments must be made when engine is cold. Read instructions thoroughly and follow all recommended steps and procedures

CAUTION - Failure to follow recommended steps and procedures may result in damage to engine components.

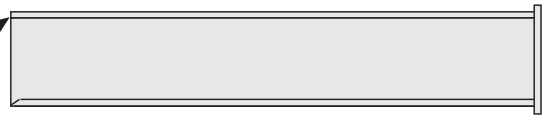
WARNING - Installing or adjusting pushrods while engine is hot could result in burns from contact with hot engine parts.

1. Turn engine over by hand until tappets for front cylinder are at lowest points of travel in tappet block (valves closed). Like tappets in rear cylinder will be at highest points of travel (valves open). Tappets must always be in lowest positions when installing pushrods and making adjustments.
2. Remove old pushrods. Clean and inspect pushrod cover assemblies. Bevel inside edges of top pushrod tubes per diagram below and reassemble tubes using new gaskets coated with oil.
3. Evolution engines only - Remove front rocker cover, rocker arm assembly, pushrod tubes and pushrods. See H-D service manual for proper disassembly procedure.

NOTE - High performance Evolution engines equipped with hydraulic lifters can benefit from using an S&S HL2T Hydraulic Lifter Limited Travel kit, part #33-5338 for 1984 and '85 V²s and part #33-5339 for 1986 and later engines. When installed, these simple, low cost kits enable the owner to rev his engine without the fear of hydraulic lifter collapse and the resulting poor performance and potential valve train damage. At the same time he can enjoy the benefits of minimum noise and low maintenance from normal hydraulic lifter operation.

4. Solid lifter conversion kits only - Remove stock H-D hydraulic units from tappet assemblies. Install S&S adjusting units or adapters provided in kit. S&S adjusting units/ adapters are designed to fit tightly in followers. Gently tap each one to insure it is fully bottomed in tappet. Be sure each tappet is at lowest point of travel when inserting unit/ adapter. Occasionally, machining variations in cam follower will make fit too tight. Do not beat them in as damage to cam, tappet, bearings, etc. may result. Place S&S unit in drill press chuck, and use fine emery to remove enough material to achieve light hand press fit.

Check top pushrod cover tube inside diameters for sharp corners. Bevel corners with file or hand grinder. In instances where pushrods are made with 1/2" diameter tubing, sharp edges left on covers may rub pushrods.



5. Kits using stock adjusting screws only - Remove stock H-D adjusting screws and locknuts and screw them into threaded ends of S&S pushrods.
6. Place longest pushrod in front exhaust position. Place next longest in rear exhaust position. Next longest is front intake and shortest is rear intake. Occasionally, pushrod will not slip into place unless valve is pried open slightly. If necessary, pop pushrod in place by prying with large screwdriver. This should only be done if amount needed is slight. Once in place, pushrod should roll freely until adjusted. Inspect pushrod ends to insure that
   a. Cup end always goes up.
   b. Large ball end always goes up.
   c. Same size ball on each end goes either way.
   d. Adjuster end always goes down. Be sure adjuster is screwed into pushrod all the way.

NOTE - Some aftermarket replacement tappets are made shorter than stock to improve pushrod angle. Longer than stock pushrods must be used with these units. Special length pushrods are available from S&S for this and other custom applications.

7. Evolution engines only - Install pushrod tubes, rocker cover and rocker arm assembly. See H-D service manual for proper bolt torque specifications, etc..

NOTE - 1991 and later Sportster engines require the use of 1990 and earlier style pushrod tubes and S&S pushrod tube conversion adapters part #33-5360 when installing adjustable pushrods.

8. Adjusting hydraulic lifters.

NOTE - For all Pushrod adjustments, engine must be cold and tappets at lowest points of travel in tappet block when pushrods are adjusted.

   a. If engine has been run or there is oil in hydraulic units, back off adjusting screw until the pushrod is loose and can be moved easily with no resistance. Tighten adjusting screw until all free play is removed. Turn adjusting screw an additional 4 to 4½ turns (24-27 flats), and tighten locknut. Allow sufficient time for lifter to bleed down (5 to 10 minutes) and repeat procedure for other pushrod

NOTE - perform this operation on one tappet at a time. Do not turn engine or adjust a second hydraulic unit until the first one has fully bled down.

CAUTION - Failure to allow hydraulic unit to bleed down before turning engine or adjusting the other pushrod could result in valve to valve contact and serious valve train damage.

   b. When hydraulic unit is clean and free of all oil fully collapse the hydraulic unit by turning adjusting screw. Back off the adjuster 1¾ turns. Repeat for other pushrods.

NOTE - There is no need to wait for lifter to bleed down when hydraulic units are adjusted clean and free of oil..

   c. Stock V² hydraulic lifters with S&S HL2T limited travel kit. when hydraulic units are clean and free from oil - Follow instructions supplied with kit for installation. Adjustable push rods must be used with limited travel kit. Adjust pushrod so the lifter is fully collapsed. Back off push rod adjustment until pushrod can be rolled between the fingers with some drag. Tighten locking nut, and recheck pushrod adjustment to insure that adjustment is still correct. Repeat for other pushrod.

9. Adjusting solid lifters.
   Remove free play by turning adjusting screw until pushrod can be rolled between fingers with slight drag. Tighten locking nut and recheck pushrod adjustment to assure that adjustment is still correct. Solid lifters should be checked and readjusted if needed after 200 miles.

NOTE - For all Pushrod adjustments, engine must be cold and tappets at lowest points of travel in tappet block when pushrods are adjusted.

CAUTION - Adjusting the pushrods too loosely will result in too much clearance and excessive valve train noise. Adjusting the pushrod too tightly may result in damage to the valve train components.

10. Repeat all steps for rear cylinder.