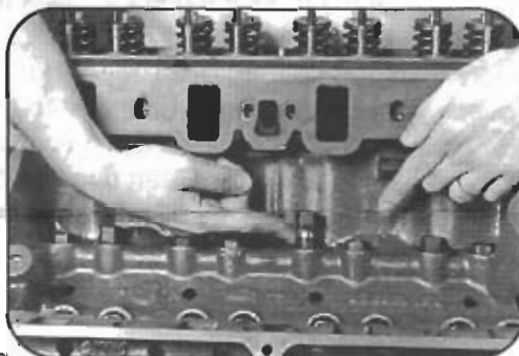


Ford Retro-Fit Hydraulic Roller Lifter Kit Installation Instruction

For part #31-1000 only — Contains: 8 lifter guides, 1 lifter retainer, and 2 allen bolts
For use with 851-16 lifters (not included in this kit).

Before You Start

This kit is designed to allow installation of hydraulic roller cams in standard Ford V8 engines (289, 302, 351W, 351C, 351M & 400M) not originally equipped with hydraulic roller cams. However, it can only be used with specially designed COMP Cams[®] Magnum Retro-½t Hydraulic Roller Cams with special sized base circles, or severe engine damage may result. Also, this kit should only be used in engines with adjustable valve trains. Once you have installed your COMP Cams[®] Retro-fit Hydraulic Roller Camshaft per the camshaft installation and degreasing instructions supplied with the cam, you are now ready to install the hydraulic roller lifters.

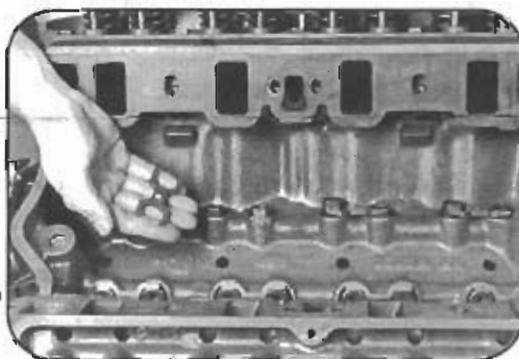


Step 1. Installing The Lifters

Slide the lifters into the lifter bores just like a regular lifter, and then rotate them until the flat surfaces on the sides of all lifters face inward toward the lifter valley. Each lifter has two flats, one on each side. It does not matter which flat faces the valley and which faces the cylinders. You may encounter some difficulty in trying to install the end lifters in each bank due to interference from an ear on each end of the head gaskets. Gently bend this ear out of the way, install the lifters, then bend the ear back into place. The purpose of this ear is to help locate the intake gasket during manifold assembly, so do not bend or remove it permanently.

Step 2. Installing The Lifter Guides

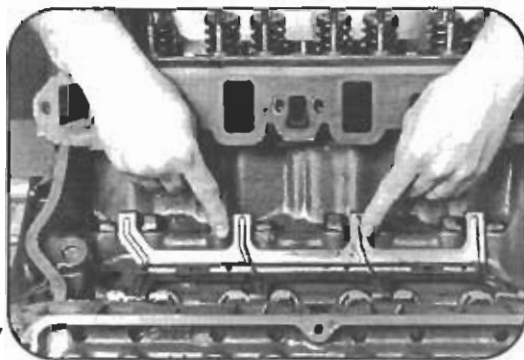
The purpose of the guides is to prevent the lifters from rotating, therefore keeping the lifter wheels rolling over the cam lobes as opposed to sliding. With all the flats on the lifters in line, install one of the lifter guides over each cylinder's pair of lifters in the valley. They should be installed with the word "UP" that is stamped into each guide facing up. It does not matter whether the "UP" stamp is toward the front or the rear of the block. The forks on each end of the guides should nest over the top of the flats on either side of each lifter.



Once again, you may encounter some difficulty installing the lifter guides over the end pairs of lifters in each bank. This will be due to the generous casting draft in the factory block castings at each end of the valley, preventing the lifter guides from sitting perfectly flat on top of the lifter bores. The lifter guides must sit perfectly flat on top of the lifter bores! If they do not, then you will have to grind small amounts of the block away to allow the guides proper clearance to sit perfectly flat. Failure to do so will result in major engine damage! Do not grind on the lifter guides themselves. They are designed with as much clearance as possible built in and still be able to function.

Step 3. Installing The Lifter Retention Hardware

Place tape over the four vent holes in the valley of the block to prevent anything from falling through. Place the stamped steel lifter retainer in the valley of the block with the fingers of the retainer between the pairs of lifters and riding on the raised ball area of the lifter guides. Use the lifter retainer in this position as a template. Center punch the valley of the block through the holes two inches from each end of the lifter retainer. Then drill 13/64" holes no more than 3/8" (.3750") deep. **Warning: Do not drill any deeper or you may cause damage to the cam bearings.**



Be sure to drill the two holes as straight as possible.

Remove the lifter retainer. Clean up all metal shavings. Clean the freshly drilled holes using a cotton swab lightly coated with grease. Thread the holes using a 1/4" x 20 N.C. starter tap. Then tap again with a bottoming tap. Again, clean the threaded holes with a cotton swab lightly coated with grease. Then use a clean cotton swab and cleaning solvent to remove the grease from the threaded holes.

Remove the tape from the four vent holes in the valley of the block. Place the lifter retainer in place for installation, with the fingers of the retainer between the pairs of lifters and riding on the raised ball area of the lifter guides. Check the thread fit of the two 1/4" x 3/8" N.C. allen bolts. Clean the threads of the allen bolts. Put two drops of thread locker on each bolt and tighten very lightly to approximately five foot pounds of torque.

Step 4. Final Check

Spin the engine over by hand at the crankshaft with a wrench and watch closely the movement of the lifters. As the lifters move up and down, the lifter guides should remain perfectly flat on the tops of the lifter bores. They should not be moved at all by the up and down movement of the lifters. If they do, the camshaft does not have the correct base circle size to be used with these retro-fit lifters. Running the engine with this condition will surely result in major engine damage. Stop here and replace the camshaft with the proper one before proceeding.

The installation of your COMP Cams[®] Retro-fit Hydraulic Roller Lifter Kit is now complete. Refer to the camshaft installation and degreasing instructions that came with your cam for further instructions on pushrod installation and valve adjustment that are needed to complete your project. Please note that there are special length pushrods required for use with this kit depending on which Ford engine you are working with. Consult your COMP Cams[®] Valve Train Reference Catalog for the correct part number pushrods for your application, if you have not already purchased the proper parts.

Warning! Do not rev an engine equipped with a hydraulic roller cam above 6500 RPM or valve float will occur, causing serious engine damage.

