



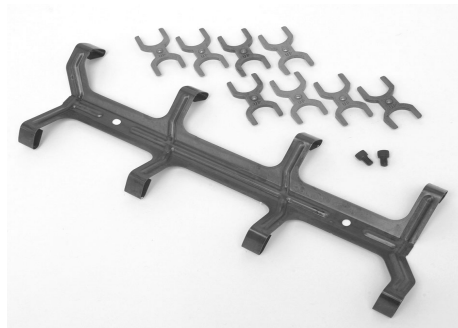
INSTRUCTIONS

Ford Hydraulic Roller Lifter Kit Part #31-1000 (Retro-Fit) & #31-1001

Thank you for choosing COMP Cams® products; we are proud to be your manufacturer of choice. Please read this instruction sheet carefully before beginning installation and also take a moment to review the included limited warranty information.

Kit Includes

- **Lifter Guides (8)**
- **Lifter Retainer (1)**
- **Allen Bolts (2)**



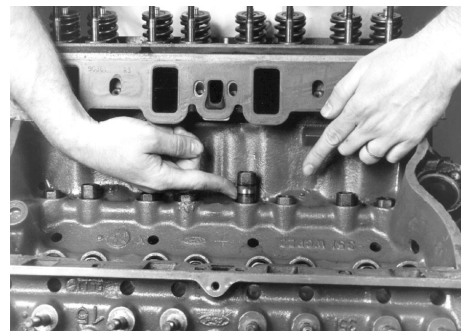
Before you Start

Please read these instructions carefully and completely before installing these products!

- This kit (Part #31-1000) is designed to allow installation of hydraulic roller cams in standard Ford V8 engines (289, 302, 351W, 351C, 351M and 400M) not originally equipped with hydraulic roller cams. However, it can only be used with specially designed COMP Cams® retro-fit 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.
- This kit (Part #31-1001) is designed to allow installation of hydraulic roller lifters in standard Ford V8 engines originally equipped with hydraulic roller cams. In order to use this kit, your engine must have two bosses cast into the block in the lifter valley area. These bosses may or may not be drilled and tapped for 1/4"-20 bolts. If yours are not drilled and tapped then you must be prepared to do so during this installation process.

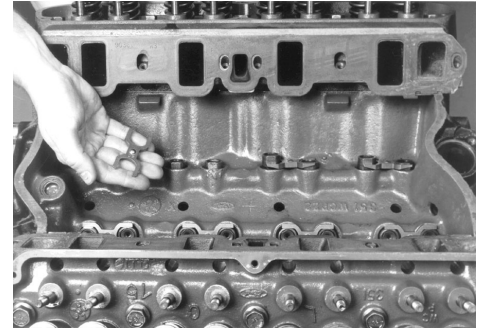
Step 1 – Installing the Lifters

Slide the lifters (Part #851-16) 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, and 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 permanently.



Step 2 – Installing the Lifter Guides

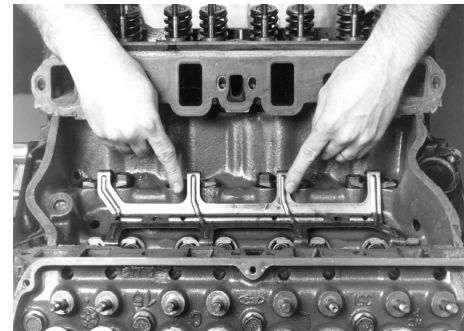
The purpose of the guides is to prevent the lifters from rotating, therefore keeping the lifter wheels rolling over the cam lobes as opposed to sliding. With all the flats on the lifters in line, install one of the lifter guides over each cylinder's pair of lifters in the valley. They should be installed with the word "UP" stamp 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 on each lifter. Also, the lifter guides should sit perfectly flat on the milled top surface of the lifter bore pairs. If they do not, stop and figure out why before proceeding. Failure to do so may result in significant engine damage.



Note: If you are using a factory hydraulic roller block and part # 31-1001, precede to Step 4.

Step 3 – Preparing the Block

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 two holes, two inches from each end of the lifter retainer. Then drill 13/64" holes no more than 3/8" (0.375") 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 1/4"-20 N.C. starter tap. Then tap again with a bottom 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. Once all the metal chips have been cleaned from the valley, remove the tape from the four vent holes in the valley of the block.



Step 4 – Final Assembly of the Lifter Retainer

Lower the lifter retainer in place for installation, with the fingers of the retainer between the pairs of the lifters and riding on top of the raised ball area of the lifter guides. Check the thread fit of the two 1/4"-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 5– Final Check

Spin the engine over by hand at the crankshaft with a wrench and watch closely to 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. If they do, the camshaft does not have the correct base circle size to be used with these retro-fit lifters in non-hydraulic roller cam engines. Stop here and replace the camshaft with the proper one before proceeding. ***Running the engine with this condition will surely result in major engine damage.*** The installation of your COMP Cams® 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 the retro-fit kit and 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 of valve float will occur, causing serious engine damage.

Any questions?

Call CAM HELP, (1-800-999-0853) your toll-free direct link to COMP Cams® technical department, for the answers to any of your valve train questions.

Limited Warranty

Competition Cams, Inc. warrants that all of its products are free from defects in material and workmanship, and against excessive wear for a period of (1) one year from the date of purchase. This **limited warranty** shall cover the original purchaser.

Competition Cams, Inc.'s obligation under this warranty is limited to the repair or replacement of its product. To make a warranty claim, the part must be returned within (1) one year of purchase to the address listed below, freight prepaid. Items covered under warranty will be returned to you freight collect.

It is the responsibility of the installer to ensure that all of the components are correct before installation. We assume no liability for any errors made in tolerances, component selection, or installation.

There is absolutely no warranty on the following:

- A) Any parts used in racing applications**
- B) Any product that has been physically altered, improperly installed or maintained;**
- C) Any product used in improper applications, abused, or not used in conjunction with the proper parts.**

There are no implied warranties of merchantability or fitness for a particular purpose. There are no warranties, which extend beyond the description of the face hereof. Competition Cams, Inc. will not be responsible for incidental and consequential damages, property damage or personal injury damages to the extent permitted by law. Where required by law, implied warranties or merchantability and fitness are limited for a term of (1) one year from the date of original purchase.

This warranty gives you specific legal rights and you may also have other legal rights, which vary from state to state.



Competition Cams, Inc
3406 Democrat Rd.
Memphis, TN 38118
(901)795-2400 FAX (901)366-1807
www.compcams.com

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