



Ultra Pro Magnum™ & Ultra Pro Magnum™ XD Roller Rocker Arms

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



Installation:

1. With the valve covers off and old rocker arms removed, the first step will be to inspect the pushrods. COMP Cams® strongly suggests when installing new rocker arms (of any kind), that new COMP Cams® pushrods be incorporated to ensure that all mating surfaces are fresh to prevent any premature failures. If you are using the old pushrods, examine the ends of all pushrods for any flaking or galling. Any imperfections on the ends of the pushrods will result in either rocker arm or lifter failure. **Note: Be sure to clean and blow dry all pushrods. Also, blow through the pushrod to remove any foreign matter such as sludge. Remember, in any type of motor work, cleanliness is imperative.**
2. Inspect rocker arm studs, stud bosses, guide plates, etc. for excessive wear. Check to see if the old rocker was cutting into the side of the rocker arm stud. Also check the guide slots in the cylinder head or guide plates for excessive wear. Wipe clean the tops of all the valves and again inspect each one for wear or mushrooming of the valve stem.

Movement of metal or galling of the studs, pedestals or valve stems is a sign of excessive wear. Now is the time to make whatever decisions are necessary. Installing new rocker arms on questionable studs or mushroomed valve stems is asking for trouble.
3. Remove the Ultra Pro Magnum™ or Ultra Pro Magnum™ XD Roller Rockers from the package and wash rockers and polylocks thoroughly with denatured alcohol (lacquer thinner). Do not use water or evaporative cleaners. Then blow dry. Soak the rockers in engine oil or spray with COMP Cams® Valve Train Assembly Spray (Part #106).
4. Install the pushrods into the motor with both ends coated with a small amount of assembly lube. If the pushrod has a long hardened tip, make sure it rides properly in the guide plate. If the pushrod has an arrow, be sure to install it pointed up. It is recommended that all the pushrods be pre-oiled through the pushrod holes. Apply a small amount of COMP Cams® assembly lube to valve stem tips and rocker arm pushrod seats.

5. Install rocker arm on rocker stud. Pay special attention to the pushrod and rocker arm positioning. Be sure that the pushrods are seated in the lifter and rocker arm seats. Install polylocks loosely on the studs with the set screws backed off. Do not tighten the polylocks or set screws until you go through the proper sequence of lifter adjustment. Install the remainder of rockers arms in this manner.
6. After carefully checking to be sure all pushrods are seated in the lifter and rocker arm, it is time for valve lash adjustment.
7. Adjusting intake valves: We recommend you work with one cylinder at a time. Using the crankshaft dampener bolt in the snout of the crankshaft, turn the engine over by hand in the direction of its running rotation until the exhaust pushrod just begins to move upward to open the valve. Stop rotation. The intake lifter is now on the base circle of the cam and the intake valve is ready to be adjusted.

Hydraulic Lifter Cams and Stud Mount Rockers: Tighten the polylock until all the slack is taken out of the rocker arm and pushrod. By lightly turning the pushrod with your fingers as you tighten the polylock, you will discover or feel a point at which there will be slight resistance. At this point, you have taken all the excess slack out of the pushrod. You are now at what we refer to as **zero lash**. Turn the adjusting nut one-half turn more **OR** follow your specific lifter pre-load instructions. This will give you the ideal pre-load of the rocker arm, pushrod and lifter. Repeat this procedure for each cylinder and carefully adjust all intake valves.

Hydraulic Lifter Cams and Pedestal Mount Rockers (PN 1677 & 1678): When installing the rocker arms, ensure that you are using the proper length pushrod in order to obtain the optimal amount of lifter pre-load. **Lifter pre-load should be between 0.020" and 0.080"**. **If yours is not, your application requires different length pushrods.** In order to measure lifter pre-load, please use the following procedure.

First, install the pushrods and torque all the rocker arm bolts down in the proper sequence and proper torque specification. Rotate the engine by hand in the normal direction of engine rotation until both the exhaust and intake valves have opened and closed completely. Allow a couple of minutes for the lifters to bleed down.

Using the valve cover gasket surface on the head as a reference point, place a mark on the pushrod. The smaller, more defined the mark, the more accurate the measurement. Be sure the reference point you choose for the first mark is easily accessible and easy to duplicate. The pushrod will be marked twice. It must be measured from the same reference point and angle for the measurement to be accurate.

Loosen the rocker bolts. Leave the rockers on the head so that they will support the pushrods. Be sure the pushrods are standing free in the lifters and do not have any pre-load. Using the same reference point, place a second mark on the pushrod. Make sure the angle and reference point are the same as the first mark. You now have two marks on the pushrod: one with the assembly bolted into place as the engine will run, and one with the lifter unloaded. The distance between these two points will represent the amount of lifter pre-load. **Again, if yours is not between 0.020" and 0.080" your application requires either shorter or longer pushrods.**

Solid Lifter Cams: Consult cam spec card or cam manufacturer for correct lash specifications. With the proper feeler gauge between the roller and valve stem, turn the polylock until a slight drag is felt on the feeler gauge. Hold the polylock with the wrench and then tighten the set screw using a T-handle or Allen wrench. Repeat this procedure for each cylinder and carefully adjust all intake valves.

8. Adjusting exhaust valve: To adjust exhaust valves, turn the engine over until the intake pushrod moves all the way up. Rotate past maximum lift, approximately 1/2 to 2/3 of the way back down. The exhaust lifter is now on the base circle and the exhaust valve can be adjusted.

Hydraulic Lifter Cam: Rotate the exhaust pushrod with your fingers and begin to tighten the exhaust polylock. When you feel the resistance on the pushrod, you are at **zero lash**. Rotate the polylock 1/2 turn more **OR** follow your specific lifter pre-load instructions. Go through the exhaust valves and repeat the procedure carefully. Now all of the valves are adjusted with the proper pre-load.

Solid lifter Cam: Tighten the polylock, with the proper feeler gauge between the roller tip and valve, to the point at which there is a slight drag when moving the feeler gauge. Hold the polylock with the wrench and tighten set screw. Following this procedure carefully adjust all exhaust valves.

9. Before the valve covers are installed, be sure to pour engine oil on the rocker arms, making sure to coat the roller tips. This will be extra assurance that the rocker arms will have adequate lubrication until the oil travels up from the motor.

Warning: Always Check the Following Before Operation!

- Old pushrods should not be used.
- Immediately upon startup rocker arms must have adequate oil supply.
- Check pushrod to cylinder head slot clearance.
- Check rocker arm to valve spring retainer clearance.
- Check for valve spring coil bind. If this occurs, the correct spring must be installed.
- Be sure to check for proper rocker geometry.

Special Instructions:

1. The use of old pushrods may result in pushrod or rocker arm failure. It is necessary to install new pushrods with your new Ultra Pro Magnum™ or Ultra Pro Magnum™ XD Roller Rocker Arms to ensure your rocker arm warranty. Pushrod ends have a mated surface to the rocker arm ball socket, much like a cam and lifter mate to each other. This is why used pushrods should not be run with the new Ultra Pro Magnum™ or Ultra Pro Magnum™ XD Roller Rockers.
2. On racing applications with dual springs, the rocker arms should be removed and inspected after the first hour of running time.
3. In some cases Ultra Pro Magnum™ or Ultra Pro Magnum™ XD Roller Rockers will not fit under stock valve covers due to the height of the polylocks or width of the rocker arms. Most aftermarket tall valve covers will not have any clearance problems. However, you should always check for interference.

Application Notes:

**Chevrolet
1965 to Present 396-454c.i.**

Part #1620 and 1820. When installing your rockers, check your new pushrods to make sure they fit your guide plates. Chevrolet has used 3 different pushrod diameters on production big blocks - 5/16", 3/8" and 7/16". Be sure to check for valve spring coil bind, as this is a major problem area for Big Block Chevrolets.

Most 1991 and newer 454-502c.i., Gen V & Gen VI engines, will need to have screw-in studs installed to run these rocker arms. COMP Cams® **Part #4514-16** rocker stud kit will allow installation of screw-in studs without machining.

Chevrolet
1955-Present 265-400c.i., 1978-1990 V6 200-262c.i.

Engines using 1.6 ratio rockers should be checked for clearance between the pushrod and pushrod slot in the cylinder head. The pushrod slot may need to be elongated. **Part #4710** (the Louis Tool) can be used with a 5/16" drill bit and a hand drill to provide extra clearance. We recommend removing the cylinder head to prevent metal shavings from contaminating the engine. An alternate method is to install screw-in studs and guide plates, then drill the guide holes to 1/2" diameter.

Part #'s 1601, 1602, 1604, 1605, 1801, 1802, 1804 and 1805 are not self-aligning. Guide plates and heat-treated pushrods will need to be used to install these rockers on 1988 and later engines originally equipped with self-aligning rocker arms. Valve cover clearance should also be checked in these applications.

Part #'s 1617 and 1618 are self-aligning. Do not use with cylinder heads that have pushrod guide slots or pushrod guide plates. Severe wear could occur. Check valve cover clearance.

For high lift (.500"+) applications, longer pushrods may be required to correct rocker arm geometry. Remember, valve tip height, block deck height, cam base circle and head surface all affect pushrod length required.

Part #'s 1607, 1608, 1609, and 1610 are designed with a special offset trunion to allow for use on the intakes of Trick Flow Twisted Wedge Small Block Chevrolet cylinder heads.

Ford
1962-1997 V8 289, 302 & 351Wc.i.

Part #'s 1631, 1632, 1831 and 1832 may be used on long or short tipped valves, but must have guide plates or guide slots in the cylinder head to maintain rocker arm alignment. Most 1978 and later 302, 302H.O., and 351W engines have a cap screw (bolt) that holds the rocker arm in position. In these applications, the cylinder heads must be converted to screw-in studs and guide plates when installing your rocker arms.

Some 1985 and later engines are equipped with hydraulic roller cams and use special length pushrods. Be sure to use the correct pushrod.

Some 1967-1977 engines come with tapered (bottleneck) studs, 3/8" bottom and 5/16" top. These will have to be removed and replaced with screw-in studs and pushrod guide plates.

For high valve lift (.500"+) applications, longer pushrods may be needed to correct rocker arm geometry.

Ford
1970-1982 351C; 351-400Mc.i. & 1968-1997 429-460c.i.

Part #1630 and 1830. Screw-in studs and guide plates will be required to install Ultra Pro Magnum™ or Ultra Pro Magnum™ XD Roller Rockers on these engines. Check rocker arm geometry, as longer pushrods may be needed.

Limited Lifetime Warranty

Toll Free: 1.800.999.0853
www.compcams.com

COMP Cams®
3406 Democrat Rd.
Memphis, TN 38118
Phone: 901.795.2400

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Competition Cams, Inc. warrants this product is free from defects in material and workmanship, for the lifetime of the product. This **Limited Lifetime 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 to the address listed below with a valid RMA number, 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 or subject to excessive wear;**
- 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 to terms outlined above.

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