

SUPER SIX MOTORSPORTS

Installation of Adjustable Billet Roller Rockers

Congratulations, you've purchased what are undoubtedly the best rocker arms for the 3.8L V6 engine. Our rocker arms are manufactured from billet aluminum, fully rollerized at the trunnion and valve tip, and feature our unique adjusters. This design allows for simple bolt-on installation using stock length pushrods. Other designs require shimming, pedestal insert grinding, and longer pushrods.

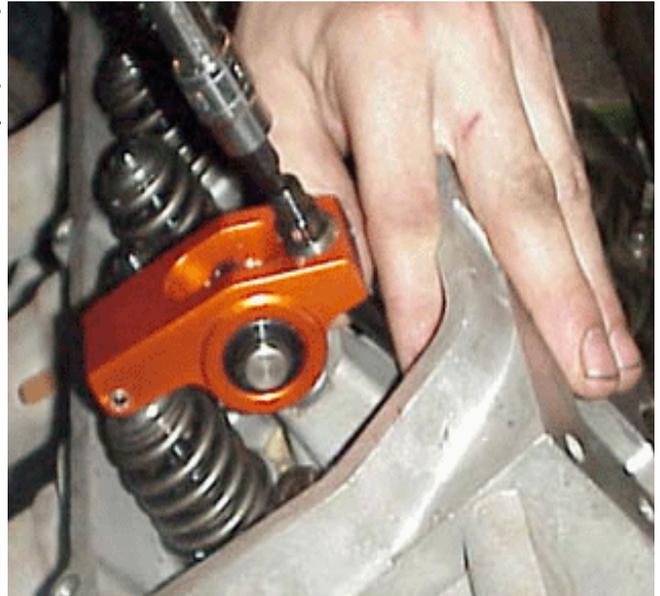
Installation is very simple, but requires some detailed attention to the position of the cam with respect to the base circle of the cam's individual lobes. So let's get that out of the way first. You know what cam lobes look like, kind of egg shaped. The part of the lobe that corresponds to the widest part of the egg shape, i.e., the base of the lobe, is the base circle. Each rocker arm must be adjusted when the corresponding lifter roller is riding on the base circle of the corresponding cam lobe. In other words, lifter preload adjustment is performed only when the valve is fully closed and seated. This is much easier to understand or observe if the lower intake is removed, as it would be when a cam is being installed. However, these rocker arms can be installed with only the upper intake and valve covers removed.

We'll describe the installation and adjustment techniques related to a cam installation. In this case, you are already down to the open valley since the lower intake manifold and the stock rocker arms, pushrods and lifters have already been removed. One of the beauties of the 3.8 is that the cam lobes are easily observed in the valley. Lubricate the lifter's rollers, bodies, and pushrod plunger cup with assembly lube, and insert all the lifters into their respective bores. You should have already inspected the lifters for any unusual wear. Bolt down the lifter retainers. Lubricate the pushrod ends with assembly lube and install them into their respective positions. Now let's prep each rocker arm for installation by backing the adjuster completely out with a small Allen wrench. Prelube both rollers, the pushrod cup, and the threads of the fastener with assembly lube. Now, prelube each valve stem tip with assembly lube.

With that done, it's time to put them on. With the spark plugs removed, rotate the engine by hand until the #1 intake lifter's roller is resting on the base circle of the cam. Sit the pedestal insert into the pedestal of the cylinder head, and bolt the rocker arm down using an Allen wrench. Note that the trunnion roller has a flat spot on one side of the bolt hole. Make sure that you insert the bolt through the trunnion from the flat side; the radiused side goes down and mates to the radius of the pedestal insert. With the valve tip roller properly aligned over the valve stem tip, tighten the rocker arm down while feeling that the pushrod remains loose and freely rotates. Torque the rocker arm mounting bolt to the value specified in the shop manual, typically 25 ft-lbs.



Now, adjust the pushrod cup. While rotating the pushrod, slowly tighten the adjuster with the small Allen wrench to the point where your spinning of the pushrod just starts to tighten up. This is the point of transition from lash (free play or negative preload) to zero preload. To verify that you are at zero preload (zero lash), determine if there is any free vertical movement of the pushrod. There should be none, but, it will be possible to rock the rocker arm back and forth. How can that be? Even with zero preload and zero lash, the spring in the lifter is fully extended, its for this reason that you will be able to rock the rocker arm back and forth. What you don't want is free vertical movement of just the pushrod, if so, it means you have not tightened the adjuster enough to reach zero preload. Now, any additional tightening will set the desired positive lifter preload.



Most stock hydraulic roller lifters are designed to run approximately 0.030" or so preload for quiet operation, but actual preload adjustment can be varied to improve engine response, horsepower, and torque, akin to way cam grinders specify valve lash in solid lifter applications. Since the adjusters are threaded at 24 threads per inch, 3/4 turn will achieve about .031" preload. We prefer to run the preload as low as possible, but understand that in doing so, additional valve train noise may be anticipated. In most applications, we set preload at 1/4-1/2 adjuster turn inward.



Set the desired preload with the adjuster and lock down the locknut. Now, go to the exhaust valve and repeat the process. After #1 intake and exhaust valves are complete, move to the next cylinder and repeat the process, until all 6 cylinders are complete.

Now finish installing the intakes, valve covers, etc. Reconnect the battery and start the car. You may initially hear a slight tapping that should go away rather quickly. If after a few minutes at idle, it does not, try to determine which bank it may be coming from and perhaps even which cylinder it comes from. You'd be surprised how accurately you can predict the approximate location of the noise. Sometimes, you can "feel" it with your hand on the valve covers. If it persists, tighten the preload as required.

