GENERAL TIPS

Firing Order, Small Block & SVO

This is one of the most common questions asked by Ford customers. The firing order for the early 221-302 engines and the early 5.0 engines is 1-5-4-2-6-3-7-8. This is the firing order for all prefix "31" cams and is the standard replacement cam for all early engines. The later 5.0L engine and all 351 engines are designed to use the 1-3-7-2-6-5-4-8 firing order. This is the firing order for all prefix "35" cams, and cams ordered for these engines should use this prefix. Other than the firing order, the cams are identical. By changing the spark plug wiring at the distributor these cams can be interchanged.

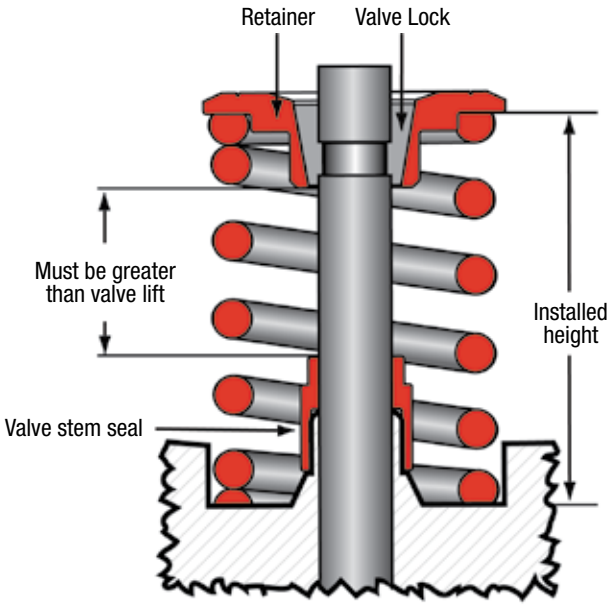
******EXCEPT IN MASS AIR VEHICLES******

Valve Springs

By far, the most common problem encountered when installing a new high performance camshaft is the incompatibility of the existing valve springs to the new cam. Factory valve springs are designed to work with a certain lift cam, and since most aftermarket cams have higher lift, the springs must be addressed. It is highly recommended and a requirement of the warranty that the suggested springs be installed along with any COMP Cams® camshaft.

Most Ford cylinder heads utilized a step cast into the head that acted as the valve spring locator. When installing a dual spring, it is highly recommended that this step be removed by machining to minimize the possibility of coil binding the inner spring.

Whenever installing a high-tech racing cam in any engine, the cylinder heads must be equipped with the correct valve springs, screw-in studs, guide plates and hardened pushrods. The increased loads and ultra-high speeds of the racing engines make this a necessity for valve train stability.



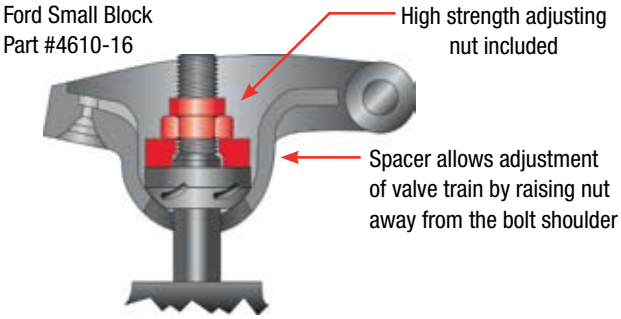
Rocker Studs

When you are using a high performance camshaft and have problems with the valves not staying properly adjusted, one of the first things to check is the rocker arm studs. Many early model heads utilize pressed in studs. When high spring loads and high engine speeds are used with these stock type studs, they tend to pull out of the heads. You can check for this by laying a straight edge across the top of the studs to see if any of the studs are too high and out of alignment. If so, the heads should be removed and machined for screw in-studs.

Positive Stop Stud

This type stud was used on 1969-76 302 and 351W engines, as well as 1968-72 429 engines with hydraulic cams. They do not allow for lifter adjustment and work only with smaller cams when the dimensions of the engine (block, head deck height, etc.) remain close to stock. They also don't work on solid lifter cams.

COMP Cams® offers an adjustment kit (Part #4610-16 on page 324) for use with the stock positive stop studs. For high performance applications, this type of stud should be replaced with the more conventional screw-in type, along with the pushrod guide plates.



Self-Aligning Rail Type Rocker Arms

Originally the small block engine used a machined slot in the head to guide the rocker arm on the valve. It has been common to enlarge this hole and install a guide plate when switching to a high performance valve train. Later model engines utilize a small alignment slot or "ears" on the valve tip end of the rocker where it contacts the valve. These rockers must be used with long stem valves. These applications can be easily identified by a large (½") hole where the pushrod passes through the head and the fact that there is no guide plate. If the head in question has either a guide plate or a slot to guide the pushrod, the rail type rocker arms cannot be used.

Conventional Rocker Arms

This type rocker arm was used on 289 hp and 1963-1966 289 engines. The cylinder head had a slot cast in the head where the pushrod passed through. This slot guided the pushrod and aligned the rocker arm with the tip of the valve. Some heads have been modified to use a pushrod guide plate instead of this slot. Since there are no rails on the end of the rocker arm, a shorter tip is used on the valve. This type of rocker arm can be used only in conjunction with either a slot in the head or a guide plate but not both.