



CHOOSING A CAM

The question "What cam should I buy for my bike?" is the one we often hear. While there are no hard and fast rules for picking a cam for a specific application, some basic guidelines are worth considering. Keep in mind that performance camshafts are usually chosen for the basic purpose of producing more power from your engine. The three questions to answer before choosing a new cam for your Harley Davidson® motorcycle are:

- 1. Primary application:** Is the bike going to be used for all around street riding or is the goal to have an engine which is running at the maximum torque and horse power for track or drag racing?
- 2. Type of riding:** Do you spend a lot of your time riding two up on highway trips or is it more important to have the most power you can get. In other words is your riding style conservative or aggressive?
- 3. Engine/Bike combination:** This question relates to displacement (cubic inches), compression ratio, bike weight and what kind of cylinder head modifications have been done. Have the intake and exhaust ports been changed to result in better flow efficiency? Does the engine have higher than stock compression ratio to take advantage of a longer duration cam? Is the bike lighter like a Dyna or heavy bagger?

To get the best cam for your bike all these factors have to be taken into account. Almost every type of engine modification imaginable has been performed on H/D engines. Here is a short summary of modifications listed in the order of increasing cost and installation complexity.

1. Relieved air cleaners
2. Free flow exhaust system
3. Performance camshafts
4. Higher output ignitions
5. Modified fuel injections
6. Larger carburetors
7. High compression pistons
8. Big bore cylinders and pistons
9. Long stroke flywheels

It is important to note that too much cam sometimes results in poor low RPM power.

Street bikes will often perform better with a mild cam than more radical cams. While bigger cams may have a higher peak horsepower, more conservative cams may feel stronger to a street rider because the max torque occurs at lower RPM. Changing cams is the easy way to more torque in the 2000-4000 RPM range. A cam with a longer intake duration will reduce static compression pressure at low speed which in turn will tend to reduce low RPM torque. But with a longer duration cam and a higher compression ratio, power at middle and high speeds will be increased which is what you wanted all along. This is the main benefit of a good performance camshaft and properly tuned engine.

For an engine with a cam properly matched to the displacement and compression ratio, the net result will be more power at middle and higher engine speeds. In general, higher compression ratios need longer duration cams Bolt in type cams are intended for stock compression ratios.