

# THE EXTRA MILE

## Engine Building and Power Techniques

BY SCOTT SEHR



Absolutely, The Most Motor For Your Money! *Guaranteed*

# A Question of Dimension

One of the big questions when deciding to build an engine for your hot rod is, "What size engine should I go with". To determine the cubic inch displacement or CID of an engine you must know the bore size and the stroke length of the crankshaft.

There are only two ways to increase the displacement of your engine; increase bore size or the length of the stroke. Bore size is most often the first place people look to increase displacement as this is usually the least expensive alternative but it's not the only way.

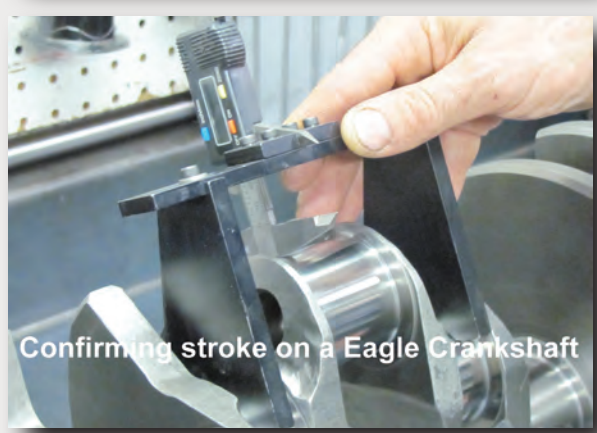
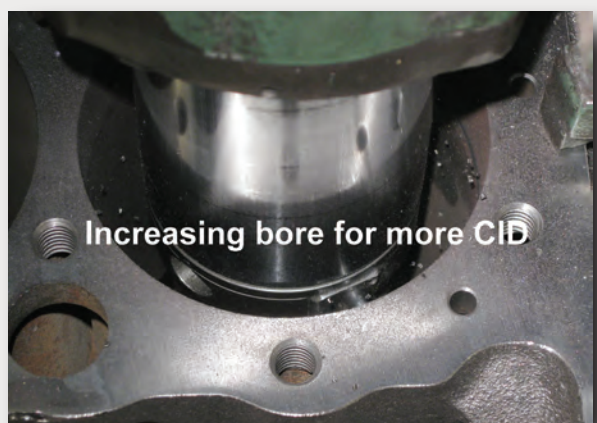
There are a couple of factors to consider when moving forward on these chances, the biggest being vehicle weight. A 1970's full size car is going to have better manners with an engine with a longer-stroked, torque-producing engine than a short-stroked high-horsepower build. As in all things there are sacrifices that must be made. A long-stroke, high-torque engine will not rev up as quickly as a short-stroke high-horsepower engine. One is like a Clydesdale and the other like a thoroughbred and each has its application.

The long-stroke engine has increased crankshaft weight and increased swinging weight to spin up to speed but once it gets moving it produces masses of torque. On the other hand a short-stroke engine has less swinging weight and crankshaft weight to bring up to speed so the throttle response will be quicker and would work well with a lighter, smaller bodied car. One horse works well on a chariot and the other is best suited for a war wagon, the right tool for the right application.

Most factory engines are designed for a general-purpose use and long service life, 100,000 plus miles are expected and maximum performance is not a concern. Most hot rod engine builds have maximum performance as a primary goal and longevity is secondary. This is not to say that your performance engine will need to be refreshed on a regular basis.

Another factor to keep in mind when thinking about displacement is driveability and response. A small displacement engine in a large vehicle will be lacking in throttle response under load until you get into the upper midrange RPMs and above. That same engine in a lighter vehicle could turn it into a rocket. Conversely a big displacement engine in a light vehicle and you generally have a car that is hard to get hooked and moving because the torque overpowers the tires. Put the same engine in a heavier vehicle and the

result is something that is not nearly as hairy and responds well to the throttle. Here at Sehr Performance we take the time to find out not only how you plan to use your engine but what you are going to use it in so we can provide you with an engine that is not only going to take you the Extra Mile but does it in the style in which you wish to travel.



Let us help you get the  
**"EXTRA MILE"**  
out of your next build!