

THE EXTRA MILE

Engine Building and Power Techniques

BY SCOTT SEHR



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

Engine Bearing Science

Engine bearings in performance engines go through some extreme loads as the power and performance increase. As in most everything there are different qualities in bearings and bearing materials. I have seen many cases where inexpensive, stock bearings were used in a competition engine and the results were disastrous. In most cases where the bearing gets the blame it was the result of not choosing the appropriate bearing type for the application. Different types of bearings use different materials in bearing construction and have a huge impact on the application.

The first thing to take into consideration is bearing material. High horsepower and high RPM engines require a strengthened bearing that can handle the loads and have more fatigue resistance. Having a stronger, multi-layer bond improves structural integrity and hardening processes create a bearing capable of carrying a much greater load. Bearings can also be had with an overlay or coating that improves power and reduce scuffing.

Main bearings in performance applications must withstand pressures and harmonics present at much higher levels than found in stock engines in order to provide reliability. Having the correct load area more evenly distribute and better handle these loads and higher RPMs. Bearing oil hole placement is usually given no consideration at all and it is critical in supplying the lubrication your engine needs to survive. It must line up perfectly with the engine block oil hole or you're going to have trouble. Today's performance bearings provide better design to enhance oil passage capacity and flow.

Rod and main bearings also rely on correct bearing crush to hold the bearings firmly in place and prevent bearing spin and improve heat transference. In order to achieve the correct



crush and oil flow the housing bore of the rods and mains must be in perfect alignment. These specs are usually within 5 to 8 ten thousandths of an inch. To put that in perspective, common copy paper measures 4 thousandths of an inch. Slice that thickness into 40 pieces and this is the measurement parameter we are machining within to make sure the bearing calculations are correct for the engine and to ensure better oil wedge formation to optimize oil film formation. With the exacting machining processes and performance bearings it isn't necessary to buy several sets of bearings to achieve the desired clearance.

**Come see us at Sehr Performance Machine
where our exacting standards will give you more
power and reliability in every
“EXTRA MILE”.**