

# THE EXTRA MILE

Engine Building and Power Techniques

BY SCOTT SEHR



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

## Clearing It Up

The rotating assembly for our performance engine has more critical clearances to address than just bearing clearances. Many high performance engines are now using aftermarket, performance connecting rods for increased durability. These rods are of greater size so it is important to relieve the engine block for the larger outside dimension of these rods. With a stroked engine it is very important to touch on some of the added items that must be correctly cleared. These stroked engines use a longer stroke for increased displacement and torque but the added stroke creates unique issues. Besides clearancing for aftermarket rods we must also allow for the added stroke length. The longer stroke can also involve clearance for the camshaft, oil pump, main girdle, pan and pan rail. These clearances can make or break your engine build.

Connecting rod side clearance also must be considered; too tight for the specific engine and application and performance is lost and damage is done due to binding and galling, bearing failure soon results. Too much clearance leads to reduced oil pressure, harsh bearing wear and noise before the failure.

Establishing these clearances is best left up to a qualified machinist because there are pitfalls to be avoided. In allowing for the clearance it is easy to go too far and get into water passages or degrade the integrity of the engine block. Here at Sehr we have 20+ years of engine building experience to protect your build from these hazards.

Valve train clearances can be hard to understand and difficult to set correctly. Valve guide clearance is an ongoing science with new materials being used in valves and guides. If this clearance is too great it leads to valve shutter and loss of power at higher rpm, burning oil, detonation and bearing failure. If this clearance is too tight the valve will tighten up in the guide causing galling, and failure.

Valve to piston clearance also needs to be addressed and should be done after the camshaft has been degreed in and all the components are properly installed. Using clay in valve pocket is a great way to check depth and radial clearance between the valve and piston. Clay can also be used to determine correct valve pocket angles. Other clearances that must be considered are spring retainer to guides, springs to spring seats, spring coil bind, rocker arm to retainers and pushrod to cylinder head and guide plate. We do this every day not once a year or once in a lifetime.



Clearancing block for stroker



Checking depth and radial clearances

Let us help you get the  
***“EXTRA MILE”***  
out of your next build.