THE EXTRA MILE

Engine Building and Power Techniques

BY SCOTT SEHR

Sehr PERFORMANCE MACHINE

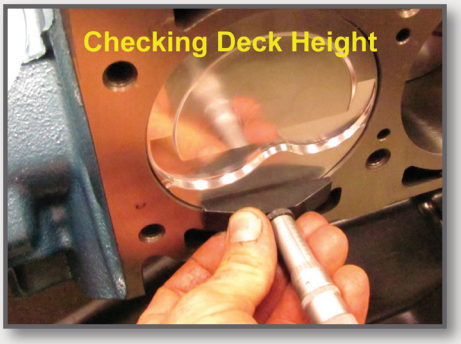
Absolutely, The Most Motor For Your Money! Guaranteed

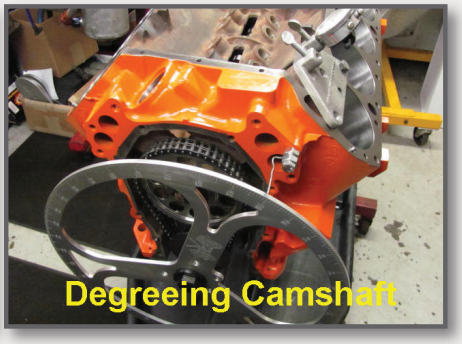
The Anatomy of a Short Block

Let's take a look at what the job of the short block is in making power for your hot rod or street machine. The short block consists of the engine block, crankshaft, connecting rods, piston, piston rings, connecting rods, rod bearings, main bearings, crankshaft and timing assembly. By paying close attention to each of these components and their interaction it is possible to extract all of the available power from your engine build. However, missing the mark on any of these vital details will result in lost power and performance and the disappointment that goes with it. Many engines have come into my shop that were 'Buddy Builds' done by self proclaimed experts that didn't have enough power to turn the tires or came apart way before their time. Ordering parts on line suggested by a magazine article is not a road map to success.

A lot of the performance problems we see are related to a lack of compression. Current camshaft technology allows for more radical profiles that need proper compression in order to make power. Static compression ratio is calculated using the cylinder head combustion chamber volume, cylinder bore diameter, crankshaft stroke, effective piston volume, deck clearance, head gasket bore and thickness. Dynamic compression uses all of the above plus camshaft duration, cam timing and connecting rod length. Dynamic compression ratio yields a more real life ratio because it takes into account compression bleed off during valve overlap, how early the intake valves close and how long the piston is at top dead center and bottom dead center. I have had cars brought to me that sound awesome and seem to run well but don't have enough power to get out of their own way. After disassembly and inspection I have found hot rod engines with 7.5:1 static and 6:1 dynamic compression. Small wonder the power is missing.

An engine is a system that has to function as a unit; it is not just a bunch of parts bolted together. Building a quality engine requires the knowledge, skill and experience we provide for our customers. A quality short block starts with proper and accurate machining processes, correct assembly, clearancing and the choice of quality parts to match the engines use and RPM requirements. I take the time to do it right so each of our customers enjoy their Extra Miles.


Checking Deck Height


Degreeing Camshaft

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

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