THE EXTRA MILE

Engine Building and Power Techniques

BY SCOTT SEHR

Sehr PERFORMANCE MACHINE

Absolutely, The Most Motor For Your Money! Guaranteed

Verification Value

Machining engine parts to make horsepower or to recondition the engine parts to original running condition requires boring, milling, cutting and grinding. The removal of the material needed to do this will slightly take away from the original strength and rigidity of the engine parts. When building a higher horsepower hot rod engine it is commonly a process of finding the right engine block and heads. Some blocks are thought to have been cast with a stronger and dense material. They are thought to be thicker where it will make the engine block stronger so it can withstand higher RPM power output. This is a process of finding the right casting number and date code. Core shift is also a concern. Core shift is the term used when the outer casting sand mold is shifted from the inner casting sand mold causing thinner and thicker areas in the engine blocks and heads. These thinner areas will be weaker and will cause a point of possible failure. When we bore cylinders, cut clearance for added stroke, or port heads it is beneficial to know how thick the material is. In the industry it has usually always been an assumption of the material thickness but it is important to know exactly what we are working with and actual material quality.

Sonic testing the engine parts is the only way to know the engine part will have the rigidity to handle the job at hand. The sonic tester works by sending an ultra sonic wave through the material to measure the thickness at the specific spot and with the calibration mode we can determine the density of the material. Using this tool ensures that we are starting with good and strong components. In the process of checking cylinders we have found variances in radial and top to bottom thicknesses. We have also observed casting seams in the middle portion of the cylinder causing a thin spot and causing a pinhole leak through the porosity of the cast. Making power often requires cylinder head port work. Creating a better correct port shape and size is the goal. This often requires cutting and grinding out material and it is essential to know the exact thickness so expensive or rare parts are not ruined.

Measuring cylinder head port wall thickness.

Measuring cylinder wall thickness after boring.

The verification of material rigidity and part quality is another way that we at Sehr Performance go the

"EXTRA MILE"

for our customers.

722 E. 8th St. | Sioux Falls, SD | 605-334-4191 | sehrpower.com | sehr@sehrpower.com