

THE EXTRA MILE

Engine Building and Power Techniques

BY SCOTT SEHR



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



Staying Connected.

The connecting rods are an often talked about but little understood part of an internal combustion engine. Their duty is to transfer the power from the reciprocating piston to a rotating crankshaft. This is a very stressful job. As if that weren't enough, this has to be done for tens or hundreds of thousands of miles. Each stroke of each cylinder subjects it's connecting rod to massive amounts of compression, torque and resistance that want to bend or break this integral engine component. The higher the horsepower and torque output the higher the stakes are against your rods surviving the challenge. Our job is to even out the odds.

If we are building an engine with a customers stock rods or aftermarket, performance rods, we want to make certain that the deck isn't stack against our customer. Before we even begin our inspection and testing processes we degrease each rod in our baker as described in our February article. Once things are all cleaned up we first visually check for cracks, imperfections, straightness and twist and then the pin bores get measured for correct specs. If a rod passes this test it gets magnafluxed to check for cracks that cannot be seen without aid. Next the rods be shot blasted to relax the stress that developed in the manufacturer process. Now all the rods look like brand new and we really go to work on them.

The rod bolts are pressed out and we lightly grind the mating surfaces of the rod and the caps to give them an "undersized" bore and give them all straight and flat surfaces for proper clamping. Next the rod bolts are re-installed and the rod 'big ends' are precision honed to proper dimensions. This includes being round with no taper and a light polishing for correct bearing heat transfer and clamping force. For our premium builds we use aftermarket rod bolts which have a proven history of greater strength and durability than 'stock' bolts. If the rods are to be used in a stroker application they are cut for stroker clearance, side dressed and cleaned again before they get balanced.

To balance the rods we equalize the big ends of all the rods with caps and bolts and nuts installed and the total weight of all the rods. The rod bolts get loosened up and assembly washed, and assembled with the pistons in preparation for final engine assembly. The rods, though not very glamorous; need and get the extra attention because our customers expect "The Extra Mile" of dependable engine performance.



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