

THE EXTRA MILE

Engine Building and Power Techniques

BY SCOTT SEHR



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

Moving Metal.

As we continue our quest to make reliable horsepower we find ourselves concentrating on blueprinting the engine block. The first step is to measure the deck(s) of the block, we not only check it for straightness and twist, we check deck heights and inspect the fire ring for wear and deterioration. It is very important that the decks of the cylinder block are the correct height from the crankshaft centerline in order to provide maximum performance and durability by providing uniform compression in each cylinder, the correct quench area and no uneven loading. The decks must also be flat and true and have the correct surface finish for proper head gasket seal. To correct for all of these possible imperfections we measure the block and then machine it to the desired specifications. Next all bolt holes are chamfered, and the block gets deburred. Here at Sehr Performance we have proven all the power and reliability benefits of these processes and we put all of our knowledge and expertise into every engine and process.

Next the cylinder bores are checked and as needed, bored to make sure they are straight in relation to the crankshaft centerline, at the correct angle, and are round, this provides optimum ring seal, maximum performance and reliability. How much a cylinder gets bored depends on how much wear there is. Not all the cylinders wear the same and the thrust side of a cylinder typically wears most quickly. Our goal is to do a minimum amount of machining which retains as much cylinder wall thickness as possible for reliability and performance. After all the measuring is done, the block is set up in our machine with the correct bore center and we equal bore all the cylinders. After boring and chamfering the cylinders we move the block to our CK-10 hone machine to finish our bores to the proper size and finish. We install a torque plate on the deck to simulate the head being torqued to the block so the honing is done under the same stresses the block would have in final assembly, this results in cylinders that are more accurately honed and remain round after assembly. This is another step that is essential for more power and extended engine life. The type of finish we put on the cylinders depends on the ring package configuration and the hardness of the block. We have years of experience with race record holding cylinder finishes and we put all of it into everything we do so you get a superior engine.

After the cylinder bores are finished we then finish hone the main bore, this is done to establish a crankshaft main bore that is straight and the correct size for proper main bearing crush and optimum bearing resilience. The main caps are torqued to simulate the actual stress the block will be under as we machine the cap decks and bores. Another step that is part of going the 'extra mile' for our customers.

The blocks oiling system is next to receive our attention. By tapping all of the oil galley plugs, we increase oil system reliability. We install our lifer bore groove package for correct and optimum oiling between the cam and lifters. These small grooves cut on the leading side of the lifter bore provide a constant oil supply for the cam lobes. This not only increases cam reliability but also increases power by reducing the lifter scuffing load.

At Sehr Performance we look at engine building as a science not a hobby. We provide an excellent product and strive to exceed our customers expectations because we are willing to go the "Extra Mile".



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