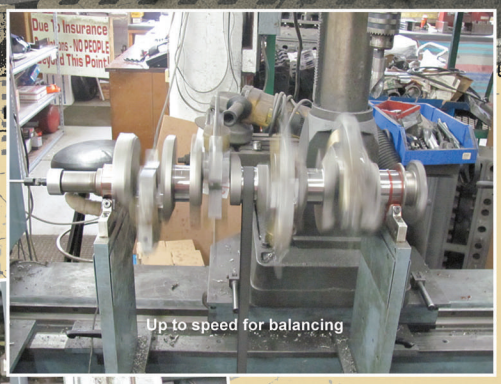
The Extra Mile

Engine Building and Power Techniques

BY SCOTT SEHR

Sehr PERFORMANCE MACHINE

Absolutely, The Most Motor For Your Money! Guaranteed


Up to speed for balancing


Micro polishing the crankshaft

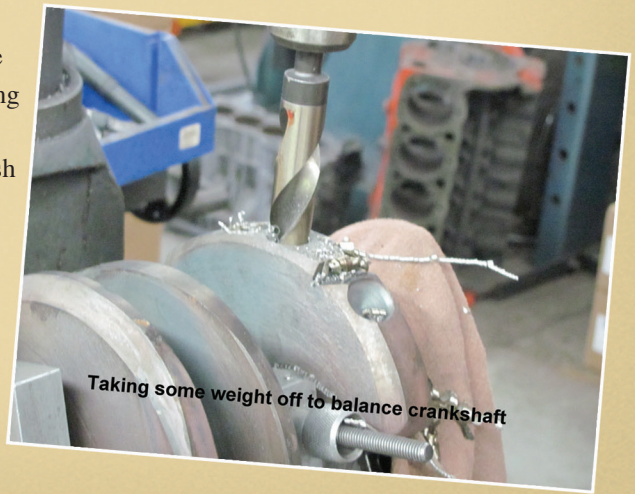
Crank It Up.

The crankshaft desevers a lot of respect in an engine, the main purpose of the crankshaft is to transfer all of the reciprocating power of the cylinders into rotating power to eventually propel the vehicles wheels.

It is important to consider the proper material of the crankshaft to hold up to the horsepower and torque that the engine will make. Most of the general passenger engines of the 70`s thru the 90`s had cast iron crankshafts which held up to the requirements of the engines of that time. Cast iron crankshafts are slightly lighter than other types and can withstand some added power over stock output but do have their limitations. Engines that were made for higher horsepower were equipped with a forged steel crankshaft which were heavier and can withstand more abuse without failing. There are many more choices in the aftermarket, nodular steel is a good choice for a hot street machine and for a high horsepower, race engine, a 4340 steel crankshaft will hold the higher horsepower and torque produced. All of these crankshafts are available in many strokes for stock strokes or for a stroker combination and many different weights.

When we prepare a factory type crankshaft for one of our street rod engines we start by cleaning, magnafluxing to check for cracks, and shot blasting to relieve stress. Next the crankshaft is ground to the next undersize if needed, this will put the rod and main journals into the proper specification and clean and correct the radius which is very important for the strength of the crankshaft, then we chamfer the oil holes for better oiling properties. Now the crankshaft is ready for the balancing.

A properly balanced engine will run smoother and make more power and torque, because it's not fighting against itself to run, unleashing some hidden power. Our balancing procedure starts with equalizing the weights of the pistons, the housing ends of the connecting rods and of the total rod weight. To do this we weigh each piece of all the components, find the lightest one and equalize all of the rest to the lightest. Once this is completed we weigh the rings and a connecting rod bearing, all of these components effect the balancing of an engine. We now take all of our measurements and create a bob weight which is used when we spin the crankshaft, the bob weight simulates the effect of the rods, pistons, rings and bearings on the crankshaft. When we spin the crankshaft it will statically and dynamically balance the crankshaft. We remove or add weight to the exact spot of the crankshaft to bring it into zero balance.


Taking some weight off to balance crankshaft

After the balance procedure is completed, we clean the crankshaft, micro polish it, and then brush clean the oil gallies. The rods and pistons also get cleaned and assembled for final engine assembly. We at Sehr Performance will always go the extra mile every day and on every job to insure our customers get the desired reliability and performance out of their engine.

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