

THE EXTRA MILE

Engine Building and Power Techniques

BY SCOTT SEHR



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

May The Force Be With You

When building a hot rod power plant today some people choose to go with forced induction. For our purposes there are two common types of forced induction, blowers in which the compressor is driven by a belt powered by the engine and turbo-chargers which use engine exhaust to drive the compressor. Both types have their own characteristics, advantages and disadvantages. Today we will be discussing blowers.

A common blower choice is the roots type and is often chosen because of the nostalgic look, improved throttle response and the power benefits can be substantial, however, not all blowers are the same and one size or type does not fit all. Even though blowers do use engine power to drive the pump, net performance gains can be huge if the correct setup is used. With all the types and sizes to choose from, getting the right combination for your application takes careful planning and design. Blowlers used in street applications are designed for continuous use and run at slightly looser tolerances than racing applications and don't produce as much heat in compressing the intake charge. Competition blowlers run tighter tolerances and generate considerably more heat, often necessitating cooling the intake charge in some fashion. Because of these and several other factors it is wise to use the right equipment for the right application or you end up making your life difficult. Roots blower sizes run from 4-71 to 16-71, other types of blowlers are measured by cubic inches of volume. There are several things to think about before you make your choice, what type of fuel is going to be used, what octane rating and what is the exact static compression ratio of your engine. This all requires that the combustion chambers be cc'd, measuring the exact stroke, deck clearance, piston dome or dish volume as well as head gasket bore and thickness.

Boost is measured in PSI of positive intake manifold pressure gained. This boost will increase the dynamic compression ratio because the air-fuel mixture is being packed into the cylinders

under pressure and can quickly lead to detonation if you miss the mark on fuel octane, timing or fuel air ratios. Blower engines require adequate parts starting with the block, crank, connecting rods, pistons and heads to stand up to the added stress, then all the correct machining must be performed and everything has to be balanced and assembled correctly or you will be needing a shovel to pick up the parts. To finish this build the correct camshaft and head design, carburetion or injection, ignition, cooling and exhaust systems must be used or.....you are going to need that shovel. Boost pressure goes down when cubic inches go up and go up with an increase in drive ratio. Correct fueling for your blower engine is dictated by the amount of boost, RPM, static compression ratio and final compression ratio. Miss any of this and increase in power is limited at best and at worst you're are back on the shovel.

If a blower engine is in your future
let the professionals at Sehr Performance
Machine put their years of experience
and know how build it for you so

"THE EXTRA MILE"
is in your future as well.

