Terminology

Bore Piston diameter

Critical Altitude

The altitude at which a supercharged (or turbocharged) engine can no longer:
a) maintain sea level manifold pressure, or
b) maximum allowable horsepower.

Detonation

An operating condition where combinations of excessive temperature, high manifold pressure, and l ow RPM cause explosive fuel burn, large internal pressure pulses, and subsequent engine damage.

Displacement

Total volume swept by all cylinders, measured in either cubic inches or liters.

Manifold Pressure

Pressure of fuel-air mixture passing through intake manifold, typically measured in absolute gauge pressure (inches of mercury or lb/in^2).

Mixture Ratio

Ratio of [fuel weight/air weight] passing through the intake manifold.

- This ratio must be between .05 and .125 to burn.
- Best power typically occurs at mixture ratio of 0.075 to 0.08.
- Best economy typically occurs at a ratio of .0625
- To provide sufficient cooling, the mixture ratio is usually greatly increased from best economy when operating at very high or very low power settings (a.k.a. auto rich).

Reduction gear

Gearing between the engine crankshaft and propeller shaft that reduces the rotation speed going to the propeller.

Stroke Linear distance traveled by piston.

Supercharger

A mechanically driven compressor that boosts the ambient air pressure to provide the engine with higher power output.

Turbocharger

Also known as a turbo supercharger, it is similar to a super charger except that the compressor is driven by engine exhaust pressure.