



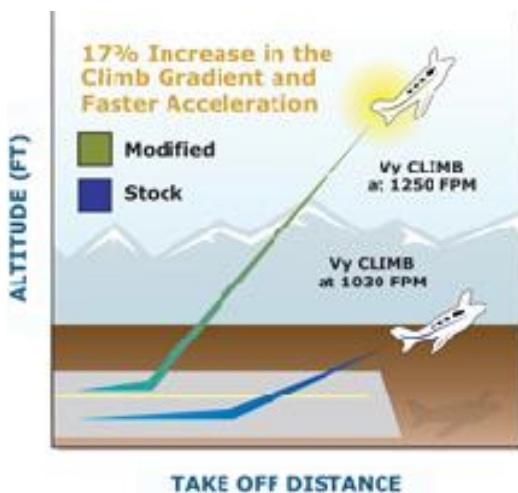
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Horsepower Plus STC

A substantial performance increase you can see and feel, without any sacrifices in economy or reliability. Whether you're looking for greater performance or better fuel economy and extended ranges the Horsepower-Plus conversion can exceed factory specifications as follows:

- 9 mph increase in T.A.S. @ 8000'
- Rate of climb increased 220' fpm at V_y .
- 12% reduction in fuel consumption
- 13% increase in both range and endurance
- No decrease in T.B.O.

The H.P. increase is accomplished by the installation of Lycoming built pistons for the 360 engine that raise the compression ratio from the stock 8.7:1, to 10.0:1. This 15% compression increase proved itself on a certified Dynamometer by producing up to a 25hp increase over the overhauled stock engine, with a corresponding 20% increase in torque. In addition the Dynamometer testing and subsequent flight tests have shown a reduction in peak EGT temperatures of up to 150 F. This is due to an increase in thermal efficiency by converting more heat energy into useful work than is done by a lower compression engine. Consequently, even while producing more H.P. and more FT. LBS. Of torque, the engine is capable of being leaned up to 1/2gph less fuel flow at economy settings.



Increases in both rate and angle of climb are realized due to an increase in power available. This is a good safety consideration for taking off and climbing out of a short runway or over an obstacle.

No Change in R.P.M. because the torque to the propeller has increased, the propeller governor allows the propeller to maintain a higher pitch while maintaining a constant R.P.M. Consequently, the thrust H.P. produced by the propeller has increased.

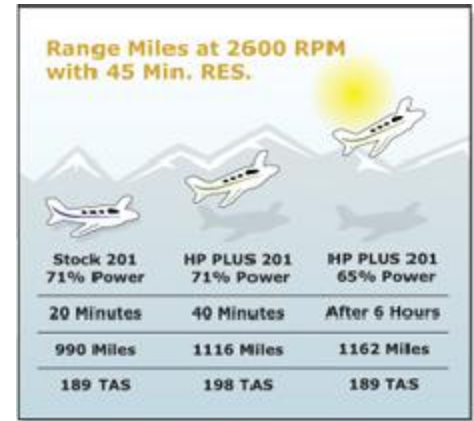
Firewall Forward High Performance Engines can modify your aircraft engine with the Horsepower Plus at our conversion facility located in Fort Collins, Colorado. While incorporating the Horsepower-Plus modification we extend the option of a complete major overhaul to factory new fits and limits, or you may purchase the Horsepower-Plus STC Kit complete for installation at your local F.B.O.

With twenty-five years of aircraft engine rebuilding experience we can guarantee your overhaul for two years or 500 hours. This is not a revolutionary modification for a horsepower increase. Most high performance aircraft utilizing the Lycoming IO-360 200hp engine in an experimental category will have these pistons installed. Firewall Forward has been building high performance engines for over 25 years with no adverse characteristics. FAA certification of this horsepower increase required 2.5 years of testing and evaluation.

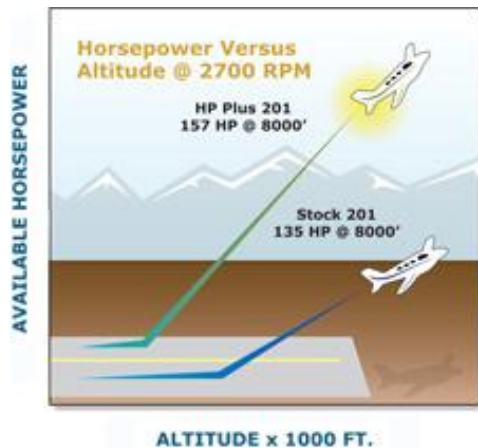
The airframe and power plant certification testing involved engine dyno runs to verify and document both H.P. and torque increases; engine detonation testing performed at sea level conditions by authorized FAA testing facilities; engine oil cooling tests performed by the FAA at gross weight, max rate of climb and an ambient temperature of 100F, engine propeller vibration and increase torque compatibility testing performed by McCauley Engineers in Dayton, Ohio; effects of torque increases on both spin entry and recovery in all flight regimes, and engine out and airstart procedures evaluated for P.O.H. compliance.

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ENDURANCE TIME



With the Firewall Forward Horsepower-Plus conversion, the test Mooney 201 showed the following performance increases. Of course all Mooney 201's will benefit from the added horse power, but performance will vary slightly aircraft to aircraft.

Performance Change. See (Figure 1)

* All data was based on the following: 71% BHP, 8000' DALT, 2740 lbs. airplane weight, 2600 RPM, 64 U.S. gallons of fuel after run up, taxi, take-off and climb at max power and VY to cruise altitude; mixture adjust per P.O.H. for economy cruise with a 45 minute reserve at the altitude. You can opt to reduce the power and cruise at equivalent published P.O.H. speed and realize these savings.

Stock Mooney 201	Horsepower Plus Mooney 201	Performance Change
1030 fpm vy @ Sea Level	1250 fpm vy @ Sea Level	220 fpm Increase
189 mph true air speed	198 mph true air speed	9mph Increase in true air speed
10.1gph	9.6gph	5% Increase in fuel savings
18.7 Miles per gallon	20.6 mpg	1.9 mpg or a 9% Increase in mpg
990 Miles Range	1116 Miles range	126 More miles per tank full
5hr 20minutes endurance	5hr 38minutes endurance	18 minutes of additional flight time per tank