

Analysis of the Effect of Piston Size Variations on the Performance of a 4 Stroke Motorcycle Injection Engine with Remap Ecu Unlimiter

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ABSTRACT

To obtain good engine performance, a good ignition system is also needed. Apart from that, increasing engine performance can be done by increasing the piston diameter (bore up) or extending the stroke (stroke up), this greatly affects the compression ratio in order to produce power and maximum torque. This study aims to determine changes in performance and fuel consumption in internal combustion engines by varying the size of the pistons in injection engines using an unlimiter ECU. This research was conducted for 4 months starting from August 2022 to December 2022. The method used in this study was an experimental method, which used a 149.2cc 4-stroke combustion engine with variations in piston sizes of 57.3mm, 63mm and 66mm. The results showed that the highest torque and power values were obtained by a 66mm piston of 24.03 Nm at 5000 rpm, and 19.1 Hp at 7000 rpm. Meanwhile, the lowest fuel consumption value was obtained by a 57.3mm piston of 0.182 kg/hour at 6000 rpm. The larger the piston size used, the more the torque and power values will also increase. This is due to the large size of the piston used and the volume of cylinder space and combustion chamber that is getting wider which makes the torque and power value increase, but fuel consumption is also getting higher which makes the vehicle more wasteful.

Keywords: *Pistons, Bore Up, Performance, Fuel Consumption*