

EFFECT OF VALVE OPENING HEIGHT VARIATION AND STANDARD ECU REMAP ON THE PERFORMANCE OF MOTORBIKE VARIO FI 125 CC

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ABSTRACT

The rapid development of motorbikes is followed by the advancement of its supporting components. Apart from being a means of transport, motorbikes are often modified to improve performance, one of which is through the camshaft. The camshaft on a four-stroke motorcycle regulates the flow of air and fuel into the combustion chamber, while the ECU on an injection engine optimises the fuel mixture. This study aims to maximise combustion and measure the torque and power ratio on a 125cc Vario FI engine. Using two quantitative methods, tests were conducted on a standard camshaft with a suction valve opening height of 6.5 mm and an exhaust valve height of 6 mm, as well as step 1 (suction valve 8 mm, exhaust valve 7.9 mm) and step 2 (suction valve 9 mm, exhaust valve 8.9 mm) camshafts. Before the ECU remap, the step 1 camshaft showed 8.12 Nm of torque and 12.53 Hp of power. After the remap, the step 1 camshaft achieved a torque of 8.27 Nm and a power of 13.21 Hp. From the results obtained, it can be concluded that increasing the valve opening height increases the volume of air and fuel entering the combustion chamber, increasing torque and power, but also increases fuel consumption. If the valve opening is too high, adjustments to other engine components may be required.

Keywords : Camshaft, Power, Engine Control Unit, Performance, Motorcycle, Torque.