Effect of Variation of Porting Dimple Intake Port Distance on Torque, Power and Mass Flow on 4-Stroke 100 cc Motorcycle 4-Stroke Motorcycle

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ABSTRACT

This study aims to analyze the effect of dimple porting variations on the intake port on torque, power, and mass flow rate on a 100cc 4-stroke motorcycle. Modification of the intake port using the dimple porting technique aims to increase the homogeneity of the air and fuel mixture in order to increase combustion efficiency. Testing was carried out using three variations of the intake port, namely standard, tight motif dimple porting, and loose motif dimple porting. The results showed that dimple porting modification can increase maximum torque compared to the standard intake port. The tight motif dimple porting produces the highest torque of 7.82 N.m at 4284 Rpm, while the standard only reaches 7.29 N.m at 4509 Rpm. However, engine power decreased slightly, with the highest power in standard conditions of 6.25 HP at 7798 Rpm, while in tight and loose motif dimple porting each of 5.64 HP and 5.58 HP. In terms of mass flow rate, the intake port with tight dimple porting motif shows the best efficiency with low mass flow rate compared to standard and loose dimple porting motif. In conclusion, the modification of dimple porting is able to increase torque and fuel efficiency, although with a slight decrease in engine power.

Key words : *Porting Dimple, Intake Port,* Torsi, Daya, Aliran