Analysis of the Effect of Comparison of Camshaft Duration and mapping Ignition Timing Variations on Performance and Exhaust Emissions of 4 Stroke 150 cc Motors

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ABSTRACT

Modification of motorized vehicles can be done by replacing a standard component with a racing component. The difference between a standard camshaft and a racing camshaft is the size of the cam lift height (bulge) and duration. This study aims to determine the effect of variations in the duration of opening and closing of the camshaft valve and ignition point on the value of torque, power and vehicle exhaust emissions. The method used is a qualitative method, namely by varying the duration of opening and closing valve camshaft 220o and 236o with ignition timing 30o and 31o, using 5000 RPM for 5x running torque and power and idle RPM for 1x running exhaust emissions. The results showed that the torque value, the highest power on the camshaft variation was obtained on the 236o variation with ignition timing 31, namely 21.53 Nm, 23.0 Hp and 0.115 Kg/kWh. the highest was obtained by the 18o ignition point variation, namely 13.92 Nm, 11.4 Hp and 0.108 Kg/kWh. When using the 18o ignition point variation, the torque and power values increase as a result of the combustion process with the right timing which makes maximum combustion. But the use of fuel to be more.

Keywords*: Camshaft, Ignition Duration, Torque, Power, Exhaust Emissions*