

# **Analysis of Standard Centrifugal and Racing Clutch Wear Rate on the Performance of 140cc Matic Motorcycle Vehicles with Roller Weight Variations**

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## **ABSTRACT**

Motorcycles with automatic transmission have weaknesses when accelerating, therefore innovation is needed regarding optimizing the power transfer system in the automatic transmission system, namely by changing the double lining and lighter rollers. This study aims to determine the wear rate of the double lining, as well as the torque and power generated from the double lining which varies with the weight of the roller of a certain size. The method used is an experiment using double standard canvas and racing double canvas with roller variations of 9 grams and 11 gram on wear rate and vehicle performance. The results showed that the wear rate of double racing canvas was  $0.3 \times 10^{-7}$  gram/detik.mm<sup>2</sup> lower when compared to standard double canvas of  $1.1 \times 10^{-7}$  gram/detik.mm<sup>2</sup>, because kevlar has good strength and elasticity, and a low level of wear even at high temperatures in a stable state, whereas in variations in roller weight, the lighter the roller used it will increase the torque/acceleration value but will decrease the vehicle's power/top speed value, however the heavier the roller used it will increasing the value of power/top speed but will decrease the value of torque/acceleration of the vehicle, the best torque value is 10.71 Nm at 9 gram weight variation, and the best power is 10.8 Hp at 11 gram weight variation at 7000 rpm.

**Keywords:** *Centrifugal Clutch, Carbon Blend, Carbon Kevlar, Rollers, Wear, Vehicle Performance*