THE EFFECT OF *ROLLER* WEIGHT VARIATIONS AND CLUTCH HOUSING SURFACE IN CVT TRANSMISSION SYSTEMS ON THE PERFORMANCE OF A 125 CC 4-STROKE AUTOMATIC MOTORCYCLE

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ABSTRACT

This study aims to analyze the effect of variations in *Roller* weight and modification of the clutch housing surface on torque and power in the Continuously Variable Transmission (CVT) system of automatic motorcycles. The *Roller* weight variations used are standard and cross-knurling. Tests were conducted using a dynamometer at an engine speed range of 4000–8000 rpm to obtain torque and power data. The results showed that the combination of a 15-gram *Roller* with a standard clutch housing produced the highest maximum torque of 9.49 Nm at 6000 rpm and a maximum power of 8.99 HP at 6000 rpm. When using a cross-knurling *clutch housing*, the highest maximum torque was obtained on an 18-gram *Roller* of 9.40 Nm at 6000 rpm, while the highest maximum power was obtained on a 13-gram *Roller* of 9.21 HP at 7000 rpm. The use of cross knurling has been proven to improve performance on 13 gram *Roller*s, with an increase in torque from 9.13 Nm to 9.37 Nm and power from 8.97 HP to 9.21 HP. However, on 15 gram *Rollers*, this modification actually reduces torque from 9.49 Nm to 8.71 Nm and power from 8.99 HP to 8.56 HP. Based on the results of the study, it can be concluded that *Roller* weight and clutch housing surface characteristics have a significant effect on CVT performance. The combination of 15 gram *Roller*s with standard clutch housing

Keywords: CVT, *Roller*, clutch housing, cross knurling, *torque*, power.