

THE INFLUENCE OF THE DRIVE PULLEY INCLINATION ANGLE AND RIDER WEIGHT ON TORQUE AND FUEL CONSUMPTION IN 155 CC AUTOMATIC MOTORCYCLES

Name : Randi

Nim : 2204211370

Lecture : Reinaldi Teguh Setyawan, M.T

ABSTRACT

This study aims to analyze the effect of variations in the drive pulley inclination angle (14°, 13.5°, and 13°) and rider weight (60 kg, 70 kg, and 80 kg) on torque and fuel consumption in a 155 cc automatic motorcycle. The tests were conducted using a dynotest machine with Pertamina RON 92 fuel, under flat-road conditions and constant speed. The results showed that a smaller drive pulley angle (13°) tended to produce higher maximum torque at medium RPM, while the 13.5° angle provided the optimal combination of torque and power at medium RPM with good combustion efficiency (stable AFR). Rider weight influenced torque and power distribution, with lighter loads delivering more responsive acceleration and better fuel efficiency. The combination of a 13.5° pulley angle and rider weight of 60–70 kg produced optimal performance with a balanced trade-off between acceleration, power, and fuel consumption.

Keywords: Drive pulley, CVT, torque, fuel consumption, automatic motorcycle, inclination angle, rider weight.