ANALYSIS OF THE EFFECT OF HEADLAMP TYPE VARIATIONS ON BATTERY POWER CONSUMPTION AND TRAVEL DISTANCE OF A BLDC 1KW ELECTRIC MOTORCYCLE

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ABSTRACT

This study aims to analyze the effect of using LED, HID, and halogen headlights on battery power consumption and travel distance of a BLDC 1kw electric motorcycle. The research method used was an experimental method by conducting vehicle testing for 15 minutes under two conditions: without lights and with the headlights turned on. The measured parameters included power consumption, travel distance, and light intensity. The results show that the LED lamp has a power consumption of 22 watt with a light intensity of 5840 lux, HID 40 watt with 18860 lux, and halogen 32 watt with 817 lux. The travel distance without lights was 4.98 km, while with LED was 4.38 km, HID 4.30 km, and halogen 4.20 km. The results indicate that the use of lamps with higher power consumption increases battery energy usage and reduces the vehicle's travel distance.

Keywords: power consumption, LED, HID, halogen