

ABSTRAK

Peningkatan jumlah kendaraan bermotor menyebabkan kebutuhan bahan bakar semakin tinggi sehingga diperlukan penelitian untuk mengetahui pengaruh perilaku berkendara terhadap performa mesin dan konsumsi bahan bakar. Penelitian ini bertujuan menganalisis pengaruh tiga fase perilaku berkendara terhadap performa mesin sepeda motor injeksi satu silinder berkapasitas 110cc menggunakan bahan bakar RON 95. Pengujian dilakukan menggunakan *roller dynamometer* dengan tiga variasi fase perilaku berkendara, yaitu fase pertama akselerasi-konstan-deselerasi, fase kedua akselerasi-deselerasi, dan fase ketiga konstan-akselerasi-konstan. Parameter yang dianalisis meliputi *Brake power*, *Brake torque*, *Brake Specific Fuel Consumption*, dan *Brake Thermal Efficiency*. Hasil penelitian menunjukkan bahwa fase kedua menghasilkan performa mesin terbaik dengan *Brake power* maksimum sebesar 6,30 kW dan *Brake torque* maksimum sebesar 8,32 N·m. Selain itu, fase kedua juga memiliki konsumsi bahan bakar yang lebih efisien dengan rata-rata BSFC sebesar 9,04 kg/kW·h, lebih rendah dibandingkan fase pertama 50,27 kg/kW·h dan fase ketiga 14,79 kg/kW·h. Dengan demikian, fase perilaku berkendara berpengaruh terhadap performa mesin dan konsumsi bahan bakar, dimana fase kedua memberikan performa dan efisiensi penggunaan bahan bakar yang paling baik.

Kata kunci: RON 95, fase perilaku berkendara, performa mesin, bahan bakar spesifik.

ABSTRACT

The increasing number of motor vehicles has led to higher fuel demand, making it necessary to investigate the effect of driving behavior on engine performance and fuel consumption. This study aims to analyze the influence of three driving behavior phases on the performance of a 110cc single cylinder fuel injected motorcycle engine using RON 95 fuel. The tests were conducted using a roller dynamometer with three driving behavior phases: the first phase consisted of acceleration-constant speed-deceleration, the second phase consisted of acceleration-deceleration, and the third phase consisted of constant speed-acceleration-constant speed. The parameters analyzed were Brake power, Brake torque, Brake Specific Fuel Consumption, and Brake Thermal Efficiency. The results showed that the second phase produced the best engine performance, with a maximum brake power of 6,30 kW and a maximum brake torque of 8,32 N·m. In addition, the second phase demonstrated better fuel efficiency, with an average BSFC of 9,04 kg/ kW·h, which was lower than that of the first phase 50,27 kg/kW·h and the third phase 14,79 kg/ kW·h. Therefore, driving behavior phases significantly affect engine performance and fuel consumption, with the second phase providing the best engine performance and fuel efficiency.

Keywords: RON 95, driving behavior phases, engine performance, Brake Specific Fuel Consumption.

