ABSTRACT

ANALISIS PENGARUH VARIASI *DIAMETER DISC BRAKE* DAN JENIS MINYAK REM TERHADAP KINERJA SISTEM PENGEREMAN PADA SIMULATOR *BRAKE SYSTEM TRAINER*

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This study aims to analyze the effect of disc brake diameter variations and brake fluid types on the braking system performance of a Brake System Trainer Simulator. The braking system plays a crucial role in ensuring vehicle safety; therefore, selecting appropriate braking components and fluids is essential to achieve optimal braking performance. Variations in disc brake diameter and brake fluid type are assumed to influence the system's ability to generate braking force and improve braking efficiency.The research employed an experimental method with a quantitative approach. The independent variables consisted of disc brake diameter variations and brake fluid types, while the dependent variable was braking system performance, measured through braking force and braking time on the Brake System Trainer Simulator. Data were collected through a series of experiments using different combinations of disc brake diameters and brake fluid types. The obtained data were then analyzed using statistical methods to determine the effects of each variable and their interaction on braking system performance.The results indicate that variations in disc brake diameter significantly affect braking performance, where larger disc diameters generate higher braking torque, resulting in more effective braking. In addition, the type of brake fluid also influences braking effectiveness due to differences in physical properties and hydraulic pressure transmission capabilities. The interaction between disc brake diameter and brake fluid type contributes to changes in braking performance, as reflected by variations in braking force and braking time. Therefore, selecting an appropriate disc brake diameter and brake fluid type can improve the performance of the braking system on the Brake System Trainer Simulator and provide a useful reference for the development of braking system learning media and automotive braking technology applications.

Keywords: disc brake, brake fluid, braking system, Brake System Trainer Simulator, braking performance.