

An Experimental Study on the Influence of Vibrator on Pad Vibration as a Result of ABS Effect in Disc Breaking

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Antilock breaking system (ABS) and locking breaking system are mostly used in cars. Lock breaking system has some weaknesses. These can be overcome by using the ABS but with higher cost. For this reasons, the present study on lock breaking system with additional vibrator is conducted. It is expected that the pad will vibrate and non lock breaking will be obtained. The variables observed for this breaking process include pedal breaking force, disc rotation speed, and spring stiffness constant in the vibrator, because these variables have influence on the amplitude and frequency of acceleration vibration at the pad.

The procedure of the research is by measuring the average magnitude of amplitude and frequency of vibration of the pad for each breaking process. Two treatment comparison method is used to observe the existence of significant difference between breaking system without vibrator and the one with vibrator. Regression and variance analyses are used to observe the relationship between the independent variables and response variables.

The result of the study shows that the pedal breaking force, disc rotation speed, and the interaction between these variables have significant influence on the amplitude of pad vibration acceleration, whereas disc rotation speed and the interaction between pedal breaking force and disc rotation speed have significant influence on the frequency of pad vibration.

Key Words : Breaking system, vibrator, acceleration vibration, frequency, pad.