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A Study on the Brush Noise Reduction of a DC Motor Using Multi-Body Dynamics

Tae-Won Park[(1)], Il-Ho Jung[(2)], Jong-Whi Seo[(2)]

(1) *Division of Mechanical Engineering, Ajou University, Suwon-city, Republic of Korea*
(2) *Graduate School of Mechanical Engineering, Ajou University, Suwon-city, Republic of Korea*

The DC Motor of a vehicle can cause noise and vibration due to high-speed revolution, which can make a driver feel uncomfortable. There have been various studies that attempted to solve these problems, focusing mostly on the causes of noise and vibration and the means of preventing them. The CAE methodology is more efficient than a real test for the purpose of looking for various design parameters to reduce the noise and vibration of the DC motor. In this study, a design process for reducing brush noise is presented with the use of a computer model which is made by using multi-body dynamics program (DADS). The design parameters to reduce the brush noise and vibration were proposed using a computer model. They were used to reduce the noise and vibration of a DC motor and verified using the test results of a fan DC motor in a vehicle. This method may be applicable to various DC motors.

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