ABSTRACT

In recent years, FEA simulation such as complex eigenvalue analysis is utilized for brake “squeal” improvement and it gives excellent results. However, regarding “brake groan” improvement, we mainly apply experimental measurement data for phenomenon elucidation. Therefore we established FEA simulation model for analyzing “creep groan” which is one of representative groan of brake system from stick-slip phenomenon standpoint.

This time, we would like to introduce a series of events in regards to FEA model developed from a simple “spring-mass” model to a brake assembly model which includes suspension torsion stiffness.

Based on FEA results, we were able to show clearly that the dynamic characteristic of friction material has a significant influence on creep groan performance. Furthermore we made actual brake pad which utilized beneficial knowledge of creep groan, and it showed groan improvement.