

Structural modification of disc brake judder using finite element analysis

Abstract :

Brake judder is a phenomenon of noise which its vibration can be felt physically by the driver of a vehicle. If this vibration is exposed to the driver for a long period it can lead to tiredness during driving. There are two types of judder which is cold judder and hot judder. This paper will be focusing on the hot judder. As a disc surface heats up during braking it causes both sides of the disc distort and hence produce a sinusoidal waviness around its edges. In this paper finite element analysis of hot judder is performed using a commercial software package, ABAQUS. An existing brake disc design is simulated and will be used as a baseline model. Various structural modifications made on the disc are proposed in an attempt to reduce brake judder in a disc brake assembly.