

عنوان مقاله:

Research on the Aerodynamic Lift of Vehicle Windshield Wiper

محل انتشار:

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خلاصه مقاله:

Currently, research on the aerodynamic lift of vehicle windshield wipers is confined to the steady results, and there are very few test results. In the face of this truth, a wind tunnel test is conducted by using the Multipoint Film Force Test System (MFF). In this test, the aerodynamic lift of four kinds of wiper is measured at different wind speeds and different rotation angles. And then, relevant steady-state numerical simulations are accomplished and the mechanism of the aerodynamic lift is analyzed. Furthermore, combined with dynamic meshing and user-defined functions (UDF), transient aerodynamic characteristics of wipers are obtained through numerical simulations. It is found that the aerodynamic lift takes great effect on the stability of wipers, and there is maximum value of the lift near a certain wind speed and rotation angle. The lift force when wipers are rotating with the free stream is less than steady, and the force .when rotating against the free stream is greater than steady

کلمات کلیدی:

Windshield wiper, Aerodynamic Lift, UDF, Wind tunnel test, Dynamic mesh

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