

Design and Analysis of Universal Multifunctional Leaf Spring Main Landing Gear for Light Aircraft

Authors : Meiyuan Zheng, Jingwu He, Yuexi Xiong

Abstract : A universal multi-function leaf spring main landing gear was designed for light aircraft. The main landing gear combined with the leaf spring, skidding, and wheels enables it to have a good takeoff and landing performance on various grounds such as the hard, snow, grass and sand grounds. Firstly, the characteristics of different landing sites were studied in this paper in order to analyze the load of the main landing gear on different types of grounds. Based on this analysis, the structural design optimization along with the strength and stiffness characteristics of the main landing gear has been done, which enables it to have good takeoff and landing performance on different types of grounds given the relevant regulations and standards. Additionally, the impact of the skidding on the aircraft during the flight was also taken into consideration. Finally, a universal multi-function leaf spring type of the main landing gear suitable for light aircraft has been developed.

Keywords : landing gear, multi-function, leaf spring, skidding

Conference Title : ICAMAME 2017 : International Conference on Aerospace, Mechanical, Automotive and Materials Engineering

Conference Location : Bangkok, Thailand

Conference Dates : October 26-27, 2017