VIBRATIONAL TESTS AND ANALYSIS ON MATERIALS USED IN THE AIRCRAFT

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Abstract

The current cargo capacity for aircraft is about 20% of their total weight, increasing this ratio would significantly increase the economics of aircraft logistics. This is why it's important for material sciences to advance so that the materials used in aircraft construction become lighter while still retaining their structural integrity. In this paper we examined materials used in aircraft construction (steel, aluminum, plastics and composites) at the University of Szeged Faculty of Engineering. Using vibrational analysis we analyzed the test pieces for their natural frequency, we did this to gain insight to the range of frequencies that are least attenuated by the material the aircraft wings are made from. Using the data we gathered we wish to draw conclusions to which materials are more suited for aircraft wing construction.

Key words: composites, vibrational analysis, material science

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