

عنوان مقاله:

Effect of using a Dynamic Absorber On Vibrations of an Opposed-Piston Ultralight Aircraft Engine

محل انتشار:

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خلاصه مقاله:

In this paper, vibrations reduction of piston engine of ultralight aircrafts was studied with considering a combination of experimental, analytical and numerical methods. Analytical equations of dynamic absorber were obtained. Afterward, experimental test was used to determine the system torque. Due to the difficulty of obtaining experimental data, the amount of angular acceleration and then velocity and angular displacement were calculated numerically using MATLAB software and verified with experimental results with a difference of less than ۲%. Different components of the system were designed with reverse engineering method using SolidWorks software. After data transmission to Adams software, vibrational analysis of the system was performed and validated with analytical results with a difference of less than ۱.۹۱%. A suitable dynamic absorber was selected. The results showed that engine vibrations is reduced up to ۴۰%.

کلمات کلیدی:

Angular Velocity, Dynamic absorber, Piston Engine, Ultralight Aircraft, Vibration

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