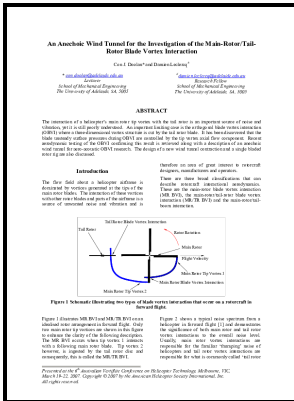


Blade-mounted trailing edge flap control for BVI noise reduction

Langley Research Center - US6543719B1

Description: -

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Flaps
Blade-vortex interaction
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Blade vortex interaction noise reduction techniques for a rotorcraft

Other control means concentrate primarily on reducing the strength of the tip vortex through blade tip geometric modifications. The oscillating air jet assembly on the lower surface of the airfoil operates to increase the airfoil's sectional lift values, while the lift is decreasing on the airfoil.

Helicopter Noise Reduction by Actively Controlled Flaps

The porous surfaces can be configured on rotor blades for affecting blade variable twist in accordance with various flight conditions, and can further be incorporated for reducing rotor hub vibrations as well.

Blade

Event A is associated with the observed decrease in the sectional lift which takes place as the vortex approaches the air foil's leading edge 193, and Event B is associated with the observed rapid increases in the sectional lift as the vortex passes and continues to move downstream beyond the airfoil's leading edge 193.

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The voice coil 88 and piston 75 are configured, for example, to produce pressures which are on an order of magnitude greater than pressures produced by prior art loud speakers. Hence, specific dimensions and other physical characteristics relating to the embodiments disclosed herein are not to be considered as limiting, unless the claims expressly state otherwise. The fabrication of the connecting member 139 of aluminum provides for heat dissipation, to thereby dissipate heat generated by the voice coil 142, for example.

Active rotor control for helicopters: individual blade control and swashplateless rotor designs

The plot 181 in FIG. The changing of the predetermined energization level changes an amount of lift generated by the rotor blade. The use of Tip Air Mass Injection is an alternate example in which a high energy air jet is introduced at the tip of the blade and aimed towards the center, or the

core, of the tip vortex with the intent of diffusing or weakening its strength.

Active rotor control for helicopters: individual blade control and swashplateless rotor designs

Thus, the chord C shown in FIG. Similarly, when the diaphragm 25 moves away from the aerodynamic surface 23 a negative pressure within the sealed chamber 37 is established and, consequently, air is drawn into the sealed chamber 37 through the aperture 41. The fact that most of the chambers 60 of FIG.

Wind turbine controllable rubber trailing edge flap tested

A method for reducing blade vortex-interaction BVI noise generated by a rotorcraft having a rotor blade including a tip end, a root end, a leading edge, and a trailing edge, wherein said rotor blade is attached at said root end to a rotor hub on said rotorcraft and extends radially outwardly therefrom, such that when said rotor hub is rotatably driven, said rotor blade rotates about said hub through a 360 degree azimuth, said rotor blade further comprising a movable flap comprising a plurality of independently controllable segments pivotally attached to said trailing edge, and arranged radially therealong, said method comprising the step of deflecting radially outer ones of said flap segments to desired flap deflection angles, and maintaining radially inner ones of said flap segments in a neutral undeflected orientation. Firstly, the test scheme of ECR active vibration and noise control is proposed, and the ECR test platform is modified according to the test scheme.

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