



Aeronautics

Noise Reducing Trailing Edge Device

Blended cutout design for the reduction of jet exhaust
interaction noise with flaps, ailerons, and flaperons

This technology is a new type of design for the wing flap, aileron, or flaperon located directly behind the engine nozzle on jet aircraft. Using a concave-down curved shape for the trailing edge instead of a conventional right angle, the cross section of the flap, aileron, or flaperon directly in the jet exhaust stream is reduced, thus reducing noise.

BENEFITS

- ➔ Reduced noise associated with the jet-flap interaction where the jet interacts with control surfaces (flaps, ailerons, and flaperons)
- ➔ Preserves more of the aerodynamic load capacity of the element as compared to the typical approach often implemented of reducing the length of the entire element

APPLICATIONS

- ➔ Commercial Aircraft
- ➔ Military Aircraft
- ➔ UAVs

technology solution

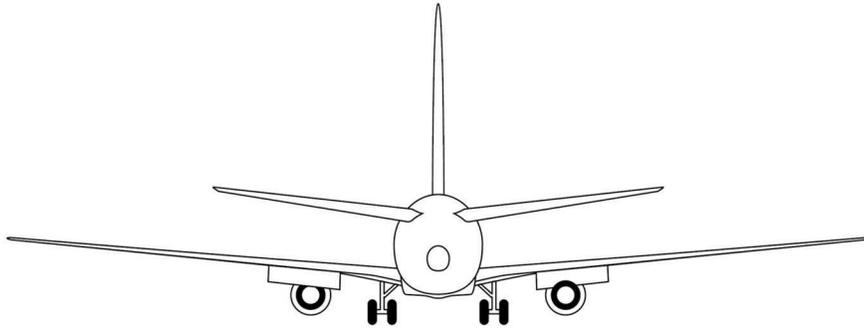


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THE TECHNOLOGY

The innovation's design is incorporated with the flap, aileron, or the combination called a flaperon element of an aircraft wing that is in the closest proximity to the jet exhaust flow. Currently, if the normal length of the element is such that it produces too much jet exhaust interaction noise, the length of the element can be cut-back to a length that reduces noise to acceptable levels. The innovation is to cut-back the length in the center of the element but retain the length on both edges (in the spanwise direction) and blend in the trailing edge shape with a curve similar to a semi-circular shape in the planform of the element.



Schematic of aircraft rear with trailing edge device cutout design on the right.

PUBLICATIONS

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