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Noise Prevention at Source with porous aerofoils

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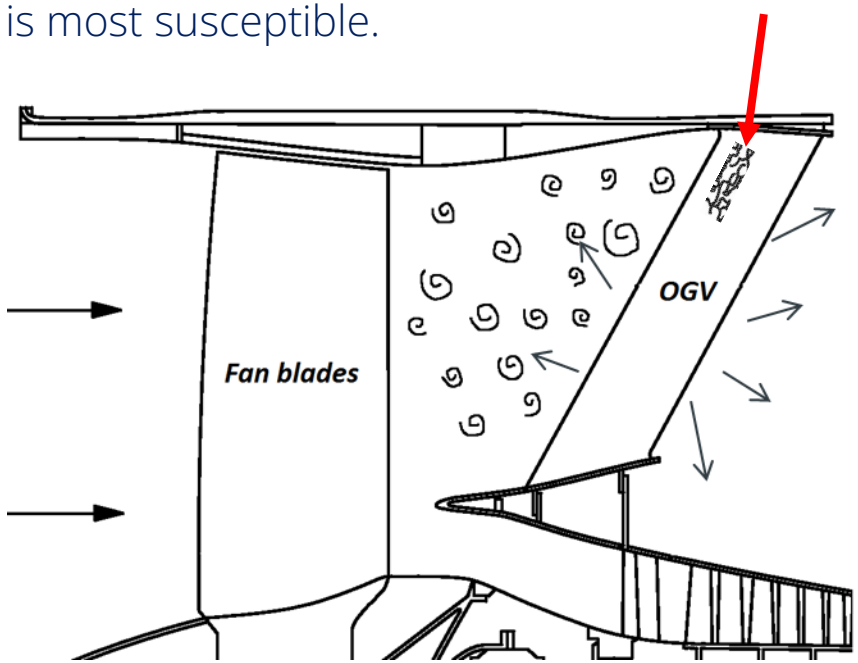
Objective

Quieter engines quieter skies

The interaction between the fan and the Outlet Guide Vane (OGV) is the dominant source of broadband noise in turbofan engines, but this can be reduced.

By placing porous material between the high and low-pressure sides of the vanes, we can reduce the fluctuations and associated noise by as much as 7dB in the frequency range to which the human ear is most susceptible.



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Results

7 dB reduction

An initial study locating porosity at the leading edge reduced turbulence aerofoil interaction noise, particularly in frequency range 1-5kHz, by up to 7dB.

Further work has demonstrated that locating the porosity away from the leading edge reduces the negative impact on aerodynamic performance while maintaining noise reduction.

It is likely that effective noise reduction could be achieved by treating only 10% of the vane area.

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Collaboration

Oscar Propulsion is seeking collaboration with the next generation of sustainable engine technology

Oscar Propulsion will license its patented noise reduction technology and know-how

Together we can create clean and quite propulsion systems

Duncan Troy
CEO

+44 7802 500 395
duncan.troy@oscarpropulsion.com

oscarpropulsion.com/aviation