

Oblique Wing: Future Generation Transonic Aircraft

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Abstract : The demand for efficient transonic transport has been growing every day and may turn out to be the most pressed innovation in coming years. Oblique wing configuration was proposed as an alternative to conventional wing configuration for supersonic and transonic passenger aircraft due to its aerodynamic advantages. This paper re-demonstrates the aerodynamic advantages of oblique wing configuration using open source CFD code. The aerodynamic data were generated using Panel Method. Results show that Oblique Wing concept with elliptical wing planform offers a significant reduction in drag at transonic and supersonic speeds and approximately twice the lift distribution compared to conventional operating aircrafts. The paper also presents a preliminary conceptual aircraft sizing which can be used for further experimental analysis.

Keywords : aerodynamics, asymmetric sweep, oblique wing, swing wing

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