NWTF
NATIONAL WIND TUNNEL FACILITY

8 x 6 Wind Tunnel

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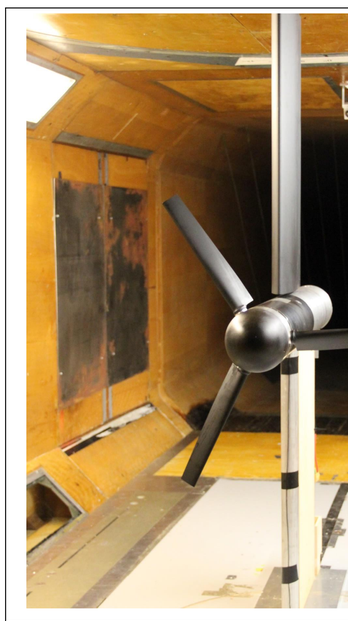
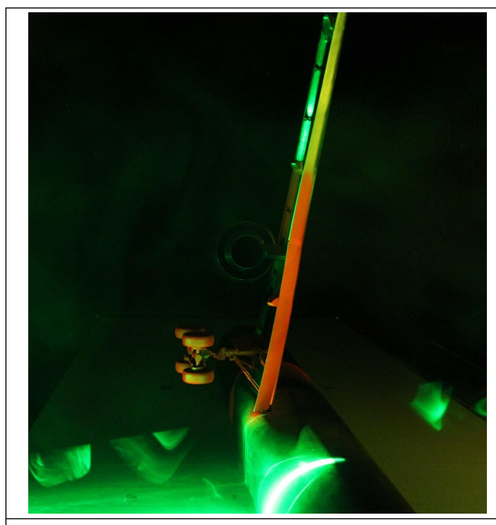
The Cranfield 8 x 6 Wind Tunnel

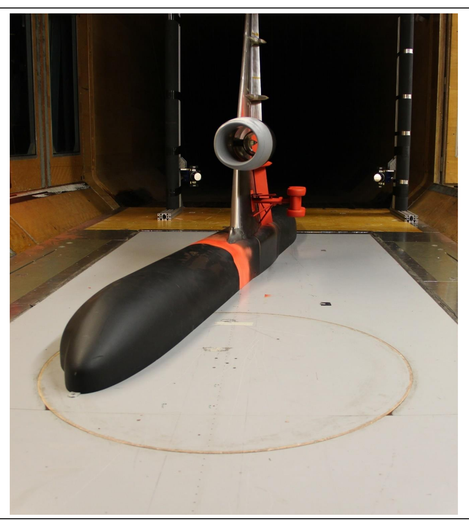
- Low-speed, closed-return wind tunnel.
- 7:1 Contraction. 8ft x 6ft working section delivering 5 – 50m/s wind speed.
- 6-Component roof balance on traversable turntable, and sting balance model mounting.
- Rolling road for automotive and aircraft take-off / landing simulation.
- Dynamic and static loads and pressure measurement.
- Hot wire anemometry, Particle Imaging Velocimetry and Laser Doppler Anemometry.
- Fibre-optic methods for static and dynamic aeroelastic shape and vibration.

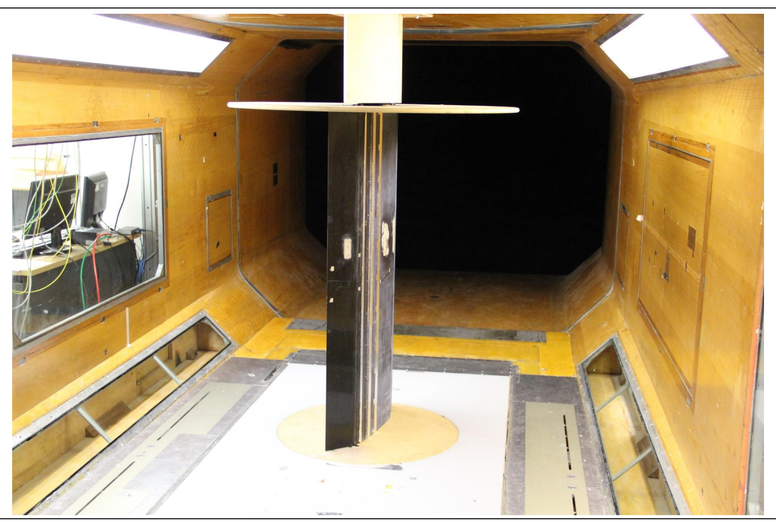


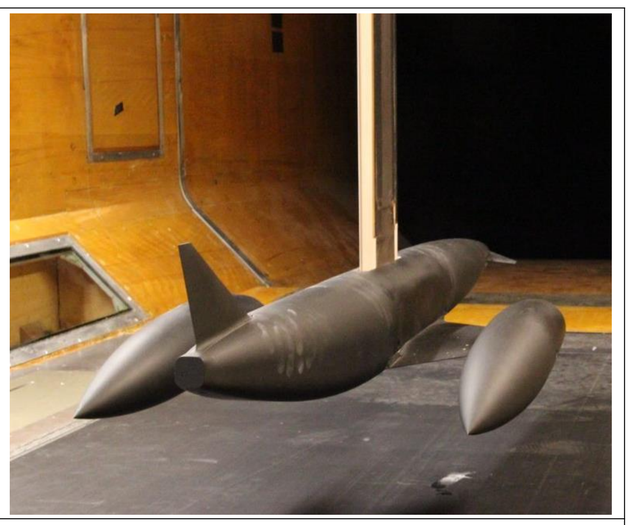
MENtOR: Flow Control for Propeller-Wing Interaction

- Effort towards the development of tools to design the next generation of novel tilt-rotor vehicles.
- The MENtOR Propeller Rig allows investigation of the aerodynamic forces resulting from boundary layer separation on 1) the propeller blades, 2) nacelle, and 3) wing models.
- Performance of passive flow control devices both on the suppression of flow breakdown on the propeller blades and on the delay of wing stall flutter have been studied.









Aircraft projects: including VALEX, WINDY, Skylon

The 8 x 6 wind tunnel has been recently employed on a number of aircraft related ATI and industry funded projects including:

- VALEX – Characterisation of flows around various landing gear designs for drag and noise reduction using PIV and pressure rake traverses.
- WINDY – The demonstration of fibre-optic methods for real time strain, shape, vibration, and pressure measurement using light.
- Skylon - The characterisation of take-off and landing performance of a reusable space plane, and the aerodynamic design of its airframe.

Industrial customers & Academic Partners amongst many others

AIRBUS · ROLLS ROYCE · Reaction Engines · [dstl] · JAGUAR LAND ROVER · ONERA THE FRENCH AEROSPACE LAB