



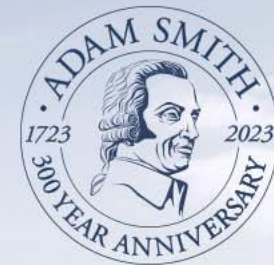
University
of Glasgow

DeHavilland 9x7ft wind tunnel

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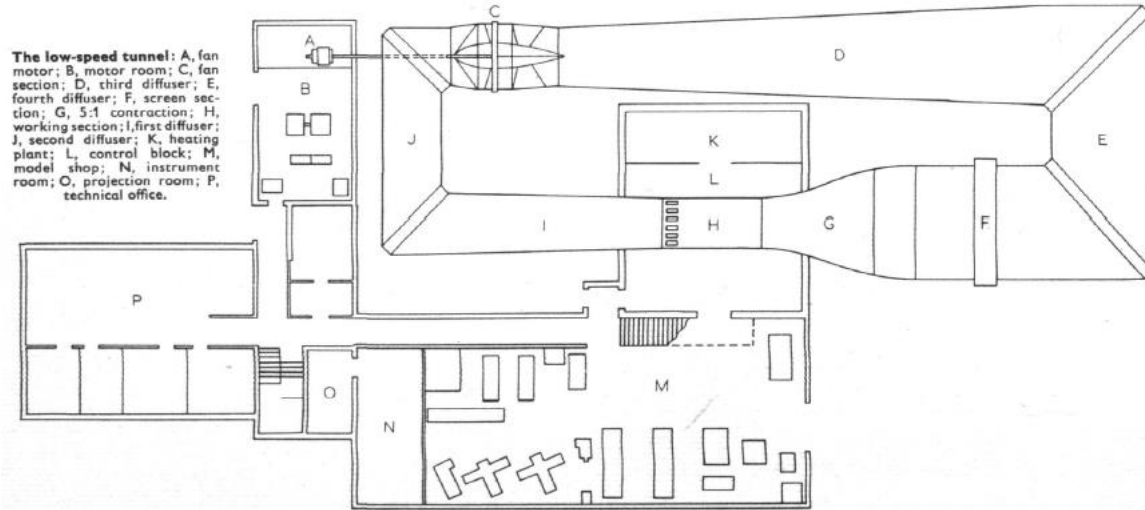
NWTF Wind tunnel Manager Forum

Filton - 15th November 2023





DeHavilland 9x7ft WT - Capabilities

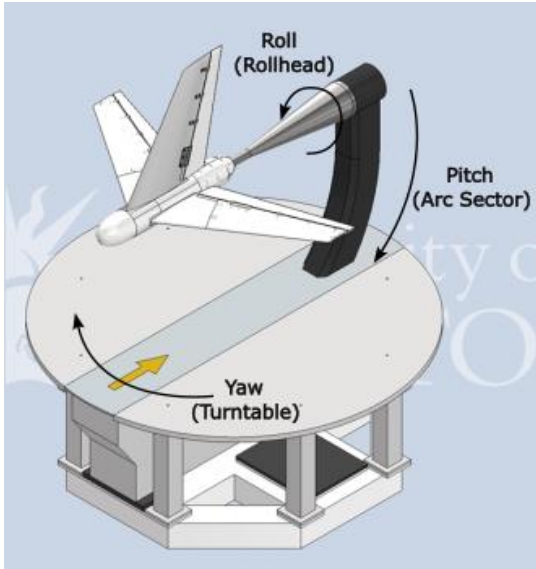


- Originally built by DeHavilland Aircraft Company (Hatfield, Hertfordshire, 1952), acquired by UofG and moved to the Garscube Campus in 1992.
- Closed-circuit, closed test section WT.
- Ambient temperature and pressure.
- 2.7 x 2.1 x 5.5m (WxHxL) filleted test section.
- 5:1 contraction ratio, <0.2% TI
- Max. speed 70 m/s , usually capped at 55 m/s
- Testing of:
 - Fixed-wing aircraft.
 - Propellers, rotors, wind turbines.
 - Fundamental fluid Mechanics applications.
 - Sport Aerodynamics.





DeHavilland 9x7ft WT - Instrumentation



- Model Positioning system.
- Sting balance.
- Platform balances for floor-mounted models.
- Steady (128 channels pressure scanners) and unsteady pressure measurements (Kulites).
- Flow Diagnostics:
 - High-speed (200 Hz) Stereo PIV system
 - Large area (~1m, 10 Hz) PIV system
 - 3-component LDA system.
 - CTA
 - Directional probes
 - Surface and flow visualisations
- DIC system.
- UKNRR for propeller testing (1.25m Diam.)
 - Instrumented (SGs) blades
 - Telemetry system



DeHavilland 9x7ft WT – Strengths and challenges

Strengths

- Versatile, wide range of testable configurations.
- Many EPSRC, H2020 and externally funded (Dowty, etc.) projects carried out in the last few years, >80% typical yearly usage.
- Healthy mix of internal research, teaching and external contracts with industry.
- Multi-measurement approach to investigate fundamental fluid-mechanics problems.

Challenges

- Ageing hardware and software compatibility (new motor planned).
- Staffing: no full-time staff devoted exclusively to running the facility.
- Discontinuous technical support from University.
- High usage rate.
- Lack of collegiality within research division, expectations from some quarters that facility is free to use.