



University of Birmingham Transient Aerodynamic Investigation (TRAIN) rig

LS10

Location: University of Birmingham	Designation:
Owner(s): University of Birmingham United Kingdom	Performance: Mach Number: Maximum Flow Speed: Reynolds No: Total Pressure: Dynamic Pressure: Total Temperature: Turbulence intensity: Run Time: Typical Recharge Time:
Test Section Size: 150 m long facility 1/10th-1/25th, scale models can be fired at speeds up to 80 m/s	
Operational Status: Active	Testing Capabilities: Modelling the interaction of passing vehicles
Number and Type of Staff: Scientific: Technical Support:	
Test support: Workshop for wind tunnel model design, manufacture and modification capability.	

Notes:
The Transient Aerodynamic Investigation (TRAIN) rig is a purpose built facility for measuring the aerodynamics of scale moving model vehicles. The unique facility offers the flexibility to conduct a range of experiments crucial to a detailed understanding of vehicle aerodynamic flows. These include, but are not limited to:

- Slipstream velocity measurements
- Static pressure pulse measurements
- Pressures acting on the train using bespoke on-board data loggers
- The effects of crosswinds at various yaw angles
- Aerodynamic pressures acting on trackside structures
- Aerodynamic effects of a train passing through a tunnel and sonic booms
- The effects of embankments on train aerodynamics
- The aerodynamic effects due to train design and size
- Aerodynamic loads affecting ballast flight
- Pollutant dispersion