
Sonic boom investigation: Computation and experiment

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The article deals with the issues related to designing supersonic aircraft. The biggest hurdle in creating second-generation supersonic civil aircraft is the requirement for the sonic boom amplitude to remain acceptable. The article presents results of investigating the sonic boom phenomenon using a combined computational and experimental technique. The technique is based on measuring perturbed pressure in the near field of a model mounted in the working part of a wind tunnel and subsequently remapping the measurement data over large distances using the quasilinear theory. We provide results of investigating pressure distributions in the near field of aircraft models in the TsAGI T-113 wind tunnel. We compare experimental and numerical data and outline suggestions for improving the technique.

Keywords: *supersonic civil aircraft, sonic boom, numerical techniques, mathematical modelling, Zhilin's theorem, experimental techniques, near and far field*

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