

The Aeronautical Journal RAeS August 1971

HAFNER, R.

The Case for the Convertible Rotor

This tenth Cierva Memorial Lecture covers the whole field of air transport systems—CTOL, STOL and VTOL. Safety aspects, noise, air traffic control, airports and V-ports and socio-economics are discussed. The convertible rotor aircraft (CR VTOL) is described together with its aerodynamic characteristics — airframe drag power, transition from cruise to hover, analysis of weight. Three types of air transport are compared with the CR VTOL aircraft—CTOL and STOL turbofan and the VTOL liftfan. (The Appendices to this paper will be published next month.)

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Airports and Transport Aircraft—Inter-relations and Interface problems

An Air Transport Group symposium, papers were given by E. Bryan Tutty on "International Airport Planning as Influenced by Aircraft Development"; P. C. Haines on "A Third London Airport"; R. A. Read on "The Economics of Airport Operation as Affected by Transport Aircraft Design Trends"; P. M. Davey on "Airport Restrictions as they affect Economic Airline Planning"; O. I. Green on "Aircraft Noise in the Airport Environment"; J. Leslie on "Facilities Planning for International Air Cargo"; I. Chichester-Miles & D. R. M. Romer on "The Impact of VTOL Aircraft on Airport Design and Development".

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BLACK, H. C.

Objectives and Standards for Air Safety

The present approach to air safety and some modern developments in standards are discussed. Statistics on accidents are presented and lessons drawn from them, and a forecast made of accident trends which gives guidance on target safety levels for the next decade.

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SUCIU, S.N.

High Temperature Turbine Design Considerations

The major technological developments which have made possible the trend towards higher temperature in modern aircraft gas turbine engines are discussed. The relative importance of manufacturing processes, material developments, cooling techniques, analytical design procedures, rupture and cyclic life considerations and aerodynamic and mechanical design improvements are discussed along with illustrative examples and technical data. The need for a balanced design approach is stressed, and examples are given where trade offs can be made. It is noted that the advances in aircraft engines during the past 10 years have been based on the evolution of sound engineering principles, extensive component and engine development and careful consideration of the operational requirements rather than a tremendous breakthrough or revolutionary concept in any one area.

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