

OPERABILITY ISSUES ENCOUNTERED IN GENERIC AERO GAS TURBINE ENGINES

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Abstract

This paper discusses about typical fighter aircraft engine development, flight testing and a case study depicting the importance of engine gas dynamic stability during flight testing. A low risk engine development and test plan generally spans over a period of 7 years followed by flight testing. This paper brings out the time line chart of engine development and testing and also the significance of each test. Further a generalized flight test plan is discussed explaining the points to be looked for during flight testing. Then a case study where a series of flame out cases has been encountered in a Fighter Aircraft fitted with a straight flow twin-spool turbojet engine during reheat engagement due to lower gas dynamic stability problem has been discussed. Corrective actions undertaken followed with flight test at critical pinch points has been discussed. The experience gained through the above case studies will enhance the knowledge base and forms the guideline for any similar problems arising in the future.

Keywords: Engine development; Flight test; Flameout; Operating envelope