

Calculation and Comparison of a Turbofan Engine Performance Parameters with Various Definitions

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Abstract : In this paper, some performance parameters of a selected turbofan engine (JT9D) are analyzed. The engine is a high bypass turbofan engine which powers a wide-body aircraft and it produces 206 kN thrust force (thrust/weight ratio is 5.4). The objective parameters for the engine include calculation of power, specific fuel consumption, specific thrust, engine propulsive, thermal and overall efficiencies according to the various definitions given in the literature. Furthermore, in the case study, wasted energy from the exhaust is calculated at the maximum power setting (i.e. take off phase) for the engine.

Keywords : turbofan, power, efficiency, trust

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