

IAN HASLAM

The operating envelope of military aircraft is typically very broad, usually requiring high-performance aero-engines to function successfully. Since the exhaust system design and operation is fundamental to the overall performance of such engines, there is significant design focus on military aircraft exhaust systems. This paper aims to review the design considerations and features of such exhaust systems. The scope of the paper primarily focuses on 'fast-jet' combat aircraft, however it will make reference to the wider population of military aircraft exhaust design, where novel or interesting application exists. The analytical basis will be drawn from identifying the fundamental aims and constraints of military exhaust systems, when considered in context of the aircraft operation. Such aims and considerations will include: ultimate aircraft speed, acceleration, operating altitudes, manoeuvrability and aircraft survivability. The analysis and discussion will be illustrated through reference to examples of exhaust solutions of in-service and historical aircraft. The paper will conclude by commenting on where the future of military aircraft exhaust system design may be headed.