

46ESS-11: Exhaust Systems – Civil Aircraft

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The purpose of this paper is to present the main features that comprise the exhaust systems of civil aircrafts from the most basic configuration to the more complex ones. It also addresses the main challenges faced from the early developments to the present day. It begins with a brief introduction of the overall structure, then it focuses on describing the main components, their functions and the physical principle under which they operate with more detail. A historical review encompassing the first designs and challenges along with the evolution and improvements is then outlined. Subsequently, the paper describes the state-of-the-art regarding the current practices, materials, and techniques involved in the design of exhaust systems. Finally, it addresses the future design trends, what are the challenges and constraints to overcome in order to improve the performance and durability of the system, and the implementation of new technologies for noise reduction.