

Abstract Submitted
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Should planes look like birds? JOACHIM HUYSSSEN, North West University, GEOFFREY SPEDDING, University of Southern California — The dominant aircraft configuration, often known as tube-and-wings, could have established itself either because it is optimal, or because it is simply good enough and has become entrenched in practice. By contrast, tailless designs have been tried throughout aviation's history but have rarely succeeded in displacing the tube-and-wing. Here we propose a new configuration which is not tailless, but in which the overall shape may offer a superior wing-body circulation distribution. Wind tunnel tests will be described in which the cases: wing-alone, wing+body, wing+body+tail are compared for the spanwise downwash distribution in their wake. Based on these measurements, a different configuration is proposed, where the primary function of the tail is circulation control over the wing and body. The fact that this configuration bears more than a passing resemblance to certain birds is noted.

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