

EFFECT OF SUBSONIC COMPRESSIBILITY AND CONSTRAINTS ON GENERATION OF 3-D OPTIMAL CAMBER SHAPES

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Abstract

A flat surface wing is optimized for minimum induced drag for low and high subsonic Mach numbers. Wing for transport airplane role is considered. Optimal warp is separated into twist and camber. Effect of compressibility is analysed on the camber shape generated for two different Mach numbers. Constraint of lift is firstly used for developing an objective function for drag minimization. Next the lift and wing root bending moment constraints are considered to form objective function. Analysis is made on the resulting camber and twist distributions.