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Final Technical Report

Air Force Contract F49620-79-C-0162

TRANSONIC AERODYNAMICS

The technical work proposed under the contract has been completed.

1. A study has been made of finite span wings flying at the speed of sound. The general form of inner and outer expansions in terms of B = reduced aspect ratio has been deduced. Suitable far field and near field expansions have been constructed and matched asymptotically. A new integral formula for the essential physical scale of the problem has been derived.

A summary of these results has been submitted to Mechanics Research Communications and will appear. The paper is entitled "Finite Span Wings at Sonic Speed" by J. D. Cole, L. P. Cook and F. Ziegler.

2. A large section of a write up of a verified discussion of many topics in transonic flow theory has been completed. Many new results are incorporated in this review.

Work is continuing in both these areas under a follow-on grant.