

December 1968

Brief 68-10446

NASA TECH BRIEF



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Modified Multhopp Mean Camber Computer Program

The problem:

In the process of wing design, it is often necessary to determine for a given planform the mean camber surface when the load distribution is known. Since the planforms now being considered for use can be of a composite arrangement, lengthy mathematical calculations are required in order to obtain a solution for each wing. Therefore, a computer program was needed to perform these computations.

The solution:

A computer program which determines the mean camber surface required to support a given set of loadings on a composite wing in subsonic compressible flow.

How it's done:

The program uses the basic theoretical method of Multhopp but extends it to predict the mean camber surface. This method is based on steady, linearized, potential, incompressible flow where the effects of compressibility are accounted for by use of the Prandtl-Glauert correction factor. The mean camber surface is found by integrating the local chord slopes,

found by the matrix product of the prescribed loading distribution and the aerodynamic influence coefficients, from the trailing edge forward to specified points along the chord. This is done at each of several spanwise stations.

Notes:

1. This program is written in CDC Fortran for use on the CDC 6000 series computers with the Scope 2.0 operating systems and library tape.
2. Inquiries concerning this program may be directed to:

COSMIC
Computer Center
University of Georgia
Athens, Georgia 30601
Reference: B68-10446

Patent status:

No patent action is contemplated by NASA.

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(LAR-10376)

Category 06