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NASA TECH BRIEF

Lyndon B. Johnson Space Center



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Dynamic Nonlinear Analysis of Shells of Revolution (DYNASOR II)

The problem:

A better method for performing nonlinear analysis of a shell of revolution in motion was needed.

The solution:

The equations of motion of the shell are solved using Houbolt's numerical procedure with the nonlinear terms being moved to the right-hand side of the equilibrium equations and treated as generalized loads.

How it's done:

The displacements and stress resultants can be determined for both symmetrical and asymmetrical loading conditions. Asymmetrical dynamic buckling can be investigated using this program. Solutions can be obtained for highly nonlinear problems in reasonable periods of time on the computer, utilizing as many as five of the harmonics generated in SAMMSOR (NASA Tech Brief B73-10443). A restart capability is incorporated in the code which allows the user to restart

the program at a specified point without having to expend the computer time necessary to generate the prior response.

Notes:

1. This program was written in FORTRAN IV for the IBM 360 or CDC 6000 series computers.
2. Inquiries concerning this program should be directed to:

COSMIC
University of Georgia
112 Barrow Hall
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Reference: MSC-14496

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