

# NASA TECH BRIEF

## *Langley Research Center*



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### Computer Program for Structural Analysis of Layered Orthotropic Ring-Stiffened Shells of Revolution (SALORS): Linear Stress Analysis Option

#### The problem:

A method was needed for the quick-and-efficient but very-detailed linear static analysis of structurally complex, thin, elastic shells of revolution under asymmetric loads.

#### The solution:

A computer program was written to perform this type of analysis.

#### How it's done:

The program is equipped to handle segmented, laminar, orthotropic shells with discrete rings. Provisions are made for handling meridional variations in material properties, temperatures, and wall thickness. The program also allows for linear variations of temperature through each layer of the shell wall. Meridional discontinuities in geometry, temperature, and material properties and the actual load path through the joint at a discontinuity are accounted for. The effects of longitudinal stiffening (stringers) are automatically distributed circumferentially. Circumferential variations of loads and temperatures are handled by Fourier series expansion.

#### Notes:

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

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