NASA TECH BRIEF

Computer Program Reduces and Provides Profile Plot of Surface Plate Calibration Data

The problem:

To develop a method that will decrease the time and labor required to reduce and provide a profile plot of surface plate calibration data. Hand reduction methods required approximately 3-1/2 hours. In addition there was no method to quickly determine the margin size and number of data required to give a diagonal center point to make $C^2 = A^2 + B^2$.

The solution:

A computer program which yields CRT displays depicting actual and resolved data points for each individually calibrated line. Moreover, the program will yield a profile graph of the calibrated portions of the entire surface plate with computed values relative to diagonal center being equal to zero. All surface plate stations are related to zero.

How it's done:

The program accommodates surface plates with up to 24 mirror base increments on the long side. In addition, a group of 20 sample graphs have been prepared which establish at a glance the necessary requirements as to margin, base size and number of data points on the diagonal, longitudinal, and transverse lines.

The time required to reduce and plot this data has dropped from 3-1/2 hours for hand reduction to approximately 3-1/2 seconds per case for the computer. The sample graphs save approximately 1 hour per case, eliminate the probability of missing center entirely, and insure uniformity in surface plate calibrations.

Notes:

1. This program is written in Fortran IV for use on the IBM 360 computer.
2. This program has general application to any surface or surface plate where calibration data with reductions are required to produce a CRT profile plot.
3. Inquiries concerning this program may be made to:
   COSMIC
   Computer Center
   University of Georgia
   Athens, Georgia 30601
   Reference: B67-10492

Patent status:

No patent action is contemplated by NASA.

Source: Robert W. Reed
of North American Aviation, Inc.
under contract to
Marshall Space Flight Center
(MFS-13866)