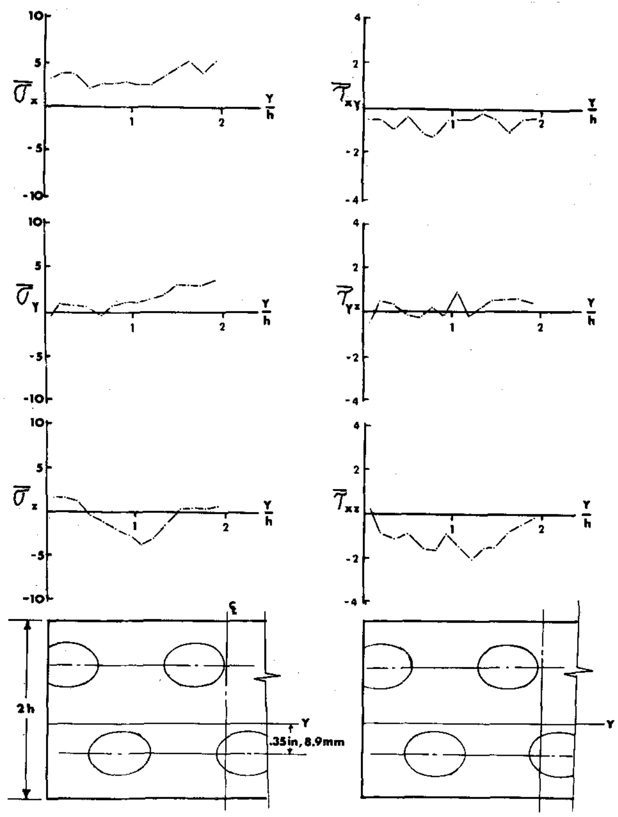

Fig. 9—Interlaminar matrix stresses in two-layer model. Points on graphs indicate stress values at discrete locations in the Y direction (Fig. 1). Locations may be identified with respect to fibers below graph. $\bar{\sigma}_X = \sigma_X/S$, $\bar{\sigma}_Y = \sigma_Y/S$, etc., where S = P/A (average normal stress due to applied load). h = 1 in. (25.4 mm)

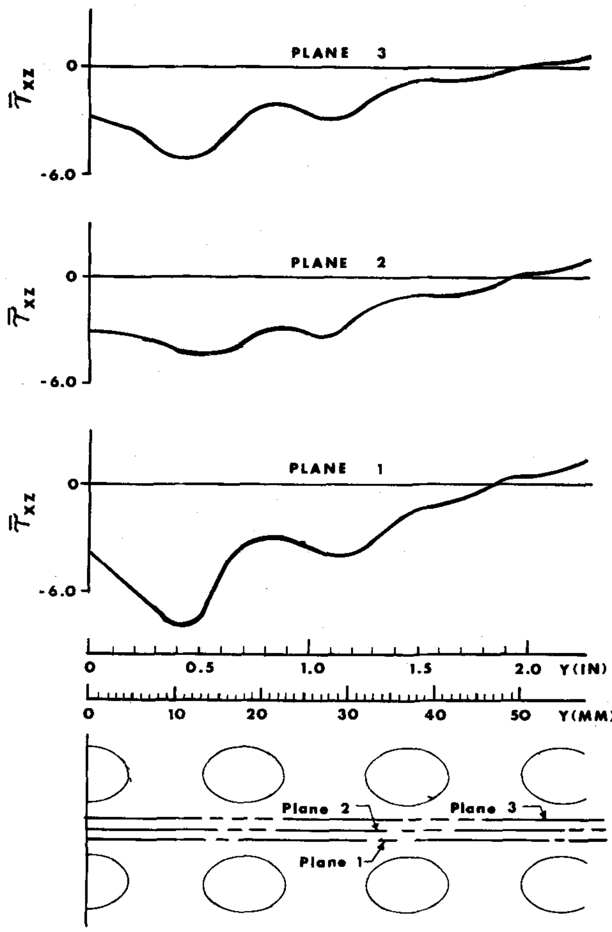

Fig. 10—Interlaminar matrix shear stress in four-layer model. Values obtained in three planes of solution region. Plane 2 is centered between upper two fiber layers (Fig. 2). Planes 1 and 3 are 0.05 in. (1.3 mm) to either side. $\bar{\tau}_{XZ} = \tau_{XZ}/S$ where S = P/A (average normal stress due to applied load)

Stresses were determined in the data collection region with respect to x, y, z coordinates and then transformed to the X, Y, Z coordinate system.[1] Figure 10 shows stress values continuously along lines in three planes normal to the Z-axis in the solution region of the four-layer model. The location of this line may be found with the assistance of Fig. 2.

In both analyses, the matrix stresses were found to be significantly higher than theoretically predicted composite stresses.[1]

Summary

A procedure has been described for producing multilaminar fibrous-composite models. Included were dimensional analysis, molding procedure and model-material preparation. Methods described were used with scattered-light photoelastic analysis to study the matrix interlaminar stresses between the fiber layers of two composite models.

Acknowledgment

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ERRATA:

Photoelastic Analysis of Interlaminar Matrix Stresses in Fibrous Composite Models

by D. G. Berghaus and R. W. Aderholdt

Please note that Fig. 8 on page 415 of the November 1975 issue of E/M has been rotated 90 deg (clockwise) from its proper position. Thus, the "top" referred to in the caption is the right edge of the figure. The trace referred to as being on the left is the upper trace in the figure as it stands. The trace referred to as being on the right is the lower trace.

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