The drag data from flight test of a typical, swept wing transport are shown in Fig. 1, where the last two digits of the drag coefficient are noted at each test point. Deviations in the values of drag coefficient from a faired mean are readily apparent. However, the faired curves are believed to represent the true polars with a considerable degree of accuracy for flight data results. The faired curves of drag coefficient vs Mach number at constant lift coefficient and of drag coefficient vs lift coefficient at constant Mach numbers are shown in Fig. 2. These latter curves then become the usual working curves for use in performance calculations.

Technical Comments

Comment on "A Note on the General Instability of Eccentrically Stiffened Cylinders"

ROBERT M. JONES[*]

Aerospace Corporation, San Bernardino, Calif.

PROFESSOR Simitses[4] refers to the work of Block, Card, and Mikulas[1] in a Note that may possibly mislead the reader. Professor Simitses displays a single Donnell-Batdorf stability differential equation which is equivalent to the three stability differential equations in Ref. 1. He then states that for some special cases a closed-form solution is possible. The two special cases are, in fact, more carefully

treated in the solution of Ref. 1, although not in closed form. Simitses presents these solutions with mention that they are for "simply supported [edge] boundary conditions." Unfortunately, it is not sufficient to state that simply supported edge boundary conditions are used, because that statement might apply to *any* of the following four sets of boundary conditions[2]:

$$u \quad = v \quad = w = \delta M_x = 0$$

$$u \quad = \delta N_{xy} = w = \delta M_x = 0$$

$$\delta N_x = \delta N_{xy} = w = \delta M_x = 0$$

$$\delta N_x = v \quad = w = \delta M_x = 0$$

Professor Simitses' discussion of buckling of eccentrically stiffened, circular cylindrical shells under axial compression was limited to axisymmetric buckling. As a result, he came to the conclusion that "the strongest configuration corresponds to placing the stringers on the inside," a result the reader may erroneously assume to be generally applicable. The treatment of the more general case of asymmetric buckling given in Ref. 1 makes it clear that, in most practical cases, stringers on the outside provide a more buckling-resistant configuration than do stringers on the inside. This general conclusion is reinforced and extended both theoretically and experimentally in Ref. 3.

References

[1] Block, D. L., Card, M. F., and Mikulas, M. M., Jr., "Buckling of Eccentrically Stiffened Orthotropic Cylinders," TN D-2960, Aug. 1965, NASA.

[2] Sobel, L. H., "Effects of Boundary Conditions on the Stability of Cylinders Subject to Lateral and Axial Pressures," *AIAA Journal*, Vol. 2, No. 8, Aug. 1964, pp. 1437–1440.

[3] Card, M. F. and Jones, R. M., "Experimental and Theoretical Results for Buckling of Eccentrically Stiffened Cylinders," TN D-3639, Oct. 1966, NASA.

[4] Simitses, G. J., "A Note on the Generalized Instability of Eccentrically Stiffened Cylinders," *Journal of Aircraft*, Vol. 4, No. 5, Sept.-Oct. 1967, pp. 473–475.