Technical Comments

Reply by Author to R. M. Jones' "Comment on 'A Note on the General Instability of Eccentrically Stiffened Cylinders' "

GEORGE J. SIMITSES*

Georgia Institute of Technology, Atlanta, Ga.

THE author[1] welcomes the comment by R. M. Jones and agrees that the word "classical" should have been used when referring to the simply supported boundary conditions. "Classical" simply supported boundary conditions correspond to the last set of the Comment and to SS-2 in Ref. 2 of this Reply, and they are the only set for which closed-form solutions have been obtained to the problem of buckling of finite-length, thin cylindrical shell under uniform axial compression and/or uniform pressure. Please note that the well-known results [Eqs. (9) and (13)] of the Note[1] correspond to the "classical" simply supported case.

The statement of the Comment, "The treatment of ...makes it clear, in most practical cases, stringers on the outside...," needs very careful consideration, because many reversals of the eccentricity effect take place, depending on the particular geometry, fineness ratio $(L/\pi R)$, and other parameters. Data in Ref. 3 of this Reply show that, for a geometry similar to the C-141 fuselage immediately aft of the rear landing gear frame and $3 \leq \pi R/L \leq \frac{1}{3}$, the primary influencing factor is the positioning of the rings. Rings on the outside yield the strongest configuration and the relative positioning of the stringers is secondary.

As far as the conclusion of the Note is concerned, it is a true one, and the author fails to see how it can mislead the reader.

Lastly, the author wishes to take this opportunity to point out an error in the printing of Eq. (11) of the Note. The correct expression for the brackets in both terms of Eq. (11) is

$$[(B^2 + 4AC)^{1/2} - B]$$

References

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

[2] Hoff, N. J. and Rehfield, L. W., "Buckling of Axially Compressed Circular Cylindrical Shells at Stresses Smaller Than the Classical Critical Value," *Journal of Applied Mechanics*, Vol. 32, Sept. 1965, pp. 542–546.

[3] Simitses, G. J., "General Instability of Eccentrically Stiffened Cylinders under Combined Loads," Part II, ER8562, 1967, Lockheed-Georgia Co., Marietta, Ga.