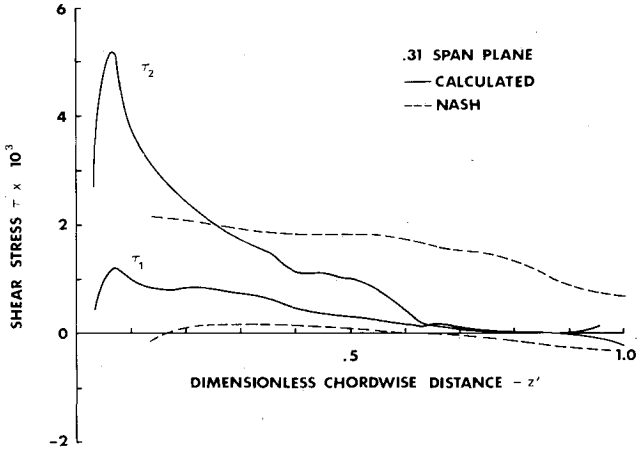

Fig. 2 Transverse and longitudinal shear stresses, τ_1 and τ_2 at the 0.31 semispan plane.

Table 2 Transverse and longitudinal velocity gradients at longitudinal separation

$\hat{\alpha}$	0.0	0.1	0.3 0.5
$-\beta$	0.2	0.28	0.4 0.51

corresponding to separation would be about twice the magnitude of the two-dimensional value and the use of Stratford's criterion would lead to entirely misleading results.

An excellent demonstration of the potential pitfalls in simplified calculations was given by Goethert[5] who used the data of Thomas and Redeker[6] for an F-86A aircraft with an aspect ratio of 4.8 to point out that the buffet boundary at $C_L = 0.5$ was calculated on the basis of cosine law correction to be at $M \approx 0.91$ while flight test at the same Reynolds number indicated $M = 0.87$. An alternate way of looking at this result is that for $M = 0.9$, calculations with the cosine correction showed buffet at $C_L \approx 0.51$ while flight test yielded a value of $C_L \approx 0.38$.

The work of Drs. Powers and Sattler does not exhibit a rational procedure for design of jet trainer airfoils and both the title and contents of the paper are misrepresentations with no basis in fact.

The undeniable success of correlations of flows on wings of different sweep angles and aspect ratios might lead to the expectation of the general validity of such an approach. When little or no boundary layer separation is encountered, inviscid similitude may be invoked to justify correlations. Wings designed to a separation criterion introduce the additional difficulty of correlation of separation in three-dimensional flows. On the basis of the cited references and extensive numerical parametric studies of three-dimensional boundary layers, it does not appear likely that a general relation can be developed. In order to justify the title of the paper, the authors should demonstrate their technique for extending two-dimensional airfoil results to three-dimensional fighter or trainer wings.

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Reply by Authors to A. Wortman

S.A. Powers* and D.F. Sattler†
Vought Corporation, Dallas, Texas

We appreciate Dr. Wortman's analysis of our paper, delivered in the same spirit as that of Ref. 1. Dr. Wortman has missed the point of our paper, which is the determination of a two-dimensional airfoil section to satisfy the local conditions on a three-dimensional straight wing. The subjects of low aspect ratio and high sweep were not discussed because the target aircraft was to have a straight wing of aspect ratio 5.3. Once the discussions in Dr. Wortman's paper pertaining to high sweep and low aspect ratio are removed, nothing is left.

The experimental and theoretical analysis which Dr. Wortman has brought to bear to support his spurious criticisms merely reflect the current state of aerodynamic configuration development; analysis is easy, design is difficult.

We wish to thank our colleague, R.R. Johnson[2] for stimulating and supporting discussions of the issues raised by Dr. Wortman.

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*Senior Staff Engineer—Aircraft. Associate Fellow AIAA.

†Senior Engineering Specialist.