Errata

Transverse Shear Deformation in Orthotropic Cylindrical Pressure Vessels Using a Higher-Order Shear Theory

S. T. Dennis* and A. N. Palazotto†
Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio

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The following errors were inadvertently introduced during production of the paper:

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The fifth sentence of the first paragraph should have Refs. 1 and 3, not Ref. 13.

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Equation (2) should appear as follows; changes are indicated in bold face:

$$\begin{Bmatrix} \sigma_1 \\ \sigma_2 \\ \boldsymbol{\sigma_6} \\ \sigma_4 \\ \sigma_5 \end{Bmatrix} = \begin{bmatrix} Q_{11} & Q_{12} & 0 & 0 & 0 \\ Q_{12} & Q_{22} & 0 & 0 & 0 \\ 0 & 0 & Q_{66} & 0 & 0 \\ 0 & 0 & 0 & Q_{44} & 0 \\ 0 & 0 & 0 & 0 & Q_{55} \end{bmatrix} \begin{Bmatrix} \epsilon_1 \\ \epsilon_2 \\ \boldsymbol{\epsilon_6} \\ \epsilon_4 \\ \epsilon_5 \end{Bmatrix} \tag{2}$$

Equation (3) should be

$$Q_{11} = E_1/\Delta, \quad Q_{12} = \nu_{12}E_2/\Delta, \quad Q_{22} = E_2/\Delta$$
$$Q_{66} = G_{12}, \quad Q_{44} = G_{23}, \quad Q_{55} = G_{13} \tag{3}$$

where $Q_{ij} = C_{ij} - [(C_{i3}C_{j3})/C_{33}]$, in which C_{ij} are functions of engineering constants, ν_{ij}, E_i, and G_{ij}, and $C_{22} = C_{33}$, $C_{12} = C_{13}$.

The second sentence after Eq. (3) should read as follows:

In general, the fibers of the kth individual layer or ply are oriented at an angle Φ, as shown in Fig. 2 for a cylindrical shell with coordinates $\xi_1 = x$, $\xi_2 = s$, and ζ.

The two sentences after Eq. (4b) should read as follows:

where $\bar{Q}_{ij}$ $(i,j = 1,2,6)$ and $\bar{Q}_{mn}$ $(m,n = 4,5)$ are elements of symmetric arrays of transformed stiffness for the kth ply, and σ_k and ϵ_k are measured with respect to shell coordinates ξ_α $(\alpha = 1,2)$ and ζ^1.

Therefore, from Eq. (2) or (4), if the transverse stresses σ_4 and σ_5 vanish on the top and bottom surfaces of the shell, as stated in assumption 4, it is also true that the transverse shear strains vanish on those surfaces.

Equation (5a) should be

$$u_1(\xi_1,\xi_2,\zeta) = u(1 - \zeta/R_1) + \zeta\psi_1 + \zeta^2\phi_1 + \zeta^3\gamma_1 + \zeta^4\theta_1 \tag{5a}$$

In Eq. (7c), $(h^2/8R_2^2)$ should be underlined as printed here.

$$[1 - \underline{(h^2/8R_2^2)}]\gamma_2 \approx \gamma_2 = (-4/3h^2)[\psi_2 + (w_{,2}/\alpha_2)] \tag{7c}$$

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The fourth sentence in the first paragraph should read as follows, with changes in bold face:

A similar exercise is applied to $\boldsymbol{\epsilon_5}$.

The second and third sentences under Strain Displacement Relations should read:

After scale-factor expressions are approximated by truncated binomial series, the in-plane strains can be represented as in Eq. (9), where the terms extend to ζ^7. The ϵ_i^0 and κ_{ip} terms represent algebraically complicated nonlinear terms in displacement and are functions of the surface parameters ξ_1 and ξ_2.

The first line of Eq. (14) should appear as printed here:

$$U_1 = \frac{1}{2}\int_\Omega (u_1 + u_2 + u_3)\, d\Omega \tag{14}$$

There should be spaces between u and $u_{,1}$, v and $v_{,1}$, and w and $w_{,1}$ in Eq. (17), as follows:

$$d^T = \{u\ u_{,1}\ u_{,2}\ v\ v_{,1}\ v_{,2}\ w\ w_{,1}\ w_{,2}\ w_{,11}\ w_{,22}\ w_{,12}\ \psi_1\ \psi_{1,1}\ \psi_{1,2}$$
$$\psi_2\ \psi_{2,1}\ \psi_{2,2}\} \tag{17}$$

Change the term $[-69/0/60]_s$ in the fifth line under Fig. 6 so that it reads:

$$[-60/0/60]_s$$

Equation (A3) should be as it is printed here, with changes in bold face:

$$\kappa_{11} = \psi_{1,1} - \nu_{,1}^2 c^2 + \psi_{1,1}u_{,1} + \psi_{2,1}v_{,1} \tag{A3}$$

The last term in Eq. (A8), $+ \psi_{2,1}^2$, should be deleted.

The second addition sign in the second line of Eq. (A13) should be deleted so that the line appears as follows:

$$\ldots + v\psi_2 c^3 - 2c^2(\psi_{2,2}w - \psi_2 w_{,2}) + \psi_{2,2}w_{,2}c \tag{A13}$$

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*Member AIAA.

†Associate Fellow AIAA.

An addition sign should appear in the last line of Eq. (A15) as printed here in bold face:

$$\ldots + w_{,2}\psi_2 + \psi_{1,2}k(w_{,12} + \psi_{1,2}) + \psi_2 kc^2(w_{,2} + \psi_2) \qquad \text{(A15)}$$

The first line of Eq. (A16) should be:

$$\kappa_{25} = 2kc[\psi_{2,2}(w_{,22} + \psi_{2,2}) + \psi_{1,2}(w_{,12} + \psi_{1,2})$$

The second line of Eq. (A21) should begin with $+c$. Also, delete the second $w_{,1}\, w_{,2}$ term. The corrected line should read:

$$\ldots + c(u_{,1}u_{,2} - v_{,1}v_{,2} + w_{,1}w_{,2} - w\psi_{2,1} + w_{,1}\psi_2)$$

Replace 1 with 2 in the first term of the first line of Eq. (A23), and the second term of the fourth line of Eq. (A23) should be $\psi_{2,1}\psi_{2,2}$ as printed here:

$$\begin{aligned}\kappa_{63} = {} & 2kw_{,12} + k\psi_{1,2} + k\psi_{2,1} + ku_{,2}(w_{,11} + \psi_{1,1}) \\ & + kcw_{,1}(w_{,2} + \psi_2) - ku_{,1}(w_{,12} + \psi_{1,2}) \\ & + kv_{,1}(w_{,22} + \psi_{2,2}) - kcw(w_{,12} + \psi_{2,1}) \\ & + c(\psi_{1,1}\psi_{1,2} + \psi_{2,1}\psi_{2,2}) + kv_{,2}(w_{,12} + \psi_{2,1}) \qquad \text{(A23)}\end{aligned}$$

Replace $w_{,1}\, w_{,2}$ with $w\psi_{2,1} - w_{,1}\, w_{,2}$ at the end of the third line of Eq. (A24) so that it reads

$$\ldots + \psi_{2,2}(w_{,12} + \psi_{2,1}) - kc^2(ww_{,12} + w\psi_{2,1} - w_{,1}w_{,2}) \qquad \text{(A24)}$$

The last term of Eq. (A33) should be $\kappa_{j7}\kappa_{i7}T_{ij}$ as printed here:

$$\ldots + (2\kappa_{j5}\kappa_{i7} + \kappa_{j6}\kappa_{i6})R_{ij} + 2\kappa_{j6}\kappa_{i7}S_{ij} + \kappa_{j7}\kappa_{i7}T_{ij} \qquad \text{(A33)}$$

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