Known Typographical Errors in the Third Edition, First Printing of Turbulence Modeling for CFD by D. C. Wilcox

These are all of the known typographical errors as of April 7, 2010.

1. Page 63, last paragraph, line 2: Replace "dependent variables" with "independent variables".

2. Page 71, Equation (3.88): Replace "y" with "η".

3. Page 71, Equation (3.89): The limiting value of the function is missing and "y" should be replaced by "η". The correct equation is

$$\frac{d}{d\eta}\left[\frac{1}{\eta^j}\frac{dF}{d\eta}\right] \to 0 \qquad \text{as} \qquad \eta \to 0$$

4. Page 96, third line below Equation (3.155): Replace "Additionally u_τ is the conventional friction velocity and ρ_w is the density at the surface, $y = 0$." with "Additionally, the quantity $u_\tau \equiv \sqrt{\tau_w/\rho_w}$ in Equation (3.155) is the conventional friction velocity, where ρ_w is the density at the surface, $y = 0$.".

5. Page 108, second line below Equation (4.3): Replace "per unit volume" with "per unit mass".

6. Page 149, third line from the bottom: Replace "Results that follow" with "Results shown in Figure 4.15".

7. Page 153, line above Equation (4.105): Replace "$\sigma^* < 0.70$" with "$\sigma^* > 0.70$".

8. Page 160, second of Equations (4.126): Replace "$\alpha(\partial U/\partial y)^2$" with "$\alpha(\omega/k)\nu_T(\partial U/\partial y)^2$". The correct equation is

$$0 = \alpha\frac{\omega}{k}\nu_T\left(\frac{\partial U}{\partial y}\right)^2 - \beta_o\omega^2 + \frac{\sigma_d}{\omega}\frac{\partial k}{\partial y}\frac{\partial \omega}{\partial y} + \sigma\frac{\partial}{\partial y}\left[\frac{k}{\omega}\frac{\partial \omega}{\partial y}\right]$$

9. Page 176, third of Equations (4.184): Replace "$\alpha(\partial U/\partial y)^2$" with "$\alpha(\omega/k)\nu_T(\partial U/\partial y)^2$". The correct equation is

$$\frac{d}{dy}\left[\left(\nu + \sigma\frac{k}{\omega}\right)\frac{d\omega}{dy}\right] + \alpha\frac{\omega}{k}\nu_T\left(\frac{dU}{dy}\right)^2 + \frac{\sigma_d}{\omega}\frac{dk}{dy}\frac{d\omega}{dy} - \beta_o\omega^2 = 0$$

10. Page 183, Equation (4.197): Replace "8.0" with "9.5". The correct equation is

$$C \to 9.5 + \frac{1}{\kappa}\ell n(S_R/100) \qquad \text{as} \qquad S_R \to 0$$

11. Page 183, just below Equation (4.199): Replace "then Equations (4.197) and (4.198) are identical" with "then Equations (4.197) and (4.198) are nearly identical".

12. Page 251, Equation (5.59), last term on the right-hand side: Replace "$\rho u''_{i,i} u''_{i,i}$" with "$\rho u''_{k,k} u''_{i,i}$". The correct equation is

$$\bar{\rho}\epsilon = \bar{\nu}\left[\overline{\rho\omega''_i\omega''_i} + 2\overline{\rho u''_{i,j}u''_{j,i}} - \frac{2}{3}\overline{\rho u''_{k,k}u''_{i,i}}\right]$$

13. Page 252, Equation (5.61): Replace "$\rho u''_{i,i} u''_{i,i}$" with "$\rho u''_{k,k} u''_{i,i}$".

14. Page 255, Equation (5.71): Add an overbar to density in the turbulence kinetic energy diffusion term. The correct term is

$$\left(\mu + \sigma^* \frac{\bar{\rho}k}{\omega}\right)\frac{\partial k}{\partial x_j}$$

15. Page 255, Equation (5.75): Add an overbar to density in the production term. The correct term is

$$\alpha\frac{\omega}{k}\bar{\rho}\tau_{ij}\frac{\partial \tilde{u}_i}{\partial x_j}$$

16. Page 256, first bullet point, second line: Replace "$E =$" with "$\bar{\rho}E =$".

17. Page 256, next to last bullet point, third line: Replace "is Galilean invariant" with "yields the same algebraic form for χ_ω in both compressible and incompressible flows".

18. Page 262, Equation (5.89): Replace "β_o^*" with "β_i^*". The correct equation is

$$\beta^* = \beta_i^*\left[1 + \xi^* M_t^2\right] \qquad \text{and} \qquad \beta = \beta_o - \beta_i^* \xi^* M_t^2$$

19. Page 281, Equation (5.131): In the central term, $\partial\tilde{u}/\partial y$ should be squared. The correct term is

$$\frac{(\bar{\rho}k/\omega)\left(\partial\tilde{u}/\partial y\right)^2}{\beta^*\bar{\rho}k\omega}$$

20. Page 306, Figure 6.2: The curves are misidentified. The solid curve corresponds to the computation with the curvature correction and the dashed curve to the computation without the curvature correction.

21. Page 340, line 3: Replace "$\overline{uv}$" with "$\overline{u'v'}$".

22. Page 468, Equation (B.16): Replace the equation for β with

$$\beta = \frac{1 + \sqrt{1 - 4\delta}}{2}$$

23. Page 474, Figure B.2: Replace "ϵ" with "δ" above each graph, replace "$y(x)$" with "$F(s)$" on the vertical scale of each graph and replace "x" with "s" on the horizontal scale of each graph.

24. Page 474, next to last paragraph, lines 4, 7 and 8: Replace "ϵ" with "δ".

25. Page 485, Driver-Seegmiller reference, last line: Replace “No. 1” with “No. 2”.

26. Page 489, line 2: Replace “AIAA Paper 78-1168” with “AIAA Paper 78-1169”.

27. Page 499: The “Schlichting and Gersten (2000)” reference is missing. The reference is Schlichting, H. and Gersten, K. (2000), *Boundary Layer Theory*, Eighth Ed., Springer-Verlag, Berlin, Germany.