Known Typographical Errors in the Third Edition, First Printing of Basic Fluid Mechanics by D. C. Wilcox

These are all of the known typographical errors as of April 17, 2011.

1. Page 2, paragraph 2, last sentence: Replace "X-1 was determine" with "X-1 was to determine".

2. Page 7, Table 1.3: Change "deka" to "deca".

3. Page 18, Equation (1.24): Change "1 torr" to "760 torr".

4. Page 21, Equation (1.28): Change "8310" to "8314".

5. Page 31, Just below Equation (1.49): Change "Appendix A.8" to "Table A.8 of Appendix A".

6. Page 33, Example 1.16: Change "Consider tape whose width" to "Consider tape whose width (out of the page)".

7. Page 46, Problems 1.80 and 1.81, line 4: Change "rate of descent" to "acceleration".

8. Page 122, Problem 3.38, third sentence: Change "is has" to "has" and change the question mark to a period.

9. Page 129, Problem 3.77, first line: Change "copper" to "bismuth".

10. Page 132, Problem 3.93, first line: Replace "of width $2L$" with "of width L".

11. Page 156, Equation (4.36), upper limit of the integral: Replace "u_2^{cv}" with "u_2". The correct equation is

$$\lim_{\Delta t \to 0} \frac{A}{\Delta t} \int_{x_2 + u_2^{cv} \Delta t}^{x_2 + u_2 \Delta t} \rho(x, t + \Delta t) \beta(x, t + \Delta t) dx = A \left[\rho (u - u^{cv}) \beta \right]_2$$

12. Page 169, Problem 4.37, first line: Replace "zero" with "nonzero".

13. Page 203, Problem 5.46, fourth line: Replace "diving" with "driving".

14. Page 204, Problems 5.55 and 5.56: Add "You can assume Bernoulli's Equation holds for this flow.".

15. Page 246, Problem 6.16, last line: Replace "$d = \frac{4}{5} d$" with "the diameter is $\frac{4}{5} d$".

16. Page 220, Problem 6.109, first line: Replace "Klingons" with "Romulans".

17. Page 269, Problems 6.109 and 6.110, first line below equation: Replace "Assuming fuel density, ρ_e, velocity, u_e, and exit area, A_e, are constant at the rocket exit plane, and that pressure at the rocket exit plane is negligibly small, determine" with "Fuel density, ρ_e, and velocity, u_e, are uniform at the rocket exit plane, which has area A_e. Also, pressure at the rocket exit plane is negligible. Determine".

18. Page 276, Equation (7.15), between first and second equal signs: Replace "$d(1/\rho)$" with "$pd(1/\rho)$". The correct equation is

$$Tds = c_v dT + pd\left(\frac{1}{\rho}\right) = c_v dT - \frac{p}{\rho^2}d\rho$$

19. Page 292, Figure 7.6, caption: Change "Fiction" to "Friction".

    Friction factor for a perfectly-smooth pipe: ∘-measured, A-laminar, B-turbulent.

20. Page 334, Problem 7.46, third line: Replace "$\dot{m}$" with "$\dot{V}$".

21. Page 338, Problem 7.61, third line and figure: Replace "$\mathcal{R} = 0.06D$" with "$\mathcal{R} = 4D$". Also, add $L/D = 100$.

22. Page 340, Problem 7.70, fourth line: Replace "*Black Box*" with "*Black Box*, excluding the friction forces in the inlet and outlet pipes".

23. Page 340, Problem 7.70, Part (b): Add "There are no pumps or turbines within the *Black Box*."

24. Page 373, Problem 8.26(c): The gas is air.

25. Page 375, Between Problems 8.37 and 8.38: Replace "Problems 8.37, 8.38, 8.39" with "Problems 8.37, 8.38, 8.39, 8.40".

26. Page 416, Problem 9.44, third line: Replace "$\Omega\tau$" with "τ".

27. Page 430, first line: Replace "Equation (10.30)" with "Equation (10.29)".

28. Page 436, Problem 10.14, last line: Replace "ft^2/sec^2" with "ft^2/sec".

29. Page 436, Problem 10.15, last line: Replace "m^2/sec^2" with "m^2/sec".

30. Page 436, Problem 10.16, fourth and fifth lines: Replace "m^2/sec^2" with "m^2/sec".

31. Page 437, Problem 10.17, fourth line: Replace "ft^2/sec^2" with "ft^2/sec".

32. Page 437, Problem 10.20: Add "Ignore the buoyancy force."

33. Page 440, second line from bottom of page: Replace "Suction 11.4" with "Section 11.4".

34. Page 442, Example 11.1, last part of the first equation: Replace "$w = \partial\phi/\partial x = X(x)Y(y)$" with "$w = \partial\phi/\partial z = X(x)Y(y)$".

35. Page 465, Example 11.7, second line in **Solution**: Replace "$D = \mathbf{j} \cdot \mathbf{F}$" with "$D = \mathbf{i} \cdot \mathbf{F}$".

36. Pages 474 and 475, Example 11.9: Replace "$\rho_s = \frac{1}{4}\rho$" with "$\rho_s = \frac{1}{2}\rho$" (just above figure on page 474 and in first line of page 475).

37. Page 505, Example 11.14, last paragraph, line 3: Replace "Display" with "View".

38. Page 518, Problem 11.69: Replace "$C_{max}/c = 0.04$" with "$C_{max}/c = 0.05$".

39. Page 519, Problem 11.75(a), last line: Replace "$\cos^3\theta = \frac{1}{4}(3\cos\theta + 4\cos 3\theta)$" with "$\cos^3\theta = \frac{1}{4}(3\cos\theta + \cos 3\theta)$".

40. Page 571, paragraph 3, line 3: Replace "Display" with "View".

41. Page 705, Problem 14.13(d): Replace "$\ell/h_0 = 800$" with "$\ell/h_1 = 800$".

42. Page 714, Problem 14.54: Replace "11.54" with "14.54" in problem number and in figure caption.

43. Page 745, second paragraph, last line: Change "$[\boldsymbol{\tau}] = \mathbf{0}$]" to "$[\boldsymbol{\tau}] = [\mathbf{0}]$".

44. Page 795, Problem 15.82, equation: In the first term, replace "$\frac{1}{2}\left(u_{i+1}^n - u_{i-1}^n\right)$" with "$\frac{1}{2}\left(u_{i+1}^n + u_{i-1}^n\right)$". The correct equation is

$$\frac{u_i^{n+1} - \frac{1}{2}\left(u_{i+1}^n + u_{i-1}^n\right)}{\Delta t} + a\,\frac{u_{i+1}^n - u_{i-1}^n}{2\Delta x} = 0$$

45. Page 797, Equation (A.2): Change "1 torr" to "760 torr".

46. Page 829, Problem 1.25: Replace "519 J/(kg·K)", which is the value appropriate for $\mathcal{R}$ = 8310 J/(kg-mole·K), with "519.6 J/(kg·K)," which is appropriate for $\mathcal{R} = 8314$ J/(kg-mole·K).

47. Page 831, Problem 3.73(a): The correct answer for $\mathbf{F}$ is $\mathbf{F} = -\rho g \ell^3[6\mathbf{i} + (4+\pi)\mathbf{k}]$.

48. Page 831, Problem 5.31: The correct answers are 93% for the VW Bug and 84% for the Corvette.

49. Page 832, Problem 5.53(b): Replace "0.225 atm" with "0.223 atm".

50. Page 832, Problem 6.39: Replace "$B = \frac{1}{2}A$" with "$B = \frac{1}{4}A$".

51. Page 832, Problem 6.67: The correct answer for R_y/R_x is $R_y/R_x = 5/(2 + 5\cos\phi)$.

52. Page 832, Problem 6.85: The correct answer for $\mathbf{F}$ is $\mathbf{F} = \frac{1}{32}\pi\rho V^2 D^2(-3\,\mathbf{i} + 2\,\mathbf{j})$.

53. Page 832, Problem 6.93(b): Replace "0.464 kN" with "0.467 kN".

54. Page 832, Problem 6.101: The correct answer for F_y is $F_y = -\frac{1}{72}\left(16 - 3\sin\alpha\right)\rho\, U^2 h$.

55. Page 832, Problem 6.105: The correct answer for C_D is $C_D = -\frac{5}{9}$.

56. Page 834, Problem 8.31: Replace "$T_2 = 279$ K" with "$T_2 = 292$ K".

57. Page 834, Problem 8.51: Replace "$T_t = 563^\circ$ R" with "$T_t = 563^\circ$ F".

58. Page 835, Problem 11.51: Replace "$u_{max} = \frac{13}{9}U$" with "$u_{max} = \frac{5}{4}U$".

59. Page 836, Problem 12.23, solution for $\nabla \cdot [\boldsymbol{\tau}]$: Replace "$3y\,\mathbf{k}$" with "$3z\,\mathbf{k}$". The correct answer is

$$\nabla \cdot [\boldsymbol{\tau}] = \frac{2\mu U}{L^3}(3x\,\mathbf{i} + 5x\,\mathbf{j} - 3z\,\mathbf{k})$$

60. Page 837, Problem 14.13(c): Replace "h_o/ℓ" with "h_1/ℓ".

61. Page 837, Problem 14.75: Replace "$f'(\eta) \to U_2/U_1$" with "$f'(\eta) \to 0$".