

Some Corrections to Text *Mechanical Design of Machine Elements and Machines* by Jack Collins

1. Page 37, Figure 2.7, b should be entire width of plate, not half width.
2. Pages 59 and 63, in Examples 2.9 and 2.10, k_{sr} should be equal to 0.78 and 0.75, respectively. Lathe-turned means the surface finish is machined. The k_{sr} values can be found in Fig. 2-21.
3. Page 87, last sentence in first full paragraph, states that the secant formula is only valid for columns of type shown in Figs. 2.37 (a) and (c). In fact, it is easy to show that it is also valid for type (b) as well (equivalent to type (a) with $L_e = 2L$).
4. Problem 2-13: Problem statement doesn't give the length of the bar tested. Assume bar is 6-inches long.
5. Figure P2.54 is messed up, numbers on left scale don't align with horizontal lines and first cycle and second cycle peaks not aligned.
6. On pp. 168, 169 in Table 4.1, Case 6, the shear diagram is incorrect, should look the same as Case 1; Cases 7 and 9, loading in diagram should just be w , not wL ; for Case 10, in the diagram, there should not be a distributed load shown.
7. Equation (4-4) should read $\sigma_x = \frac{My}{I}$.
8. Equation (4-125), numerator should read $2F$ not $2E$.
9. Figure 4-34, p. 235, horizontal axis should be in terms of b not a , and the graph is not an accurate depiction of the equations. In particular, the maximum shear stress looks like it is maximum at a depth of $z = a$ (where a should actually be b), when it should be at $z = 0.75b$.
10. Example 4.15, solution step b, p. 237, should refer to Fig. 4-34, not 4-30.
11. Problem 4-21 should read "... the wall thickness is 0.125 inch, ..."
12. Problem 4-47 part (b) should read "... from 50,000 lb tension to 50,000 lb compression, ...", i.e. lb not psi for unit of force.
13. Top of page 274, should read Table 5.1 (Continued) not Table 5.2.
14. Eqns. (4-42) and (8-9) have opposite signs, should both have minus sign to be consistent.
15. Page 274, equation (5-17), coefficient in front of the integral should be $\frac{1}{\sqrt{2\pi}}$.
16. Problem 8-19, part (c), on page 360, bearing stiffness should have units of lb/in not lb-in.
17. Conversion factor J_{Θ} on p. 398 is confusing. To be precise $1 \text{ Btu} = 9336 \text{ in-lb} \approx 1000 \text{ N-m}$ and $1 \text{ N-m} = 1 \text{ W-s}$, ie. $1 \text{ W} = 1 \text{ N-m/s}$. And the 60 in the numerator in Eqn. (10-18) is to convert rev/sec to rev/min.
18. p. 401, item 7, should refer to eqn (10-26) not (10-25).
19. p. 473, denominator should read $\pi d_r n_e p^2$.

20. p. 501, first sentence refers to wrong equations, should refer to (13-33) and (13-34).
21. p. 512, question 13-13, bolt at B should be $\frac{3}{8}$ -16 UNC, not $\frac{3}{8}$ -13 UNC.
22. p. 563, eqn (15-2), an equals sign is missing, i.e. it should read $\frac{\omega_{out}}{\omega_{in}} = \frac{n_{out}}{n_{in}} = \pm \dots$
23. p. 592, an SI version of eqn. (15-41) should be given (i.e., in terms of module m) as $\sigma_b = \frac{F_t}{mbJ} K_a K_v K_m K_I$.
24. p. 662 in Table 16.1, the Max. allowable pressure should be labeled p_{all} instead of p_{max} because it represents the maximum allowable pressure for the given material combination, whereas p_{max} , which is used in numerous equations later, is the maximum predicted pressure for a given brake geometry and actuating force. The materials and brake need to be selected/designed so that p_{max} , which is computed, does not exceed p_{all} .
25. pp. 666+, symbol α is used for both angle of contact (eg. Figure 16.4) and angular acceleration (eg. Eqn (16-19)). Should use different symbols.
26. p. 666, Eqn (16-16) should read in the numerator $N(b + \mu d)$.
27. p. 677, Equation (16-45) should read

$$M_f = \frac{\mu w_c R p_{max}}{(\sin \phi)_{max}} \left[\frac{r_1}{2} (\sin^2 \phi_1 - \sin^2 \phi_2) - R (\cos \phi_2 - \cos \phi_1) \right]$$