# Errata for *Powered Flight*

1. Eq. (8.3) should appear as:

$$P_{eq} = P_{s,o} + \frac{F_{jet,o}}{F_{o,prop}} P_{s,o} = P_{s,o}(1 + \dot{m}_a(1 + f)V_{e,\infty} / F_{o,prop}) \qquad (8.3)$$

2. There's a possibility of an extra page 333 and 334 in some copies of the book. Please ignore.

3. Caption for Fig. 6.62 should read: Schematic diagrams illustrating the nominal forward-thrust setup for the rear of a jet engine in flight (at left), and at right, the temporary deployment of external buckets at the rear of the engine in order to provide a reverse thrust capability for the airplane as it decelerates in a landing ground roll

4. Eq. (9.29) should appear as:

$$\frac{A_t}{A_e} = \frac{Ma_e}{Ma_t}\left[\frac{2 + (\gamma - 1)Ma_t^2}{2 + (\gamma - 1)Ma_e^2}\right]^{\frac{\gamma+1}{2(\gamma-1)}} \qquad (9.29)$$

5. Bottom of p. 294, should appear as:

…, air density $\rho$ = f($h$) …

6. Eq. (10.10) should appear as:

$$r_e = \frac{h(T_F - T_S)}{\rho_s[C_s(T_S - T_i) - \Delta H_s]} \qquad (10.10)$$

7. Middle of p. 220, solution for Prob. 6.3, $p_{05}$ value is shown as 193 kPa in the solution of the equation for finding $p_{06}$ , but that value should be 183 kPa, as per Prob. 6.2. Note that the value for $p_{06}$ is correct as shown (172 kPa).

8. Near the bottom of p. 229 for the sample solution of Prob. 6.9, one sees the solution for the exiting mass flow, which should be shown as follows:

$$\dot{m}_e = \rho_e V_e A_e = 44.4 \text{ kg/s}$$

9. Near the bottom of p. 491 (Appendix III), should be as follows:

$$1 \text{ kg/m}^3 = \ldots = 3.61 \times 10^{-5} \text{ lbm/in}^3$$

10. Near the bottom of p. 432 (solution, Prob. 12.4), in the equation for flame zone thickness $\delta_o$, the wrong value was used for solid specific heat $C_s$ (should be 2000, not 1100). As a result, the actual end solution for total burning rate $r_b$ should be 0.00742 m/s (not 0.019 m/s) for that first iteration using the initial guess for $r_b$ as 0.019 m/s. By repeated guesses for different values for $r_b$, one can eventually show that the converged value for $r_b$ is 0.0173 m/s, and the axial mass-flux (base) burning rate at 500 g is 0.00703 m/s (as compared to 0.01165 m/s at 0 g).

11. Error in fifth reference on p. 433. Should read:

5. Sutton GP, Biblarz O (2001) Rocket propulsion elements, 7th edn., Wiley, New York

12. Eq. (3.23) should appear as:

$$\frac{w}{V_0} = \frac{1}{2}\left(-1+\sqrt{1+\frac{F}{qA_1}}\right) \tag{3.23}$$

13. On p. 427, mid-page, below Eq. (12.22) for $e_s$, there are two mistaken references to Eq. (12.16). The references are in fact to Eq. (12.22), not (12.16).

14. On p. 119, missing Practice Problem 4.7 (solution is provided on p. 124). Please see below:

**4.7.** a) An airplane utilizing a turbosupercharged Teledyne Continental TSIO-520-WB spark-ignition piston engine is running at 2700 rpm, 26 in Hg MAP, at 15000 ft (ISA). Refer to **Fig. 4.18**. Determine the BSFC (lb/hr·hp) being delivered by this engine at this juncture in the flight. b) Later in the flight, at a different altitude (4000 m ISA) and flight speed (105 m/s), the airplane's 2.1-m-diameter, constant-speed 4-bladed propeller's current reference blade pitch angle β is at 40°, rotating at 1600 rpm through a propeller speed reduction unit from the engine shaft speed of 2700 rpm. Refer to the propeller charts of **Fig. 3.6**. Determine the BSFC (lb/hr·hp) being delivered by this engine at this juncture in the flight.

15. Fig. 4.7(c) is missing on p. 105. Please see below:

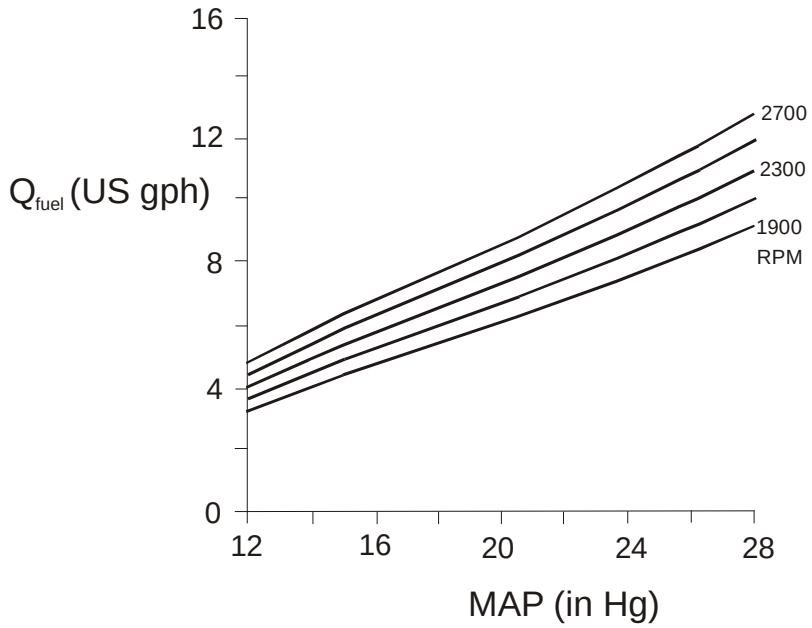


**Fig. 4.7(c) Fuel consumption rate in U.S. gallons per hour as a function of MAP and engine shaft speed, Lycoming O-320-A2B.**

16. p. 73, Eq. (3.53), far righthand side, insert $x^2$ in denominator as indicated below :

$$\ldots = \omega^2 r^2 / (\pi^2 x^2) \ ( J^2 + \ldots )$$

17. p. 426, Eq. (12.15), should be " $f^*$ " in denominator, not " $f *$ ", as per the sentence below this equation identifying this particular variable.