

Corrections to First Printing of *Aircraft Engine Design, Second Edition*

Textbook

Page Correction

- 9 Eq. (1.3), add minus sign to exponent
 20 Figure 2.2, add dot at T/W of 0.34 and W/S of 75 and label “C-20A”
 20 Figure 2.2, change label “E-3” in upper left of figure to “P-3”
 27 Add minus sign before brace in Eq. (2.18b) so that it reads

$$\frac{1}{g_0} \frac{dV}{dt} = \frac{\alpha T_{SL}}{\beta W_{TO}} - \left\{ K_1 \frac{\beta}{q} \left(\frac{W_{TO}}{S} \right) + K_2 + \frac{C_{D0} + C_{DR}}{\beta \left(\frac{W_{TO}}{S} \right)} \right\}$$

- 35 Third line below “**2.2.12 Case 12: Carrier Approach (Wave-off)**”, change “flair” to “flare”
 39 Top of page, correct to read
Turboprop ($M_0 < 0.8$)

$$\begin{aligned} M_0 \leq 0.1 & \quad \alpha = \delta_0 \\ M_0 > 0.1, \theta_0 \leq TR & \quad \alpha = \delta_0 \left\{ 1 - 0.96(M_0 - 0.1)^{1/4} \right\} \\ M_0 > 0.1, \theta_0 > TR & \quad \alpha = \delta_0 \left\{ 1 - 0.96(M_0 - 0.1)^{1/4} - \frac{3(\theta_0 - TR)}{8.13(M_0 - 0.1)} \right\} \end{aligned}$$

- 39 First line of text under 2.3.3 – replace “constaint” with “constraint”
 98 Figure 4.1b – same as Figure 5.1b on page 140
 99 4th line – replace “Chapter 9” with “Reference 7”
 99 4th line below Eqn. (4.3c) – correct second equation to “ $T ds = dh - RT dP/P$ ”
 116 Line 14, change “fuel burned and calculated” to “fuel burned are calculated”
 118 Interchange numbers in 3rd line from bottom of page for Thermal Eff
 118 Interchange numbers in 2nd line from bottom of page for Propulsive Eff
 118 Delete last line on the page for Overall Eff
 137 Add the following to the list of References: “7 Gordon, S. and McBride, B., "Computer Program for Calculation of Complex Chemical Equilibrium Compositions," NASA SP-273, 1971.”
 142 14th line – replace “e.g., see Chapter 9” with “Reference 8”
 160 Delete last line on the page for Overall Eff
 161 Change “LP Spool RPM (% of Design Pt)” to “LP Spool RPM (% of Reference Pt)”
 161 Change “HP Spool RPM (% of Design Pt)” to “HP Spool RPM (% of Reference Pt)”
 162 Change “LP Spool RPM (% of Design Pt)” to “LP Spool RPM (% of Reference Pt)”
 162 Change “HP Spool RPM (% of Design Pt)” to “HP Spool RPM (% of Reference Pt)”
 187 Add the following to the list of References: “8 Gordon, S. and McBride, B., "Computer Program for Calculation of Complex Chemical Equilibrium Compositions," NASA SP-273, 1971.”
 241 Table 7.E1 – change 11th column label from “A” to “A*”
 242 Table 7.E2 – on line labeled “Fan”, change “1.3” to “13” twice

- 258 Line above Eq. (8.11), Eq. (8.11), and Eq. (8.12) - change subscript on the α 's so that each $\frac{\cos^2 \alpha_2}{\cos^2 \alpha_1}$ becomes $\frac{\cos^2 \alpha_1}{\cos^2 \alpha_2}$
- 270 Line below Eq. (8.35) – change “Fig. 8.6” to “Fig. 8.7”
- 272 Eq. (8.52) – change $\sigma_{xr} = \frac{s}{c_x}$ to $\sigma_{xr} = \frac{c_x}{s}$
- 278 Line 30, remove “Figure 8.12.” at start of line
- 294 Bottom equation, left side of equation, remove subscript “r”
- 298 Eq. (8.74) – change subscript “tr” to “t θ ”
- 338 Fig. 9.4 – change “T = 1800°R” to “T = 1000K (1800°R)”
- 345 Line 2, remove comma following \dot{m}_A
- 359 Eq. (9.63) - change subscript “p” to “P”
- 368 Table 9.4, bottom of far right column, change “0.710” to “0.810”
- 373 Third line below Fig. 9.25 – change “Appendix K” to “Appendix M”
- 388 Eq. (9.124) - change “ $r_{m2} x$ ” to “ $r_{mm} (x - x_1)$ ” so that it reads
- $$\frac{A(x)}{A_1} = \frac{(r_o^2(x) - r_i^2(x))}{(r_{o1}^2 - r_{i1}^2)} = \frac{H(x) r_m(x)}{H_1 r_{m1}} = 1 + \frac{r_{mm}}{r_{m1}} \frac{(x - x_1)}{H_1} 2 \tan \theta$$
- 389 Eq. (9.126) – same change as Eq. (9.124) so that it reads
- $$r_i(x) = \sqrt{r_o^2(x) - \frac{A_1}{\pi} \left\{ 1 + \frac{r_{mm}}{r_{m1}} \frac{(x - x_1)}{H_1} 2 \tan 4.5^\circ \right\}}, \quad x_1 < x < x_m$$
- 515 Table at bottom of page – Change lapse rate (L_i) for $i = 6$ from -2.8 to -2.0
- 539 Line 3, add “1” after “not exceed” so it reads “not exceed 1”
- 540 Table E.1 – correct label “ $F_{\dot{m}_0}$ ” to “ F / \dot{m}_0 ”
- 561 Equation for “ η_p ”, change numerator to “ $\frac{2g_c M_0}{a_0} \frac{F}{\dot{m}_0}$ ”
- 568 Equation for “ η_p ”, change numerator to “ $\frac{2g_c M_0}{a_0} \frac{F}{\dot{m}_0}$ ”
- 576 Second equation, change subscript “9” to “19”
- 576 Fifth equation, change subscripts “9” to “19” (three times)
- 576 Eighth equation, change subscript “9” to “19”
- 576 Equation for “ η_p ”, change numerator to “ $2g_c M_0 (1 + \alpha) F / (\dot{m}_0 a_0)$ ”
- 578 Table J.1 – on line labeled “High-pressure compressor”, change “ η_{cL} ” to “ η_{cH} ”
- 584 Equation for “ η_p ”, change numerator to “ $2g_c M_0 (1 + \alpha) F / (\dot{m}_0 a_0)$ ”
- 614 Equation (L.10) – replace “(1 + α)” with “(1 + a)”
- 615 Under column “HCF”, replace “—” with “X” beside High and low turbine Blades
- 686 “Thrust Scale Factor” – add page 158

Supplements on CD-ROM (Version 3.0 of AEDsys Software)

- B-5 Equation for “ η_p ”, change numerator to “ $\frac{2g_c M_0}{a_0} \frac{F}{\dot{m}_0}$ ”
- C-7 Equation for “ η_p ”, change numerator to “ $\frac{2g_c M_0}{a_0} \frac{F}{\dot{m}_0}$ ”
- D-9 Equation for “ η_p ”, change numerator to “ $2g_c M_0 (1 + \alpha) F / (\dot{m}_0 a_0)$ ”

D-13 Table – on line labeled “High-pressure compressor”, change “ η_{cL} ” to “ η_{cH} ”

D-18 Equation for “ η_p ”, change numerator to “ $2g_c M_0(1+\alpha)F/(\dot{m}_0 a_0)$ ”