

ERRATA: Airplane Aerodynamics and Performance

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Year of Print, 2000

(Errata Revised August 9, 2022)

Please check the website www.darcorp.com for updated errata

cover & title page ‘Warren S. Bellows Distinguished Professor’ should be ‘J.L. Constant Distinguished Professor’

page 7, Equation (1.14) Should read:
$$\frac{\rho}{\rho_1} = \left(\frac{P}{P_1}\right)\left(\frac{T_1}{T}\right) = \left(\frac{T}{T_1}\right)^{\left(-\frac{1}{\gamma}-1\right)}$$

page 7, Equation (1.15) Should read:
$$\frac{T}{T_0} = 1 + \frac{ah}{T_0} = 1 - 6.875 \times 10^{-6} h$$

page 46, Line 8 ‘windtunnel’ should be ‘wind tunnel’

page 48, Line 2 ‘sealevel’ should be ‘sea-level’

page 48, Line 8 ‘sealevel’ should be ‘sea-level’

page 48, Line 22 ‘sealevel’ should be ‘sea-level’

page 48, Line 26 ‘sealevel’ should be ‘sea-level’

page 48, Line 33 ‘sealevel’ should be ‘sea-level’

page 62, Equation (3.25b) Should read:
$$c_x = \frac{X}{\bar{q}c} = \int_0^1 \left(c_{p_{upper}} \frac{dz_{upper}}{dx} - c_{p_{lower}} \frac{dz_{lower}}{dx} \right) d\left(\frac{x}{c}\right)$$

page 86, Figure 3.27 Last Figure should be ‘g’ instead of ‘f’

page 105, Figure 4.9 ‘ $e = \frac{1}{\pi Ae}$ ’ should be ‘ $\frac{1}{\pi Ae}$ ’

page 110, Line 3 ‘FAR*23’ should be ‘FAR 23’

page 111, Figure 4.13 Symbols for $\lambda=0.5$ and $\lambda=0.2$ should be reversed

page 129, Line 18 Should read ‘... pure canard and three-surface airplanes can be found in Ref.4.10, pages 344-353 and...’

page 144, Figure 5.6b ‘S = 27.0 ft’ should be ‘b = 27.0 ft’

page 187, Line 26 ‘Figure 5.11’ should be ‘Figure 5.13’

page 195, Line 5 Should read:

$$C_{D_{at (C_L/C_D)_{max}}} = 2C_{D_{min}} + \frac{2C_{L_{min.drag}}^2}{\pi Ae} - \frac{2C_{L_{min.drag}}}{\pi Ae} \sqrt{\pi Ae C_{D_{min}} + C_{L_{min.drag}}^2}$$

page 223, Equation (6.12a) Should read: $s.f.c = 0.454(SHP_{t.o.})^{-0.055}$

page 223, Equation (6.12b) Should read: $s.f.c = 0.525(SHP_{t.o.})^{-0.079}$

page 289, Line 12 ‘thank’ should be ‘than’

page 316, Line 2 ‘Figure 7.18’ should be ‘Figure 7.26’

page 318, Line 1 ‘near field’ should be ‘far field’

page 319, Line 23 ‘110.5’ should be ‘100.5’

page 326, Figure 7.29 Y_1 should be measured from the X-axis, not the lower surface.

page 327, Problem 7.5 ‘ $V_s = \sqrt{1 + \frac{S}{A} C_D}$ ’ should be ‘ $V_s = V \sqrt{1 + \frac{S}{A} C_D}$ ’

page 327, Line 28 Should read ‘... centerline; blade chord, c=0.5 ft; forward ...’

page 333, Line 5 Should read ‘...assumed that the airplane...’

page 335, Equation (8.10) Should read: $-D - W \sin \gamma = 0$

page 341, Equation (8.30) Should read:

$$RD_{min} = \sqrt{\frac{W}{S} \frac{2}{\rho} \frac{1}{(C_L^3/C_D^2)_{max}}} = \sqrt{\frac{W}{S\rho} \frac{10.67}{\pi Ae} \sqrt{\frac{C_{D_o}}{3\pi Ae}}}$$

<i>page 359, Line 14</i>	Should read ‘... Eqn (8.59) shows that at ...’
<i>page 361, Figure 8.20</i>	The horizontal axis of bottom-right chart should have a label ‘Angle of Attack, α (deg)’
<i>page 361, Figure 8.20</i>	3-view drawing of F-106 missing
<i>page 375, Equation (9.5)</i>	‘ $\cos \gamma \approx 0$ ’ should be ‘ $\cos \gamma \approx 1$ ’
<i>Page 399, Line 4</i>	‘ $C_D / C_L^{3/2}$ ’, should be ‘ $C_L^{3/2} / C_D$ ’,
<i>page 404, Equation (9.68)</i>	Should read: $ds = \int_{t_1}^{t_2} V \cos \gamma dt \approx V_{ave} (t_2 - t_1) = R_{CL}$
<i>page 409, Line 7</i>	should read ‘...the time-to-climb can be evaluated...’
<i>page 421, Equation (9.84)</i>	The factor of ‘0.567’ is good for British units only
<i>page 423, Equation (9.87)</i>	The factor of ‘-0.133’ is good for British units only
<i>page 447, Line 4</i>	‘wing’ should be ‘wind’
<i>page 450, Line 6</i>	‘A=2.20’ should be ‘A =2.02’
<i>page 450, Line 6</i>	‘ $h / \bar{c} = 0.33$ ’ should be ‘ $h / \bar{c} = 0.329$ ’
<i>page 467, Equation (10.48)</i>	‘ $\frac{1}{2} a_{g_{ave}}$ at $V = V_{LOF} / \sqrt{2}$ ’ terms should be
‘ $\frac{1}{2 a_{g_{ave}} \text{ at } V = V_{LOF} / \sqrt{2}}$ ’,	
<i>page 467, 2nd line of Equation (10.48)</i>	
<i>left side of equation:</i>	$\frac{1}{2 a_{g_{ave}} \text{ at } V = V_{LOF} / \sqrt{2}} \left[V_{LOF}^2 \pm 2 V_w V_{LOF} - V_w^2 + 2 V_w^2 \right] =$
<i>right side of equation:</i>	$\frac{1}{2 a_{g_{ave}} \text{ at } V = V_{LOF} / \sqrt{2}} (V_{LOF} \pm V_w)^2 =$
<i>page 477, Figure 10.27</i>	For the Take-off Weight vs Balanced Field Length plot, the top curve is for Sea Level and the bottom curve is for an altitude of 8,000 ft.

<i>page 483, Line 19</i>	‘positive when unfavorable’ should be ‘negative when unfavorable’
<i>page 491, Line 8</i>	‘ V_A ’ should be ‘ V_{SL} ’
<i>page 509, Line 20</i>	‘looses’ should be ‘loses’
<i>page 517, Line 2</i>	Should read ‘...maximum endurance occurs when flying...’
<i>page 569, Line 8</i>	Should read ‘... the definition of the weight W_i : it is the airplane weight...’
<i>page 590, Figure 12.8</i>	The label “W=100,000 lbs” should be referenced to the middle curve.
<i>page 690, Chart D5</i>	Change vertical axis label from ‘PNL’ to ‘ Δ PNL’
<i>page 691, Chart D6</i>	Change vertical axis label from ‘PNL’ to ‘ Δ PNL’
<i>page 692, Chart D7</i>	Change vertical axis label from ‘PNL’ to ‘ Δ PNL’
<i>page 693, Chart D8</i>	Change vertical axis label from ‘PNL’ to ‘ Δ PNL’