

ERRATA: Airplane Design Part V

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(Revised May 16, 2018)

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

- page 34, Equation (4.13)* Should read: $n_{lim_{pos}} \geq 2.1 + 24,000 / (GW + 10,000)$
- page 43, Line 12* ‘ $V_A = 195 \text{ kts}$ ’ should be ‘ $V_A = 217 \text{ kts}$ ’
- page 43, Line 21* Should read ‘This corresponds to 473 kts at 35,000 ft or a dynamic pressure of 235 psf. At sea level, the corresponding value in KEAS is 263 kts. Since this is larger than 238 kts, $V_C = 263 \text{ kts}$.’
- page 43, Line 27* Should read ‘ $V_D = 1.25 \times V_C = 1.25 \times 263 = 329 \text{ kts}$.’
- page 45, Line 2* ‘Selene’ should be ‘Ourania’
- page 45, Line 6* ‘Selene’ should be ‘Eris’
- page 54, Line 8* ‘ $V_C = 295 \text{ kts}$ ’ should be ‘ $V_C = 263 \text{ kts}$ ’
- page 54, Line 8* ‘ $V_D = 369 \text{ kts}$ ’ should be ‘ $V_D = 329 \text{ kts}$ ’
- page 61, Line 3* ‘Part III’ should be ‘Part IV’
- page 61, Line 8* ‘ $n_{ult} = 7.33$ ’ should be ‘ $n_{lim} = 7.33$ ’
- page 71, Equation (5.12)* Should read:
$$W_h = \frac{3.184(W_{TO})^{0.887} (S_h)^{0.101} (A_h)^{0.138}}{174.04(t_{rh})^{0.223}}$$
- page 71, Equation (5.13)* Should read:
$$W_v = \frac{1.68(W_{TO})^{0.567} (S_v)^{1.249} (A_v)^{0.482}}{639.95(t_{rv})^{0.747} (\cos \Lambda_{1/4v})^{0.882}}$$
- page 72, Line 6* ‘ib’ should be ‘in’

page 72, Line 13

'1/4_v' should be ' $\Lambda_{1/4_v}$ '

page 72, Line 27

'5.2.1.2' should be '5.2.1.1'

page 73, Line 11

'5.2.1.2' should be '5.2.1.1'

page 73, Line 23

'5.2.2.2' should be '5.2.1.1'

page 74, Equation (5.19)

Should read:

$$W_h = K_h S_h \left[3.81 \frac{\{(S_h)^{0.2} V_D\}}{\{1,000(\cos \Lambda_{1/2_h})^{1/2}\}} - 0.287 \right]$$

page 74, Equation (5.20)

Should read:

$$W_v = K_v S_v \left[3.81 \frac{\{(S_v)^{0.2} V_D\}}{\{1,000(\cos \Lambda_{1/2_v})^{1/2}\}} - 0.287 \right]$$

page 74, Line 23

'1/4_h' should be ' $\Lambda_{1/4_h}$ '

page 74, Line 24

'1/4_v' should be ' $\Lambda_{1/4_v}$ '

page 74, Line 25

'5.2.2.2' should be '5.2.1.1'

page 75, Equation (5.23)

Should read:

$$W_f = 0.04682 (W_{TO})^{0.692} (P_{\max})^{0.374} (l_{f-n})^{0.590}$$

page 76, Line 6

Should read ' N_{pax} = number of passengers including the pilots'

page 76, Line 8

Add the following line after Line 8 ' P_{\max} = maximum fuselage perimeter in ft'

page 76, Equation (5.26)

Should read:

$$W_f = 10.43 (K_{inl})^{1.42} \left(\frac{\bar{q}_D}{100} \right)^{0.283} \left(\frac{W_{TO}}{1000} \right)^{0.95} \left(\frac{l_f}{h_f} \right)^{0.71}$$

page 77, Line 20

Should read ' l_h = distance from wing root c/4 to horizontal

tail root $c/4$ in ft'

page 78, Equation (5.29)

Should read: $W_n = K_n P_{TO}$

page 79, Line 2

Should read ' P_{TO} = take-off power in hp'

page 79, Equation (5.32)

Should read: $W_n = 0.045(P_{TO})^{5/4} (N_e)^{-1/4}$ for radial engines

page 81, Equation (5.38)

Should read:

$$W_g = 0.013W_{TO} + 0.362(W_L)^{0.417} (n_{ult.l})^{0.950} (l_{sm})^{0.183} + 6.2 + \\ + 0.0013W_{TO} + 0.007157(W_L)^{0.749} (n_{ult.l})(l_{sn})^{0.788}$$

page 81, Line 22

' $N_{ult.l}$ ' should be ' $n_{ult.l}$ '

page 81, Equation (5.41)

Should read: $W_g = 62.21 \left(\frac{W_{TO}}{1,000} \right)^{0.84}$

page 85, Line 23

'(6.5)' should be '(6.4)'

page 87, Equation (6.8)

Should read: $W_{ai} + W_p = 1.03(N_e)^{0.3} (P_{TO})^{0.7}$

page 89, Equation (6.13)

Should read:

$$W_{per prop} = K_{prop1} (N_{bl})^{0.391} \left\{ \frac{(D_p)(P_{TO per prop})}{1,000} \right\}^{0.782}$$

page 90, Line 2

Remove Line 2

page 90, Line 5

Should read ' $P_{TO per prop}$ is the required take-off power per propeller'

page 90, Line 6

Remove Line 6

page 90, Equation (6.14)

Should read:

$$W_{per prop} = K_{prop2} \left\{ D_p P_{TO per prop} (N_{bl})^{1/2} \right\}^{0.782}$$

page 91, Line 6

Should read '= 6.55 lbs/gal for JP-4'

page 92, Equation (6.23)

Should read: $W_{fs} = 1.6 \left(\frac{W_f}{K_{fsp}} \right)^{0.727}$

page 92

Add insert for the comparison of Torenbeek and GD methods for fuel system weight

page 93 to page 96

Add an increment of 5 to all equation numbers

page 95, Equation (6.34b)

Should read: $W_{apsi} = 0.4K_b(N_e)^{0.2}(P_{TO})^{0.8}$

page 98 to page 112

Add an increment of 1 to all equation numbers

page 99, Equation (7.4)

Should read: $W_{fc} = 0.33(W_{TO})^{2/3}$

page 106, Line 4

Remove Line 4

page 108, Equation (7.44)

Should read:

$W_{fur} =$

$$55N_{fdc} + 32N_{pax} + 15N_{cc} + K_{lav}(N_{pax})^{1.33} + K_{buf}(N_{pax})^{1.12}$$

fdc sts pax sts cc sts lavs + water food prov.

$$+ 109 \left\{ N_{pax} \frac{(1+P_c)}{100} \right\}^{0.505} + 0.771 \left(\frac{W_{TO}}{1,000} \right)$$

cabin windows miscellaneous

page 109, Line 18

$$K_{st} = 0 \text{ for no ejection seat}$$

Should read ' $= 149 \text{ with survival kit}$ '
 $= 100 \text{ without survival kit}$

page 111, Line 12

'... Part III, Chapter 7.' should be '... Part IV, Chapter 3.'

page 123, Line 20

Should read 'Note: These books are all published by:
Design, Analysis and Research Corporation, 1440
Wakarusa Drive, Suite 500, Lawrence, KS, 66049. Tel.
(785) 832-0434'

