

**ERRATA: Airplane Design Part VI**

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 Year of Print, 2004  
 (Errata Revised June 19, 2018)

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- page 28, Line 3* Should read ‘ $\varepsilon_t$  = wing twist angle in radians, positive for wash-in ...’
- page 200, Figure 6.38* Vertical axis units should be in 1,000 lb
- page 205, Line 9* Should read
- |                                       |     |     |     |     |      |
|---------------------------------------|-----|-----|-----|-----|------|
| ‘ $SHP_{av}$                          | 285 | 248 | 206 | 172 | 140  |
| $(SHP_{av}\eta_{inl/inc} - P_{extr})$ | 275 | 239 | 198 | 165 | 133  |
| $P_{av}$                              | 242 | 210 | 174 | 145 | 117’ |
- page 212, Figure 7.5* Vertical axis units should be in 1,000 lb
- page 229, Equation (8.7)* Should read:
- $$\Delta c_l = \eta_1 \left( c_{l\delta_{f1}} \right) (\delta_{f1}) \left\{ \frac{(c + c_1)}{c} \right\} + \eta_2 \left( c_{l\delta_{f2}} \right) (\delta_{f1} + \delta_{f2}) \left( \frac{c'}{c} \right)$$
- page 236 Figure 8.26* Vertical axis values should be negative
- page 239, Equation (8.19)* Should read:  $\Delta c_{l_{max}} = \left( c_{l\delta_{max}} \right) \eta_{max} \delta_f \eta_\delta \left( \frac{c'}{c} \right)$
- page 259, Line 9* Should read ‘... leading edge flaps at  $\alpha = 0$  may be estimated from:’
- page 269, Equation (8.37)* Should read:
- $$\eta_h = 1 - \left[ \left\{ \cos^2 \left( \frac{\pi z_{h_{wake}}}{2 \Delta z_{wake}} \right) \right\} \left\{ 2.42 \sqrt{C_{D_{ow}}} \right\} / \frac{x_{h_{wake}}}{\bar{c}} + 0.30 \right]$$
- page 269, Line 23* Should read
- ‘where:  $z_{h_{wake}} = a \sin(\gamma_h - \alpha - i_w + \varepsilon_h)$  (8.38a)

$$x_{h_{wake}} = a \cos(\gamma_h - \alpha - i_w + \varepsilon_h) \quad (8.38b)$$

with  $a, \gamma_h, \varepsilon_h, i_w$  and  $\alpha$  shown in Fig. 8.63.'

page 269, Equation (8.39)

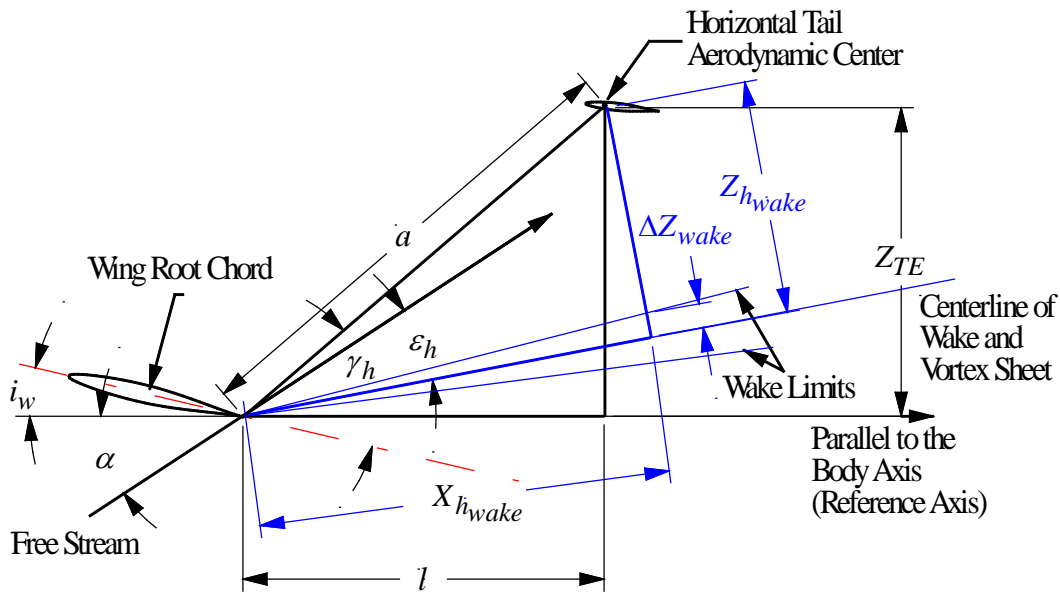
Should read:  $\varepsilon_h = \varepsilon_{h_o} + \left( \frac{d\varepsilon_h}{d\alpha} \right)_{p.off} \alpha$

page 269, Equation (8.40)

$$\Delta z_{wake} = 0.68\bar{c} \sqrt{C_{D_{ow}} \left( \frac{x_{h_{wake}}}{\bar{c}} + 0.15 \right)}$$

page 270, Figure 8.63

Should be



page 273, Figure 8.65c

' $K_H$ ' should be ' $K_h$ '

page 273, Figure 8.65c

' $\frac{2h_H}{b}$ ' should be ' $\frac{2h_h}{b}$ '

page 273, Figure 8.65c

' $\frac{2l_H}{b}$ ' should be ' $\frac{2l_h}{b}$ '

page 273, Figure 8.65c

' $K_H = \frac{1 - \frac{h_H}{b}}{\sqrt[3]{\frac{2l_H}{b}}}$ ' should be ' $K_h = \frac{1 - \left| \frac{h_h}{b} \right|}{\sqrt[3]{\frac{2l_h}{b}}}$ '

page 357, Table 9.1

Third row, second column '0.8' should be '-0.8'

page 390, Figure 10.16

' $z_h$  = vertical distance...' should be ' $z_h$  = vertical distance between the horizontal tail aerodynamic center to the fuselage center line'

page 398, Equation (10.44)

Should read:

$$C_{nT\beta} = -\sum_{i=1}^{i=n} \left[ \frac{\left\{ \left( \frac{dC_N}{d\alpha} \right)_{p_i} \left( \frac{\pi}{4} \right) (D_{p_i})^2 (l_{p_i}) \right\}}{Sb} \right]$$

page 401, Line 19

Should read 'where:  $\sigma_{\beta\alpha}$  is the sidewash contribution due to angle of attack, in  $\text{deg}^{-1}$ . It is found from Figures 10.30.'

page 401, Line 21

Should read ' $\alpha_f$  is the angle of attack of the fuselage, in  $\text{deg}$ .'

page 401, Line 22

Should read ' $\sigma_{\beta\Gamma}$  is the sidewash contribution due to wing dihedral, in  $\text{deg}^{-1}$ . It is found from Figures 10.31.'

page 401, Line 24

Should read ' $\Gamma$  is the wing dihedral angle, in  $\text{deg}$ , as defined in Figure 10.7.'

page 401, Line 26

Should read ' $\sigma_{\beta\epsilon_t}$  is the sidewash contribution due to wing twist, in  $\text{deg}^{-1}$ , as obtained from Figures 10.32.'

page 401, Line 28

Should read ' $\epsilon_t$  is the wing twist angle, in  $\text{deg}$ , as shown in Figure 10.26.'

page 430, Figure 10.42

Vertical axis values should be divided by -4

page 435, Equation (10.89)

Should read:  $C_{D_{i_h}} = \frac{2C_{L_o}}{\pi A e} C_{L_{\alpha_h}} \eta_h \frac{S_h}{S}$

page 435, Line 36

Should read 'where:  $C_{L_o}$  is the airplane zero-angle-of-attack lift coefficient follows from Eqn. (10.90).'

page 436, Equation (10.90)

Should read:

$$C_{L_o} = C_{L_{o_{wf}}} + C_{L_{\alpha_h}} \eta_h (S_h/S) (-\alpha_{o_{L_h}} - \varepsilon_{o_h}) + \\ + C_{L_{\alpha_c}} \eta_c (S_c/S) (-\alpha_{o_{L_c}} - \varepsilon_{o_c})$$

page 436, Line 3-7

Remove Line 3-7

page 439, Equation (10.97)

Should read:  $C_{D_{i_c}} = \frac{2C_{L_o}}{\pi A e} C_{L_{\alpha_c}} \eta_c \frac{S_c}{S}$

page 439, Line 5

Should read ‘where:  $C_{L_o}$  is the airplane zero-angle-of-attack lift coefficient follows from Eqn. (10.98).’

page 439, Equation (10.98)

Should read:

$$C_{L_o} = C_{L_{o_{wf}}} + C_{L_{\alpha_h}} \eta_h (S_h/S) (-\alpha_{o_{L_h}} - \varepsilon_{o_h}) + \\ + C_{L_{\alpha_c}} \eta_c (S_c/S) (-\alpha_{o_{L_c}} - \varepsilon_{o_c})$$

page 439, Line 8-12

Remove Line 8-12

page 461, Line 10

Following Line 10, should read ‘For single vertical tail:

$$C_{y_{\delta_r}} = K_b C_{L_{\alpha_v}} \frac{S_v}{S} \left\{ \frac{c_{l_{\delta}}}{(c_{l_{\delta}})_{theory}} \right\} (c_{l_{\delta}})_{theory} \left( \frac{k'}{c_{l_{\alpha_v}}} \right) \left\{ \frac{(\alpha_{\delta})_{C_L}}{(\alpha_{\delta})_{c_l}} \right\} \eta_v \quad (10.123a)'$$

page 461, Line 19

Following Line 19, should read ‘For twin vertical tail:

$$C_{y_{\delta_r}} = 2 \left( \frac{C_{y_{\beta_v(wfh)}}}{C_{y_{\beta_{veff}}}} \right) K_b C_{L_{\alpha_v}} \frac{S_v}{S} \left\{ \frac{c_{l_{\delta}}}{(c_{l_{\delta}})_{theory}} \right\} (c_{l_{\delta}})_{theory} \left( \frac{k'}{c_{l_{\alpha_v}}} \right) \left\{ \frac{(\alpha_{\delta})_{C_L}}{(\alpha_{\delta})_{c_l}} \right\} \eta_v \quad (10.123b)$$

Where:  $\left( \frac{C_{y_{\beta_v(wfh)}}}{C_{y_{\beta_{veff}}}} \right)$  is found from Figure 10.17’