

ERRATA: Airplane Flight Dynamics and Automatic Flight Controls Part I

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<i>page iii, line 3</i>	Topic 3.2.17 Review of Important Sign Conventions should be removed																			
<i>page x, line 4</i>	The second word ‘control’ in the description of the c_{l_δ} should be deleted																			
<i>pages xxii – xxviii</i>	Add the following symbols and descriptions																			
	<table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;"><u>Symbol</u></th> <th style="text-align: left;"><u>Description</u></th> <th style="text-align: left;"><u>Unit</u></th> </tr> </thead> <tbody> <tr> <td><i>page xxii</i></td> <td>X, Y, Z</td> <td>Body-fixed (rotating) axis system</td> <td>--</td> </tr> <tr> <td><i>page xxii</i></td> <td>X', Y', Z'</td> <td>Earth-fixed (non-rotating) axis system</td> <td>--</td> </tr> <tr> <td><i>page xxvi</i></td> <td>1, 2, 3</td> <td>Eular rotation sequence (the use of the symbol “1” to denote the first Euler rotation is used only in Chapter 1)</td> <td></td> </tr> <tr> <td><i>page xxvii</i></td> <td>P</td> <td>Origin of the XYZ system</td> <td></td> </tr> </tbody> </table>	<u>Symbol</u>	<u>Description</u>	<u>Unit</u>	<i>page xxii</i>	X, Y, Z	Body-fixed (rotating) axis system	--	<i>page xxii</i>	X', Y', Z'	Earth-fixed (non-rotating) axis system	--	<i>page xxvi</i>	1, 2, 3	Eular rotation sequence (the use of the symbol “1” to denote the first Euler rotation is used only in Chapter 1)		<i>page xxvii</i>	P	Origin of the XYZ system	
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<i>page xxvii</i>	P	Origin of the XYZ system																		
<i>page xxv, 6th line</i>	μ_g should be dimensionless.																			
<i>page 7, before Eqn (1.14)</i>	Should read: ‘The transformation formulaof both equations (1.11) and (1.12). First , for the l.h.s. of Eqn (1.11):’																			
<i>page 14, Section 1.4</i>	Last paragraph, 1 st line “ $\Theta = 90$ ” should be “ $\Theta = 90^\circ$ ”																			
<i>page 17, Fig 1.7</i>	The aircraft of the lowest figure should be seen from behind, i.e. a positive bank angle should have right wing down.																			
<i>page 26, Eq (1.62)</i>	First equation set “ $\bar{\omega} = k\dot{\Theta}$ ” should be “ $\bar{\omega} = j_2\dot{\Theta}$ ”																			
<i>page 28, Line 9</i>	“un” should be in.																			
<i>page 34, Lines 25-26</i>	Reference should be: Roskam, J.; <u>Airplane Design</u> , Parts I through VIII; Design, Analysis, and Research Corporation, 1440																			

page 40, Line 26

Should read, “ apply to cambered (un-symmetrical) airfoils.”

page 47

First paragraph under 2.5.2 second line. “In variant” should be “invariant”

page 51

Second paragraph 8th line. “top” should be “to”

page 55, Eq (2.27)

should be
$$\left(\frac{d\varepsilon}{d\alpha}\right)_M = \frac{\left(\frac{d\varepsilon}{d\alpha}\right)_{M=0}}{\sqrt{(1-M^2)}}$$

page 59, Figure 2.20

Flap Chord, c_f , should go from hinge line to trailing edge

page 63, Problem 2.3

the set of data under data set “a” should be data set “c”

page 66, Figure 3.2

β should be β_1 in Note 3.

page 67

change loose to lose.

page 72, Eqn (3.5)

C_{D0} is the value of C_D for: $\alpha = i_h = \delta_e = 0$

page 77, Eqn (3.12)

C_{L0} is the value of C_L for: $\alpha = i_h = \delta_e = 0$

page 80, Eqn (3.29)

C_{m0} is the value of C_m for: $\alpha = i_h = \delta_e = 0$

page 84, Eq (3.30)

in $\cos(\alpha + i_w - \varepsilon)$ “ i_w ” should be “ i_h ”

page 84, Eqn (3.30)

The wing incidence should be removed

page 84, Eqn (3.32)

Should be:

$$C_m = C_{mac_{wf}} + \left(C_{L0_{wf}} + C_{L\alpha_{wf}} \alpha \right) (\bar{x}_{cg} - \bar{x}_{ac_{wf}}) - C_{L\alpha_h} \eta_h \frac{S_h}{S} (\bar{x}_{ac_h} - \bar{x}_{cg}) \left[\alpha - \left(\varepsilon_o + \frac{d\varepsilon}{d\alpha} \alpha \right) + i_h + \tau_e \delta_e \right]$$

page 84, 4th line from bottom A reference to Eqn (3.33) should be Eqn (3.32).

page 85

19th line “as well a positive” should be “as well as positive”

<i>page 95</i>	Last full paragraph, 4 th line. After “vortices” add “(at high angles of attack)”
<i>page 97, Figure 3.28</i>	Normal velocity vector on left wing should not be present.
<i>page 98, 11th line from top</i>	‘three-vies’ should be ‘three-views’.
<i>page 99, Figure 3.30</i>	Axis labeled as “Z” should be labeled as “X”.
<i>page 104</i>	change loose in lose.
<i>page 104</i>	Last paragraph, last line “right wheel deflection are activated” should be “right wheel deflection) are activated”
<i>page 106, Eqn (3.67)</i>	K_{sw} needs to be defined: is the gearing constant between cockpit control wheel or stick and aileron or spoiler deflection.
<i>page 108</i>	Figure 3.38, the subscripts “v” should be taken out from the two variables $F_{a_{y_{rudder}}}$ and $N_{A_{rudder}}$
<i>Page 108 Eqn (3.71)</i>	$C_{l_{\delta_r}} = C_{L_{\alpha_v}} \alpha_{\delta_r} \eta_v \frac{S_v z_{v_s}}{Sb}$ replaces $C_{l_{\delta_r}} = C_{L_{\alpha_v}} \alpha_{\delta_r} \bar{q}_v \frac{S_v x_{v_s}}{Sb}$
<i>page 109, Eq (3.72)</i>	multiply right side quantity by $\bar{q}Sb$
<i>page 111, Eqn (3.76)</i>	Should read: $F_{A_{y_v}} = C_{y_{\beta_v}} \beta \bar{q} S = -C_{L_{\alpha_v}} \left(1 - \frac{d\sigma}{d\beta} \right) \beta \bar{q}_v S_v$
<i>page 113</i>	Equation (3.78), the subscripts “v” should be taken out from the variables $F_{a_{y_{rudder}}}$
<i>page 113</i>	Equation (3.80) should be multiplied by: $\bar{q}S$
<i>page 115, Line 14</i>	“The yawing moment due to the vertical tail me be written as:” should be “The yawing moment due to the vertical tail may be written as:”
<i>page 117, Line 20</i>	Line 20 should be between Lines 13 and 14.
<i>page 118, Figure 3.46</i>	“Positive rolling moment” should be labeled as “Yawing moment”.
<i>page 118, Figure 3.46, 1.)</i>	“induces drag” should be “induced drag”

page 122, Eqn (3.92a)

Should be

$$L_{T_{1s}} = \dots = \left[\sum_{i=0}^{i=n} T_i \left(-z_{T_i} \cos \phi_{T_i} \sin \psi_{T_i} - y_{T_i} \sin \phi_{T_i} \right) \right] \cos \alpha_1 + \dots$$

page 122, Eqn 3.92a

The summation should say $i = 1$

page 122, Eqn 3.92b

The summation should say $i = 1$

page 122, Eqn 3.92c

The summation should say $i = 1$

page 122, Eqn (3.92c)

Should be

$$N_{T_{1s}} = \dots = \dots - \left[\sum_{i=0}^{i=n} T_i \left(-z_{T_i} \cos \phi_{T_i} \sin \psi_{T_i} - y_{T_i} \sin \phi_{T_i} \right) \sin \alpha_1 \right]$$

page 121, Eq (3.91) multiply right side quantity by $\bar{q}Sb$

page 124, Eqn 3.95b

The summation should say $i = 1$

page 126, Table 3.4

“ V_1 ” should be “ Q_1 ”

page 127, Line 4

Should read, “2) partial derivatives in Table 3.4 indicate the slope by which a particular perturbed force or moment is affected by a particular perturbed variable.”

page 133, Figure 3.51

All “ V_{P_i} ” in this figure should be “ V_p ”

page 134, Figure 3.52

Equation “ $\arctan \left. \frac{\partial C_D}{\partial M} \right|_{M=M_2} > 0$ ” should be “ $\arctan \left. \frac{\partial C_D}{\partial M} \right|_{M=M_2} < 0$ ”.

Figure should be labeled “Example of Determination of: $\partial C_D / \partial M$ at a constant angle of attack”.

page 136, Eqn (3.119)

“ C_L ” should be “ C_{L_1} ”

page 136, Eqn (3.122)

Variable M should be “ M_A ”

page 137,
6th line from bottom

Should read ‘... are affected by changes in angle of attack, α : ...’.

page 139

Equation (3.133), change the subscript “x” to “z” in $\frac{\partial F_{A_z}}{\partial \alpha}$

- page 141, Eqn (3.142) change “airplane, caused by” to “airplane, ΔC_L caused by”
- page 143,
right after Eqn (3.146) Should read ‘... multiplying by the non-dimensional moment ...’
- page 145, Eqn (3.156) change $\frac{\partial M_A}{\partial \left(\frac{q\bar{c}}{2U_1} \right)} = \frac{\partial C_m}{\partial \left(\frac{q\bar{c}}{2U_1} \right)} \bar{q}_1 S = C_{mq} \bar{q}_1 S$ to

$$\frac{\partial M_A}{\partial \left(\frac{q\bar{c}}{2U_1} \right)} = \frac{\partial C_m}{\partial \left(\frac{q\bar{c}}{2U_1} \right)} \bar{q}_1 S \bar{c} = C_{mq} \bar{q}_1 S \bar{c}$$
- page 147 Equation (3.162), replace the variable C_{L_1} in (2,1) entry to C_{D_1}
- page 147, Eqn (3.162) “ $\frac{\alpha \bar{c}}{2U_1}$ ” should be “ $\frac{\dot{\alpha} \bar{c}}{2U_1}$ ”
- page 148 Equations (3.163a, b, c), the negative signs should be removed
- page 148, Section 3.2.10 First paragraph “changes in sideslip, β ” should be “changes in sideslip rate, $\dot{\beta}$ ”
- page 162, Eqn (3.197) “ C_{n_p} ” and “ C_{n_r} ” should be “ C_{n_p} ” and “ C_{n_r} ,” respectively.
- page 167 Second paragraph “sideslip angle, β ” should be “sideslip rate, $\dot{\beta}$ ”
Eq (3.214) Insert “+ u” in denominator.

$$F_{T_x} = \frac{n_p 550 \eta_p BHP}{U_1 + u}$$
- page 173 First paragraph, 5th line. The word “be” is duplicated and should be deleted
- page 182, Lines 2-3, 17-18 Reference should be: Roskam, J.; Airplane Design, Parts I through VIII; Design, Analysis, and Research Corporation, 1440 Wakarusa Drive, Lawrence, KS 66049, USA; 1990
- page 186 Equation (4.3), remove the variable U_1
- page 187 Entry (5,5), change $\frac{\partial(M_A + M_T)}{\partial \alpha} > 0$ to $\frac{\partial(M_A + M_T)}{\partial \alpha} < 0$

<i>page 189</i>	Equation (4.7), remove the negative sign
<i>page 189</i>	The line below Equation (4.7), change (4.1) to (4.6)
<i>page 190</i>	Line 6, “criterion (4.1)” should be “criterion (4.10)”
<i>page 190</i>	Line 11, $C_{ZT_\alpha} \ll C_{L_\alpha}$ should be $C_{T_{z\alpha}} \ll C_{L_\alpha}$
<i>page 195</i>	Equation (4.36), remove the variable U_1
<i>page 195, Line 6</i>	“Table 5.1” should be “Table 4.1”.
<i>page 196, Line 2</i>	“Table 5.1” should be “Table 4.1”.
<i>page 198, 1st line</i>	‘(4.22)’ should be ‘(4.42)’.
<i>page 199, after Eqn (4.45)</i>	Should read: ‘ $C_{L_1} \approx \frac{mg}{\bar{q}_1 S}$ ’. Note that $\cos \gamma_1 \approx 1.0$.
<i>page 202, 6th line</i>	Should read: ‘ $C_{L_1} \approx \frac{mg}{\bar{q}_1 S}$ ’.
<i>page 206</i>	Last paragraph, 3 rd line, “in Example 1.” should be “in Example 1).”
<i>page 209, Fig 4.11b</i>	The negative tail stall locus as shown in the diagram is wrong. The trim diagram should have a positive tail stall locus at $\alpha = 25^0$ and a negative tail stall locus at $\alpha = -12^0$. Both of these lines are out of the range of the diagram so none of them should be shown.
<i>page 211, 11th line</i>	The corresponding values for $\alpha_{\text{tail-stall}}$ should be -12^0 and 25^0 , respectively. Also, the tail stall locus should not be shown in Figure 4.11b because they are outside the range of the diagram.
<i>page 216</i>	15 th line, “Appendix A..” should be “Appendix A.”
<i>page 218, 8th line from bottom</i>	‘ F_{STO} ’ should be ‘ V_{STO} ’.

- page 220, Eqn (4.81) change $V_{mc} = \sqrt{\frac{2(N_{T1} + \Delta N_{D1})}{\rho C_{n\delta_r} \delta_{r_{max}} Sb}}$ to $V_{mc} = \sqrt{\frac{-2(N_{T1} + \Delta N_{D1})}{\rho C_{n\delta_r} \delta_{r_{max}} Sb}}$
- page 221, Fig 4.16a The lateral axis should be the Y-axis. Also, the bank angle is negative as shown.
- page 225, Eqn (4.86b) “ C_{Y_r} ” should be “ C_{y_r} ”.
- page 225, Line 20 “three of these” should be “four of these”
- page 226, Eq (4.90) ψ_1 should read $\dot{\psi}_1$
- page 227, Eqn (4.96) “ C_{Y_r} ” should be “ C_{y_r} ”.
- page 227, Eqn (4.97)(4.103) “ Φ ” should be “ Φ_1 ”
- page 227, Line 6 The first sentence should be removed
- page 228, Eqn (4.98) Variables a_{11} , b_{11} , and c_{11} should be a, b, and c
- page 228, Eqn (4.99) Variables a_{11} , b_{11} , and c_{11} should be a, b, and c
- page 228, Eq (4.100) δ_{a_1} should read δ_{r_1} , Variables a_{11} , b_{11} , and c_{11} should be a, b, and c
- page 228, Eqn (4.102) “ Φ ” should be “ Φ_1 ”
- page 228, Eqn (4.102a) Variable a_{11} should be a.
- page 228, Eqn (4.102b) Variable b_{11} should be b.
- page 228, Eqn (4.102c) Variable c_{11} should be c.
- page 232, Eqn (4.113b) “ γ_1 ” should be “ Θ_1 ”
- page 232, Eqn (4.114a) “ γ_1 ” should be “ Θ_1 ”
- page 233 Third paragraph,
2nd line. The word “forward” should be changed to “aft”
- page 235,
Conclusion for Sec. 4.4.1 The inequality should be $|M_{ac_{wf}}| < L_{wf}(x_{cg} - x_{ac_{wf}})$.

- page 235, Last line “for a conventional airplane” should be “for a canard airplane”
- page 236,
Conclusion for Sec. 4.4.2 The inequality should be $\left| M_{ac_{wf}} \right| < L_{wf} (x_{cg} - x_{ac_{wf}})$.
- page 237, Line 7 “in Eqn (4.10)” should be “in Eqn (4.131)”
- page 237, Lines 10-11 Should read: “From Eqn (4.133) it may be concluded that as long as L_h is positive (i.e. ‘up’) and $(x_{ac_{wf}} - x_{cg})$ is positive the canard load to trim, L_c , will also be positive (i.e. ‘up’).
- page 242, Eqn (4.136) change $HM = C_h \bar{q} S_e \bar{c}_e$ to $HM = C_h \bar{q}_h S_e \bar{c}_e$
- page 244, Section 4.5.1 Last paragraph, change $\eta_h = \frac{\bar{q}}{q_h}$ to $\eta_h = \frac{\bar{q}_h}{\bar{q}}$
- page 252, 2nd line Should read ‘... differentiating Eqn (4.148) with respect to the angle of attack.’
- page 252, Eqn (4.154) Last row: Delete the ‘ τ_e ’.
- page 253, Eqn 4.158 Remove the ‘ τ_e ’ from the equation.
- page 253 Last paragraph, 1st line, “found by by” should be “found by”
- page 255 Last paragraph, 2nd line, “from Eqn 4.169)” should be “from Eqn (4.169)”
- page 256, Eqn (4.171) Should be
- $$MP_{free} = \bar{x}_{cg} \frac{\partial F_s}{\partial n=0} = NP_{free} - \left(1 - \frac{C_{h\alpha} \tau_e}{1.1 C_{h\delta_e}} \right) \left(\frac{\rho S \bar{c} g}{4W} \right) C_{mq}.$$
- page 256, 3rd line above Fig 4.34 ‘stick-force-per-‘g’ should be just ‘stick-force’.
- page 259, Figure 4.36 In graph a) “ $\delta_e = 2^\circ$ ” should be “ $\delta_{t_e} = 2^\circ$ ”
- page 259, Figure 4.36 In graph b) “dFe/dV” should be “dFs/dV”

page 263, Line 2

Second “the” should be removed.

page 267

Definitions for each variable should be: $C_{h_{\delta_r}}$, $C_{h_{\delta_q}}$, $C_{h_{\beta_v}}$ normally negative, negative, positive respectively

page 268

Include in τ_r definition: $\tau_r = \frac{\partial \beta}{\partial \delta_r}$ and is normally negative

page 268, Fig 4.43

Signs on hingemoment derivatives are reversed.

$$C_{h_{\beta_v}} > 0$$

$$C_{h_{\delta_r}} < 0$$

page 269, Eqn. 4.197

$$C_{n_{\beta_v free}} = C_{L\alpha_v} \eta_v \frac{S_v x_{v_s}}{Sb} \left(1 - \frac{C_{h_{\beta_v}}}{C_{h_{\delta_r}}} \left(1 - \frac{\partial \sigma}{\partial \beta} \right) \tau_r \right) - C_{L\alpha_v} \eta_v \frac{S_v x_{v_s}}{Sb} \frac{\partial \sigma}{\partial \beta}$$

page 269, Eqn. 4.198

$$C_{n_{\beta free}} = C_{n_{\beta fix}} - C_{L\alpha_v} \eta_v \frac{S_v x_{v_s}}{Sb} \frac{C_{h_{\beta_v}}}{C_{h_{\delta_r}}} \left(1 - \frac{\partial \sigma}{\partial \beta} \right) \tau_r$$

page 269, Eqn. 4.199

$$C_{n_{\beta free}} = C_{n_{\beta fix}} + C_{n_{\delta_r}} \frac{C_{h_{\beta_v}}}{C_{h_{\delta_r}}} \left(1 - \frac{\partial \sigma}{\partial \beta} \right)$$

page 269, Eqn. 4.203

$$\frac{\partial F_r}{\partial \beta} = \frac{G_r \eta_v \bar{q} S_r \bar{c}_r C_{h_{\delta_r}}}{C_{n_{\delta_r}}} C_{n_{\beta free}}$$

page 273, Line 4

“and (4.209)” should be removed.

page 277,

1st line after Eqn (4.221c)

The symbol ‘ \bar{C}_{D_o} ’ should be ‘ C_{D_o} ’.

page 278, Line 6

HM should refer to Eqn (4.136).

page 278, Eqn (4.225)

Equation # 4.225 is repeated for two different equations.

page 278, Line 22

Should read, “The hingemoment coefficient equation...”

page 280, Line 15

“ $\frac{\partial \delta_e}{\partial n}$ ” should be “ $\frac{\partial F_s}{\partial n}$ ”

- page 281 List at end of page is inconsistent with Figure 4.49
- page 286, Eqn (4.241) $C_{h\beta_r}$ should be $C_{h\beta_v}$
- page 288, Line 2 Sentence should read “Exceptions to this are airplanes like the B-52.”
- page 288, Line 14 Remove “!” after “nose-gear.”
- page 288-290 “ground” subscript should be “g”
- page 291 Last paragraph, 1st line. The word “are” should be “area”
- page 291, Eqn.(4.250) $\ddot{\theta}$ should be $\ddot{\theta}_{mg}$
- page 292, Figure 4.52b x_{cg_g} labels should be reversed for $x_{cg_g} = 38 \text{ ft}$ and $x_{cg_g} = 39 \text{ ft}$
- page 299, Problem 4.5 ‘Eqn (4.155)’ should be ‘Eqn (4.159)’.
- page 307, Eqn (5.1a) Insert θ after mg .

$$\dot{m}u = -mg\theta \cos \theta_1 + \bar{q}_1 S \left\{ -\left(C_{D_u} + 2C_{D_1}\right) \frac{u}{U_1} + \left(C_{T_{x_u}} + 2C_{T_{x_1}}\right) \frac{u}{U_1} - \left(C_{D_\alpha} - C_{L_1}\right) \alpha - C_{D_{\delta_e}} \delta_e \right\}$$
- page 307, Eqn (5.1b) Insert θ after mg .

$$m(\dot{w} - U_1 q) = -mg\theta \sin \theta_1 + \bar{q}_1 S \left\{ -\left(C_{L_u} + 2C_{L_1}\right) \frac{u}{U_1} - \left(C_{L_\alpha} + C_{D_1}\right) \alpha - C_{L_{\dot{\alpha}}} \frac{\dot{\alpha} \bar{c}}{2U_1} - C_{L_q} \frac{q \bar{c}}{2U_1} - C_{L_{\delta_e}} \delta_e \right\}$$
- page 307, Eqn (5.1c) Should be

$$I_{yy} \dot{q} = \bar{q}_1 S \bar{c} \left\{ \left(C_{m_u} + 2C_{m_1}\right) \frac{u}{U_1} + \left(C_{m_{T_u}} + 2C_{m_{T_1}}\right) \frac{u}{U_1} + C_{m_\alpha} \alpha + C_{m_{T_\alpha}} \alpha + C_{m_{\dot{\alpha}}} \frac{\dot{\alpha} \bar{c}}{2U_1} + C_{m_q} \frac{q \bar{c}}{2U_1} + C_{m_{\delta_e}} \delta_e \right\}$$
- page 314, Figure 5.6 Solid black line needs removed.
- page 316, Line 9 Line is “the system is zero” should be “the system are zero”

<i>page 318, 5th line</i>	Should read ‘ $w = U_1\alpha$ ’.
<i>page 319</i>	Table 5.1, third last equation, change $C_{m\alpha}$ to $C_{m\dot{\alpha}}$
<i>page 322, Eqn (5.35)</i>	change $B_u = -X_{\delta_e} \left\{ (U_1 - Z_{\dot{\alpha}})M_q + Z_{\alpha} + M_{\dot{\alpha}}(U_1 + Z_q) + Z_{\delta_e} X_{\alpha} \right\}$ to $B_u = -X_{\delta_e} \left\{ (U_1 - Z_{\dot{\alpha}})M_q + Z_{\alpha} + M_{\dot{\alpha}}(U_1 + Z_q) \right\} + Z_{\delta_e} X_{\alpha}$
<i>page 324, Line 16</i>	Remove the list number “1)” and align row to far left.
<i>page 328, Eqn (5.48)</i>	“>” should be “<”
<i>page 328, Eqn (5.49)</i>	“>” should be “<”
<i>page 332, Eq (5.53)</i>	the equation should have a minus “-“ before $\zeta_{1,2}\omega_{n1,2}$ and $\zeta_{sp}\omega_{nsp}$
<i>page 333, Eq (5.54)</i>	the equation should have a minus “-“ before $\zeta_{3,4}\omega_{n3,4}$ and $\zeta_{ph}\omega_{nph}$
<i>page 333, Line 8</i>	$T_1 = -0.35$ and $T_2 = 0.28$
<i>page 333, Eq (5.56)</i>	the equation should have a minus “-“ before $\zeta_{3,4}\omega_{n3,4}$ and $\zeta_{3rd}\omega_{n3rd}$
<i>page 338</i>	Equation (5.69), $\frac{\theta(s)}{\delta_e(s)} = -\frac{(Z_{\delta_e}s - X_u Z_{\delta_e} + X_{\delta_e} Z_u)}{U_1 \left(s^2 - X_u s - \frac{gZ_u}{U_1} \right)}$
<i>page 340</i>	3 rd line. The word “ration” should be “ratio”
<i>page 340</i>	Equation (5.76), the term $Z_{\delta_e} M_{\alpha}$ should be $-Z_{\delta_e} M_{\alpha}$
<i>page 340</i>	Equations (5.76) to (5.78), change D_1 to \bar{D}_1
<i>page 342, Eqn (5.82a)</i>	In equation, “ $\frac{2\zeta_p s}{\omega_{nsp}}$ ” should be “ $\frac{2\zeta_p s}{\omega_{np}}$ ”
<i>page 342, Eqn (5.82b)</i>	In equation, “ $\frac{2\zeta_p s}{\omega_{nsp}}$ ” should be “ $\frac{2\zeta_p s}{\omega_{np}}$ ” and “ $\frac{2\zeta_{\alpha}}{\omega_{n\alpha}}$ ” should be “ $\frac{2\zeta_{\alpha} s}{\omega_{n\alpha}}$ ”

<i>page 342, Eqn (5.82c)</i>	In equation, “ $\frac{2\zeta_p s}{\omega_{n_{sp}}}$ ” should be “ $\frac{2\zeta_p s}{\omega_{n_p}}$ ”
<i>page 346, Eqn (5.94)</i>	The (3,3) element of the transformation matrix should be ‘ $\cos 2\alpha_1$ ’ instead of ‘ $\cos^2 \alpha_1$ ’.
<i>page 350, Line 5</i>	“ $\phi(s) / \delta_e(s)$ ” should be “ $\phi(s) / \delta(s)$ ”
<i>page 364, Line 28</i>	Eqn (5.120) should be Eqn (5.121)
<i>page 357, 2nd line</i>	The ‘(pitching moment of inertia)’ should be replaced by ‘(moments and products of inertia)’.
<i>page 371</i>	Equations (5.136) to (5.138), change D_2 to \bar{D}_2
<i>page 372, last line</i>	‘ $\psi(\tau)$ ’ should be ‘ $\psi(t)$ ’.
<i>page 381, Figure 5.24</i>	For Damping Ratio “-1/T” should be “1/T”
<i>page 381, Figure 5.25</i>	For Damping Ratio “-1/T” should be “1/T”
<i>page 383</i>	Remove the two lines before <i>Section 5.4.3</i> .
<i>page 396, Line 25</i>	Should read, “...say 10 deg/deg/sec, a 3 deg/s pitch rate...”
<i>page 398, Line 2</i>	“elevator deflection” should be “rudder deflection”
<i>page 400, 4th line above Sec. 5.6.1</i>	‘Eqns (5.76)’ should be ‘Eqns (1.76)’ instead.
<i>page 401, Figure 5.44</i>	On the Y_B vector, the smaller vector should be labeled “q”
<i>page 405, Lines 24-28</i>	Omit paragraph contained by lines 24-28.
<i>page 407, Line 13</i>	$\cos \theta = 1$ for small angles.
<i>page 411, Problem 5.13</i>	Last sentence should read: ‘How well do these results <u>agree</u> with your conclusions from problem 5.12?’.
<i>page 424, Table 6.4</i>	The Civilian Requirements FAR-23 are updated to the following: For wheel controllers:

$$\frac{\partial F_s}{\partial n} > \frac{(W_{TO}/100)}{n_{limit}} \text{ and } \frac{20.0}{n_{limit}}$$

but not more than: $\frac{50.0}{n_{limit}}$

For stick controllers:

$$\frac{\partial F_s}{\partial n} > \frac{W}{140} \text{ and } \frac{15.0}{n_{limit}}$$

but not more than: $\frac{35.0}{n_{limit}}$

- page 427, Line 6* Remove the return so “be” and “written” are on the same line.
- page 427, Line 7* “time to double” should be “time-to-double.”
- page 434, Line 12* Reference 6.5 should be Reference 6.6.
- page 453, Table 6.22* The number on the last column is referenced from Figure 6.16 instead of Figure 6.15.
- page 456, Eqn (6.26)* Should be: $\Delta\delta_{e_{gust}} = \frac{(1.10 - 0.0322S_h)}{-0.023S_h} \Delta\alpha_{gust}$.
- page 457, Fig 6.18* The ‘ $\Delta\delta_{e_{gust}}$ ’ curve is plotted with $\Delta\alpha_{gust} = 1.8 \text{ deg}$
- page 460, Lines 21-22* Reference should be: Roskam, J.; Airplane Design, Parts I through VIII; Design, Analysis, and Research Corporation, 1440 Wakarusa Drive Suite #500, Lawrence, KS 66049, USA; 1990
- page 461, Lines 20-23* Address should be: 1440 Wakarusa Drive Suite #500, Lawrence, KS 66049, USA Tel. 785-832-0434 Fax: 785-832-0524
- page 466, Lines 26-27* Lines should read “Design, Analysis, and Research Corporation, 1440 Wakarusa Drive Suite #500, Lawrence, KS 66049, USA”
- page 466, Lines 29-31* Lines should read “Design, Analysis and Research Corporation, 1440 Wakarusa Drive, Suite #500, Lawrence, KS 66049, USA Tel. 785-832-0434 Fax: 785-832-0524
- Appendix B* $C_{h\beta_r}$ should be $C_{h\beta_v}$ for all examples.
- page 487, B2* C.G. location should be $0.33\bar{c}$

page 560, Lines18-19

Reference should be: Roskam, J.; Airplane Design, Parts I through VIII; Design, Analysis, and Research Corporation, 1440 Wakarusa Drive Suite #500, Lawrence, KS 66049, USA; 1990