Typographical Errors in Robert L. McCoy, "Modern Exterior Ballistics" Schiffer Publishing Ltd, Atglen, PA, 1999

Corrections by Donald G. Miller, LLNL, based on comparisons with the Final Manuscript.

With additions and corrections by Henry Hudgins, Picatinny (denoted by H).
by Gene Cooper and Peter Plostins, ARL.
by Robert Lieske and Henry Hudgins (denoted by L).
by Gene Cooper, ARL (denoted by C).
by Darrel Barnette, U. of Texas (denoted by B).
by James B. Millard, "On-line Ballistics (denoted by M).

Note: Many of the corrections below are "cosmetic", such as revised spacings between symbols or commas, and are designed to make the text easier to read. These were included in the as yet unrealized hope that the publisher would reprint the text or at least include these corrections in an errata sheet. However, most of the errors corrected below are serious, and include incorrect equations and symbols, missing but essential equations and symbols, wrong table headings, incorrect spellings, the botching of the MCTRAJ Basic listing, completely wrong references for Chapter 9, and the missing index. Only a few of these errors are typos in Bob's final manuscript.

Bob McCoy passed away just after he submitted that final manuscript, and could not oversee the final result. No corrections could have been made before printing because galley or page proofs were never sent to any of his representatives.

The symbol ⟶ means "is corrected to read". lc and uc mean lower case and upper case, respectively.

P8 L1: wish toeve ⟶ wish to leave

Chapter 1 PP10-31

P10 RH col L6: _ ⟶ 3/4

P23 RH col L7: _ ⟶ 7/8

P30 LH col ref 2: 1893 ⟶ 1900 wrong in MS
P30 LH col: insert a blank line between ref 15 and ref 16

Chapter 2 PP32-41

P33 LH col 3rd line above eq. (2.3): angle is , ⟶ angle is α_t, i.e., insert "α_t" between "is" and comma

L P33 RH col 12th line above § 2.3: $\sin\alpha_t = \sqrt{\left(\frac{\sin\alpha}{\cos\beta}\right)^2 + \sin^2\beta}$ ⟶ $\sin\alpha_t = \sqrt{(\sin\alpha\cos\beta)^2 + \sin^2\beta}$

i.e., fraction is wrong (wrong in MS)

P33 RH col 5th line above § 2.3: ,α_t ⟶ , α_t i.e., insert space between comma and "α_t"

P34 RH col eq. (2.6-a): Vecto ⟶ Vector

P35 LH col eq. (2.8): Avial ⟶ Axial

P35 RH col eq. (2.12) and (2.13): change the fonts of these equations to be consistent with all the others

P35 RH col below eq. (2.13): cos $\alpha_t \approx$ 1and ⟶ cos $\alpha_t \approx 1$ and
i.e., delete comma before subscript t and insert space between " 1 " and "and"

P36 LH col 2nd definition under eq. (2:16): $C_{N_{\alpha 02}}$ ⟶ $C_{N_{\alpha_2}}$ i.e., delete subscript 0 and drop 2

P36 RH col 1st line of 3rd par.: positive C_{M_α} ⟶ positive C_{M_α} i.e., insert space before C_{M_α}

P37 RH col 2nd line of par. below eq. (2.24):
moment on is ⟶ moment on sin α_t is i.e., insert "sin α_t"

P38 LH col line below eq. (2.26): reduce the large space between "where" and "CP_F"

P38 RH col 3rd line from bottom: insert q_t and $\dot{\alpha}_t$ as below

proportional to and one proportional to . ⟶ proportional to q_t and one proportional to $\dot{\alpha}_t$.

P40 LH col Table 2.1:
All symbols on the left hand side of the equations should have a circumflex ^ overscript, not a ∩ overscript.
Equations 4 – 9 should have subscripts α (alpha), not *a* (lower case A)

P40 LH col 2nd line under § 2.14: (etc.) ⟶ (K_D, K_L, K_M, etc.)

P40 RH col Table 2.2:
The right hand sides of the Spin Damping Coefficient, Magnus Force Coefficient, and Magnus Moment Coefficient equations (C_{l_p} , $C_{N_{p\alpha}}$, $C_{M_{p\alpha}}$) should all have minus signs, i.e.,

$$-\frac{8}{\pi}K_A\,,\ -\frac{8}{\pi}K_F\,,\ -\frac{8}{\pi}K_T\,,\ \text{respectively.}$$

P41 Table 2.3: Row 3, 4, 5, 6 of columns 2 and 3 are not lined up with column 1

P41 RH col Ref. 9: Configuratsl ⟶ Configurational (wrong in the manuscript)

Chapter 3 PP42-51

H P43 LH col eq. (3.12): X= ⟶ Y=

P44 LH col under eq. (3.16): close up large space between "where" and "R = range…"

P44 LH col under eq. (3.17): no indent before "where"

P44 LH col 2nd line from bottom: no indent before "and for…"

P44 RH col 2nd line above eq. (3.18): toϕ_0 ⟶ to ϕ_0 i.e., add space after "to"

P44 RH col 2nd line above eq. (3.20):
denoted by ϕ_0 ⟶ denoted by $\hat{\phi}_0$ i.e., add space after "by" and a " ^ " to "ϕ_0"

P45 LH col 2nd line above eq. (3.21): The beginning of this line should read: velocity, V_y, is zero.
i.e., V_{y0} is wrong and falls on top of the word "zero". "V_y " should go between the commas.

P45 LH col line below eq. (3.21): whereY_S is ⟶ where Y_S is i.e., a space after "where"

P46 RH col: eq. (3.31) – (3.33) should have "≈" instead of "=".

P47 RH col 2nd par. line1: the$\widetilde{X}$ ⟶ the $\widetilde{X}$ i.e., a space before $\widetilde{X}$

2nd par. line2: " $\widetilde{Y}$ " missing at beginning of the line

2nd par. line2: the$\widetilde{X}$ -axis ⟶ the $\widetilde{X}$ -axis i.e., add space before $\widetilde{X}$, delete after

2nd par. line3: close up space between " $\widetilde{Y}$ " and "- axis"

2nd par. line4: close up space between " $\widetilde{X}$ " and "- axis"

P48 LH col line below eq. (3.45): "Equation" should not be indented and should not be capitalized.

P48 RH col line 2: angles, can be … ⟶ angles, R_S/R can be i.e., insert "R_S/R", after "angles,"

P48 RH col line 4: ofϕ_0 ⟶ of ϕ_0 i.e., insert space after "of"

H P48 RH col line 6: forϕ_0 ⟶ for ϕ_0 i.e., insert space after "for"

P48 RH col line below eq. (3.48): close up space between " $\phi_{0_{cr}}$ " and " = "

P48 RH col line above table 3.1: L'Hospital's ⟶ "L'Hôpital's (wrong spelling in MS)

P48 RH col eq. (3.49): R_SR ⟶ R_S/R,
sec$A$,or ⟶ sec$A$, or i.e., insert space after comma

P50 RH col line 3: angles, $\phi_{0_{cr}}$ and ⟶ angles, $\phi_{0_{cr}}$ and
i.e., insert a space after comma and one before "and"

P50 RH col line 10 [(b)]: If, $\phi_0 = \phi_{0_{cr}}$ … ⟶ If $\phi_0 = \phi_{0_{cr}}$ …
i.e., replace comma after "If" with a space

P50 RH col line 13 [(c)]: ν 1 ⟶ ν ≈ 1 i.e., insert " ≈ "

Chapter 4 PP52-87

P55 LH col lines 2,3 below Table 4.1: these are a single sentence, so should be joined without space or indent.
i.e., to disappear in U.S. Army Ordnance …."

P55 LH col line 6 from bottom: number,$pVls/\mu$, number, pVl/μ, i.e., Equation wrong and space after first comma

P55 LH col line 5 from bottom: whereμ ⟶ where μ i.e., insert space after "where"

P55 RH col line 2 below Table 4.1: coefficient, C_{D_0} ⟶ coefficient, C_{D_0} i.e., space after 1st comma

P61 Figure is Figure 4.12 i.e., change 4.11 to 4.12

P70 RH col line 3 below Fig 4.21: nose,$R=R_T$, ⟶ nose, $R=R_T$, i.e, insert space after comma

P70 RH col line 4 below Fig 4.21: parameterR_T/R ⟶ parameter R_T/R i.e, put space before R_T/R

P70 RH col line 6 below Fig 4.21: space between "thus" and "R_T/R=0"

H P70 RH col line 8 below Fig. 4.21: comma and space between "therefore" and "0<R_T/R<1"
and between "1" and "for",
i.e., it should read: therefore, 0<R_T/R<1 for

P70 RH col line 14 below Fig. 4.21: put comma and space after "i.e." to read: (i.e., R_T=0.5)

P78 LH col line 6: delete space between "value" and comma

P78 LH col 3rd paragraph line 4, in parenthesis:
($\log_{10}Re$ 5.0) ⟶ ($\log_{10}Re$≈5.0) i.e., insert " ≈ " between Re and 5.0
However , ⟶ However, i.e., delete space before comma

P78 LH col 1st par. of § 4.9 line 5: space between comma and " C_{D_0} "

P78 line 6: space between comma and " $C_{D_{\delta^2}}$ "

P78 RH col line 4: space between "and" and " $C_{D_{\delta^2}}$ "

P79 bottom of page: Figure is Figure 4.39 i.e., change 4.38 to 4.39

P80 LH col line 5: space between "of" and "$C_{D_{\delta^2}}$"

P80 LH col line 15: space between "to" and "C_{D_0}"

P80 LH col line 17: space between "of" and "C_{D_0}"

P80 LH col line 4 above § 4.10: space between "of" and "C_{D_0}"

P81 bottom of page: Figure is Figure 4.42 i.e., change 4.41 to 4.42

P83 bottom of page: Figure is Figure 4.45 i.e., change 4.44 to 4.45

P86 Ref. 1. line 2: 1893 ⟶ 1900 (wrong in MS)

Chapter 5 PP88-97

P89 RH col line 8: for in … ⟶ for $\sum \vec{F}$ in … i.e., insert $\sum \vec{F}$ after "for"

P89 RH col line 4 from bottom: vector, $\vec{g}$ ⟶ vector, $\vec{g}$ i.e., insert space before "$\vec{g}$"

P90 LH col line 1 above eq. 5.11: product of with… ⟶ product of $\vec{V}$ with…
i.e., insert "$\vec{V}$" between "of" and "with"

P90 RH col line 3 of § 5.3: insert "V_y" before and "V_z" after "and", and insert "V_x" after "component" and before the comma.
Line 3 should read: velocity components V_y and V_z are much smaller than the component V_x for

P90 RH col line 4 of § 5.3: crosswind, may ⟶ crosswind, V_z may i.e., insert "V_z" before "may"

P90 RH col line 4 of § 5.3: insert "V_z" between the comma and "may" i.e., "crosswind, V_z may"

P90 RH col eq. (5.14): delete the "1" after the "+ •••" and which is in front of the "]"

P90 RH col 3rd line above eq. (5.16): insert space between "approximation" and "$V \approx V_x$"
i.e., to read: "approximation $V \approx V_x$"

P91 LH col eq. (5.21): $V_x^{'} = \hat{C}_D^* V_x \, x \longrightarrow V_x^{'} = \hat{C}_D^* V_x$ i.e., delete "x" after "V_x"

P91 LH col eq. (5.24): middle integral sign $\int$ should be larger

eq. (5.25): left hand integral sign $\int$ should be larger

eq. (5.26), in denominator before large [: $V_{x_0^2} \longrightarrow V_{x_0}^2$ (wrong in MS)

P91 LH col 4th line from bottom: $S_1, S_2,$ and $S_3 \longrightarrow s_1, s_2,$ and s_3 i.e., change *S* to lc

P91 RH col eq. (5.31): left hand integral sign $\int$ should be larger

P92 LH col eq. (5.33): left hand integral sign $\int$ should be larger

P92 LH col eq. (5.33): the upper limit of the 2nd (RH) integral must be t, not an arbitrary dummy variable s_2

P92 LH col eq. (5.39), 2nd term in [ ]: $-\frac{1}{V_{x_0} k_1 t} \longrightarrow +\frac{1}{V_{x_0} k_1 t}$ i.e., — to +

P92 LH col eq. (5.39): $1n \longrightarrow ln$ i.e., the numeral 1 should be a lc italic L

LH col eq. (5.39), in the denominator: $\left(1 + V_{x_0} k_1 t\right)^2 \longrightarrow \left(V_{x_0} k_1 t\right)^2$

P92 RH col eq. (5.43): $1n \longrightarrow ln$ i.e., the numeral 1 should be a lc italic L

P92 RH col eq. (5.44): $\left(1-\frac{V_{x_0}}{V_x}\right) \longrightarrow \left(1+\frac{V_{x_0}}{V_x}\right)$ (wrong in MS)

P92 RH col eq. (5.45), ;last term: $1n \longrightarrow ln$ i.e., the numeral 1 should be a lc italic L

P92 RH col line 5 of Example 5.1: 0.452." ⟶ 0.452", i.e., replace the period after 0.452 by a comma

P92 RH col eq. (5.47): $1n \longrightarrow ln$ i.e., the numeral 1 should be a lc italic L

P93 LH col line 3 of Example 5.2: and$Y_0 \longrightarrow$ and Y_0 i.e., insert space after "and"

P93 LH col line 8 of Example 5.2: and$V_x \longrightarrow$ and V_x i.e., insert space after "and"

P93 RH col line under eq (5.56): no indent before "where"

P93 RH col eq. (5.58): $1n \longrightarrow ln$ i.e., the numeral 1 should be a lc italic L

H $ln\left(1-V_{x_0}/V_x\right) \longrightarrow ln\left(\frac{V_x}{V_{x_0}}\right)$ i.e., the quantity in () is different

P93 RH col eq. (5.59): $1n \longrightarrow ln$ i.e., the numeral 1 should be a lc italic L (2 places)

H P94 LH col eq. (5.63) $k_3/\sqrt{M} \longrightarrow k_3/\sqrt{V_x}$

P94 RH col eq. (5.67): $V_x' = \longrightarrow V_x =$ i.e., delete the "prime"

P95 RH col Table 5.4": $1n \longrightarrow ln$ i.e., the numeral 1 should be a lc italic L (2 places)

P96 Table 5.5: $1n \longrightarrow ln$ i.e., the numeral 1 should be a lc italic L (1 place)

P96 Table 5.6: $1n \longrightarrow ln$ i.e., the numeral 1 should be a lc italic L (3 places)

H P97 Tables 5.7,5.8,5.9 last col: $K_3/M \longrightarrow K_3/\sqrt{M}$ i.e., replace M by $\sqrt{M}$

Chapter 6 PP98-156

P98 LH col 2nd paragraph, line 2: (Ref. 2b) ⟶ (Ref. 2a, Ref. 2b) (wrong in MS)

M P98 RH col eq. (5.8): insert $=$ after $\frac{dV_x}{dt}$ i.e., $\dot{V}_x = \frac{dV_x}{dt} = -\hat{C}_D^* V V_x$

M P98 RH col eq. (5.9): insert $=$ after $\frac{dV_y}{dt}$ i.e., $\dot{V}_y = \frac{dV_y}{dt} = -\hat{C}_D^* V V_y - g$

P98 RH col eq. (6.1), 2nd eq: $V_x \approx V\cos\phi\,) \longrightarrow V_x \approx V\cos\phi_0$ i.e., replace ϕ by ϕ_0

P98 RH col eq. (6.3): $v \longrightarrow V$ i.e., $\frac{dv}{dt} \longrightarrow \frac{dV}{dt}$

P99 LH col eq. (6.10): $x \longrightarrow X$ i.e., $\frac{dx}{dV} \longrightarrow \frac{dX}{dV}$

M P99 LH col eq. (6.13): insert $=$ after V' i.e., $V' = \frac{dV}{dX} = \frac{\dot{V}}{V}\sec\Phi_0 = -\hat{C}_D^* V \sec\Phi_0$

P100 LH col line above eq. (6.34): insert "(also see Ref. 5a,b,c)" between "author" and comma, i.e., "to the author (also see Ref. 5a,b,c), gives …."

P100 LH col last line: where$\phi_0 \longrightarrow$ where ϕ_0 i.e., add space after "where"

H P100 RH col line 1: insert "≈" between "and β" and "1", i.e., " and $\beta \approx 1$ "

H P100 RH col and **everywhere else in the book: NO periods after abbreviated unit names (e.g., "lb" not "lb.", "in" not "in.", etc.)**

P100 RH col {lines 12 – 14} below eq. (6.41): in.2/lb. ⟶ in^2/lb
line 15 below eq. (6.41): in.4/lb.2 ⟶ in^4/lb^2

P101 LH col 6th line from bottom (in ρ_0): lb./ft.3 ⟶ lb/ft^3 i.e., the 3 is a superscript

P103 LH col line 14 (in the eq. for C_8) $(.302)^2$ ⟶ $(.308)^2$
P103 LH col lines 7-9 of Example 6.2: in.2/lb. ⟶ in^2/lb
line 10 of Example 6.2: in.4/lb.2 ⟶ in^4/lb^2

P104 Figure is Figure 6.2 i.e., change 6.1 to 6.2

P106 RH col line 4 under eq. 644: insert "(page 112)" between "chapter" and "lists"

Facing P113: mark page number 112 at the bottom of Table 6.1

P113 Table 6.11. Some of the headings are misplaced to the right. The headings should read:

Reference Diameter (Inches)	Projectile	Nominal Weight (Grains)	Velocity Interval (fps)	Form Factor i	Ballistic Coefficient C (lb/in^2)	Drag Function

PP114-156 In the Tables of the Primary Siacci Functions, the order of the entries is velocity V, space function S(V), altitude function A(V), trajectory inclination function I(V), and time of flight function T(V). For the G_1 Drag Function (PP 119-124), G_6 Drag Function (PP 135-140), G_7 Drag Function (PP 140-145), and G_{SP} Drag Function (PP 151-156), the I(V) headings are mislabeled as T(V), leaving two columns labeled T(V).

P156 LH col Ref. 1a 1st line: 1_ ⟶ 1° i.e., a " ° " instead of "_"
P156 LH col Ref. 3: "1953" in line 3 should be moved up behind "Press," in line 2
i.e., "Denver Press, 1953 "

Chapter 7 PP157-164

Everywhere in this Chapter: replace all uc subscripts X, Y, Z by lc subscripts x, y, z, respectively; most or all are listed below. These are inconsistent in the MS

P157 LH col lines 3-5 2nd par. of § 7.1: uc subscripts X, Y, Z ⟶ lc subscripts x, y, z, respectively
P157 LH col line 2 under § 7.2: insert space between comma and "V" i.e., "velocity $\vec{V}$, in"

P158 LH col line 1: change italic "*and*" to roman "and"
P158 LH col eq. (7.3): V_Z ⟶ V_z i.e., subscript z should be lc
P158 LH col at eq. (7.11): no indent before "where"
P158 RH col eq. (7.14), middle inequality: V_X ⟶ V_x i.e., subscript x should be lc

P159 LH col line under eq. (7.23): no indent before "where"
P159 LH col eq. (7.25): remove $\frac{V_x}{V_{x_0}}$ from right hand side of equation just to the right of the =
P159 LH col line below eq. (7.26): space between comma and "$|V_Z|$" i.e., "for all X, $|V_z|$ is" with uc subscript Z replaced by lc subscript z

P159 LH col lines 2, 3 below eq. (7.26): uc subscript Z replaced by lc subscript z in two places: W_z, V_z, respectively
P159 LH col line 1above eq. (7.27): uc subscript Z replaced by lc subscript z in W_z
P159 RH col 2nd line above Table 7.1: uc subscript Z replaced by lc subscript z in W_z

P160 RH col line above eq. (7.30): f_{WZi} ⟶ f_{Wzi} i.e., subscript z should be lc

P160 RH col 1st line of eq. (7.30): V_{Xi} ⟶ V_{xi} i.e., subscript x should be lc

P160 RH col 2nd line of eq. (7.30): $V_{X(i+1)}$ ⟶ $V_{x(i+1)}$ (see eq. (7.29)

P160 RH col line 4 below eq. (7.30): calber ⟶ caliber (wrong in MS)

P160 RH col line 4 above Table 7.2: V_{Xi} ⟶ V_{xi} i.e., subscript x should be lc

$t(_{Xi})$ ⟶ $t(X_i)$ X should not be a subscript

P160 RH col Table 7.2 3rd heading: V_{Xi} ⟶ V_{xi} i.e., subscript x should be lc

P160 RH col Table 7.2 6th heading: f_{WZi} ⟶ f_{Wzi} i.e., subscript z should be lc

P162 LH col lines 2,3 below eq. (7.35): uc subscript X replaced by lc subscript x in two places: W_x, V_x, respectively

P162 LH col eq. (7.38): the 2 instances of $-\int_0^X \hat{C}_D^* \, ds_1$ should be the same (larger) size

P162 RH col eq. (7.40): the 3 instances of $-\int_0^X \hat{C}_D^* \, ds_1$, should be the same (larger) size

H RH col eq. (7.40): there should be a ds_2 just ahead of the last ")" (missing from MS)

P162 RH col eq. (7.43): $V_x\,[V_x]\;\; V_x^2$ ⟶ $V_x\,[V_x] \approx V_x^2$ " ≈" missing between "$V_x\,[V_x]$" and "V_x^2"

P162 RH col eq. (7.45): $[V_y]\; V_y$ ⟶ $[V_y] \approx V_y$ " ≈ " missing between "$[V_y]$" and "V_y"

P163 LH col line below eq. (7.53): V_Y ⟶ V_y i.e., subscript y should be lc

P164 Tables 7.4 and 7.5 headings: V_X ⟶ V_x i.e., subscripts x and y are lower case

V_Y ⟶ V_y for consistency with Table 7.3

Chapter 8 PP165-186

P166 LH col line under eq. (8.9): no indent before "where"

P167 RH col eq. (8.24): delete the "– 78" i.e., eq. (8.24) should read

$$f_{\rho(R_H)} = 1 - .00378\, R_H \left(\frac{P_{WV}}{29.92} \right) \qquad (8.24)$$

H P168 LH col 2 line 2 below Table 8.1: vapor pressure at the local ⟶ vapor pressure at saturation at the local

P168 LH col eq. (8.26): delete the "–78" i.e., eq. (8.26) should read

$$f_{a_0(R_H)} = 1 + .0014\, R_H \left(\frac{P_{WV}}{29.92} \right) \qquad (8.26)$$

H P168 2nd col of Table 8.2: Water Vapor Pressure ⟶ Water Vapor Pressure At Saturation

H (In., Hg) ⟶ (In, Hg)

P176 LH col line 13 below Table 8.4: above: ⟶ above. (MS not consistent with layout of book)

P178 LH col line 1: at the beginning of the line, delete space between "$\beta = \sqrt{\sec \phi_0}$" and the comma

P178 RH col eq. (8.29): $-V_x$ ⟶ V_x

H RH col line 5 from bottom: V_X and V_Z ⟶ V_x and V_z i.e., subscripts x and z are lc

P179 LH col eq. (8.33): $\dot{V}_x$ ⟶ V_x

P179 RH col eq. (8.40): $\sqrt{Y_s^3\, g}$ ⟶ $\sqrt{Y_s^3 / g}$ i.e., insert /

P179 LH col eq. (8.45): lc subscripts x to uc subscripts X and lc "oh" to "zero" i.e.,

$V_x = V_{xo}$ ⟶ $V_X = V_{X0}$

P180 LH col eq. (8.53): lc subscripts x to uc subscripts X and lc "oh" to "zero" i.e., $V_{xo} \longrightarrow V_{X0}$

P180 LH col line below eq. (8.53): insert "≥" between "cos L" and "0" i.e., $\cos L \geq 0$

P180 RH col Table 8.8, headings of col 3 and col 4: VXO ⟶ V_{X0}

P181 RH col line 5 above Figure 8.16: $CD \longrightarrow C_D$

P182 Table 8.11, col 4: insert "Δ" before "–Range" i.e., Δ–Range

P182 Table 8.11, col 5: insert "Δ" before "–Deflection" i.e., Δ–Deflection

P183 LH col line 3: insert "Δ" in front of " 's " i.e., Δ's

P183 LH col line 3: delete space between "dif" and "ferences" i.e., differences

P183 LH col paragraph 3 line 2: insert "Δ" before "–Range" i.e., Δ–Range

P183 LH col paragraph 3 line 2: insert "Δ" before "–Deflection" i.e., Δ–Deflection

Errors in MCTRAJ Computer Program

P183 line numbers:

10	MCTRAl.BAS	⟶	MCTRAJ.BAS
90	COErilCIENT	⟶	COEFFICIENT
110	LBON 2	⟶	LB/IN 2
130	MlNtElES	⟶	MINUTES
150	lso	⟶	150
180	FIR]NG	⟶	FIRING
190	OmON	⟶	OPTION
340	(LINE 2)		
	(V^–FTIsEc)	⟶	(VZ--FT/SEC)

P184

520	COE "ICIENT	⟶	COEFFICIENT
530	[RETURN 1	⟶	[RETURN]
580	VVHICH	⟶	WHICH
680	M(J'ABS(M (J))	⟶	M(J) = ABS(M(J))
1040	DlNT=l#	⟶	DINT = 1#
1100	TK1C	⟶	TK1=
1130	W1	⟶	VV1
1200	W1	⟶	VV1
1290	(LBON 2)	⟶	(LB/IN 2)
1520	IFN1	⟶	IF Nl i.e., insert a space
1660	lillS	⟶	THIS
1720	TRA-TECTORY	⟶	TRAJECTORY
1760	INITIALT7:F.	⟶	INITIALIZE

P185

1830	R4--	⟶	R4 =
1900	22	⟶	(22
1910	22	⟶	(22
2070	PR7--	⟶	PR =
2200	LB1N2	⟶	LB/IN 2
H	1NCHES	⟶	INCHES

2220	1NT	⟶	INT	
2400	Q(D	⟶	Q(1);	
	all commas ⟶ semi colons			(wrong in MS)
	all lower case L ⟶ 1			i.e., numeral one
2510	W1	⟶	VVI	
2550	C4-C3∗C1∗B 1*	⟶	C4=(C3∗C1∗B1*	
2550	))fV3	⟶	))/V3	
2560	Wl	⟶	W1	i.e., lower case L to numeral one
2640	V8--	⟶	V8=	
2680	Tkl+Tk2∗Hl	⟶	Tk1+Tk2∗H1	i.e., lower case L to numeral one
2690	W1	⟶	VV1	
2700	B2fV1	⟶	B2/V1	
2730	))fV6	⟶	))/V6	
2750	GfV6	⟶	G/V6	
2810	fB2	⟶	/B2	
2840	Hl	⟶	H1	i.e., lower case L to numeral one
2850	Dl	⟶	D1	i.e., lower case L to numeral one
2910	--	⟶	=	
2920	--	⟶	=	
2940	--	⟶	=	
2970	--	⟶	=	
3000	--	⟶	=	

P185

3040	3040IFL=	⟶	3040 IF L=	
3080	T(N=	⟶	T(N) =	
3100	W(N=	⟶	W(N) =	
3140	all commas ⟶ semicolons			(wrong in MS)
3280	IF P = 2 =	⟶	IF J ≥ 2	

P186

3340	(H3−H(O∗(E(J-1)-(J)/	⟶	(H3−H(J))∗(E(J-1)-E(J))/	
3360	WIIH	⟶	WITH	
3590	3590NEXTI	⟶	3590 NEXT I	
3680	LB1N2	⟶	LB/IN2	
3750	(1NCHES)	⟶	(INCHES)	
3810	line 2: (1N)	⟶	(IN)	
3840	all commas to semicolons			(wrong in MS)
3850	NEXTN	⟶	NEXT N	
4040	xl < M(I+l)	⟶	X1 < M(I+1)	
4070	change both (I+l) to (I+1)			i.e., **lower case L to numeral one**

Chapter 9 PP187-220

P187 LH col line 9 under § 9.1: "(Ref. 2)" shouldn't be indented but follow after "Kent" on line 8
i.e., "Kent (Ref. 2) at …."

P188 RH col line 12: delete space between " $I_x p \vec{x}$ " and comma

P188 RH col line 4 above eq. (9.3): $I_Y \longrightarrow I_y$ i.e., change cap Y to lc y

P188 RH col 2nd line above eq. (9.3): the sentence after "mass." is unclear unless an "$\vec{H}$" is inserted between "momentum" and "is" i.e., "The total projectile vector angular momentum $\vec{H}$ is therefore…."
(not in MS, but in the next-to-last draft)

P189 LH col line 2: "$\frac{d\vec{x}}{dt}$" in line 2 extends into line 3. It should be written "$d\vec{x}/dt$" to avoid this.

P189 RH col line 15: d $^2/4 \longrightarrow \pi d^2/4$ i.e., insert π, move superscript next to d

P189 RH col 8th line from bottom: $C_{M_{\dot{\alpha}}} \longrightarrow C_{N_{\dot{\alpha}}}$ i.e., change M to N to get $\left(C_{N_q} + C_{N_{\dot{\alpha}}}\right)$

P190 RH col line 2 under eq. (9.15): $\nu_2 = \longrightarrow \nu^2 =$ i.e., change subscript to superscript

M P190 RH col 5th eq below eq. 9.15: $p = \frac{I_x}{I_y}\left(\vec{h} \bullet \vec{x}\right) \longrightarrow p = \frac{I_y}{I_x}\left(\vec{h} \bullet \vec{x}\right)$ i.e., switch subscripts x, y

P191 LH col Table 9.1 (heading of RH col): $[E_2\text{-}X_2] \longrightarrow [E_2\text{-}X_2]$ (Inches) i.e. units missing

P192 LH col, 1st paragraph line 1: vector, $\vec{x}$, $\longrightarrow$ vector, $\vec{x}$, i.e., change spacings by commas

P192 LH col, 1st paragraph line 2: $\vec{y}\ and\ \vec{z} \longrightarrow \vec{y}\ \ and\ \ \vec{z}$ i.e., put space before and after "*and*"

P192 LH col 1st paragraph line 6: $(\vec{z} \times \vec{x})$. $\longrightarrow$ $(\vec{z} \times \vec{x})$. i.e., delete space before period

P192 LH col, eq. (9.23), right side of equation, center expression: $\sin(\theta_0 + \alpha_0) \longrightarrow \sin(\phi_0 + \alpha_0)$

C P192 LH col, rhs of eq. (9.24), center expression: replace $\cos(\phi_0 + \alpha_0)$ by $\cos^2(\phi_0 + \alpha_0)$ (wrong in MS)

i.e., $\cos^2(\theta_0 + \beta_0)\cos(\phi_0 + \alpha_0) + \sin^2(\theta_0 + \beta_0) \longrightarrow \cos^2(\theta_0 + \beta_0)\cos^2(\phi_0 + \alpha_0) + \sin^2(\theta_0 + \beta_0)$

P192 LH col, eq. (9.26): There should be a box around equation, as in MS

C P192 LH col, line above eq. (9.27): replace that line by the following clarifying material:

The vector $d\vec{\mathbf{x}}_\mathbf{0}/dt$ is given by:

$$d\vec{\mathbf{x}}_\mathbf{0}/dt = \vec{\omega}_\mathbf{0} \times \vec{\mathbf{x}}_\mathbf{0} = (\vec{\omega}_\mathbf{0} \bullet \vec{\mathbf{z}}_\mathbf{0})\vec{\mathbf{y}}_\mathbf{0} - (\vec{\omega}_\mathbf{0} \bullet \vec{\mathbf{y}}_\mathbf{0})\vec{\mathbf{z}}_\mathbf{0} \qquad (9.27a)$$

where the components of the column vector $\vec{\omega}_\mathbf{0}$ are $(\omega_{1_0}, \omega_{2_0}, \omega_{3_0})$ and are in the earth-fixed system. If $\omega_{\mathbf{z}_0}$ and $\omega_{\mathbf{y}_0}$ are defined by

$$\omega_{z_0} = \vec{\omega}_\mathbf{0} \bullet \vec{\mathbf{z}}_\mathbf{0} \qquad \text{and} \qquad \omega_{y_0} = \vec{\omega}_\mathbf{0} \bullet \vec{\mathbf{y}}_\mathbf{0} \qquad (9.27b)$$

then $d\vec{\mathbf{x}}_\mathbf{0}/dt$ is given by:

P192 RH col eq. (9.31), right hand side, center expression: $+ x_{1_0}\dot{x}_{3_0} \longrightarrow - x_{1_0}\dot{x}_{3_0}$ i.e., + to -

P192 RH col eq. (9.31), right hand side, bottom expression: $+ x_{2_0}\dot{x}_{1_0} \longrightarrow - x_{2_0}\dot{x}_{1_0}$ i.e., + to -

P192 RH col line 3 above eq. (9.32): "$\frac{d\vec{x}}{dt}$" extends into the line below. Better written as "$d\vec{x}/dt$"

P193 RH col line 2: f (x,y) $\longrightarrow$ f(x,y) i.e., delete space between "f" and "("

P194 LH col line 3 below eq. (9.37): value, $\vec{x}_0$, $\longrightarrow$ value, $\vec{x}_0$, i.e., change spacings by commas

P194 LH col line 3 above Fig 9.2: product, $\vec{x} \bullet \vec{x}$ $\longrightarrow$ product, $\vec{x} \bullet \vec{x}$ i.e., insert space after comma

P196 LH col line 2 below Fig 9.5: yaw rate,, $\longrightarrow$ yaw rate, ω_{y_0}, i.e., insert ω_{y_0} between commas

P196 LH col line 14 below fig 9.5: angle,α , $\longrightarrow$ angle, α, i.e., change spacings by commas

P200 LH col line (below Table 9.4): of C_{M_α} ⟶ of C_{M_α} i.e., insert space after "of"

P201 RH col line 8: attack,α_t , ⟶ attack, α_t, i.e., change spacings by commas
P201 RH col line 10: whereα ⟶ where α (insert space and use smaller font for α)
P201 RH col line 6 above Fig 9.11: attack,, ⟶ attack, α_t, i.e., insert α_t

P202 LH col line 5: attack,α_t , ⟶ attack, α_t, i.e., change spacings by commas
H P202 LH col line 4 from bottom: put parens around (α_R) and delete 1 space between it and "component"
This would read much better if parts of lines 5 and 4 from bottom were changed to read:
a significant vertical (α_R) "pitch of repose" component,
P202 RH col line 13: attack,, ⟶ attack, α_t, i.e., insert α_t between commas

P204 LH col line 17: attack,, ⟶ attack, α_t, i.e., insert α_t between commas
H P204 LH col 3rd paragraph line 1: α_t , against ⟶ α_t, against i.e., delete space before comma
P204 LH col line 8 from bottom: attack,α_t , ⟶ attack, α_t, i.e., change spacings by commas

P212 RH col line below eq. (9.39): vector $\vec{x}$ ⟶ vector $\vec{x}$ i.e., insert space after "vector"

H P213 LH col line 3 below eq. (9.44): $(d\vec{\alpha}_R/dt)$, ⟶ $(d\vec{\alpha}_R/dt)$, i.e., delete space before comma
P213 LH col line 3 below eq. (9.44): $\vec{\alpha}_R$. ⟶ $\vec{\alpha}_R$. i.e., delete space before period
H P213 RH col rhs of eq. (9.49): $C_{M\alpha}$ ⟶ C_{M_α} i.e., α is a subscript to subscript M
P213 RH col line under eq. (9.49): no indent before "where"

P214 LH col eq. (9.57): $C_{M\alpha}$ ⟶ C_{M_α} i.e., α is a subscript to subscript M
P214 RH col line 3 above eq. (9.62): show that and in ⟶ show that h_L <<1 and h_M <<1 in

P216 LH col line 19 from bottom: $|\vec{\alpha}_R|$,predicted ⟶ $|\vec{\alpha}_R|$, predicted i.e., delete space before comma
P216 RH col line 7 under example 9.5: repose,$|\vec{\alpha}_R|$ ⟶ repose, $|\vec{\alpha}_R|$ i.e., insert space after comma

P217 headings just under "contour sketch": C_{l_α} ⟶ C_{L_α} i.e., uc subscript L

P218 RH col line 8 under notes: C_{l_α} ⟶ C_{L_α} i.e., uc subscript L
P218 col 7 under "contour sketch": last entry (2.5) doesn't line up with others by one space

P220 2nd table under the "contour sketch" and to right of "Notes":
last 2 entries of col 3 (.9, .95) belong after the .85 in col 5;
-468 of col 4 belongs under –357 in col 6;
-745 of col 5 belongs under the moved –468 in col 6

P220 The references given for chapter 9 are an exact duplicate of the references for chapter 10 (on P239). The chapter 9 references are completely missing! The final draft of the Chapter 9 references is appended at the end.

H In Chapters 10 through 14, there are two inconsistent representations of C^* with a subscript $C_{whatever}{}^*$ and $C^*_{whatever}$.
The latter should be used everywhere.

Chapter 10 PP221-239

P221 RH col, eq. (10.2): $m\frac{d\vec{H}}{dt} \longrightarrow \frac{d\vec{H}}{dt}$ i.e., no "m"

P221 RH col, 2nd line from bottom: $\vec{V}$, $\longrightarrow$ $\vec{V}$, i.e., close up space before comma

P223 LH col, 3rd line above eq. (10.4): to $\vec{x}$ $\longrightarrow$ to $\vec{x}$ i.e., insert space after "to"

P223 LH col, eq. (10.5): minus sign missing

i.e., $Drag\ Force = \frac{1}{2}\rho S C_D V \vec{V} \longrightarrow Drag\ Force = -\frac{1}{2}\rho S C_D V \vec{V}$

P223 LH col, eq. (10.7): $v^2 \longrightarrow V^2$ i.e., uc V

P223 LH col, eq. (10.10) 1st line: $C_{Mp\alpha} \longrightarrow C_{M_{p\alpha}}$

2nd line: $C_{M_{pa}} \longrightarrow C_{M_{p\alpha}}$ i.e., $a \longrightarrow \alpha$ (alpha)

P223 RH col line 15: $d^{\,2}/4 \longrightarrow \pi d^2/4$ i.e., insert π, move superscript next to d

P224 RH col, 2nd line above eq. (10.22): vector with $\vec{i}$ both $\longrightarrow$ vector $\vec{i}$ with both i.e., switch words

P224 RH col line 1: comma after $\vec{i}$ i.e., comma after 2nd term of 3

P225 LH col line after eq. (10.31): no indent of line beginning with "Equation"

P225 LH col, eq. (10.32): $\frac{V}{D} \longrightarrow \frac{V}{d}$ i.e., change to lc d

P225 LH col, eq. (10.37), 2nd line, 1st term: $I_y\left(\frac{d\vec{\omega}}{dt}\bullet\vec{x}\right) \longrightarrow -I_y\left(\frac{d\vec{\omega}}{dt}\bullet\vec{x}\right)$ i.e., insert "-"

P225 RH col, eq. (10.38), 2nd line, 1st term: $I_x\, p\left(\vec{\omega}\times\vec{x}\right) \longrightarrow +I_x\, p\left(\vec{\omega}\times\vec{x}\right)$ i.e., insert "+"

P225 RH col, eq. (10.38), 3rd line, 1st term: insert "+"

i.e., $\frac{1}{2}\rho S d\, C_{M_\alpha} V^2\left(\vec{i}\times\vec{x}\right) \longrightarrow +\frac{1}{2}\rho S d\, C_{M_\alpha} V^2\left(\vec{i}\times\vec{x}\right)$

P225 RH col, eq. (10.38), 4th line, 1st term: insert "+" and lower the subscript "q"

i.e., $\frac{1}{2}\rho S d^2 C_{Mq} V\left(\vec{x}\times\frac{d\vec{x}}{dt}\right) \longrightarrow +\frac{1}{2}\rho S d^2 C_{M_q} V\left(\vec{x}\times\frac{d\vec{x}}{dt}\right)$

P225 RH col, eq. (10.38),4th line, 2nd term: $C_{M\delta} \longrightarrow C_{M_{\dot\alpha}}$ i.e. subscript $\dot\alpha$

P225 RH col line below eq. (910.38): *and* $\longrightarrow$ and i.e., change ital. "*and*" to roman "and"

P225 RH col, eq. (10.41),1st line, 1st term: $\left(\vec{x}\frac{d^2\vec{x}}{dt^2}\right) \longrightarrow \left(\vec{x}\times\frac{d^2\vec{x}}{dt^2}\right)$

P225 RH col, eq. (10.41), 2nd line, last term: $p\,c_{M_{p\alpha}} \longrightarrow P C_{M_{p\alpha}}$ i.e. uc p and c

P225 RH col, eq. (10.41), 3rd line, last term: $C^*_{M_\delta} \longrightarrow C^*_{M_{\dot\alpha}}$ i.e. subscript $\dot\alpha$

P225 RH col, 5th line from bottom, middle equation: $C^*_{M_\alpha} \longrightarrow C^*_{M_{p\alpha}}$ i.e. subscript $p\alpha$

P225 RH col, 4th line from bottom: $C^*_{M_\alpha} = \frac{\rho S d}{2m} C_{M_\alpha} \longrightarrow C^*_{M_{\dot\alpha}} = \frac{\rho S d}{2m} C_{M_{\dot\alpha}}$ i.e. subscripts $\dot\alpha$

i.e., insert dot over both subscripts α

P227 LH col, line 9: ofα $\longrightarrow$ of α i.e., insert space after "of"

P227 RH col, line 4, 3rd term of eq. (10.64): $P\left(\beta' - a\alpha'\right) \longrightarrow P\left(\beta' - i\alpha'\right)$

P227 RH col eq. (10.64) 1st, 3rd terms after = sign: $k_\gamma^{-2} \longrightarrow k_y^{-2}$ i.e., change subscript γ to y

P227 RH col eq. (10.65) 1st, 3rd terms after = sign: $k_\gamma^{-2} \longrightarrow k_y^{-2}$ i.e., change subscript γ to y

P227 RH col eq. (10.66); $+-iPG \longrightarrow =-iPG$ i.e., change + after ξ to =

P227 RH col 2nd eq (for P) below eq. (10.66): $I_\gamma \longrightarrow I_y$ i.e., change subscript γ to y

P227 RH col 3rd eq (for M) below eq (10.66): $k_\gamma^{-2} \longrightarrow k_y^{-2}$ i.e., change subscript γ to y

P228 LH col, last line: $V_0$is $\longrightarrow$ V_0 is i.e., insert space before "is"

P229 LH col, eq. (10.79): should be a box around the equation, as in the MS

P230 LH col, line 14: $\alpha+i\beta$, $\longrightarrow$ $\alpha+i\beta$, i.e., delete spaces before comma

P230 LH col eq. (10.85): in denominator $p \longrightarrow \rho$ (lc Greek rho)

P231 LH col, table 10.1: The last 2 lines should be separated from the third from last by a horizontal line as in the MS

P231 LH col eq. (10.90): should be a box around the equation, as in the MS

P231 LH col eq. (10.91): should be a box around the equation, as in the MS

P232 LH col, eq. (10.92): The minus sign in front of the right hand term is so close to the fraction bar that it is hard to see.

P232 RH col, last 3 lines of eq. (10.94): These lines should start at the same indent as the previous ϕ_S line

P232 RH col, line below eq. (10.97): $|PT| << |M|$, $\longrightarrow$ $|PT| << |M|$, i.e., delete spaces before comma

P233 LH col, 2nd paragraph of § 10.9 1st line: $\lambda_F$and $\longrightarrow$ λ_F and i.e., insert space before "and"

2nd line, λ_S , $\longrightarrow$ λ_S, i.e., delete spaces before comma

P233 LH col, line 5 above eq. (10.106): $\left(C_{M_q} + C_{M_{\dot\alpha}}\right)$, $\longrightarrow$ $\left(C_{M_q} + C_{M_{\dot\alpha}}\right)$, i.e., delete space before comma

P233 LH col, eq. (10.107): This equation should be in a box, as in the MS.

P234 RH col, eq. (10.115), 2nd term: $e^{i\phi_s} \longrightarrow e^{i\phi_S}$ i.e., uc S

H $i\phi_s' \longrightarrow i\phi_S'$ i.e., uc S

P234 RH col, line below eq. (10.115): S=0 $\longrightarrow$ s=0 i.e., lc s

P235 RH col, line 17: insert space after semicolon

P235 RH col, line 18: insert space after semicolon

P235 RH col, line 19: insert space before "radians/" in two places

P235 RH col, line 20: percaliber $\longrightarrow$ per caliber in two places

P237 LH col, line under eq. (10.127): θ , $\longrightarrow$ θ, i.e., delete space before comma

P237 LH col, line 9: $\vec{k} \bullet \vec{J} \longrightarrow \vec{k}' \bullet \vec{J}$ i.e., add the prime to $\vec{k}$

B P237 RH col, eq. (10.128) right hand side: $iAe^{i\phi} \longrightarrow Ae^{i\phi}$ i.e., delete the factor *i* (wrong in MS)

P237 RH col, eq. for A below eq. (10.128): square brackets are missing, i.e., it should read

$$A = \frac{\rho S d}{2m}\left[k_y^{-2}\left(C_{m_0} + i\,C_{n_0}\right) + \left(\phi' - 1\right)\left(C_{Y_0} + i\,C_{Z_0}\right)\right]$$

P237 RH col, line 12, 2nd equation: $\phi = \int_0^S \phi'\, ds_1 \longrightarrow \phi = \int_0^s \phi'\, ds_1$ i.e., lc "s" in limit of integral

P237 RH col, line 13: no indent

B P237 RH col, eq. (10.131), numerator of RHS: $-iA \longrightarrow -A$ i.e., delete the factor *i* (wrong in MS)

P238 LH col, line 13: ξ , $\longrightarrow$ $\xi,$ i.e., delete space before comma

P238 LH col, line 14: amplitude,$\delta,$ $\longrightarrow$ amplitude, $\delta,$ i.e., add space between comma and δ

P238 RH col, line 2: $\widetilde{\Psi} - \Phi = \Psi \longrightarrow \widetilde{\Psi} - \Phi = \Psi^*$ i.e., add asterisk

Chapter 11 PP240-251

H P241 LH col, lines 3,4: $S=d^{\,2}/4 \longrightarrow S=\pi d^2/4$ i.e., insert Greek π and move ^{2} closer to d

P241 LH col, 2 lines below eq. (11.3): $\vec{i} \bullet \vec{x} = \gamma$, $\longrightarrow$ $\vec{i} \bullet \vec{x} = \gamma$, i.e., delete space before comma

H P241 LH col, 3 lines below eq. (11.5): ϕ and θ , $\longrightarrow$ ϕ and $\theta,$ i.e., change spacings

P242 LH col, line under eq. (11.21): definition into $\longrightarrow$ definition $\left(V'/V\right) = -C_D^*$ into

P242 LH col, line under eq. (11.26): $i = \sqrt{-1}$, $\longrightarrow$ $i = \sqrt{-1}$, i.e., delete space before comma

P242 LH col, 2nd line under (11.26): $\xi=\alpha+i\beta$, $\longrightarrow$ $\xi=\alpha+i\beta,$ i.e., delete space before comma

P242 RH col, K_{s0} term of eq. (11.30): all s are cap S except the last one after the "**)**"

$$K_{s_0} e^{i\phi_{s_0}} e^{(\lambda_s + i\phi'_s)s} \longrightarrow K_{S_0} e^{i\phi_{S_0}} e^{(\lambda_S + i\phi'_S)s}$$

P243 RH col, in 1st term of 2nd line of eq. (11.38): $-\frac{1}{\phi'^2_s} \longrightarrow -\frac{1}{\phi'^2_S}$ i.e., uc subscript S

P243 RH col, line below eq. (11.38): coefficient, $C_{L_\alpha}{}^*$, $\longrightarrow$ coefficient, $C_{L_\alpha}^*$, i.e., add space before C

P244 RH col eq. (11.45): $\phi'_F - \phi'_S \longrightarrow \phi'_F\, \phi'_S$ i.e., a product, as in MS

P244 RH col eq. (11.46): $P = \phi'_F - \phi'_S \longrightarrow P = \phi'_F + \phi'_S$ i.e., + as in MS

P245 LH col line 9 below Fig. 11.2: yaw,ξ_0 , $\longrightarrow$ yaw, $\xi_0,$ i.e., change spacings by commas

P245 LH col last line: thatξ_0 $\longrightarrow$ that ξ_0 i.e., insert space after "that"

P246 RH col, last term of eq. (11.49): $K_{s_0} \longrightarrow K_{S_0}$ i.e., cap S

P246 RH col eq. (11.49): This equation should be in a box, as in the MS.

P248 LH col line 4 below Fig 11.4: $(\lambda_S \longrightarrow (\lambda_S$ unclear unless insert space between "(" and "λ"

P248 RH col line 10 from bottom: determine C_{L_α} $\longrightarrow$ determine C_{L_α} i.e., insert space before C_{L_α}

P249 LH col line 9 from bottom: definition,M $\longrightarrow$ definition, M i.e., insert space after comma

P249 LH col eq. (11.57): This equation should be in a box, as in the MS.

P249 RH col line 2 above eq. (11.58): setϕ' $\longrightarrow$ set ϕ' i.e., insert space after "set"

P250 RH col line 2 above Fig 11.7: coefficient, C_{M_α} $\longrightarrow$ coefficient, C_{M_α} i.e., insert space after comma

Chapter 12 PP252-272

P254 RH col 2nd line before Fig 12.3: move the two lines "(radi" and "ans/sec)" to make a single 2nd line, i.e., "(radians/sec)"

P255 LH col 3rd line below eq. (12.9): (2/n) $\longrightarrow$ (2π/n) i.e., insert π

P255 RH col line 5/bottom: $y \longrightarrow \vec{y}$ i.e,, add → on top of y

P256 Fig 12.4: The symbol ∈, to left of the center-of-gravity symbol, has been replaced everywhere else in the book by $\hat{\varepsilon}$

P257 RH col eq. (12.20), 2nd term after = sign: $\vec{r}\,\frac{d\vec{x}}{dt} \longrightarrow \vec{r}\bullet\frac{d\vec{x}}{dt}$ i.e., insert dot

P257 RH col 2 lines above eq. (12.26): $l_E\,\gamma\,\vec{i}$, ⟶ $l_E\,\gamma\,\vec{i}$, i.e., delete space before comma

P258 LH col 2 lines above eq. (12.36): s , ⟶ s, i.e., delete space before comma
P258 RH col line 4 above eq. (12.45): ofα ⟶ of α i.e., insert space before α
P258 yaw,γ ⟶ yaw, γ i.e., insert space before γ
P258 ofα ⟶ of α i.e., insert space before α
P258 RH col line 4 above eq. (12.48): $e^{i\varphi}$.Substituting ⟶ $e^{i\varphi}$. Substituting i.e., insert 2 spaces

P260 RH col, line 4 above eq. (12.71): $m\,\varepsilon \longrightarrow m\,\hat{\varepsilon}$ i.e., insert ^ over the ε
P260 RH col eq. (12.71): $\varepsilon \longrightarrow \hat{\varepsilon}$ i.e., insert ^ over the ε

P261 RH col line above Fig 12.6: *0.94* (in italics) should be 0.94 (in roman)

P262 RH col line 7 from top: (K_T 0.3 degree) ⟶ ($K_T \approx$ 0.3 degree) i.e., insert "≈"as in MS

P264 LH line 8 from top: δ_{MAX} , ⟶ δ_{MAX}, i.e., delete space before comma
P264 LH col eq. (12.103): $P+\sqrt{P^2-4M} \longrightarrow P-\sqrt{P^2-4M}$
P264 LH col line 2 from bottom: ε , ⟶ ε, i.e., delete space before comma
P264 RH col line 3 from top: $\varepsilon$with ⟶ ε with i.e., insert space before "with"

P265 LH col line 5 from bottom: point,$\hat{\varepsilon}$ ⟶ point, $\hat{\varepsilon}$ i.e., insert space before $\hat{\varepsilon}$
P265 LH col line 4 from bottom: muzzle,ϕ_0 ⟶ muzzle, ϕ_0 i.e., insert space before ϕ_0
P265 RH col line 2 after eq. (12.82): twist) ⟶ twist). i.e., add period

P266 LH col line 13 from bottom: thenϕ_0 ⟶ then ϕ_0 i.e., insert space after "then"
P266 LH col line 9 from bottom (eq. for T_L): delete minus sign to the right of both equal signs
P266 RH col eq. (12.85): This equation should be in a box, as in the MS.

P267 LH col eq (12.86) 2nd equality: $\xi_0 = ip\varepsilon \longrightarrow \dot{\xi}_0 = ip\varepsilon$ i.e., change ξ_0 to $\dot{\xi}_0$
P267 RH col line 16 below eq. (12.92): ε , ⟶ ε, i.e., delete space after comma
P267 RH col line 3 from bottom: yaw,ξ_0' , ⟶ yaw, ξ_0' , i.e., insert space before ξ_0'

P268 LH col line 3 from top: *yaw*,ξ_0, ⟶ *yaw*, ξ_0, i.e., insert space before ξ_0
P268 RH col line under eq. (12.95): approximate with throughout ⟶ approximate V_{x_0} with V_x throughout

P270 LH col 3rd line below heading 12.10: Stern ⟶ Sterne i.e., add e, as in refs 9,10.
P270 RH col line 3 above eq. (12.100): rate,ξ_0' ⟶ rate, ξ_0' i.e., insert space before ξ_0'
P270 RH col line 2 above eq. (12.100): yaw,ξ_0 ⟶ yaw, ξ_0 i.e., insert space before ξ_0

Chapter 13 PP273-298

P273 LH col line 16: angle,α , ⟶ angle, α, i.e., change spacings around α

P273 RH col lines 15,16 from bottom in 3 places: $\sin\alpha$, $\longrightarrow$ $\sin\alpha$, i.e., delete space after α

P275 RH col line 3: coefficient, C_{D_0} , $\longrightarrow$ coefficient, C_{D_0},
i.e., insert space before C_{D_0}, delete space after

P276 LH col last line: $d^2/4)$ $\longrightarrow$ $\pi d^2/4)$ i.e., insert π, close up spaces

P277 RH col line 2: $C_{M_{a(R)}}$, $\longrightarrow$ $C_{M_{a(R)}}$, i.e., delete space before comma

P279 LH col line 23 from bottom: $C_{M_{a_0}}$, $\longrightarrow$ $C_{M_{a_0}}$, i.e., delete space before comma

H P279 LH col line 18 from bottom: $,C_{M_{a_2}}$, $\longrightarrow$ $,C_{M_{a_2}}$, i.e., change spacings by commas

P280 RH col eq. (13.19): This equation should be in a box, as in the MS.

P280 RH col line 2 from bottom: $d^2/4$ $\longrightarrow$ $\pi d^2/4$ i.e., insert π

P281 RH col line 1 first 2 terms of eq13.37:

$$2\lambda_F - \phi'_F \longrightarrow 2\lambda_F\,\phi'_F$$ i.e., delete minus sign to get 1 term

P281 RH col eq. (13.42) 2nd term after = sign:

$$K_F^2 + K_S^2 \longrightarrow K_F^2 - K_S^2$$ i.e., change + to -

P281 RH col line 2 below eq. (13.44): although "definition" is in the MS, it is actually shown as an approximation in eq. (13.42). Therefore "definition" should be replaced by "approximation".

P281 RH col eq. (13.46): $-H_0\,\phi'_S \longrightarrow +H_0\,\phi'_S$ i.e., change - to +

P282 LH col eq. (13.53) in [ ]: $\dfrac{\phi'_F - \phi'_S}{\phi'_F - \phi'_S} \longrightarrow \dfrac{\phi'_F + \phi'_S}{\phi'_F - \phi'_S}$ i.e., + in numerator, not -

P287 LH col both lines above eq. (13.58): replace "curve of Figure 13.16 with a seventh-power (or higher) series expansion, stated as equation (13.58):"
by "with a seventh-power (or higher) series expansion, which yields the Magnus moment coefficient $C_{M_{p\alpha}}$ in even powers as eq. (13.58):"

P287 LH col: replace eq.(13.58) with $C_{M_{p\alpha}} = C_{M_{p\alpha_0}} + C_{M_{p\alpha_2}}\sin^2\alpha + C_{M_{p\alpha_4}}\sin^4\alpha + C_{M_{p\alpha_6}}\sin^6\alpha + \bullet\bullet\bullet$

P287 RH col eq. (13.60) $-H_0\,\phi'_S \longrightarrow +H_0\,\phi'_S$ i.e., change - to +

$+P\left(T_0 + T_2\delta_{eS}^2\right) \longrightarrow -P\left(T_0 + T_2\delta_{eS}^2\right)$ i.e., change +P to -P

P291 LH col line 3 from bottom: $C_{M_{p\alpha_0}}$, $\longrightarrow$ $C_{M_{p\alpha_0}}$, i.e., delete space before comma

P291 LH col line 2 from bottom: $C_{M_{p\alpha_2}}$, $\longrightarrow$ $C_{M_{p\alpha_2}}$, i.e., delete space before comma

P291 RH col line 9 below sketch: $\lambda_F 0 \longrightarrow \lambda_F \approx 0$ i.e., insert " ≈ "

P293 LH col line 2: coefficient, C_{L_α} , $\longrightarrow$ coefficient, C_{L_α}, i.e., change spacings by commas

P293 RH col: Figure is Figure 13.28 i.e., change 13.26 to 13.28

P293 RH col line 2 below eq. (13.73): $\hat{C}_{M_\alpha}$, $\longrightarrow$ $\hat{C}_{M_\alpha}$, i.e., delete space before comma

P294 LH col last line: C_{D_0} , $\longrightarrow$ C_{D_0}, i.e., delete space before comma

P295 RH col eq. (13.86): $C_{L_{\alpha_0}} - C_{L_{\alpha_2}}\delta_{esw}^2 \longrightarrow C_{L_{\alpha_0}} + C_{L_{\alpha_2}}\delta_{esw}^2$ i.e., change - to +

P297 LH col line 10 from bottom: two- center $\longrightarrow$ two-center i.e., delete space after hyphen

P297 LH col line 4 from bottom:
$C_{M_{p\alpha_0}}$ and $C_{M_{p\alpha_2}} \longrightarrow C_{M_{p\alpha_0}}$ and $C_{M_{p\alpha_2}}$ i.e., insert spaces before and after "and"

P298 RH col reference 15: insert blank line above ref. 15.

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P300 RH col line 17: than __ inch $\longrightarrow$ than 1/2 inch

P302 RH col line 4: 1/2 $\rho V^2 S$. . $\longrightarrow$ 1/2 $\rho V^2 S$. i.e., delete the second period

P302 RH col line 6: 1/2 $\rho V^2 Sd$. $\longrightarrow$ 1/2 $\rho V^2 Sd$. i.e., delete space before period

P305 RH col line above eq. (10.77): C_{l_δ} , $\longrightarrow$ C_{l_δ}, i.e., delete space before comma

C_{l_p} , $\longrightarrow$ C_{l_p}, i.e., delete space before comma

P305 RH col line 2 above eq. (10.77): andK_δ $\longrightarrow$ and K_δ i.e., insert space after "and"

P305 RH col eq. (10.77): $\phi = \phi_0' - \ldots \longrightarrow \phi = \phi_0 - \ldots$ i.e., delete the prime

P305 RH col line 4 below eq. (14.lc): C_{l_p} , $\longrightarrow$ C_{l_p}, i.e., delete space before comma

P305 RH col line 7 below eq. (14.lc): C_{l_p} , $\longrightarrow$ C_{l_p}, i.e., delete space before comma

P305 RH col eq. (10.94): There should be a box around the equation, as in MS

P306 LH col eq. (11.29): There should be a box around the equation, as in MS

P306 RH col line 1: tan ϕ_0 , $\longrightarrow$ tan ϕ_0, i.e., delete space before comma

P306 RH col line 3: tan θ_0 , $\longrightarrow$ tan θ_0, i.e., delete space before comma

P306 RH col line 2 below eq. (14.11): coefficient, C_{L_α} , $\longrightarrow$ coefficient, C_{L_α},

i.e., insert space before and delete space after C_{L_α}

P309 LH col lines 5,6,8: ,C $\longrightarrow$, C i.e., add space before all C symbols

e.g., (line 5) ,C_D $\longrightarrow$, C_D

P309 LH col line 10: Coefficients C_{l_p} , $\longrightarrow$ Coefficients, C_{l_p}, i.e., add comma after "coefficients"

H and delete space before 2nd comma

P309 LH col line 4 in Table 14.4: move Coefficient next to Aerodynamic i.e., Aerodynamic Coefficient

P311 LH col line 3: Asketch $\longrightarrow$ A sketch i.e., add space after "A"

P311 LH col line 15: ,C_{l_p} , $\longrightarrow$, C_{l_p},

i.e., add space before and delete space after C_{l_p}

P311 LH col line 16: ofC_{l_p} $\longrightarrow$ of C_{l_p} i.e., add space after "of"

P311 LH col line 18: general, C_{l_p} $\longrightarrow$ general, C_{l_p} i.e., add space after comma

P311 LH col line 24: inC_{l_p} $\longrightarrow$ in C_{l_p} i.e., add space after "in"

H P311 RH col line 2: ,C_{M_α} , $\longrightarrow$, C_{M_α}, i.e., change spacings of commas

P311 RH col line 4: of C_{M_α} ⟶ of C_{M_α} i.e., add space after "of"

P311 RH col line 5: in C_{M_α} ⟶ in C_{M_α} i.e., add space after "in"

P311 RH col line 7: , C_{N_α} , ⟶ , C_{N_α} ,

i.e., add space before and delete space after C_{N_α}

P311 RH col line 10: $C_{L_\alpha} + C_D$. ⟶ $C_{L_\alpha} + C_D$. i.e., delete space before period

P311 RH col line 13: of C_{N_α} ⟶ of C_{N_α} i.e., add space after "of"

P311 RH col line 21: -measured $C_{M_{p\alpha}}$ ⟶ -measured $C_{M_{p\alpha}}$ ie, add space after " –measured "

P311 RH col line 26: , $C_{N_{p\alpha}}$ ⟶ , $C_{N_{p\alpha}}$ i.e., add space after comma

P311 RH col line 27: the $C_{M_{p\alpha}}$ ⟶ the $C_{M_{p\alpha}}$ i.e., add space after "the"

P315 LH col line 2 below eq. (14.18): shift of $_{CG}$ ⟶ shift of Δ_{CG} i.e., insert Δ before subscript *CG*

P315 LH col line 3 below eq. (14.18): that $_{CG}$ ⟶ that Δ_{CG} i.e., insert Δ before subscript *CG*

P315 RH col line below eq. (14.21): no indent before "where"

the $_{CG}$ ⟶ the Δ_{CG} i.e., insert Δ before subscript *CG*

P315 RH col eq. (14.21): There should be a box around the equation, as in MS

P315 RH col eq. (14.22): There should be a box around the equation, as in MS

P315 RH col eq. (14.23): There should be a box around the equation, as in MS

P315 RH col line 4 below eq. (14.23): the $_{CG}$ ⟶ the Δ_{CG} i.e., insert Δ before subscript *CG*

P315 RH col line 6 below eq. (14.23): , $_{CG}$ ⟶ , Δ_{CG} i.e., insert Δ before subscript *CG*

P315 RH col line 7 below eq. (14.23): , $_{CG}$ ⟶ , Δ_{CG} i.e., insert Δ before subscript *CG*

P315 RH col line 8 below eq. (14.23): so $_{CG}$ ⟶ so Δ_{CG} i.e., insert Δ before subscript *CG*

P316 LH col last line: change to read "Figure 14.15 Pitch Damping Coefficients vs Mach Number"

H P316 RH col: insert in Figure 14.15(a) below the curve

⊙ $\left[C_{M_q} + C_{M_{\dot\alpha}}\right]$ vs Mach Number

H P316 RH col: in Figure 14.15(b)

replace ⊙ $\left[C_{M_q} + C_{M_{\dot\alpha}}\right]$ vs Center of Gravity

with ⊙ $\left[C_{N_q} + C_{N_{\dot\alpha}}\right]$ vs Mach Number

P316 RH col: insert in Figure 14.15 at the very bottom

"Figure 14.15(b). Pitch Damping Force Coefficient vs Mach Number"

P319 RH col last line of Table 14.5: C_{M_α} ⟶ $C_{M_{\dot\alpha}}$ i.e., add dot above α

P327 RH col ref 17 3rd line: This should be moved up after "Report", i.e.,

Report No. 1048, 1958 ⟶ Report No. 1048, 1958

There is NO index!!!

Chapter 9 references are appended below.

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