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 line 6: _ ⃞ 3/4
P23 RH col line 7: _ ⃞ 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
L P33 RH col 12th line above § 2.3: \[ \sin \alpha = \sqrt{\left(\frac{\sin \alpha}{\cos \beta}\right)^2 + \sin^2 \beta} \]

L P33 RH col 3rd line above eq. (2.3): angle is ⃞ angle is \( \alpha_1 \)
i.e., insert "\( \alpha_1 \)" between "is" and comma

L P33 RH col 5th line above § 2.3: \( \alpha \) ⃞ , \( \alpha \)
i.e., insert space between comma and "\( \alpha \)"

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): \( \cos \alpha, \approx 1 \) and \( \cos \alpha \approx 1 \) and
i.e., delete comma before subscript t and insert space between " 1 " and "and"
P36  LH col 2nd definition under eq. (2.16): \( C_{N_{02}} \rightarrow C_{N_{02}} \) i.e., delete subscript 0 and lower the 2
P36  RH col 1st line of 3rd par.: positive \( C_{M_{a}} \rightarrow C_{M_{a}} \) i.e., insert space before \( C_{M_{a}} \)
P37  RH col 2nd line of par. below eq. (2.24): moment on \( \rightarrow \) moment on sin \( \alpha \) t i.e., insert space before \( \alpha \) M C
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 \( q, \) and \( \alpha, \) as below proportional to \( \) and one proportional to \( t, \) i.e., insert "sin \( \alpha \)"
P40  LH col Table 2.1:
All symbols on the left hand side of the equations should have a circumflex ^ overscript, not a \( \wedge \) overscript. Equations 4 – 9 should have subscripts \( \alpha \) (alpha), not \( a \) (lower case A)
P40  RH col Table 2.2:
The right hand sides of the Spin Damping Coefficient, Magnus Force Coefficient, and Magnus Moment Coefficient equations (\( C_{N_{p}}, C_{N_{p}}, C_{M_{p}} \)) should all have minus signs, i.e.,
\[ \frac{8}{\pi} K_{A}, \quad -\frac{8}{\pi} K_{F}, \quad -\frac{8}{\pi} K_{T} \]
respectively.
P41  Table 2.3:
Row 3, 4, 5, 6, 9, 10 of columns 2 and 3 are not lined up with column 1
P41  RH col Ref. 9: Configuratsl \( \rightarrow \) Configuration (wrong in the manuscript)

Chapter 3  PP42-51

H P43  RH col eq. (3.12): \( X= \rightarrow Y= \)
P44  LH col eq. (3.14): insert space between LH vertical line of box and "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): to \( \phi, \) to \( \phi, \) i.e., add space after "to"
P44  RH col 2nd line above eq. (3.20):
denoted by \( \phi_{0} \) \( \rightarrow \) denoted by \( \hat{\phi}_{0} \) i.e., add space after "by" and a "^" to \( \phi_{0} \)
P45  LH col 2nd line above eq. (3.21): The beginning of this line should read: velocity, \( V_{y}, \) is zero.
i.e., \( V_{y_{0}} \) 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): where \( Y_{S} \) is \( \rightarrow \) where \( Y_{S} \) is i.e., a space after "where"
P46  RH col:
eq. (3.31) – (3.33) should have "=" instead of "\( \Rightarrow \)"
P47  RH col 2nd par. line1: the \( \tilde{X} \) \( \rightarrow \) the \( \tilde{X} \) i.e., a space before \( \tilde{X} \)
2nd par. line2: " \( \tilde{Y} \) " missing at beginning of the line
2nd par. line2: the \( \tilde{X} \) –axis \( \rightarrow \) the \( \tilde{X} \) –axis i.e., add space before \( \tilde{X} \), delete after
2nd par. line3: close up space between "\( \tilde{Y} \)" and "– axis"
2nd par. line4: close up space between "\( \tilde{X} \)" 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 … \[ \rightarrow \] angles, \( R/R \) can be i.e., insert "\( R/R \)" after "angles,"
P48 RH col line 4: of \( \phi_0 \) \[ \rightarrow \] of \( \phi_0 \) i.e., insert space after "of"
P48 RH col line 5: insert space after "setting"

H P48 RH col line 6: \( \phi_0 = \phi_{0_e} \) i.e., insert "\( \phi_{0_e} \)" after "angles,"
P48 RH col line above table 3.1: \( \phi_0 \) \[ \rightarrow \] \( \phi_{0_e} \) i.e., insert space after comma and one before "and"
P48 RH col line 3: \( \phi_0 = \phi_{0_e} \) \[ \rightarrow \] \( \phi_0 = \phi_{0_e} \) i.e., replace comma after "If" with a space

P50 RH col line 3: angles, \( \phi_0 \) and \[ \rightarrow \] angles, \( \phi_{0_e} \) and i.e., insert a space after comma and one before "and"
P50 RH col line 10 [(b)]: If, \( \phi_0 = \phi_{0_e} \) \[ \rightarrow \] If \( \phi_0 = \phi_{0_e} \) i.e., insert space after "for" with a space

P50 RH col line 13 [(c)]: \( \nu \) 1 \[ \rightarrow \] \( \nu \approx 1 \) i.e., insert "\( \approx \)"

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 1st paragraph of § 4.3 line 3: \( , , \rightarrow , C_D \), i.e., insert "\( C_D \)" between the \( , , \)
P55 LH col line 6 from bottom: number, \( \rho Vl/\mu \) number, \( \rho Vl/\mu \) i.e., Equation wrong and space after first comma
P55 LH col line 5 from bottom: where \( \mu \) \[ \rightarrow \] where \( \mu \) i.e., insert space after "where"
P55 RH col line 2 below Table 4.1: coefficient, \( C_{D_b} \) \[ \rightarrow \] coefficient, \( C_{D_b} \) 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, \( R=R_T \) \[ \rightarrow \] nose, \( R=R_T \) i.e., insert space after comma
P70 RH col line 4 below Fig 4.21: parameter \( R_T/R \) \[ \rightarrow \] 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 "\( R_T/R=0' \)" i.e., it should read: therefore, \( 0<R_T/R<1 \) for

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., change 4.38 to 4.39

P78 LH col line 6: delete space between "value" and comma
P78 LH col 3rd paragraph line 4, in parenthesis: \( \left( \log_{10} Re \right) \rightarrow \left( \log_{10} Re \approx 5.0 \right) \) i.e., insert "\( \approx \)" between \( Re \) and 5.0

However , \[ \rightarrow \] 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 "\( C_{D_2} \)"
P78 RH col line 4: space between "and" and "\( C_{D_2} \)"

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

Chapter 5

PP88-97

P89 RH col 8: for in … → for \( \sum \vec{F} \) in … i.e., insert \( \sum \vec{F} \) after "for"

P89 RH col 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 \( V_x \) and \( V_z \) are much smaller than the component \( V_x \) for

P90 RH col line 4 of § 5.3: crosswind, may → crosswind, \( V_x \) may i.e., insert " \( V_x \) " before "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): \( V_x = \hat{C}_D V_x x \rightarrow V_x = \hat{C}_D V_x \) 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 \([ \) : \( V_{x_0}^2 \rightarrow V_{x_0}^2 \) (wrong in MS), both integral signs larger

eq. (5.27): left hand integral sign \( \int \) should be larger

P91 LH col 4th line from bottom: \( S_1, S_2, \) and \( S_3 \) → \( s_1, s_2, \) and \( s_3 \) i.e., change \( S \) to \( s \)

P91 RH col eq. (5.29): left hand integral sign \( \int \) should be larger

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

P91 RH col eq. (5.32): 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 \( s_2 \)
\( t \approx \phi \approx V \) 

\( \text{RH col eq. (5.54):} \quad 1n \rightarrow ln \quad \text{i.e., the numeral 1 should be a lc italic L} \)

\( \text{RH col eq. (5.56):} \quad \left( \frac{1 - V_0}{V_x} \right) \rightarrow \ln \left( \frac{V_x}{V_0} \right) \quad \text{i.e., the quantity in () is different} \)

\( \text{RH col eq. (5.59):} \quad 1n \rightarrow ln \quad \text{i.e., the numeral 1 should be a lc italic L (2 places)} \)

\( \text{RH col eq. (5.60):} \quad k_3/\sqrt{M} \rightarrow k_3/\sqrt{V_x} \quad \text{i.e., insert space after \"and\"} \)

\( \text{RH col eq. (5.67):} \quad \dot{V}_x = \dot{V}_x = \quad \text{i.e., delete the \"prime\"} \)

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

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

\( \text{RH col eq. (6.3):} \quad \dot{v} \rightarrow V \quad \text{i.e., } \frac{dv}{dt} \rightarrow \frac{dV}{dt} \)

\( \text{RH col eq. (6.8):} \quad \dot{x} \rightarrow X \quad \text{i.e., } \frac{dx}{dV} \rightarrow \frac{dX}{dV} \)

\( \text{RH col eq. (6.13):} \quad \text{insert = after } \dot{V}' \quad \text{i.e., } \dot{V}' = \frac{dV}{dX} = \frac{V}{V} \sec \Phi_0 = -\hat{C}_D V \sec \Phi_0 \)

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 \( \phi_0 \) i.e., add space after "where"

H P100  RH col line 1: insert "\( \approx \)" between "\( \alpha \)" and "\( 1 \)''

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. \( \longrightarrow \) in\(^2\)/lb
line 15  below eq. (6.41): in.4/lb.2 \( \longrightarrow \) in\(^4\)/lb\(^2\)

P101  LH col 6th line from bottom (in \( \rho_0 \)): lb./ft.3 \( \longrightarrow \) lb/ft\(^3\) i.e., the 3 is a superscript

P103  LH col line 14 (in the eq. for \( C_a \)) (.302\(^2\)) \( \longrightarrow \) (.308\(^2\))

P103  LH col lines 7-9 of Example 6.2: in.2/lb. \( \longrightarrow \) in\(^2\)/lb
line 10  of Example 6.2: in.4/lb.2 \( \longrightarrow \) in\(^4\)/lb\(^2\)

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

P106  RH col line 7 under § 6.6: insert "(page 113)" between "chapter" and "lists"

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

P113  Table 6.1. Some of the headings are misplaced to the right. The headings should read:

<table>
<thead>
<tr>
<th>Reference</th>
<th>Projectile</th>
<th>Nominal</th>
<th>Velocity</th>
<th>Form</th>
<th>Ballistic</th>
<th>Drag</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter</td>
<td>Weight</td>
<td>Velocity</td>
<td>Interval</td>
<td>Factor</td>
<td>Coefficient</td>
<td>Function</td>
</tr>
<tr>
<td>(Inches)</td>
<td>(Grains)</td>
<td>(fps)</td>
<td>i</td>
<td>C (lb/in(^2))</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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, Drag Function (PP 119-124), \( G_x \) Drag Function (PP 135-140), \( G_z \) 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 \( \longrightarrow \) 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 \( \longrightarrow \) lc subscripts x, y, z, respectively
P157  LH col line 2 under § 7.2: insert space between comma and "V" i.e., "velocity \( \overrightarrow{V} \), in"

P158  LH col line 1: change italic "and" to roman "and"
P158  LH col eq. (7.3): \( V_Z \longrightarrow V_z \) 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: \( V_x \longrightarrow V_i \) 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 \( \frac{V}{V_0} \) from right hand side of equation just to the right of the =
and the comma should be the same (larger) size with uc subscript Z replaced by lc subscript z

uc subscript Z replaced by lc subscript z in two places: W_z, V_z, respectively

uc subscript Z replaced by lc subscript z in W_z

uc subscript Z replaced by lc subscript z in lc subscript z in W_z

f_{WZi} \rightarrow f_{Wzi} \quad \text{i.e., subscript z should be lc}

V_i \rightarrow V_{zi} \quad \text{i.e., subscript x should be lc}

V_{X(i+1)} \rightarrow V_{x(i+1)} \quad \text{(see eq. (7.29))}

caliber \rightarrow \text{caliber} \quad \text{ (wrong in MS)}

f_{WZi} \rightarrow f_{Wzi} \quad \text{i.e., subscript z should be lc}

uc subscript Z replaced by lc subscript z in lc subscript z in W_z

uc subscript Z replaced by lc subscript z in two places: W_z, V_z, respectively

the 2 instances of \( -\int_0^X \hat{C}^*_D \ ds_1 \) should be the same (larger) size

the 3 instances of \( -\int_0^X \hat{C}^*_D \ ds_1 \), should be the same (larger) size

there should be a ds_2 just ahead of the last "("

\( V_x [V_x^2] V_x^2 \rightarrow V_x [V_x^2] \approx V_x^2 \quad \text{" \approx" missing between } "V_x [V_x^2]" \text{ and } "V_x^{2n}\)

\( [V_y] V_y \rightarrow [V_y] \approx V_y \quad \text{" \approx" missing between } "[V_y]\" \text{ and } "V_y"\)

\( V_Y \rightarrow V_y \quad \text{i.e., subscript y should be lc}

\( V_X \rightarrow V_x \quad \text{i.e., subscripts x and y are lower case}

\( V_Y \rightarrow V_y \quad \text{for consistency with Table 7.3}

Chapter 8

PP165-186

no indent before "where"

delete the "−78" \quad \text{i.e., eq. (8.24) should read}

\[ f_{P(R_H)} = 1 - .00378 R_H \left( \frac{P_{WV}}{29.92} \right) \quad (8.24) \]

vapor pressure at the local \rightarrow \text{vapor pressure at saturation at the local}

delete the "−78" \quad \text{i.e., eq. (8.26) should read}

\[ f_{a_o(R_H)} = 1 + .0014 R_H \left( \frac{P_{WV}}{29.92} \right) \quad (8.26) \]

Water Vapor Pressure \rightarrow \text{Water Vapor Pressure At Saturation}

(MS not consistent with layout of book)

i.e., delete comma after \( \beta \)

at the beginning of the line, delete space between " \( \beta = \sqrt{\sec \phi_0} \) " and the comma

\( -V_z \rightarrow V_z \quad \text{i.e., subscripts x and z are lc}

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P179 LH col eq. (8.33): \[ \dot{V}_x \rightarrow V_x \]

P179 RH col eq. (8.40): \[ \sqrt{\frac{Y^3}{g}} \rightarrow \sqrt{\frac{Y^3}{g}} \text{ i.e., insert /} \]

P179 LH col eq. (8.45): \[ \text{lc subscripts } x \text{ to uc subscripts } X \text{ and lc "oh" to "zero" i.e.,} \]
\[ V_x = V_{x_0} \rightarrow V_X = V_{X_0} \]

P180 LH col eq. (8.53): \[ \text{lc subscripts } x \text{ to uc subscripts } X \text{ and lc "oh" to "zero" i.e.,} \]
\[ V_{x_0} \rightarrow V_{X_0} \]

P180 RH col line below eq. (8.53): \[ \text{insert } \geq \text{ between } \cos L \text{ and } 0 \text{ i.e., } \cos L \geq 0 \]

P180 RH col Table 8.8, headings of col 3 and col 4: \[ VXO \rightarrow V_{X0} \]

P181 RH col line 5 above Figure 8.16: \[ CD \rightarrow C_D \]

P182 Table 8.11, col 4: \[ \text{insert } \Delta \text{ before } \text{"Range" i.e., } \Delta \text{–Range} \]

P182 Table 8.11, col 5: \[ \text{insert } \Delta \text{ before } \text{"Deflection" i.e., } \Delta \text{–Deflection} \]

P183 LH col line 3: \[ \text{insert } \Delta \text{ in front of } \text{"s" i.e., } \Delta \text{s} \]

P183 LH col line 3: \[ \text{delete space between "dif" and "ferences" i.e., differences} \]

P183 LH col paragraph 3 line 2: \[ \text{insert } \Delta \text{ before } \text{"Range" i.e., } \Delta \text{–Range} \]

P183 LH col paragraph 3 line 2: \[ \text{insert } \Delta \text{ before } \text{"Deflection" i.e., } \Delta \text{–Deflection} \]

Errors in MCTRAJ Computer Program

P183 line numbers:

10 MCTRAl.BAS \(\rightarrow\) MCTRAJ.BAS
90 COEriICIENT \(\rightarrow\) COEFFICIENT
110 LBON 2 \(\rightarrow\) LB/IN 2
130 MINeIES \(\rightarrow\) MINUTES
150 iso \(\rightarrow\) 150
180 FIR|NG \(\rightarrow\) FIRING
190 OmON \(\rightarrow\) OPTION
340 (LINE 2)
\((V^–FTlSEc) \rightarrow (VZ–FT/SEC) \)

P184

520 COE "ICIENIT \(\rightarrow\) COEFFICIENT
530 [RETURN 1 \(\rightarrow\) [RETURN]
580 VVWHICH \(\rightarrow\) WHICH
680 M(JABS(M (J)) \(\rightarrow\) M(J) = ABS(M(J))
1040 DINT=1# \(\rightarrow\) DINT = 1#
1100 TK1C \(\rightarrow\) TK1=
1130 W1 \(\rightarrow\) VV1
1200 W1 \(\rightarrow\) VV1
1290 (LBON 2) \(\rightarrow\) (LB/IN 2)
1520 IFN1 \(\rightarrow\) IF NI i.e., insert a space
1660 lillS \(\rightarrow\) THIS
1720 TRA-TECTORY \(\rightarrow\) TRAJECTORY
1760 INITIALT7:F. \(\rightarrow\) 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 1:CL) → 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 )))V3 → ))/V3
2560 W1 → W1 i.e., lower case L to numeral one
2640 V8-- → V8=
2680 Tk1+Tk2*Hl → Tk1+Tk2*H1 i.e., lower case L to numeral one
2690 W1 → VV1
2700 B2fV1 → B2/V1
2730 )))V6 → ))/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 " Iₚ " and comma
P188  RH col line 4 above eq. (9.3):  \( I_y \rightarrow I_y \)  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 \(" \frac{d\vec{x}}{dt}\)" to avoid this.
P189  RH col line 15:  \( d^{3/4} \rightarrow \pi d^{3/4} \)  i.e., insert \( \pi \), move superscript next to d
P189  RH col 8th line from bottom:  \( C_{M_a} \rightarrow C_{N_a} \)  i.e., change M to N to get \( \left( C_{N_q} + C_{N_a} \right) \)

P190  RH col line 2 under eq. (9.15):  \( v_2 = \rightarrow v^2 = \)  i.e., change subscript to superscript
M P190  RH col 5th eq. below eq. (9.15):  \( p = \frac{I_x}{I_y} \left( \vec{h} \cdot \vec{x} \right) \rightarrow p = \frac{I_y}{I_x} \left( \vec{h} \cdot \vec{x} \right) \)  i.e., switch subscripts x, y

P191  LH col  Table 9.1 (heading of RH col):  \[ [E_x-X_2] \rightarrow [E_x-X_2] \]  (Inches)  i.e. units missing

P192  LH col 1st paragraph line 1:  vector, \( \vec{x} \), \rightarrow vector, \( \vec{x} \),  i.e., change spacings by commas
P192  LH col 1st paragraph line 2:  \( \vec{y} \ and \ \vec{z} \rightarrow \vec{y} \ and \ \vec{z} \)  i.e., put space before and after "and"
P192  LH col 1st paragraph line 6:  \( (\vec{z} \times \vec{x}) \)  \ .  \( (\vec{z} \times \vec{x}) \)  i.e., delete space before period
P192  LH col eq. (9.23), right side of equation, center expression: \( \sin(\phi_0 + \alpha_0) \rightarrow \sin(\phi_0 + \alpha_0) \)

C P192  LH col rhs of eq. (9.24), center expression: \( \cos(\phi_0 + \alpha_0) \rightarrow \cos^2(\phi_0 + \alpha_0) \)  (wrong in MS)
          i.e., \( \cos^2(\theta_0 + \beta_0) \cos(\phi_0 + \alpha_0) + \sin^2(\theta_0 + \beta_0) \rightarrow \cos^2(\theta_0 + \beta_0) \cos^2(\phi_0 + \alpha_0) + \sin^2(\theta_0 + \beta_0) \)

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 \( d\vec{x}_0/dt \) is given by:
          \( d\vec{x}_0/dt = \hat{\omega}_0 \times \vec{x}_0 = (\hat{\omega}_0 \cdot \vec{z}_0)\vec{y}_0 - (\hat{\omega}_0 \cdot \vec{y}_0)\vec{z}_0 \)  (9.27a)
          where the components of the column vector \( \hat{\omega}_0 \) are \( \left( \omega_{x_0}, \omega_{y_0}, \omega_{z_0} \right) \) and are in the earth-fixed system.  If \( \omega_{x_0} \) and \( \omega_{y_0} \) are
          defined by
          \( \omega_{x_0} = \bar{\omega}_0 \cdot \vec{z}_0 \)  and  \( \omega_{y_0} = \bar{\omega}_0 \cdot \vec{y}_0 \)  (9.27b)
          then \( d\vec{x}_0/dt \) is given by:
          P192  RH col eq. (9.31), right hand side, center expression: \( + x_h \dot{x}_h \rightarrow - x_h \dot{x}_h \)  i.e., + to –
          P192  RH col eq. (9.31), right hand side, bottom expression: \( + x_{x_0} \dot{x}_h \rightarrow - x_{x_0} \dot{x}_h \)  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 " \( \frac{d\vec{x}}{dt}\) "

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

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

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

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

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

P200 LH col line 6 (below Table 9.4): of $C_{Ma}$ $\longrightarrow$ of $C_{Ma}$ i.e., insert space after "of"

P201 RH col line 8: attack,$\alpha_i$ , $\longrightarrow$ attack, $\alpha_i$, i.e., change spacings by commas

P201 RH col line 10: where$\alpha$ $\longrightarrow$ where $\alpha$ (insert space and use smaller font for $\alpha$)

P201 RH col line 6 above Fig 9.11: attack, $\longrightarrow$ attack, $\alpha_i$, i.e., insert $\alpha_i$

P202 LH col line 5: attack,$\alpha_i$ , $\longrightarrow$ attack, $\alpha_i$, i.e., change spacings by commas

H P202 LH col line 4 from bottom: put paren's around ($\alpha_k$) 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 ($\alpha_k$) "pitch of repose" component,

P202 RH col line 13: attack,. $\longrightarrow$ attack, $\alpha_i$, i.e., insert $\alpha_i$ between commas

P204 LH col line 17: attack,. $\longrightarrow$ attack, $\alpha_i$, i.e., insert $\alpha_i$ between commas

H P204 LH col 3rd paragraph line 1: $\alpha_i$ , against $\longrightarrow$ $\alpha_i$, against i.e., delete space before comma

P204 LH col line 8 from bottom: attack,$\alpha_i$ , $\longrightarrow$ attack, $\alpha_i$, i.e., change spacings by commas

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

P212 RH col line 2 below eq. (9.39): delete spaces before "and" and before "is"

H P213 LH col line 3 below eq. (9.44): $\left( \frac{d\vec{\alpha}_R}{dt} \right) \longrightarrow \left( \frac{d\vec{\alpha}_R}{dt} \right)$, i.e., delete space before comma

P213 LH col line 3 below eq. (9.44): $\vec{\alpha}_R \longrightarrow \vec{\alpha}_R$. i.e., delete space before period

H P213 RH col rhs of eq. (9.49): $C_{Ma} \longrightarrow C_{Ma}$ i.e., $\alpha$ is a subscript to subscript M

P213 RH col line under eq. (9.49): no indent before "where"

P214 LH col eq. (9.57): $C_{Ma} \longrightarrow C_{Ma}$ i.e., $\alpha$ is a subscript to subscript M

P214 RH col eq. (9.60): $-\frac{\rho S d^2 v}{2 I_s} p C_{I_p} \longrightarrow +\frac{\rho S d^2 v}{2 I_s} p C_{I_p}$ i.e., change $-$ to $+$

P214 RH col line 3 above eq. (9.62): show that and in $\longrightarrow$ show that $h_L << 1$ and $h_M << 1$ in

P216 LH col line 19 from bottom: $|\vec{\alpha}_K|$, predicted $\longrightarrow \left[|\vec{\alpha}_K|\right]$, predicted i.e., delete space before comma

P216 RH col line 7 under example 9.5: repose, $|\vec{\alpha}_K| \longrightarrow$ repose, $|\vec{\alpha}_K|$ i.e., insert space after comma

P217 headings just under "contour sketch": $C_{I_u} \longrightarrow C_{I_u}$ i.e., uc subscript L

P218 RH col line 8 under notes: $C_{I_u} \longrightarrow C_{I_u}$ i.e., uc subscript L

P218 col 7 under the drawing "Contour Sketch": last entry (2.5) doesn’t line up with others by one space

P220 2nd table under the drawing "Contour Sketch" and to left 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 $C_{\text{whatever}}^*$ and $C_{\text{whatever}}^*$. The latter should be used everywhere.

Chapter 10 PP221-239

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

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

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

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

\[ \text{i.e., } \text{Drag Force} = \frac{1}{2} \rho S C_D V \vec{V} \rightarrow \text{Drag Force} = -\frac{1}{2} \rho S C_D V \vec{V} \]

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

P223 LH col eq. (10.10) 1st line: $C_{Mpa} \rightarrow C_{Mpa}$

P223 LH col eq. (10.10) 2nd line: $C_{Mpa} \rightarrow C_{Mpa}$ i.e., $\alpha \rightarrow \alpha$ (alpha)

P223 RH col line 15: $S = \pi d^2/4 \rightarrow S = \pi d^2/4$ i.e., insert $\pi$, move superscript next to d

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

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

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

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

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

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

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

\[ \frac{1}{2} \rho S d C_{M_a} V^2 \left( \vec{i} \times \vec{x} \right) \rightarrow + \frac{1}{2} \rho S d C_{M_a} V^2 \left( \vec{i} \times \vec{x} \right) \]

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

\[ \text{i.e., } \frac{1}{2} \rho S d^2 C_{M_q} V \left( \vec{x} \times \frac{d\vec{x}}{dt} \right) \rightarrow + \frac{1}{2} \rho S d^2 C_{M_q} V \left( \vec{x} \times \frac{d\vec{x}}{dt} \right) \]

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

P225 RH col line below eq. (10.40): $\text{and } \rightarrow \text{and } \text{ i.e., change ital. "and" to roman "and"}$

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

P225 RH col eq. (10.41), 2nd line, last term: $p C_{Mpa} \rightarrow PC_{Mpa}$ i.e. uc p and c

\[ C_{M_\lambda}^* \rightarrow C_{M_\alpha}^* \quad \text{i.e., subscript } \hat{\lambda} \]

\[ C_{M_\alpha}^* \rightarrow C_{M_\alpha}^* \quad \text{i.e., subscript } \rho \alpha \]

\[ C_{M_\alpha}^* \rightarrow C_{M_\alpha}^* \quad \text{i.e., subscripts } \hat{\alpha} \]

\[ \text{i.e., insert dot over both subscripts } \alpha \]

\[ P \left( \beta' - a\alpha' \right) \rightarrow P \left( \beta' - i\alpha' \right) \]

\[ k_y^2 \rightarrow k_y^2 \quad \text{i.e., change subscript } \gamma \text{ to } y \]

\[ k_y^2 \rightarrow k_y^2 \quad \text{i.e., change subscript } y \text{ to } y \]

\[ \pm iPG \rightarrow -iPG \quad \text{i.e., change } + \text{ after } \xi \text{ to } = \]

\[ I_y \rightarrow I_y \quad \text{i.e., change subscript } \gamma \text{ to } y \]

\[ k_y^2 \rightarrow k_y^2 \quad \text{i.e., change subscript } y \text{ to } y \]

\[ V_{\alpha s} \rightarrow V_0 \quad \text{i.e., insert space before } \text{"is"} \]

\[ \text{should be a box around the equation, as in the MS} \]

\[ \alpha + i\beta \rightarrow \alpha + i\beta, \quad \text{i.e., delete spaces before comma} \]

\[ \text{in denominator } \rho \rightarrow \rho \quad \text{(lc Greek rho)} \]

\[ \text{The last 2 lines should be separated from the third from last by a horizontal line as in the MS} \]

\[ \text{should be a box around the equation, as in the MS} \]

\[ \text{should be a box around the equation, as in the MS} \]

\[ \text{The minus sign in front of the right hand term is so close to the fraction bar that it is hard to see.} \]

\[ \text{These lines should start at the same indent as the previous } \phi_s \text{ line} \]

\[ \text{i.e., delete spaces before comma} \]

\[ \text{i.e., insert space before } \text{"and"} \]

\[ \text{i.e., delete spaces before comma} \]

\[ \left( C_{M_\lambda} + C_{M_\alpha} \right) \rightarrow \left( C_{M_\lambda} + C_{M_\alpha} \right) \quad \text{i.e., delete space before comma} \]

\[ \text{This equation should be in a box, as in the MS.} \]

\[ e^{i\phi} \rightarrow e^{i\phi} \quad \text{i.e., uc S} \]

\[ i\phi' \rightarrow i\phi' \quad \text{i.e., uc S} \]

\[ \text{i.e., } \text{lc s} \]

\[ \text{insert space after semicolon} \]

\[ \text{insert space after semicolon} \]

\[ \text{insert space before } \text{"radians"} \quad \text{in two places} \]

\[ \text{in two places} \]

\[ \theta \rightarrow \theta, \quad \text{i.e., delete space before comma} \]

\[ \vec{k} \cdot \vec{J} \rightarrow \vec{k}' \cdot \vec{J} \quad \text{i.e., add the prime to } \vec{k} \]

\[ \text{i.e., delete the factor } i \quad \text{(wrong in MS)} \]
Chapter 11

P237 RH col eq. for A below eq. (10.128): square brackets are missing, i.e., it should read
\[ A = \frac{\rho S d}{2m} \left[ k_y^{-2} \left( C_{m_0} + i C_{m_0} \right) \left( \phi' - 1 \right) \left( C_{r_0} + i C_{r_0} \right) \right] \]

P237 RH col line 12, 2nd equation: \[ \phi = \int_0^s \phi' \, ds_1 \quad \rightarrow \quad \phi = \int_0^s \phi' \, ds_1 \] i.e., le "s" in limit of integral

P237 RH col line 13: no indent

B P237 RH col eq. (10.131), numerator of RHS: \[ -iA \quad \rightarrow \quad -A \] i.e., delete the factor i (wrong in MS)

P238 LH col line 13: \[ \xi \quad \rightarrow \quad \xi \] i.e., delete space before comma

P238 LH col line 14: amplitude, \( \delta \) \[ \rightarrow \quad \text{amplitude, } \delta \] i.e., add space between comma and \( \delta \)

P238 LH col line below eq. (10.32): \[ \text{cant, } \delta_F \quad \rightarrow \quad \text{cant, } \delta_F \] i.e., insert space

P238 RH col line 2: \[ \Psi - \Phi = \Psi \quad \rightarrow \quad \Psi - \Phi = \Psi^* \] i.e., add asterisk

Chapter 11

PP240-251

H P241 LH col lines 3,4: \[ S = d^{7/4} \quad \rightarrow \quad S = \pi d^{7/4} \] i.e., insert Greek \( \pi \) and move \( ^7 \) closer to d

P241 LH col 2 lines below eq. (11.3): \[ i \cdot \bar{x} = \gamma \quad \rightarrow \quad i \cdot \bar{x} = \gamma \] i.e., delete space before comma

H P241 LH col 3 lines below eq. (11.5): \[ \phi + \theta \quad \rightarrow \quad \phi \text{ and } \theta \] i.e., change spacings

P242 LH col line under eq. (11.21): \[ \text{definition into } \rightarrow \quad \text{definition } (V'/V) = -C_D^* \text{ into } \]

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

P242 LH col 2nd line under eq. (11.26): \[ \bar{\xi} = \alpha + i \beta \quad \rightarrow \quad \bar{\xi} = \alpha + i \beta \] i.e., delete space before comma

P242 RH col, \( K_{s,0} \) term of eq. (11.30): all s are cap S except the last one after the "("
\[ K_{s_0} e^{i\phi_{s_0}} e^{(\lambda_s+i\phi_s)\mu} \quad \rightarrow \quad K_{s_0} e^{i\phi_{s_0}} e^{(\lambda_s+i\phi_s)\mu} \]

P243 RH col in 1st term of 2nd line of eq. (11.38): \[ -\frac{1}{\phi_\mu} \quad \rightarrow \quad -\frac{1}{\phi_\mu} \] i.e., sc subscript S

P243 RH col line below eq. (11.38): coefficient, \( C_{l_\mu}^* \quad \rightarrow \quad \text{coefficient, } C_{l_\mu}^* \] i.e., add space before C

P244 RH col eq. (11.45): \[ \phi' \rightarrow \phi' \] i.e., a product, as in MS

P244 RH col eq. (11.46): \[ P = \phi' - \phi' \rightarrow P = \phi' + \phi' \] i.e., + as in MS

P245 LH col line 9 below Fig. 11.2: yaw, \( \xi_0 \) \[ \rightarrow \quad \text{yaw, } \xi_0 \] i.e., change spacings by commas

P245 LH col last line: \[ \xi_0 \quad \rightarrow \quad \text{that } \xi_0 \] i.e., insert space after "that"

P246 RH col last term of eq. (11.49): \[ K_{l_0} \quad \rightarrow \quad K_{l_0} \] i.e., cap S

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

P248 RH col line 4 below Fig 11.4: \[ (\lambda^s \rightarrow (\lambda^s) \quad \text{unclear unless insert space between "(" and "")} \]

P248 RH col line 10 from bottom: determine \( C_{l_\mu} \quad \rightarrow \quad \text{determine } C_{l_\mu} \] i.e., insert space before \( C_{l_\mu} \)

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

P249 RH col 2 above eq. (11.58): \[ \text{set } \rho' \quad \rightarrow \quad \text{set } \phi' \] i.e., insert space after "set"
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):  \( \frac{2}{n} \)  \( \rightarrow \)  \( \frac{2\pi}{n} \)  i.e., insert \( \pi \)

P255  RH col line 5/bottom:  \( y \)  \( \rightarrow \)  \( \tilde{y} \)  i.e., add \( \rightarrow \) on top of \( y \)

P256  Fig 12.4:  The symbol \( \epsilon \), to left of the center-of-gravity symbol, has been replaced everywhere in the book by \( \hat{\epsilon} \). The larger right-hand \( \epsilon \) should be \( \hat{\epsilon} \)

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

P257  RH col line below eq. (12.21):  better with \( \frac{d\hat{x}}{dt} \) instead of \( \frac{\hat{x}}{dt} \)

P257  RH col line below eq. (12.22):  better with \( m_E \frac{d\hat{x}}{dt} \) instead of \( m_E \frac{\hat{x}}{dt} \)

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

P258  RH col 2 lines above eq. (12.36):  \( s \)  \( \rightarrow \)  \( s \)  i.e., delete space before comma

P258  RH col 4 above eq. (12.45):  \( of\alpha \)  \( \rightarrow \)  \( of\alpha \)  i.e., insert space before \( \alpha \)

P258  RH col 3 above eq. (12.45):  \( yaw,\gamma \)  \( \rightarrow \)  \( yaw,\gamma \)  i.e., insert space before \( \gamma \)

P258  RH col 4 above eq. (12.48):  \( e^w \)Substituting  \( \rightarrow \)  \( e^w \) Substituting  i.e., insert 2 spaces

P260  RH col 4 above eq. (12.71):  \( m\epsilon \)  \( \rightarrow \)  \( m\hat{\epsilon} \)  i.e., insert ^ over the \( \epsilon \)

P260  RH col eq. (12.71):  \( \epsilon \)  \( \rightarrow \)  \( \hat{\epsilon} \)  i.e., insert ^ over the \( \epsilon \)

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

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

P264  LH line 8 from top:  \( \delta_{\text{MAX}} \)  \( \rightarrow \)  \( \delta_{\text{MAX}} \)  i.e., delete space before comma

P264  LH col eq. (12.103):  \( P + \sqrt{P^2 - 4M} \)  \( \rightarrow \)  \( P - \sqrt{P^2 - 4M} \)

P264  LH col 2 from bottom:  \( \epsilon \)  \( \rightarrow \)  \( \epsilon \)  i.e., delete space before comma

P264  RH col 3 from top:  \( \epsilon \)with  \( \rightarrow \)  \( \epsilon \) with  i.e., insert space before "with"

P265  LH col 2 above eq. (12.80):  \( \sin e \)  \( \rightarrow \)  \( \sin e \)  i.e., delete spaces after \( \sin \)

P265  LH col 5 from bottom:  \( \text{point,} \hat{\epsilon} \rightarrow \text{point,} \hat{\epsilon} \)  i.e., insert space before \( \hat{\epsilon} \)

P265  LH col 4 from bottom:  \( \text{muzzle,} \phi_0 \rightarrow \text{muzzle,} \phi_0 \)  i.e., insert space before \( \phi_0 \)

P265  RH col 2 after eq. (12.82):  \( \text{twist) \rightarrow (twist)} \)  i.e., add period

P266  RH col 3 from bottom:  \( \phi_0 \rightarrow \)  \( \phi_0 \)  i.e., insert space after "then"

P266  RH col 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:  \( \xi_0 = i\epsilon \)  \( \rightarrow \)  \( \hat{\xi}_0 = i\epsilon \)  i.e., change \( \xi_0 \) to \( \hat{\xi}_0 \)
Chapter 13  PP273-298

P273  LH col line 16:  angle, \( \alpha \), \( \to \) angle, \( \alpha \), i.e., change spacings around \( \alpha \)
P273  RH col lines 15,16 from bottom in 3 places:  \( \sin \alpha \), \( \to \) \( \sin \alpha \), i.e., delete space after \( \alpha \)
P275  RH col line 3:  coefficient, \( C_{D_0} \), \( \to \) coefficient, \( C_{D_0} \), i.e., insert space before \( C_{D_0} \), delete space after

P276  LH col last line:  \( d^2/4 \), \( \to \) \( \pi d^2/4 \), i.e., insert \( \pi \), close up spaces
P277  RH col line 2:  \( C_{M_{aA}} \), \( \to \) \( C_{M_{aA}} \), i.e., delete space before comma
P279  LH col line 23 from bottom:  \( C_{M_{a\theta}} \), \( \to \) \( C_{M_{a\theta}} \), i.e., delete space before comma
H P279  LH col line 18 from bottom:  \( C_{M_{a\theta}} \), \( \to \) \( C_{M_{a\theta}} \), 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:  \( d^2/4 \), \( \to \) \( \pi d^2/4 \), i.e., insert \( \pi \)
P281  RH col line 1 first 2 terms of eq. (13.37):  \( 2 \lambda_F - \phi'_F \), \( \to \) \( 2 \lambda_F \phi'_F \), i.e., delete minus sign to get 1 term
P281  RH col eq. (13.42) 2nd term after \( = \) sign:  \( K_s^2 + K_S^2 \), \( \to \) \( K_F^2 - K_S^2 \), 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):  \( - H_0 \phi'_S \), \( \to \) \( + H_0 \phi'_S \), i.e., change – to +
P282  LH col eq. (13.53) in [ ]:  \( \phi'_F - \phi'_S \), \( \to \) \( \phi'_F + \phi'_S \), \( \to \) \( \phi'_F - \phi'_S \), 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 \( C_{M\alpha} \) in even powers as eq. (13.58):"
\[ C_{M_{\rho \omega}} = C_{M_{\rho \omega_0}} + C_{M_{\rho \omega_2}} \sin^2 \alpha + C_{M_{\rho \omega_4}} \sin^4 \alpha + C_{M_{\rho \omega_6}} \sin^6 \alpha + \cdots \]

\[ -H_0 \phi_S \quad \rightarrow \quad + H_0 \phi'_S \quad \text{i.e., change} \quad - \rightarrow + \]

\[ + P(T_0 + T_2 \delta^2_{\epsilon S}) \quad \rightarrow \quad - P(T_0 + T_2 \delta^2_{\epsilon S}) \quad \text{i.e., change} \quad +P \text{ to } -P \]

\[ C_{M_{p_{\omega}}} \quad \rightarrow \quad C_{M_{p_{\omega_0}}} \quad \text{i.e., delete space before comma} \]

\[ C_{M_{p_{\omega_2}}} \quad \rightarrow \quad C_{M_{p_{\omega_2}}} \quad \text{i.e., delete space before comma} \]

\[ \lambda_p \quad \rightarrow \quad \lambda_p \approx 0 \quad \text{i.e., insert} \quad " \approx " \]

\[ \text{coefficient, } C_{L_n} \quad \rightarrow \quad \text{coefficient, } C_{L_n} \quad \text{i.e., change spacings by commas} \]

\[ \text{Figure is Figure 13.28} \quad \text{i.e., change 13.26 to 13.28} \]

\[ \text{two- center} \quad \rightarrow \quad \text{two-center} \quad \text{i.e., delete space after hyphen} \]

\[ \text{and } C_{M_{p_{\omega_2}}} \quad \rightarrow \quad \text{and } C_{M_{p_{\omega_2}}} \quad \text{i.e., insert spaces before and after "and"} \]

\[ \text{Reference 15: insert blank line above ref. 15.} \]

\[ \text{Chapter 14 \quad PP309-328} \]

\[ \text{than} \quad \rightarrow \quad \text{than 1/2 inch} \]

\[ 1/2 \rho V^2 S_d \quad \rightarrow \quad 1/2 \rho V^2 S_d \quad \text{i.e., delete the second period} \]

\[ 1/2 \rho V^2 S_d \quad \rightarrow \quad 1/2 \rho V^2 S_d \quad \text{i.e., delete space before period} \]

\[ \text{C}_{l_6} \quad \rightarrow \quad \text{C}_{l_6} \quad \text{i.e., delete space before comma} \]

\[ \text{C}_{l_6} \quad \rightarrow \quad \text{C}_{l_6} \quad \text{i.e., delete space before comma} \]

\[ \text{and} K_8 \quad \rightarrow \quad \text{and} \quad K_8 \quad \text{i.e., insert space after "and"} \]

\[ \phi = \phi'_0 - \cdots \quad \rightarrow \quad \phi = \phi'_0 - \cdots \quad \text{i.e., delete the prime} \]

\[ \text{C}_{l_6} \quad \rightarrow \quad \text{C}_{l_6} \quad \text{i.e., delete space before comma} \]

\[ \text{C}_{l_6} \quad \rightarrow \quad \text{C}_{l_6} \quad \text{i.e., delete space before comma} \]

\[ \text{There should be a box around the equation, as in MS} \]

\[ \text{There should be a box around the equation, as in MS} \]

\[ \tan \theta_0 \quad \rightarrow \quad \tan \phi_0 \quad \text{i.e., delete space before comma} \]

\[ \tan \theta_0 \quad \rightarrow \quad \tan \theta_0 \quad \text{i.e., delete space before comma} \]

\[ \text{coefficient, } C_{L_n} \quad \rightarrow \quad \text{coefficient, } C_{L_n} \quad \text{i.e., insert space before and delete space after } C_{L_n} \]
P308 under Table 14.3: Insert "See Notes 1 and 2 on P307 (RH column) for meaning for * and ?? "

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

P309 LH col lines 7, 8, 10: \( C \longrightarrow C \), i.e., add space before all \( C \) symbols e.g., (line 7) \( C_{M_a} \longrightarrow C_{M_a} \)

P309 LH col line 11: Coefficients \( C_{l_p} \), \( \longrightarrow \) Coefficients, \( C_{l_p} \), i.e., add comma after "coefficients"

H

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: of \( C_{l_p} \) \( \longrightarrow \) 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: in \( C_{l_p} \) \( \longrightarrow \) in \( C_{l_p} \), i.e., add space after "in"

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

P311 RH col line 4: of \( C_{M_a} \) \( \longrightarrow \) of \( C_{M_a} \), i.e., add space after "of"

P311 RH col line 5: in \( C_{M_a} \) \( \longrightarrow \) in \( C_{M_a} \), i.e., add space after "in"

P311 RH col line 7: \( C_{N_a} \) \( \longrightarrow \) \( C_{N_a} \), i.e., add space before and delete space after \( C_{N_a} \)

P311 RH col line 10: \( C_{l_p} + C_{D} \) \( \longrightarrow \) \( C_{l_p} + C_{D} \), i.e., delete space before period

P311 RH col line 13: of \( C_{N_a} \) \( \longrightarrow \) of \( C_{N_a} \), i.e., add space after "of"

P311 RH col line 21: -measured \( C_{M_p} \) \( \longrightarrow \) -measured \( C_{M_p} \), i.e., add space after " -measured "

P311 RH col line 26: \( C_{N_p} \) \( \longrightarrow \) \( C_{N_p} \), i.e., add space after comma

P311 RH col line 27: the \( C_{M_p} \) \( \longrightarrow \) the \( C_{M_p} \), i.e., add space after "the"

P315 LH col line 2 below eq. (14.18): shift of \( \Delta CG \) \( \longrightarrow \) shift of \( \Delta CG \) i.e., insert \( \Delta \) before subscript \( CG \)

P315 LH col line 3 below eq. (14.18): that \( \Delta CG \) \( \longrightarrow \) that \( \Delta CG \) i.e., insert \( \Delta \) before subscript \( CG \)

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

P315 RH col line below eq. (14.21): no indent before "where" the \( \Delta CG \) \( \longrightarrow \) the \( \Delta CG \), i.e., insert \( \Delta \) before subscript \( CG \)

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 \( \Delta CG \) \( \longrightarrow \) the \( \Delta CG \), i.e., insert \( \Delta \) before subscript \( CG \)

P315 RH col line 6 below eq. (14.23): \( \Delta CG \) \( \longrightarrow \) \( \Delta CG \), i.e., insert \( \Delta \) before subscript \( CG \)

P315 RH col line 7 below eq. (14.23): \( \Delta CG \) \( \longrightarrow \) \( \Delta CG \), i.e., insert \( \Delta \) before subscript \( CG \)

P315 RH col line 9 below eq. (14.23): so \( \Delta CG \) \( \longrightarrow \) so \( \Delta CG \), i.e., insert \( \Delta \) before subscript \( CG \)

P316 LH col last line: delete "Figure 14.15 Pitch Damping Coefficients vs Mach Number"

H P316 RH col: in Figure 14.15(b) (lower curve)

replace \( \Delta CG \) vs Center of Gravity

with \( \Delta CG \) vs Mach Number

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

"Figure 14.15(b). Pitch Damping Force Coefficient vs. Mach Number"
There is NO index!!!

Chapter 9 references are appended below.
REFERENCES - CHAPTER 9


