# Rotorcraft Aeromechanics
## Errata
March 2022

page 40: "The flow far upstream is at rest for the hovering rotor, so $T = \dot{m}v$." should be "The flow far upstream is at rest for the hovering rotor, so $T = \dot{m}w$."

pages 40-41: $T = \dot{m}v$ should be $T = \dot{m}w$

page 185, equation 6.161: $\beta_{1s}$ should be $\beta_{1c}$

page 196, equation 6.220: $-\dfrac{\theta_{tw}}{10}$ should be $+\dfrac{\theta_{tw}}{10}$

page 267: "The aircraft weight is greater than the rotor lift because of download ..." should be "The rotor lift is greater than the aircraft weight because of download ..."

pages 297, 301 (twice): Koster should be Köster

page 352, equation 9.97, first two lines (two places): $\sigma_2$ should be $\sigma^2$

page 371: Line after equation 10.46 should be "with an additional factor of $\frac{1}{2}$ in the last expression for $n = 0$. So"

page 371: equation 10.48: $\lambda_1 + \frac{1}{2}\lambda_2$ should be $\lambda_0 - \frac{1}{2}\lambda_2$

page 387, equation 10.134: $\frac{b}{4}w'$ should be $bw'$

page 434, equation 11.153: Should be $C' = 1$ for forward flight

$$C' = \frac{1}{1 + \frac{\sigma a}{8V_{\text{eff}}}\frac{2\cos\chi}{1+\cos\chi}} = \begin{cases} \frac{1}{1+\sigma a/8\lambda_i} & \text{hover} \\ 1 & \text{forward flight} \end{cases}$$

pages 436, 440: Kramer should be Krämer, Grunhagen should be Grünhagen

page 600: Second "ii)" should be "iv)"

page 614, ii): $m(r\ddot{z} - x_I\ddot{\theta})$ should be $m(\ddot{z} - x_I\ddot{\theta})$

page 666, equation 16.540: $V$ should be $\lambda$

pages 668-669, equations 16.562, 16.572, and 16.582: $4\xi_A$ should be $2\xi_A$

page 747: In Kube citation, "â:" should be m-dash

page 750, equation 19.11: $s = \dfrac{\gamma}{16}...$ should be $s = -\dfrac{\gamma}{16}...$

page 752, equation 19.17: $s = \dfrac{\gamma}{16}...$ should be $s = -\dfrac{\gamma}{16}...$

page 789, 4 lines after equation 20.2: $I_f$ should be $\widehat{I}_f$

page 789, equation 20.10: $4\xi_A$ should be $2\xi_A$

page 792, equations 20.30 and 30.32: Coefficients $B$ and $D$ should be

$$B = \left( -\frac{\gamma m_\theta}{\widehat{I}_f} + \frac{\gamma M_{\dot\beta}\gamma m_{\dot\theta}}{\widehat{I}_\beta \widehat{I}_f} \right) a - 2(\nu_\beta^2 - 1) - K_P \frac{M_\theta \gamma m_{\dot\theta}}{M_{\dot\beta}\widehat{I}_f} a^2 - ba\frac{a-2}{a-1}$$

$$D = \frac{\gamma m_{\dot\theta}}{\widehat{I}_f} \left( \frac{\gamma m_{\dot\theta}}{\widehat{I}_f} + \frac{M_\theta \gamma m_\beta}{M_{\dot\beta}\widehat{I}_f} \right) a^2 + (\nu_\beta^2 - 1)^2 + \left( \frac{\gamma m_\theta}{\widehat{I}_f} + \left( \frac{\gamma m_{\dot\theta}}{\widehat{I}_f} \right)^2 \right) (\nu_\beta^2 - 1)a$$

$$+ \frac{a^2}{a-1} b \left( -b - \frac{\gamma m_\theta}{\widehat{I}_f} + \frac{\gamma M_{\dot\beta}\gamma m_{\dot\theta}}{\widehat{I}_\beta \widehat{I}_f} \right) + (\nu_\beta^2 - 1)ab\frac{a-2}{a-1}$$

page 794, figure 20.2: Figures below give corrected flutter boundary examples.

page 851, figure 21.1: Font problems; horizontal dashed line missing script $\ell$ ($\ell_{tr}$); subscript "tr" should be italic roman; see figure below
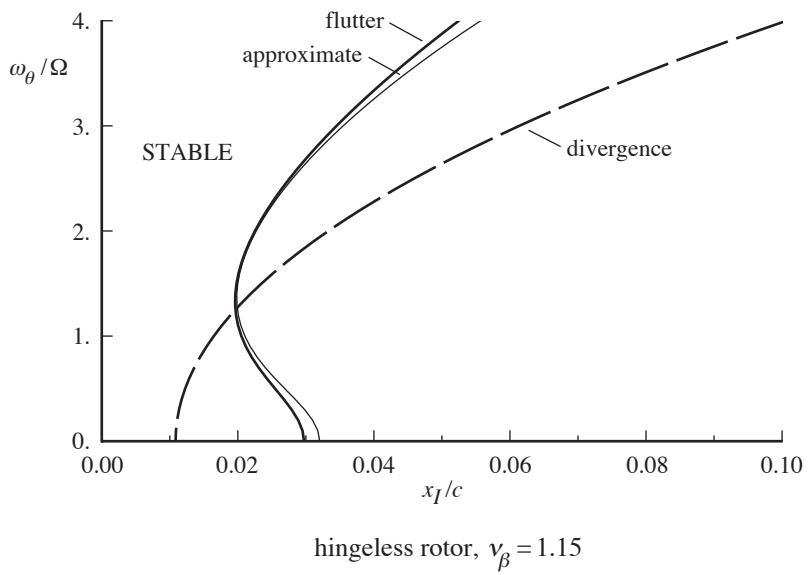
$\omega_\theta/\Omega$

flutter

approximate

divergence

4.

3.

STABLE

2.

1.

0.

0.00     0.02     0.04     0.06     0.08     0.10

$x_I/c$

articulated rotor, $\nu_\beta = 1.00$

$\omega_\theta/\Omega$

flutter

approximate

divergence

4.

3.

STABLE

2.

1.

0.

0.00     0.02     0.04     0.06     0.08     0.10
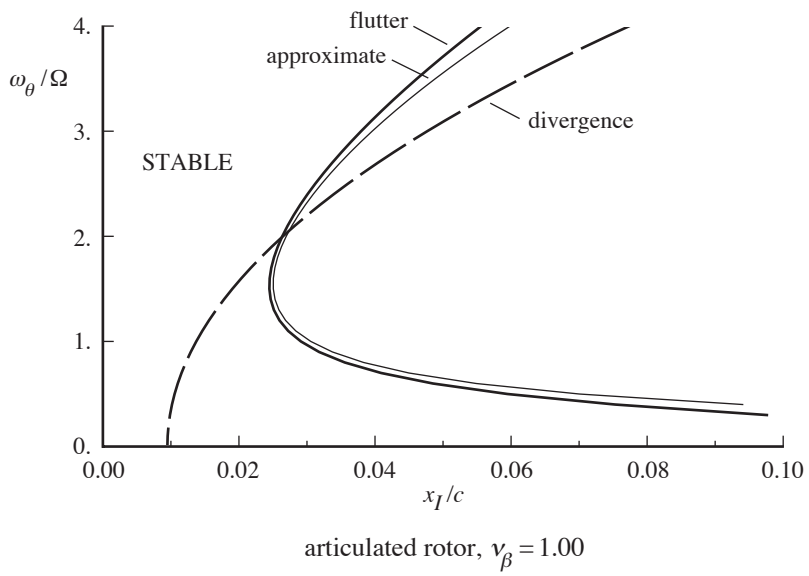
$x_I/c$

hingeless rotor, $\nu_\beta = 1.15$

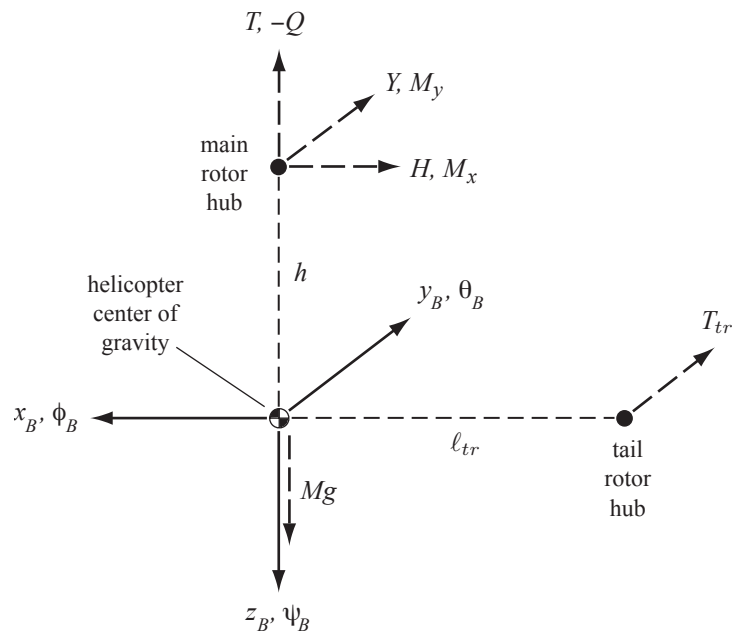Figure 20.2.     Flutter and divergence boundaries ($x_A = 0$).

Figure 21.1.   Simplified geometry of the single main rotor and tail rotor configuration.