Neutral Point Location

$$\varphi_{25} := 28.4° = 0.496$$

Sweep angle at c/4 line

$$b := 23\,\text{in} = 0.584\,\text{m}$$

span

$$l_r := \frac{23}{24} \cdot 14\,\text{in} = 0.341\,\text{m}$$

root chord

$$l_t := \frac{23}{24} \cdot 4\,\text{in} = 0.097\,\text{m}$$

tip chord

$$\lambda := \frac{l_t}{l_r} = 0.286$$

Taper ratio

$$l_\mu := \frac{2}{3} \cdot \frac{1 + \lambda + \lambda^2}{1 + \lambda} \cdot l_r = 0.242\,\text{m}$$

mean aerodynamic chord length

$$y := \frac{b}{2} \cdot \frac{l_r - l_\mu}{l_r - l_t} = 0.119\,\text{m}$$

spanwise location of the mean chord

$$x_n := \frac{l_r}{4} + \frac{2 \cdot b \cdot (1 + 2\lambda)}{6 \cdot (1 + \lambda)} \cdot \tan(\varphi_{25}) = 0.214\,\text{m}$$ Neautral point from tip of wing, COM must be forward of this. [1]

$$x_n = 8.421\,\text{in}$$

COM location

$$CG := 15\%$$

15% mean chord

$$150.28\,\text{mm} = 5.917 \cdot \text{in}$$

Weight := .367kg

Panel 1

$$\text{Span} := \frac{74.93\,\text{mm}}{2} = 37.465 \cdot \text{mm}$$

$$\text{RootChord} := 340.87\,\text{mm}$$

$$\text{TipChord} := 340.87\,\text{mm}$$

$$\text{Sweep} := 0°$$

Panel 2

$$\text{Span2} := 22.213\,\text{in} = 564.21 \cdot \text{mm}$$

$$\text{TipChord2} := 97.28\,\text{mm}$$

$$\text{Sweep} := 28.4°$$

[2]

1] Hepperle, M. (2001, January 12). Basic Design of Flying Wing Models. Retrieved from http://www.mh-aerotools.de/airfoils/flywing1.htm

2] Bruder, S. (n.d.). Flying Wing CG Calculator. Retrieved from http://wingcgcalc.bruder.com.br/en_US/