ESERCIZIO SUL DIMENSIONAMENTO DEL PIANO VERTICALE DI CODA

Assegnato il velivolo le cui caratteristiche geometriche principali sono riportate in figura e supposta la sua velocita' pari a 150 metri al secondo al livello del mare, dimensionare il piano di coda verticale (superficie, allungamento, posizionamento etc.) affinche' il Cn_{β} del velivolo completo sia pari a .1 rad^{-1}

Discutere e giustificare tutte le ipotesi fatte nonche' tracciare i grafici della superficie in funzione dei vari parametri geometrici del pianoverticale di coda

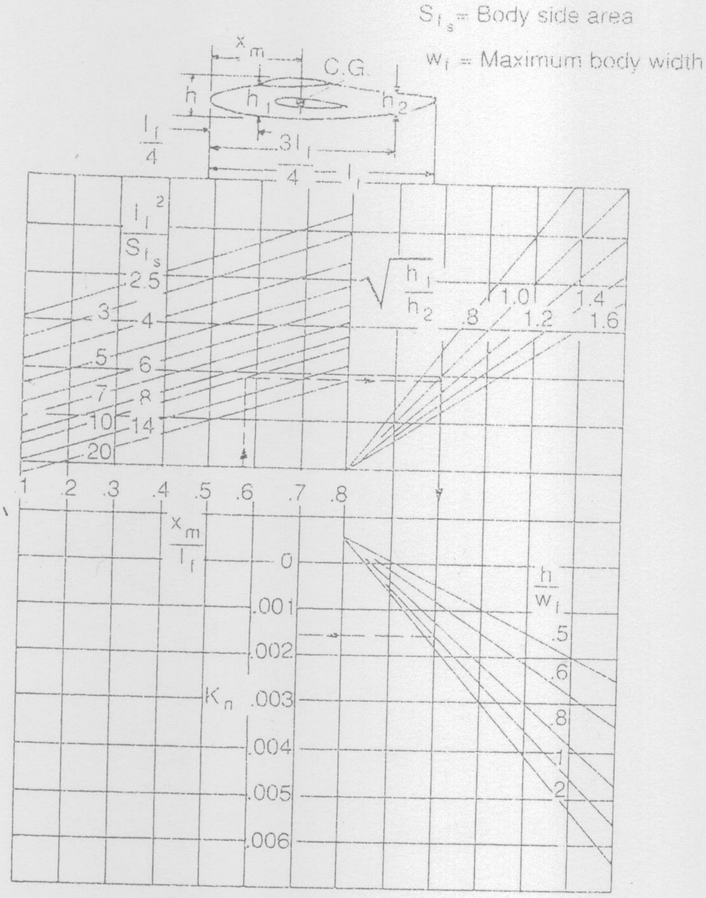

FIGURE 2.28
Wing body interference factor.

directional stability. The mechanism by which the vertical tail produces directional stability is shown in Fig. 2.30. If we consider the vertical tail surface in Fig. 2.30, we see that when the airplane is flying at a positive sideslip angle, the vertical tail produces a side force (lift force in xy plane) which tends to rotate the airplane about its center of gravity. The moment produced is a restoring moment. The side force acting on the vertical tail can be expressed as

$$Y_v = -C_{L_{\alpha_v}} \alpha_v Q_v S_v \tag{2.75}$$

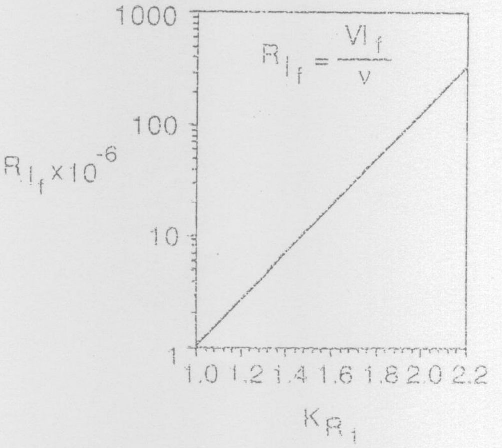

FIGURE 2.29
Reynolds number correction factor.

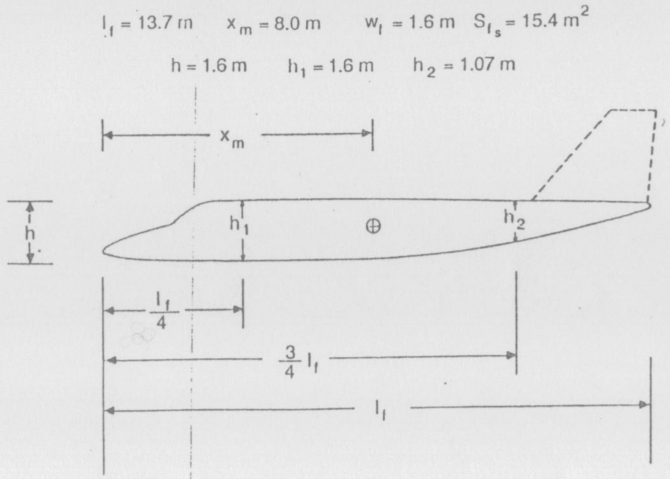

FIGURE P2.9

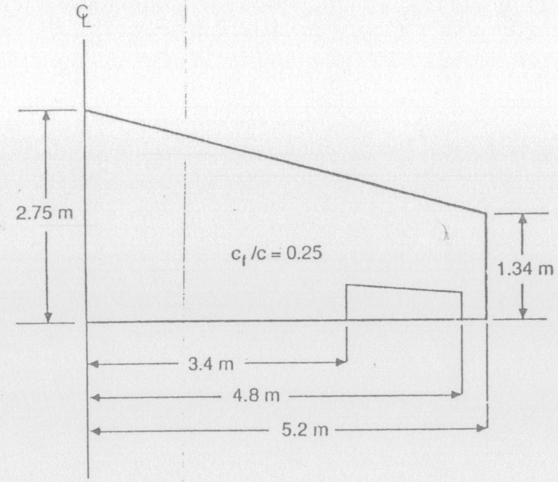

FIGURE P2.10

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