5.7 C_L = Const. glide

$$L = W \rightarrow \frac{1}{2} C_L \rho S_w V^2 = W$$

$$\therefore \quad V = \sqrt{\frac{2W}{\rho S_w C_L}} = V(h)$$

Also, $V_e = \sqrt{\sigma}\, V \rightarrow V_e = \sqrt{\frac{2W}{\rho_s S_w C_L}} = \text{Const}$

Hence, V_e is also const.

$$X_f - X_o = \int_{h_f}^{h_o} \frac{dh}{D/W} \qquad W = L \quad \frac{D}{W} = \frac{D}{L} = \frac{1}{E}$$

$$X_f - X_o = E(C_L)\,(h_o - h_f)$$

$$t_f - t_o = \int_{h_f}^{h_o} \frac{dh}{\frac{D}{W} V} = E \int_{h_f}^{h_o} \sqrt{\frac{\rho S_w C_L}{2W}}\, dh$$

$$t_f - t_o = E \sqrt{\frac{\rho_s S_w C_L}{2W}} \int_{h_f}^{h_o} \sqrt{\sigma}\, dh$$

Best distance max E $\rightarrow$ $C_L = C_L^*$

Best time max $E\sqrt{C_L}$