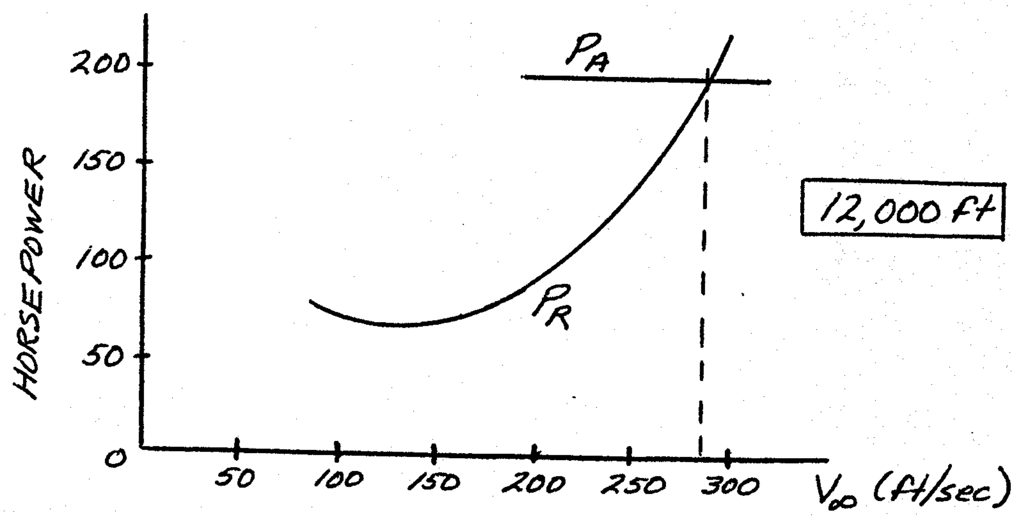

From the intersection of the P_A and P_R curves,

$$V_{max} = \boxed{290 \text{ ft/sec} = 198 \text{ mph}} \text{ at } 12{,}000 \text{ ft.}$$

6.5 From the P_A and P_B curves generated in problem 6.3, we find approximately:

excess power = 9000 kw at sea level

excess power = 5000 kw at 5 km

Hence, at sea level

$$R/C = \frac{\text{excess power}}{W} = \frac{9 \times 10^6 \text{ watts}}{1.0307 \times 10^5 \text{N}} = \boxed{87.3 \text{ m/sec}}$$

and at 5 km altitude,

$$R/C = \frac{5 \times 10^6}{1.03047 \times 10^5} = \boxed{48.5 \text{ m/sec}}$$

6.6 From the P_A and P_R curves generated in problem 6.4, we find approximately:

excess power = 232 hp at sea level

excess power = 134 hp at 12,000 ft

Hence, at sea level,

$$R/C = \frac{\text{excess power}}{W} = \frac{(232)(550)}{3000} = \boxed{42.5 \text{ ft/sec}}$$

and at 12,000 ft altitude,

$$R/C = \frac{(134)(550)}{3000} = \boxed{24.6 \text{ ft/sec}}$$

6.20 $V_\infty = 250 \text{ mph} = 250\left(\frac{88}{60}\right) \text{ ft/sec} = 366.6 \text{ ft/sec}$

$= 366.6\ (0.3048) \text{ m/sec} = 111.7 \text{ m/sec.}$

$$q_\infty = \frac{1}{2}\rho_\infty V_\infty^2 = (0.5)(1.23)(111.7)^2 = 7673 \text{ N/m}^2$$

$$L = q_\infty S C_{L,max} = (7673)(47)(1.2) = 4.328 \times 10^5 \text{ N}$$

$$n = \frac{L}{W} = \frac{4.328 \times 10^5}{103047} = 4.2$$

$$R = \frac{V_\infty^{\ 2}}{g\sqrt{n^2 - 1}} = \frac{(111.7)^2}{9.8\sqrt{(4.2)^2 - 1}} = \boxed{312 \text{ m}}$$

$$w = \frac{V_\infty}{R} = \frac{111.7}{312} = \boxed{0.358 \text{ rad/sec}}$$