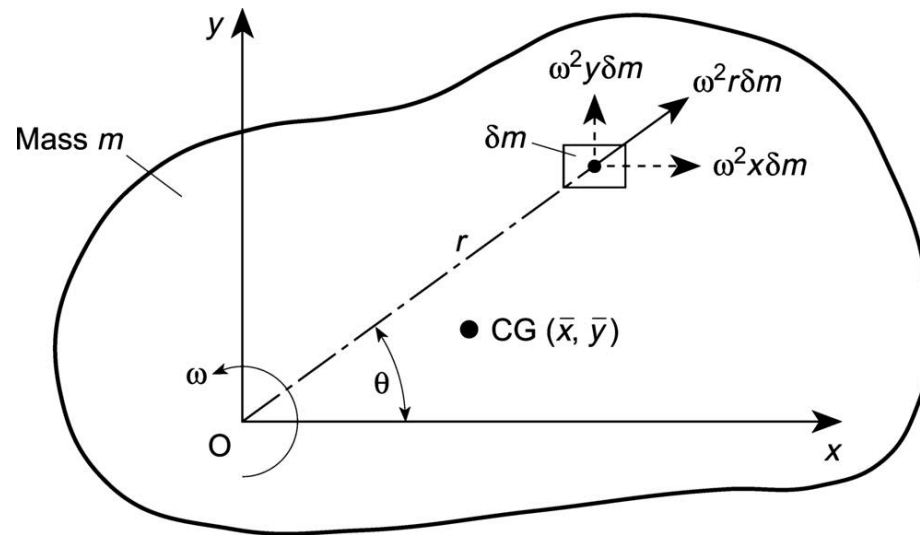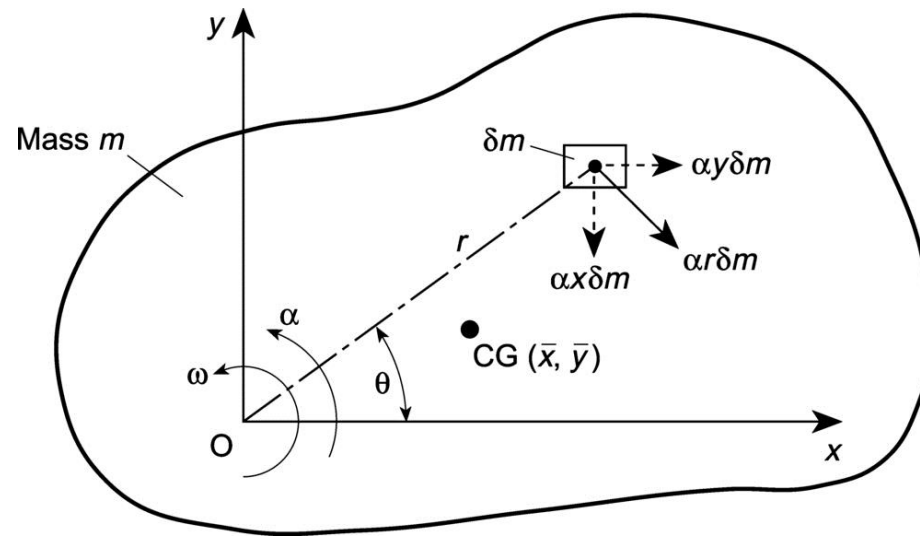# Chapter 14
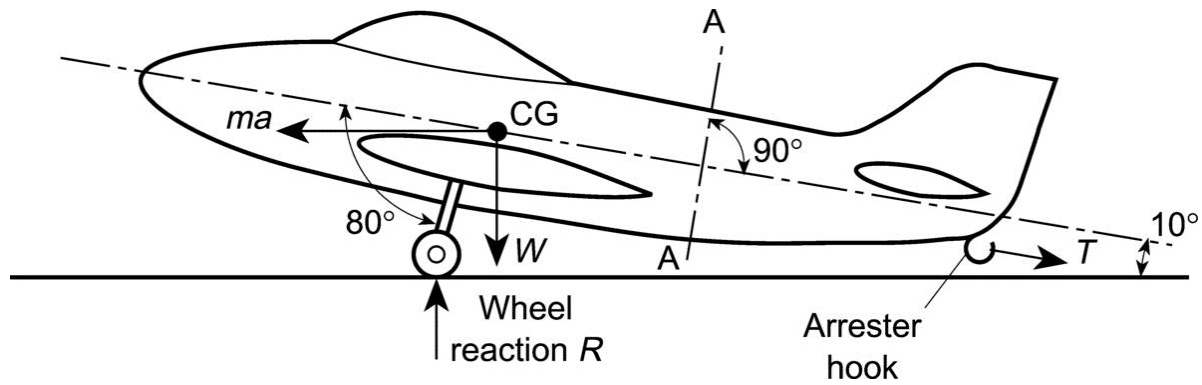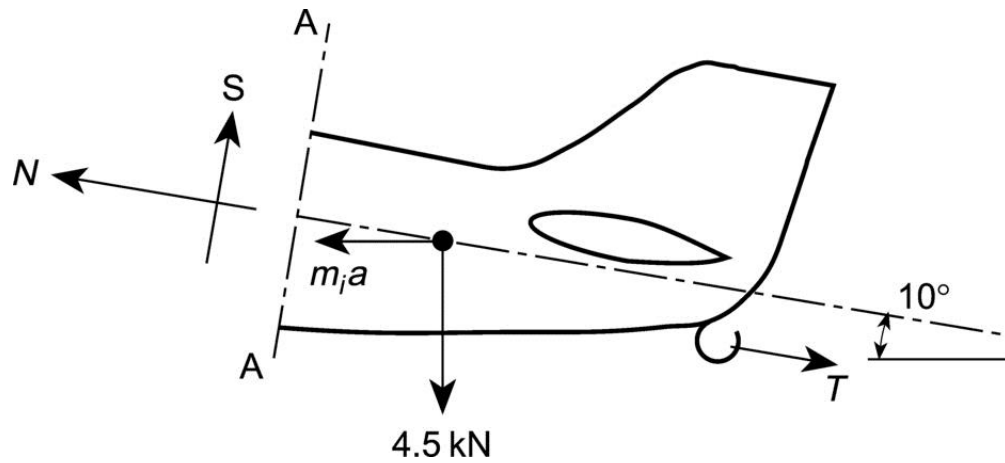# Airframe loads

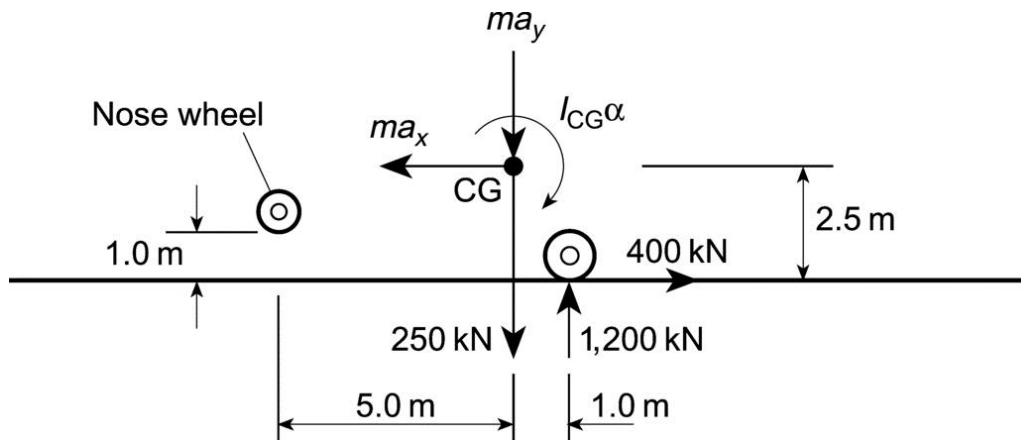**FIGURE 14.1** Inertia Forces on a Rigid Mass Having a Constant Angular Velocity

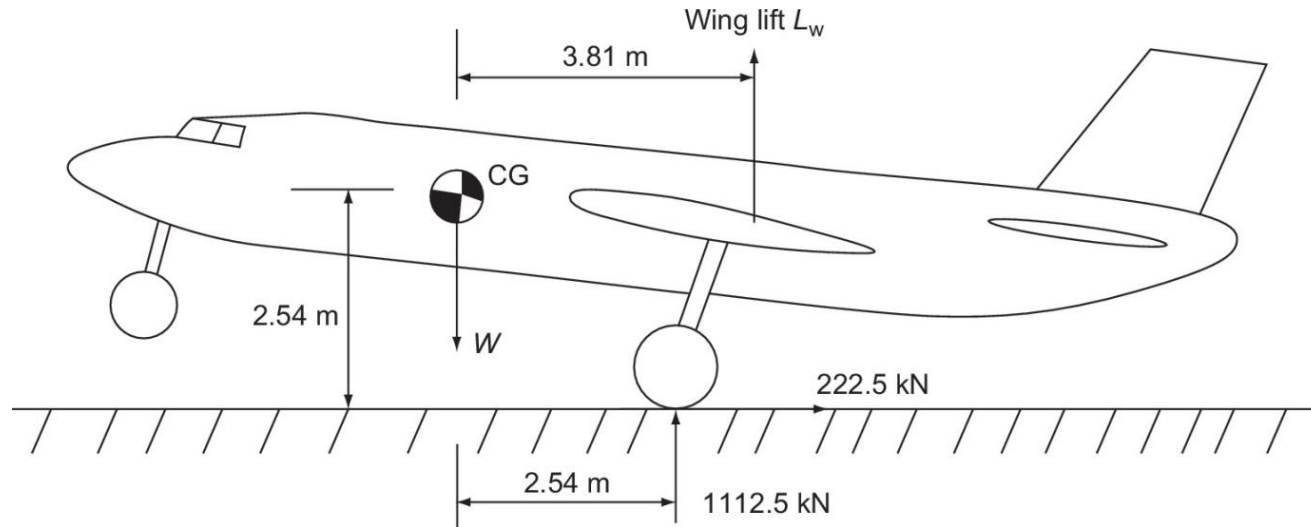**FIGURE 14.2** Inertia Forces on a Rigid Mass Subjected to an Angular Acceleration

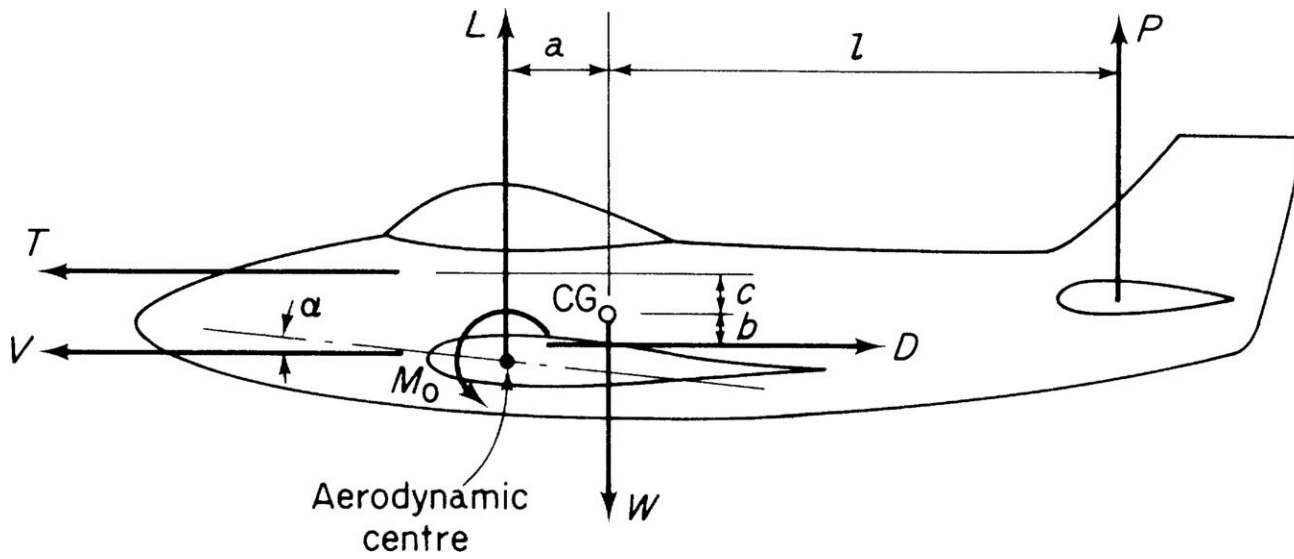**FIGURE 14.3** Forces on the Aircraft of Example 14.1

FIGURE 14.4 Shear and Axial Loads at the Section AA of the Aircraft of Example 14.1

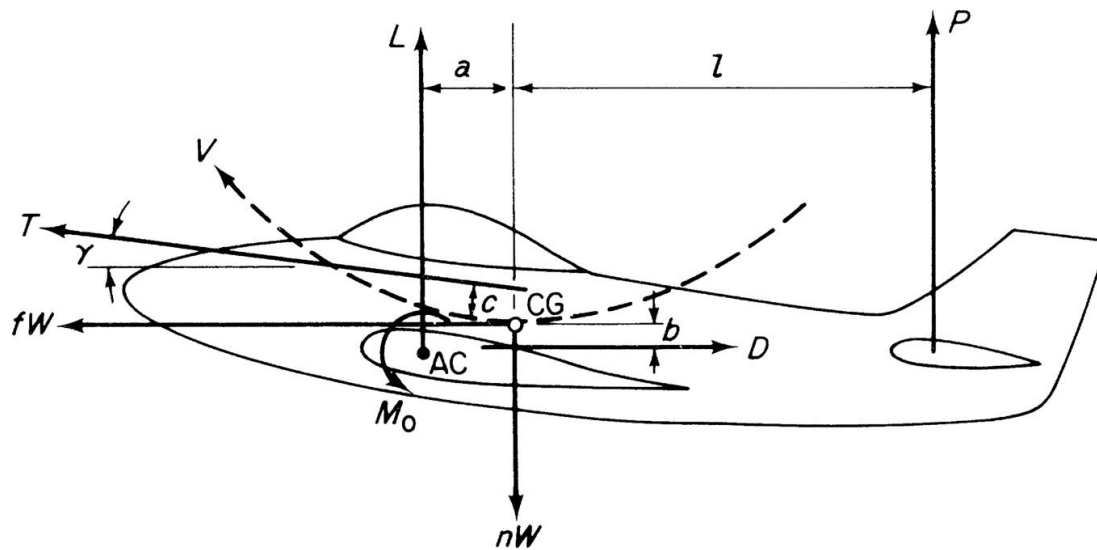**FIGURE 14.5** Geometry of the Aircraft of Example 14.2
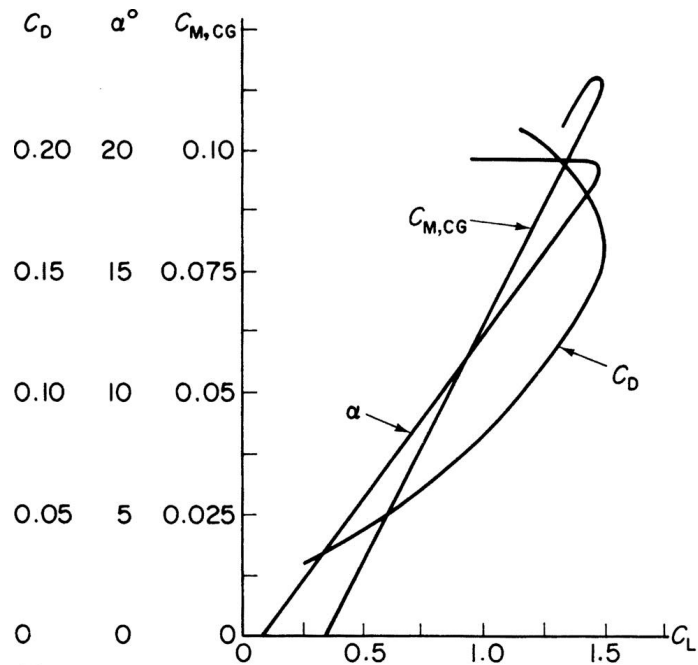
FIGURE 14.6 Aircraft of Example 14.3
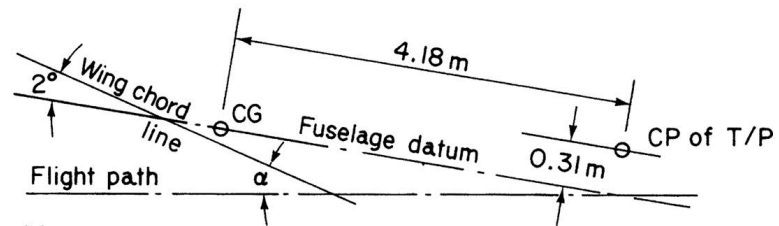
FIGURE 14.7 Aircraft Loads in Level Flight
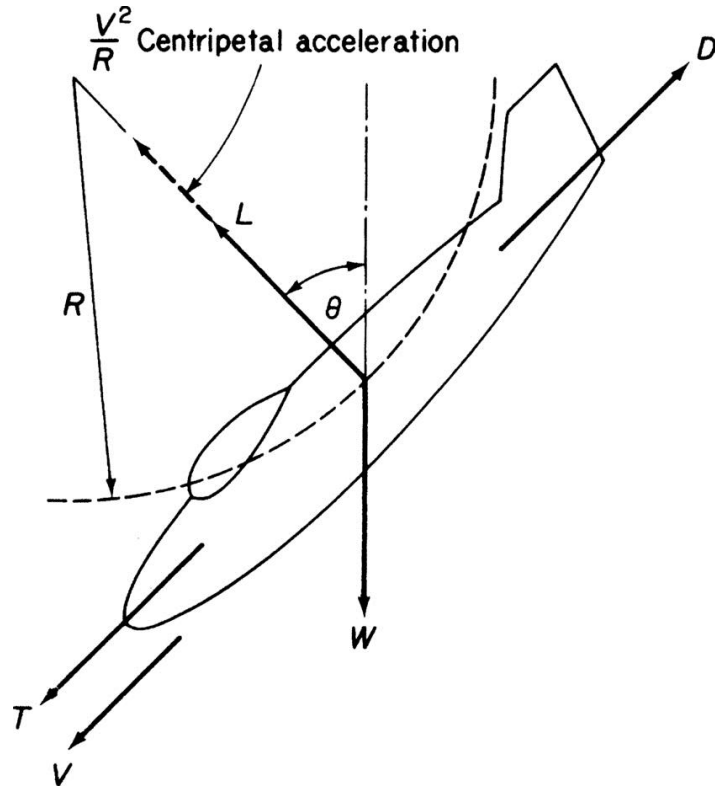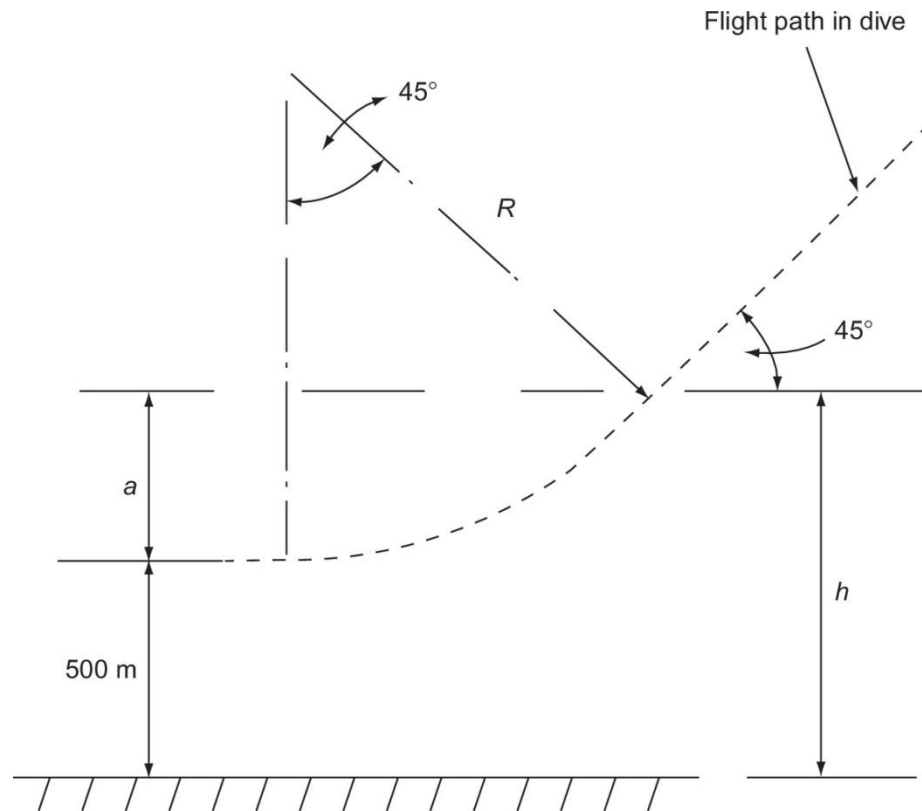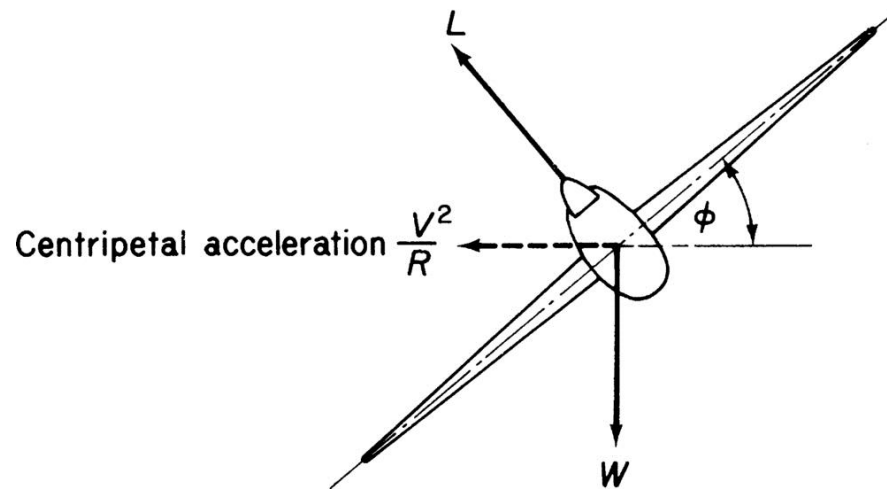
FIGURE 14.8 Aircraft Loads in a Pull-out from a Dive

FIGURE 14.9 (a) C_D, α, $C_{M,CG}$ $-C_L$ Curves for Example 14.4; (b) Geometry of Example 14.4
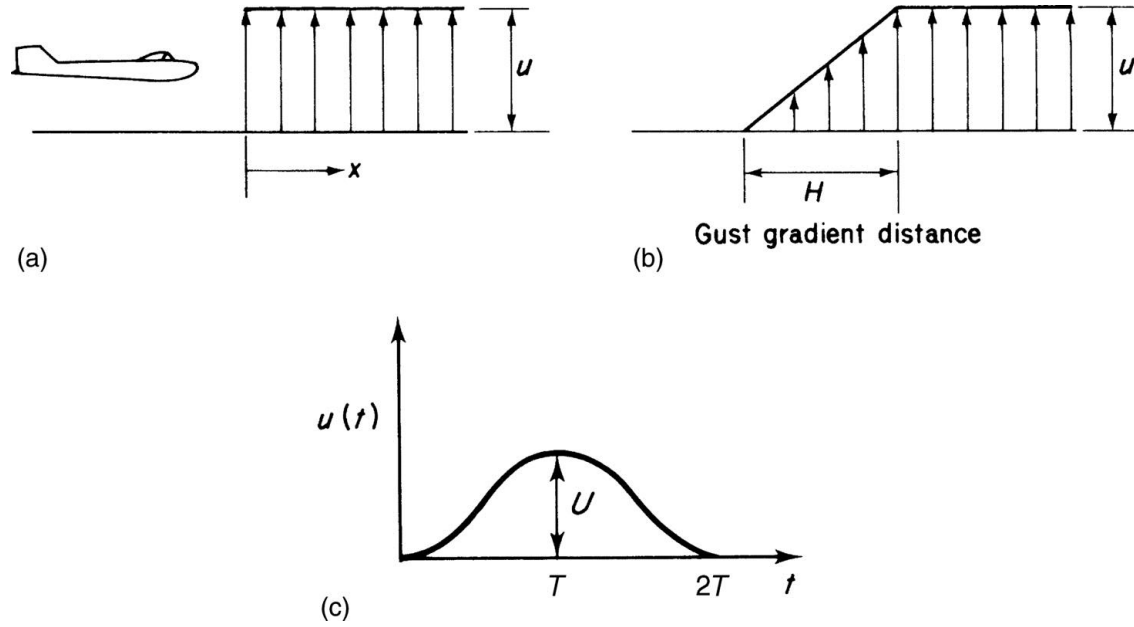
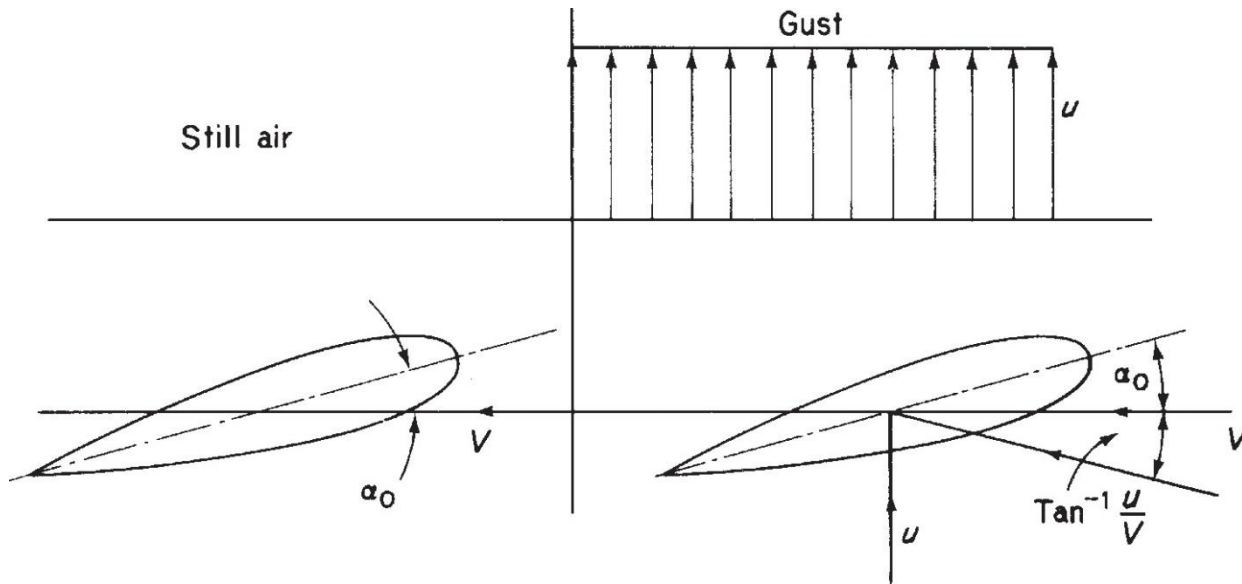**FIGURE 14.10** Aircraft Loads and Acceleration during a Steady Pull-out

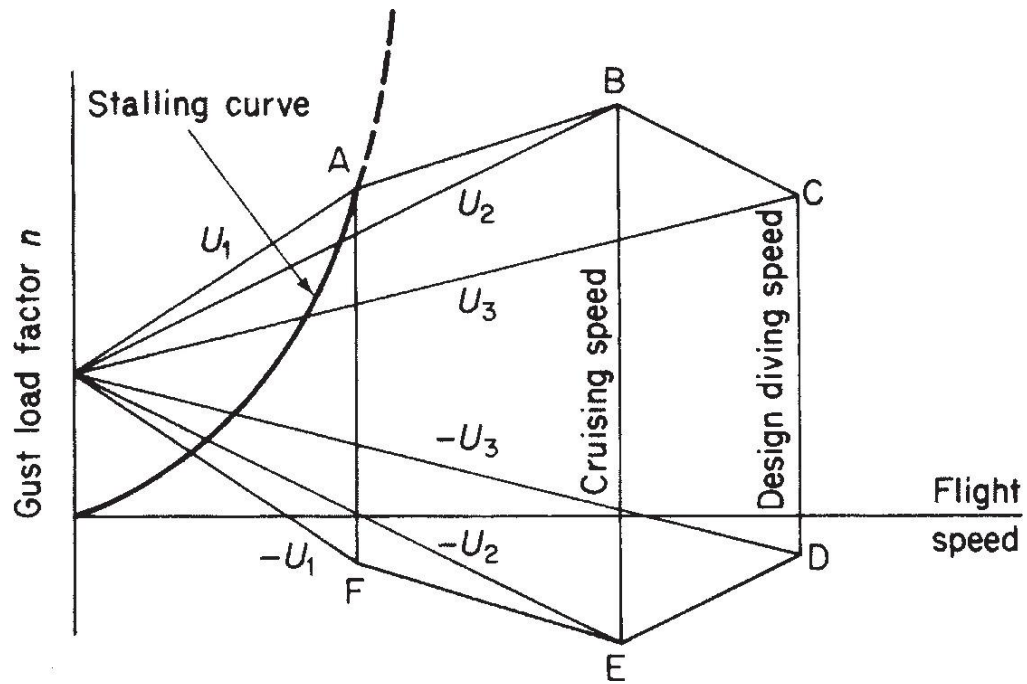**FIGURE 14.11** Pull-out from a dive, Example 14.5

FIGURE 14.12 Correctly Banked Turn

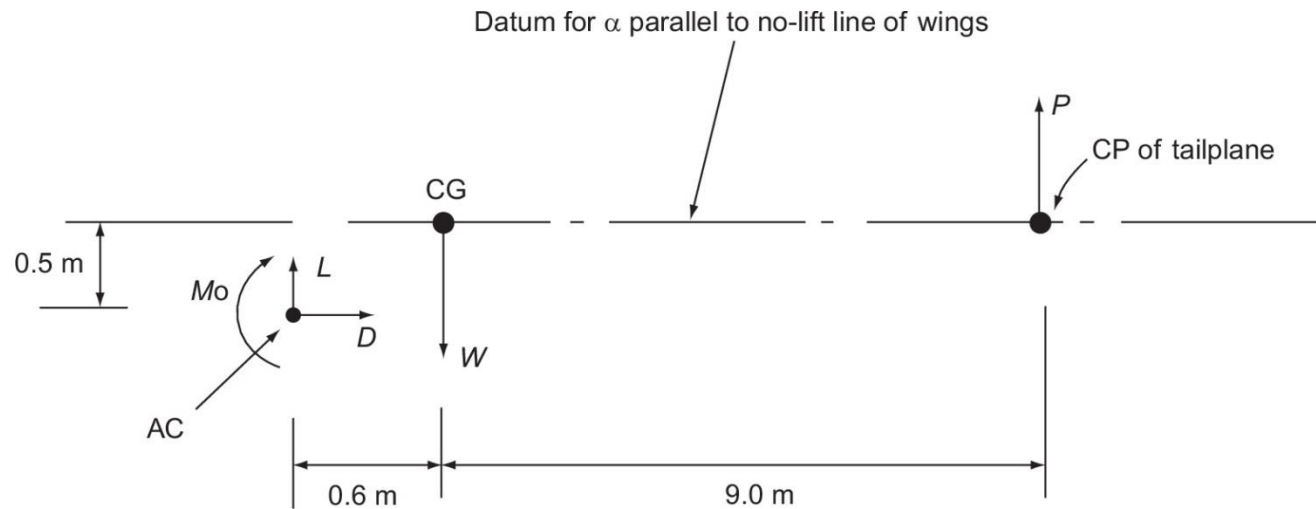**FIGURE 14.13** (a) Sharp-Edged Gust; (b) Graded Gust; (c) 1 – cosine Gust

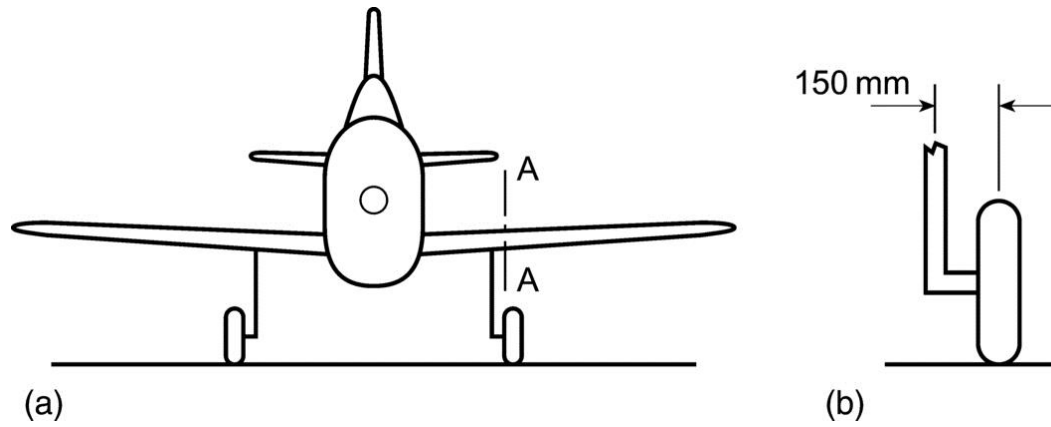**FIGURE 14.14** Increase in Wing Incidence Due to a Sharp-Edged Gust
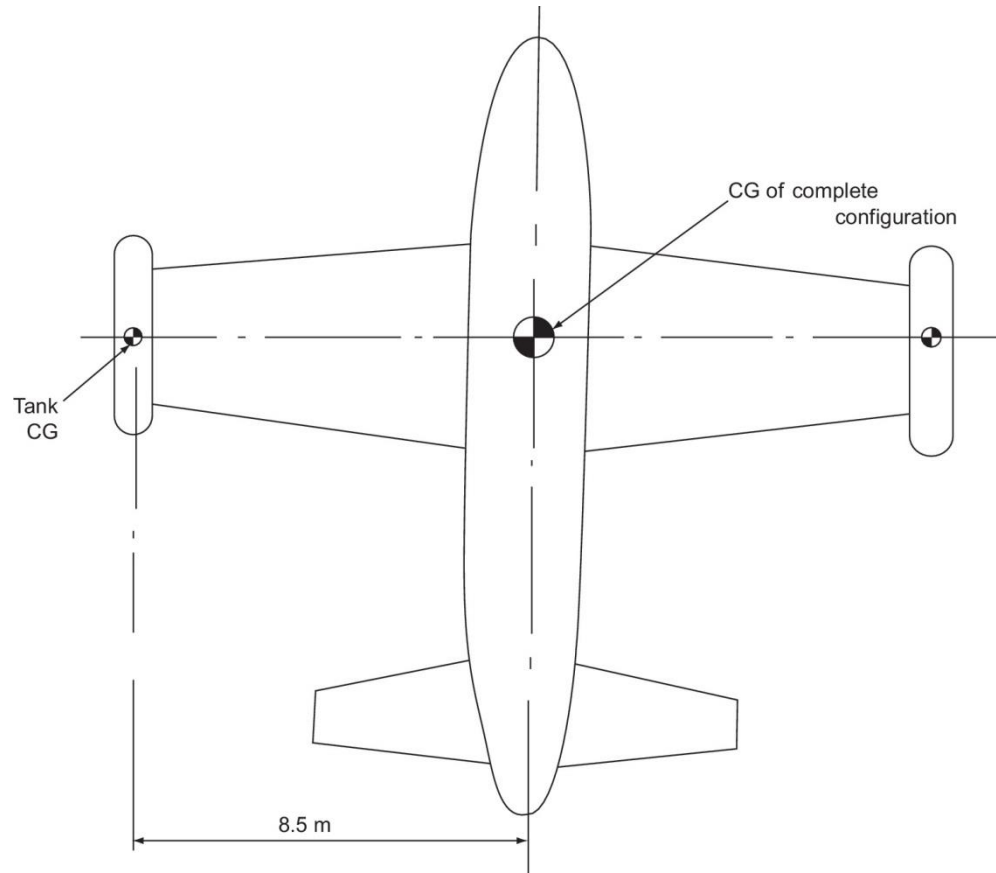
FIGURE 14.15 Typical Gust Envelope

FIGURE 14.16 Geometric Data for Aircraft of Example 14.8

FIGURE P.14.1

CG of complete
configuration

Tank
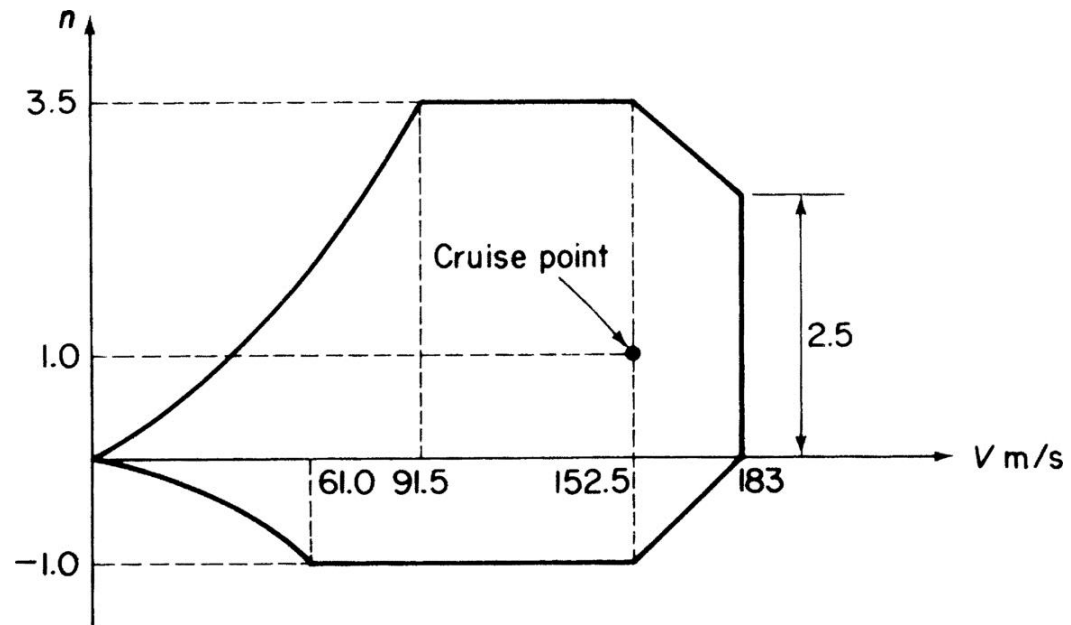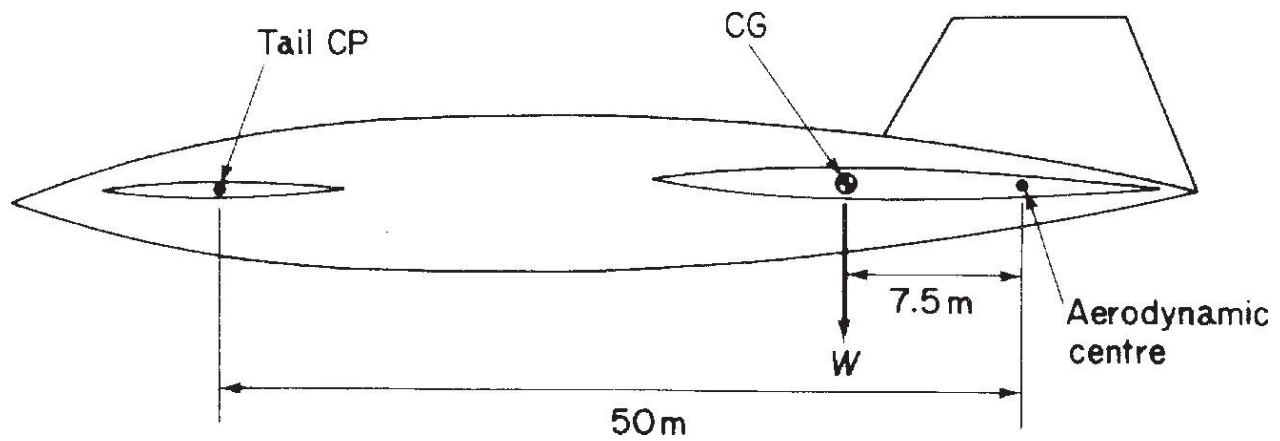CG

8.5 m
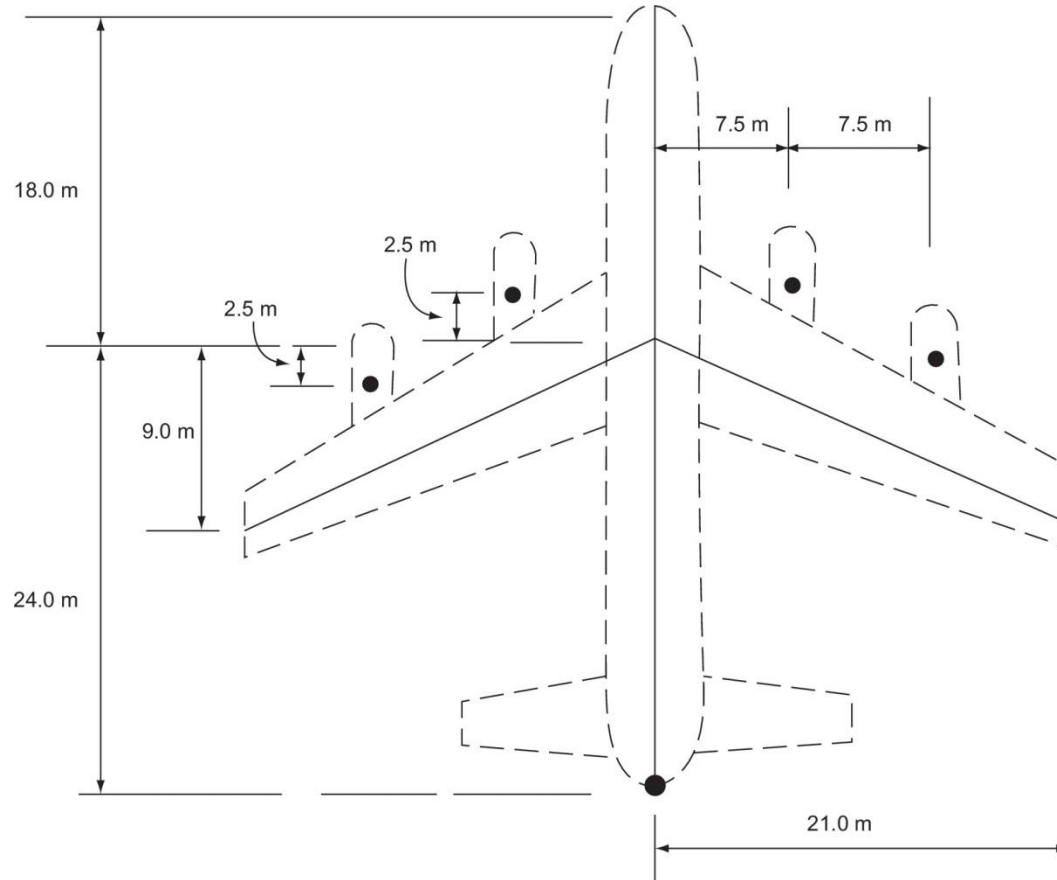
FIGURE P.14.3

FIGURE P.14.4

FIGURE P.14.5
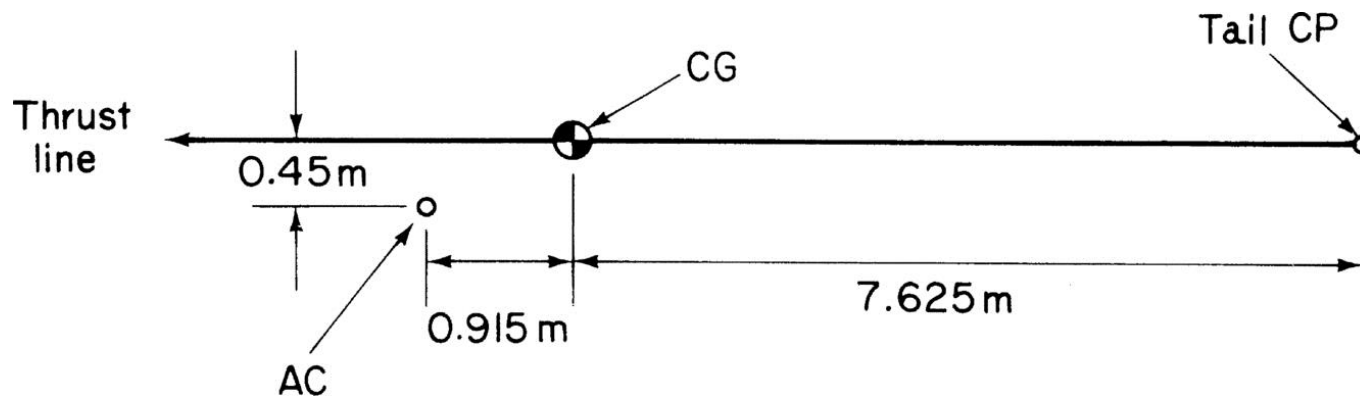
FIGURE P.14.7

FIGURE P.14.9

FIGURE P.14.10