

Straight-and-Level Flight

Pitch Control

The pitch attitude of an airplane is the angle between the longitudinal axis of the airplane and the actual horizon. In level flight, the pitch attitude varies with airspeed and load. For training purposes, the latter factor can normally be disregarded in small airplanes. At a constant airspeed, there is only one specific pitch attitude for level flight. At slow cruise speeds, the level flight attitude is nose high with indications as in *Figure 7-1*; at fast cruise speeds, the level-flight attitude is nose low. [Figure 7-2] *Figure 7-3* shows the indications for the attitude at normal cruise speeds. The instruments used to determine the pitch attitude of the aircraft are the attitude indicator, the altimeter, the vertical speed indicator (VSI), and the airspeed indicator (ASI).

Attitude Indicator

The attitude indicator gives the direct indication of pitch attitude. The desired pitch attitude is gained by using the elevator control to raise or lower the miniature aircraft in relation to the horizon bar. This corresponds to the way pitch attitude is adjusted in visual flight by raising or lowering the nose of the airplane in relation to the natural horizon. However, unless the airspeed is constant, and until the level flight attitude for that airspeed has been identified and established, there is no way to know whether level flight as



Figure 7-2. Pitch attitude and airspeed in level flight, fast cruise speed.



Figure 7-1. Pitch attitude and airspeed in level flight, slow cruise speed.



Figure 7-3. Pitch attitude and airspeed in level flight, normal cruise speed.