

Chapter Two

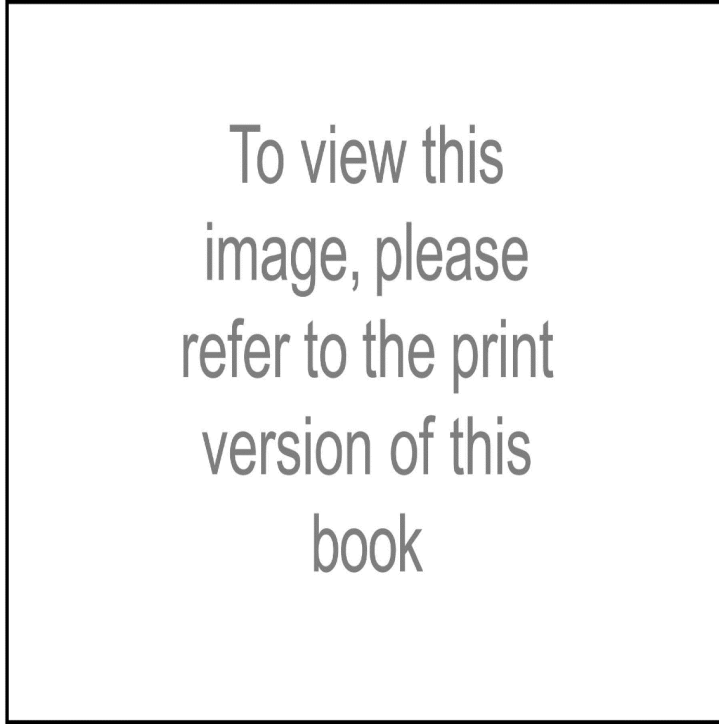


Fig. 2-12. *Heading indicator.*

Turn Indicator

The granddaddy of gyro instruments is the turn indicator. It is usually driven by a power source different from the other gyro instruments for safety-of-flight considerations. If the attitude indicator is air driven, the turn indicator will typically be electric. On some newer aircraft, one may be powered by AC while the other by DC.

The most common type of turn indicator is the turn-and-slip, or what many call the “needle/ball,” as illustrated in Figure 2-13. This is actually two instruments in a single case. The turn needle senses yaw, which is rotation about the vertical axis. The turn must actually be in process before it is sensed; simply banking the airplane does not cause any indication. In most general-aviation aircraft, the instrument is calibrated for a two-minute, “standard rate turn,” which is 3 degrees per second. Faster aircraft have instruments calibrated at 1.5 degrees per second, or a four-minute turn.

The ball, or slip indicator, is actually an inclinometer and not connected to the gyro system at all. Its purpose is to indicate if the amount of rudder used is correct for the angle of bank. If the ball is kept centered in a turn, it is considered a coordinated turn. The ball, usually made of black agate or steel, is placed in a curved, kerosene-filled glass tube. Since it is heavier than the liquid, the ball rolls to the low point of the tube. The liquid provides a dampening action to slightly resist the ball’s rolling tendency.