


Aircraft Instruments

In straight flight, with the airplane leaning to the right, the ball rolls to the right, indicating a slip; this is the result of one wing being low or one engine having less power. In a coordinated turn, centrifugal force and gravity combine to produce an apparent gravity, so the ball stays in the center. If there is excessive bank for the right turn, the ball rolls to the right (low) side; if there is insufficient bank, the ball rolls to the left (outside). To assure a coordinated turn, the pilot should keep the ball in the center at all times. The saying is “step on the ball,” meaning that if the ball is displaced to the right, you must apply more right rudder pressure; if it is displaced to the left, you need to use more left rudder. It is also possible to decrease the bank and achieve the same results, for instance in a situation where the aircraft was already banked excessively.

A newer type of turn indicator, which is replacing the turn and slip, is the turn coordinator. This instrument senses rotation about the vertical (yaw) axis and the longitudinal



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Fig. 2-13. Turn indicator.