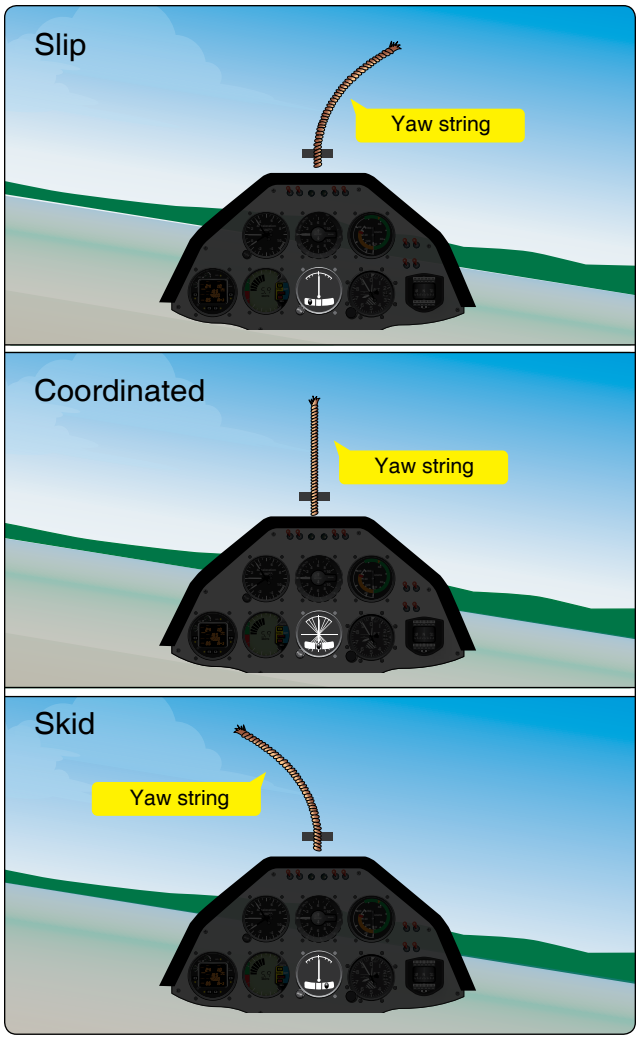

Figure 9-5. *Cockpit view of a slip and skid.*

Normal Climb

The entry into a climb from a hover has already been described in the Normal Takeoff from a Hover subsection; therefore, this discussion is limited to a climb entry from cruising flight.

Technique

To enter a climb in a helicopter while maintaining airspeed, the first actions are increasing the collective and throttle, and adjusting the pedals as necessary to maintain a centered ball in the slip/skid indicator. Moving the collective up requires a slight aft movement of the cyclic to direct all of the increased power into lift and maintain the airspeed. Remember, a helicopter can climb with the nose down and descend with the nose up. Helicopter attitude changes mainly reflect acceleration or deceleration, not climb or descent. Therefore, the climb attitude is approximately the same as level flight in a stable climb, depending on the aircraft's horizontal stabilizer design.

If the pilot wishes to climb faster, with a decreased airspeed, then the climb can be initiated with aft cyclic. Depending on initial or entry airspeed for the climb, the climb can be accomplished without increasing the collective, if a much slower airspeed is acceptable. However, as the airspeed decreases, the airflow over the vertical fin decreases necessitating more antitorque (left) pedal application.

To level off from a climb, start adjusting the attitude to the level flight attitude a few feet prior to reaching the desired altitude. The amount of lead depends on the rate of climb at the time of level-off (the higher the rate of climb, the more the lead). Generally, the lead is 10 percent of the climb rate. For example, if the climb rate is 500 feet per minute (fpm), you should lead the level-off by 50 feet.

To begin the level-off, apply forward cyclic to adjust and maintain a level flight attitude, which can be slightly nose low. Maintain climb power until the airspeed approaches the desired cruising airspeed, then lower the collective to obtain cruising power and adjust the throttle to obtain and maintain cruising rpm. Throughout the level-off, maintain longitudinal trim with the antitorque pedals.

Common Errors

1. Failure to maintain proper power and airspeed.
2. Holding too much or too little antitorque pedal.
3. In the level-off, decreasing power before adjusting the nose to cruising attitude.

Normal Descent

A normal descent is a maneuver in which the helicopter loses altitude at a controlled rate in a controlled attitude.

Technique

To establish a normal descent from straight-and-level flight at cruising airspeed, lower the collective to obtain proper power, adjust the throttle to maintain rpm, and increase right antitorque pedal pressure to maintain heading in a counterclockwise rotor system (or left pedal pressure in a clockwise system). If cruising airspeed is the same as or slightly above descending airspeed, simultaneously apply the necessary cyclic pressure to obtain the approximate descending attitude. If the pilot wants to decelerate, the cyclic must be moved aft. If the pilot desires to descend with increased airspeed, then forward cyclic is all that is required if airspeed remains under the limit. As the helicopter stabilizes at any forward airspeed, the fuselage attitude will streamline due to the airflow over the horizontal stabilizer. As the airspeed changes, the airflow over the vertical stabilizer or fin changes, so the pedals must be adjusted for trim.