Slipping with Flaps: Airplanes equipped with wing flaps generally have limited slip potential compared to airplanes that don't have flaps. This does not mean, however, that slips cannot be performed in flaps-equipped airplanes. But some airplanes, especially several high-wing Cessna models, have operating limitations when slipping with the flaps extended. Unfortunately, the answers to questions about the behavior of airplanes when slipping with flaps too often are based on rumor and speculation rather than on practical experience. Operating limitations about slipping with flaps usually point to aerodynamic issues that could affect the pilot's ability to control the airplane precisely. Cessna Aircraft Company is an obvious source for information about the slip-with-flaps issue. William D. Thompson, retired test pilot and former Manager of Flight Test & Aerodynamics at Cessna, describes the slip behavior experienced in Cessna 172 models equipped with large slotted flaps:

> we encountered a nose down pitch in forward slips with the flaps deflected. In some cases it was severe enough to lift the pilot against his seat belt if he was slow in checking the motion. For this reason a caution note was placed in most of the owner's manuals under 'Landings' reading 'Slips should be avoided with flap settings greater than 30° due to a downward pitch encountered under certain combinations of airspeed, side-slip angle, and center of gravity loadings.' . . . the cause of the pitching motion is the transition of a strong wing downwash over the tail in straight flight to a lessened downwash angle over part of the horizontal tail. . . . This phenomenon was elusive and sometimes hard to duplicate. . . . When the larger dorsal fin was adopted in the 1972 C-172L, this side-slip pitch phenomenon was eliminated, but the cautionary placard was retained. In the higher powered C-172P and C-R172 the placard was applicable to a mild pitch 'pumping' motion resulting from a flap outboard-end vortex impingement on the horizontal tail at some combinations of side-slip angle, power, and airspeed. [Excerpted with permission from Cessna, Wings for

All controlled slips require the pilot to balance aileron, rudder, and elevator inputs to maintain a desired track and a constant pitch attitude. In the case of the forward slip on final, the airplane should track the runway centerline; the nose, however, typically points slightly off to the side of the centerline. In the case of the side slip, not only should the airplane track the runway centerline, but the nose should also point down the centerline.