

VII.G. Slip to a Landing

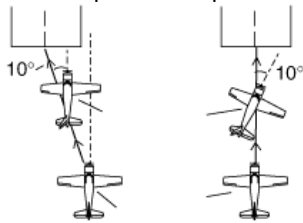
About: A slip occurs when the bank angle of an airplane is too steep for the existing rate of turn.

How: A side slip is entered by lowering a wing and applying just enough opposite rudder to prevent a turn. The longitudinal axis remains parallel to the original flightpath but the airplane no longer flies straight ahead

A forward slip is a slip where the airplane's direction of motion continues the same as before the slip was started. Lower the wing on the side toward the slip to be made and simultaneously yaw the airplane's nose in the opposite direction (rudder).

Discussion Points:

1. Because of the location of the pitot tube and static vents, airspeed indicators in some airplanes may have considerable error when the airplane is in a slip.
2. Check POH: a slip with flaps in an airplane may be prohibited.



The side slip. The forward slip.

Common errors:

1. Exceeding crosswind component.
2. Not reducing power.
3. Not applying sufficient aileron and rudder to maintain forward slip.
4. Not maintaining a safe airspeed while in the slip.
5. Inappropriate removal of hand from throttle
6. Improper procedures during transition from the slip to the touchdown:
 - a. Landing: longitudinal axis of airplane not aligned with runway
 - b. Underestimating rate of sink during slip and landing hard.
 - c. Excessive airspeed on touchdown.
7. Poor directional control after touchdown:
 - a. Not applying full aileron control into the wind after landing
 - b. Allowing touchdown while in a crab.
 - c. Over controlling with rudder.
8. Not using aerodynamic braking, excessive use of brakes

Forward Slip Procedure:

9. On final approach, reduce power to idle: Carb heat on.
10. Establish slightly less than normal glide speed (instrument error)
11. Apply bank in the direction for slip with aileron control (slip into wind)
12. Simultaneously, apply opposite rudder (maintain flight path)
13. **Maintain Bank -> Aileron, Flight Path -> Rudder, Airspeed -> Elevator**
14. Discontinuing the slip is accomplished by leveling the wings and simultaneously releasing rudder pressure while readjusting pitch attitude to the normal glide attitude.

Side Slip Procedure:

15. Align the airplane's heading with the centerline of the runway.
16. Note rate and direction of drift and promptly apply wind drift correction by lowering the upwind wing into the wind; **the amount the wing must be lowered depends on the rate of drift.**
17. As the wing is lowered, simultaneously apply opposite rudder to prevent a turn and keep the airplane's longitudinal axis aligned with the runway.
18. Drift -> Aileron, Heading -> Rudder
19. As crosswind changes, amount of aileron and rudder must be adjusted.
20. As airspeed decreases for round-out and landing, gradually increase deflection of rudder and ailerons to maintain correct amount of wind drift correction.
21. During landing round-out, keep the upwind wing down sufficient to control drift and rudder sufficient to align longitudinal axis with runway.
22. **Touchdown should be made on the upwind main wheel.**
23. As forward speed decreases, the weight of the airplane will cause the downwind main wheel to settle to the runway.
24. As airplane comes to a stop, **maintain full aileron control into the wind.**

Evaluations/ Standards:

25. Consider the wind conditions, landing surface and obstructions, and select the most suitable touchdown point.
26. Establishes slipping attitude at the point from which a landing can be made using recommended approach, landing configuration and airspeed
27. Maintains ground track aligned with runway centerline and airspeed which results in minimum float during roundout.
28. Makes smooth, timely, and correct control application during recovery from the slip, roundout, and touchdown.
29. Maintains crosswind correction and directional control throughout approach and landing.