

SUBJECT: FORWARD SLIP FLIGHT TEST REQUIREMENTS

The purpose of this bulletin is to clarify the Practical Test Standards requirements for the demonstration of the forward slip to a landing (area of operation IV: task K -- private pilot ASEL) and (area of operation VII: task G. -- flight instructor ASEL). The Private Pilot Practical Test Standards does not include the terminology "side slip" that is noted in the Flight Instructor Practical Test Standards. For the purpose of this bulletin the terminology of "forward slip" and "side slip" will apply to both the private pilot task K and the flight instructor task G in the appropriate area of operation.

To clarify the elements and objectives of the Practical Test Standards the intent of the slipping maneuver must be stated. By referencing Area of Operation IV, Task K. "Forward Slip To A Landing" in the Private Pilot Practical Test Standards, item 2 states, "the applicant considers the wind, landing surface and obstructions, and selects the most suitable touchdown point." Item 3 states, "the applicant establish the slipping attitude at the point from which a landing can be made using the recommended approach and landing configuration and airspeed, adjusts pitch attitude and power as required." Item 6 states, "the applicant touches down smoothly at the approximate stalling speed, at or within 400 feet beyond a specified point, with no side drift, and with the **airplane's longitudinal axis aligned with and over** the runway center/landing path."

EXAMINER ACTION PRIOR TO FLIGHT PORTION OF PRACTICAL TEST.

The examiner should discuss with the applicant, prior to conducting the flight portion of the practical test, if there are **any obstructions or simulated obstructions and their location in reference to the runway** to be used for this task so that the applicant is able to select the appropriate touchdown point. The examiner needs to specify the configuration (flap configuration with or without) per manufacturer limitations or for glider operations the use of drag devices. The examiner should specify if power is permissible after the forward slip is initiated and whether a go-round may or may not be an option if touchdown at or within 400 feet is not possible. It would seem logical that power use during the actual forward slip would defeat the purpose of a slipping maneuver and therefore should not be used. The slip to a landing maneuver should be initiated prior to 500 feet AGL. in order for the examiner to properly evaluate the task.

A scenario-based discussion could be a part of this discussion. An example might be: The simulated airport runway begins at the aiming point and extends for a distance of 3000 feet which is represented by the first high speed taxiway beyond the aiming point. There are trees or some other obstacle approximately 50 feet high located at the threshold of the actual runway. The flaps will be simulated inoperative. The touchdown point will be the aiming point that simulates the beginning of the runway.

For the purpose of testing the flight instructor applicant, it is recommended that the **applicant** be asked to give a scenario prior to demonstrating the slip to a landing that would not utilize power or flaps and it would be necessary to clear an obstacle. The objective is to demonstrate a **stabilized approach** with appropriate **stabilized airspeed** and **precise ground track** to the selected area with **proper judgment** and **control** during transition from slip to touchdown.

CONCLUSION:

The information included is intended to standardize the procedures for evaluating the applicant at the private or instructor level. The DPEAG recommends that power not be used once the forward slip has been initiated and flap configuration or for gliders (drag devices) be specified by the examiner. An obstacle should be actual or simulated in order to accomplish a higher angle of descent without increasing airspeed. A suitable touchdown point selected so as to allow for minimal float and touchdown near stall speed, taking into consideration wind shear or gusting conditions. The examiner and applicant must keep in mind the

actual situations where a forward slip would be necessary rather than just performing a maneuver to pass the practical test.

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Addendum

The following discussion and information was taken from AC 61-21A (Former Flight Training Handbook)

A slip is a descent with one wing lowered and the airplane's longitudinal axis at an angle to the **flight path**. A slip can be used to steepen the approach path without increasing the airspeed. A slip can also be used to make the airplane move sideways through the air to counteract the drift that results from a crosswind. Formerly, slips were used as a normal means of controlling landing descents to short or obstructed fields when aircraft did not have flaps. With the installation of wing flaps on modern airplanes, the use of slips to steepen or control the angle of descent is no longer a common procedure. However, the pilot still needs skill in performance of forward slips to correct for possible errors in judgment of the landing approach and sideslips for landings in crosswind conditions. Loss of electrical power rendering flaps unusable or engine failure and fire resulting in a flapless powerless emergency descent to a landing off airport would require the skill that this task calls for.

The primary purpose of **forward slips** is to dissipate altitude without increasing the airplane's speed. The use of slips has definite limitations. Some pilots may try to lose altitude by violent slipping rather than by smoothly maneuvering and exercising good judgment and using only a slight or moderate slip. In emergency landings, this erratic practice invariably will lead to trouble since enough excess speed may result and prevent touching down anywhere near the proper point, and very often will result in overshooting the entire field. The **forward slip** is a slip in which the airplane's direction of motion continues the same as before the slip was begun. If there is any crosswind, the slip will be much more effective if made toward the wind in other words the wing that is lowered should be on the side in which the wind is striking the airplane. Slipping should usually be done with the engine idling. **There is little logic** in slipping to lose altitude or steepen the descent over an obstacle if the power is being used.

The degree to which the nose of the airplane is yawed in the opposite direction from the bank should be such that the original ground track is maintained. The nose should also be raised as necessary to prevent the airspeed from increasing therefore maintaining a **stabilized approach**. When the slip is used during the last portion of a final approach, the longitudinal axis of the airplane must be aligned with the runway just prior to touchdown so the airplane can touchdown headed in the direction in which it is moving over the runway. This requires timely action to discontinue the slip and align the airplane. Failure to accomplish this imposes severe side loads on the landing gear and imparts violent ground looping tendencies.

Because of the location of the pitot tube and static vents on some aircraft, airspeed indicators may have considerable error when the airplane is in a slip. The pilot must be aware of this possibility and recognize a properly performed slip by the attitude of the airplane, the sound of the airflow, and feel of the flight controls.

The **sideslip**, as distinguished from a forward slip, is one during which the airplane's longitudinal axis remains parallel to the original flight path, but in which the flight path changes direction according to the steepness of the bank. The sideslip is important in counteracting wind drift during crosswind landings. A sideslip is the same as a forward slip except in a sideslip the longitudinal axis is aligned with the runway.

