

PPL B01 Takeoff and Climb, Circuit, Approach and Landing:

For this session, you'll need to prepare the following in advance:

- 1.) Create a briefing (NOTAMs, Weather).
- 2.) Prepare the mass and balance, performance, and nav log.
- 3.) You should already be capable of providing your instructor with a comprehensive weather briefing for LOAN during your session's time window.
- 4.) AIP knowledge: You should be familiar with VFR traffic pattern procedures and Waypoints.
- 5.) AIP knowledge: Familiarize yourself with LOAV's AD2, our alternate aerodrome. Compare the VFR text with the approach chart and look at the waypoints on Google Earth.
6.) AIP knowledge: Ensure you check LOXN's operating hours in the AD2 section, and the Felixdorf areas in ENR 5.1; cross-reference these with current NOTAMs and MIL/NUP.
7.) Airspace knowledge: You should already possess thorough knowledge regarding all airspaces above and around LOAN.

What we'll be doing:

The following explanation refers to procedures in calm wind conditions.

- 1.) We will be flying mixed traffic patterns A and B.
- 2.) All pre-takeoff checks should be completed by yourself.
- 3.) One of the most important points is proper scanning technique. In the DV20E, it's crucial to keep your gaze slightly to the left of the trim indication. If your gaze drifts too far right, for example, over the spinner, it will be impossible to keep the aircraft centered on the centerline during taxi, takeoff, and landing.
- 4.) The lineup check should be studied and practiced with chair flying.
- 5.) During the takeoff itself, it's important that your right hand is open on the throttle and not gripping it. This prevents you from accidentally pulling the throttle to idle during turbulence, while still allowing you to react immediately if a rejected takeoff is necessary.

6.) As soon as takeoff power is set, you must immediately anticipate the aircraft's yaw to the left, caused by torque and slipstream. For the first few meters, before the rudder becomes active, this must be corrected with the brakes. Once the rudder becomes effective, your heels must be on the floor to avoid further braking, and the left yaw will then be corrected solely with the rudder. As mentioned before, the correct scanning technique is important here to avoid a false impression of straightness and mistakenly allowing a left drift.

7.) Immediately at the start of the takeoff, a quick glance should be made to check the instruments.

8.) The rotation speed for the DV20E is given as 49 knots and refers to the maximum takeoff mass. Since we will rarely reach this, it's recommended to relieve pressure on the nose wheel with light back pressure starting at 45 knots, and if the aircraft wants to lift off then, you should let it.

Alternatively, if the aircraft's mass is significantly below the maximum takeoff mass and, for example, you were to hold to keep the aircraft on the ground until 49 knots, the elevator could generate so much lift that the tail would rise, and the aircraft would end up on its nose wheel, which would be an absolute danger.

9.) Immediately after liftoff, it remains crucial to maintain direction using the correct scanning technique and rudder-aileron correction, as the now increased torque, slipstream, etc., would lead to an immediate and undesirable yaw to the left. Additionally, you must immediately fly to the desired speed, VX or VY, and trim.

10.) Only after that should the positive climb check be performed, but you must not forget to continue flying straight and stable. For this, as previously learned, it is important to maintain right rudder (kick the ball).

11.) Upon reaching an altitude of 400 ft AGL, we'll perform the acceleration check as per the FIM. Don't forget to re-trim the aircraft afterward.

12.) The level-off follows the acceleration check.

13.) Next comes the abeam check. It's important to understand that the abeam check won't always be performed at the same position or with the same power setting due to various circumstances; it always depends on the local conditions, the weather, and the pilot's skill. To make things easier at the start of landing training, a pilot can maintain altitude approximately after reducing power and setting flaps. This allows for an efficient and quick reduction in speed to 70 knots, and the aircraft can be trimmed correctly as rapidly as possible. If the aircraft isn't properly trimmed, the pilot will constantly need to concentrate on using the stick to maintain speed, which ultimately increases the workload significantly and complicates the entire approach.

14.) After the abeam check, once the aircraft is trimmed and in a descent, that's a good time to handle any radio communication.

15.) This is followed by the final check, which can also vary in position. It's important to know that the final check consists of two parts: in the first part, the flaps are extended and the propeller lever is adjusted, and in the second part, this is confirmed with specific wording. Immediately after the first part, it's crucial again to fly at a speed of 56 knots, or the speed agreed upon with the instructor; once this speed is achieved, trim immediately to keep the workload as low as possible.

16.) The aiming point technique follows next. Here, you'll use pitch to fly to the point that will ultimately guide the aircraft to the runway. It's crucial to select an aiming point that ensures the touchdown, after the roundout, flare, and contact, occurs within the first third of the runway. As mentioned, you fly to the aiming point using pitch; however, be mindful that lowering the pitch increases speed, so power must be reduced immediately. Conversely, if the aiming point needs to be corrected further down the runway, the pitch must be raised, and consequently, power must be increased. Caution: There's a risk here: if you increase power too late, the speed could drop below the minimum, potentially leading to a stall, which at low altitude during the approach, would be impossible to recover from.

17.) Once the aircraft is aligned, trimmed, and on the centerline on final, with the aiming point already corrected, the transition from a crab to a wing-low condition follows. It's vital to understand that there should be no touchdown in a crab, as this can lead to damage to the tires, joints, and bearings, and a dangerous drift from the centerline. Now, we need to differentiate based on the pilot's experience with this transition: An experienced pilot can fly the entire final approach in a crab and only transition to wing-low during the roundout, whereas a less experienced pilot should make the transition from crab to wing-low earlier, during the final approach. This provides more time for the transition and reduces workload, avoiding the need to combine the transition with the roundout. In my sessions, I always try to incorporate multiple transitions for practice; only through frequent repetition can one master this complex maneuver. Most importantly, again, is the correct scan technique, looking slightly left past the trim indication. With incorrect scanning, you'd get a false impression of being straight and would either under-correct or even correct in the wrong direction. It's also important to remember that every rudder input naturally requires an aileron input, and vice versa. The rudder aligns the aircraft around its vertical axis, keeping it parallel to the runway centerline, while the ailerons prevent or correct any drift to the left or right of the centerline.

18.) Next comes the roundout, initiated just before reaching the aiming point. Here, it's crucial to shift your gaze straight ahead and far down the runway, along the centerline. It's important that the aircraft is correctly trimmed on final approach to avoid unnecessary physical effort during the roundout, allowing you to perform it more or less

with your fingertips and wrist, rather than having to grip the stick with your whole hand, as you would with an untrimmed aircraft, and making roundout movements from your elbow and shoulder, which would be far too imprecise. The roundout itself should be completed at an approximate height of 50 cm to 1 m above the ground, transitioning into the flare.

19.) The flare itself serves to bleed off speed before touchdown, preventing a landing at excessive speed, which frequently leads to bouncing or a hard landing. So, the flare should be held until speed has decreased enough for the aircraft to settle on its own, with the nose wheel slightly higher than the main landing gear, to avoid a nose-wheel or three-point landing. During the flare, it's again critical to use the correct scan technique to keep the aircraft straight with the rudder and on the centerline with the ailerons, correcting for torque, slipstream, etc., in the wing-low condition, thereby preventing damage and drifting off the centerline.

20.) After touchdown, the nose wheel should remain unweighted to prevent nose-wheel shimmy and to allow it to settle gently to the ground. Should nose-wheel shimmy occur, the nose wheel must be immediately unweighted again. Even after touchdown, the aircraft must be kept on the centerline through the correct scan technique and appropriate rudder corrections.

21.) For a touch-and-go, first, set the flaps from landing to takeoff, check this, and then set takeoff power. Caution: When setting takeoff power, the left-turning tendencies (torque, slipstream, etc.) will increase again. This must be corrected with the proper scan technique and rudder to keep the aircraft on the centerline. The nose wheel can remain slightly unweighted, as the speed will immediately increase to 45 knots, and rotation must occur at 49 knots at the latest.

22.) In this session, we'll also practice a go-around. A go-around is the exact opposite of a touch-and-go: first, increase power to go-around power, and immediately afterward, without delay, set the flaps from landing to takeoff. The aircraft must again be kept straight and on the centerline using the correct scan technique and appropriate rudder and aileron corrections. Simultaneously, initiate the climb immediately to avoid any further approach to the runway. Also, pay attention to the speed, ensuring it reaches either V_x or V_y , so that the aircraft can be correctly trimmed again.