



SPORT PILOT TRAINING SYLLABUS

LESSON 3A: Slow flight, mushing, slips, s-turns.

TIME: 1 hour ground instruction and 1-2 hours flight instruction

OBJECTIVE: Teach slow flight, mushing, slips and S-turns as tools to be used to lose altitude for a safe normal landing or emergency landing. Teach energy management and the importance of getting rid of your energy close to the ground and prior to touch down.

HOME STUDY: (PHAK) Chapters 8 Bristell Checkout Quiz

Review lesson items:

The Proper Takeoff:

Apply full aileron in the direction of the crosswind. Apply full throttle and verify the Rotax engine is developing full power by observing the RPM which should be 5000 RPM. After the plane accelerates for about 5 seconds, add some back pressure. When the nose begins to rise, relax some of the back pressure.

Maintain back pressure trying to keep the nose wheel just slightly off the ground.

When the plane is ready it will fly off the ground. **YOU MUST BE ABLE TO SEE OVER THE NOSE DURING THE CLIMBOUT.** Re-trim plane for climb attitude and 75 KIAS. How to use the GPS to get back to your home airport.

Slow flight, slips, and mushing:

- Slow flight with 4000 RPM. When speed slows to V_{fe} (Velocity-Flap-Extension) extend 10 degrees of flap and hold level or slight nose up attitude
- Slow flight at 52 KIAS with full 30 degrees flaps and power as needed.
- Slips along a road with full rudder deflection
 - 1. Power off, full flaps, nose level, speed 52 KIAS
 - 2. While lowering the nose 10 degrees, apply right rudder as you apply left aileron
 - 3. Level wings while removing rudder and aileron, return to level

POWER OFF:

- Nose in 5 degree UP attitude- airspeed 45 KIAS-MUSH
- Nose in level flight attitude- airspeed 52 KIAS-MUSH
- Nose in 5 degree down attitude- airspeed 55 KIAS-MUSH
- Nose in 10 degree down attitude- airspeed 60 KIAS-PERFECT.

Flying by attitude only-airspeed is covered:

CLIMB OUT

- Full power, 5000 RPM min until 900 feet, then 4000 RPM (2/3 throttle)
- 5 degrees nose up for 70 KIAS (V_y) Best rate of climb

DOWNWIND

- Level nose attitude and re-trim for hands off flight-add 10 degrees of flaps-slight forward stick pressure is good.

ABEAM THE NUMBERS

- Reduce power to half throttle position (3500 RPM) and add 20 degrees of flaps-re-trim the plane for 5 degree nose down attitude
- When the number are between the wing and the tail-Turn 90 degrees onto Base Leg

BASE TO FINAL APPROACH-lower your nose in this turn

- Consider the wind when determining the proper place to make your turn on to final approach

- **FINAL APPROACH... It's as easy as 1 2 3**

1. When established on final-power off-30 degrees of flaps and re-trim for level attitude

(This NOSE LEVEL attitude will result in a 52 KIAS MUSH)

Look at the VASI, establish white on top and red on the bottom

2. Nose 5 degrees down Re-trim for last time

(This attitude will result in a 55 KIAS MUSH)

If above the glide path...back to 1. (LEVEL)

If below the glide path...add half power for 2 seconds

SWEET SPOT: SHORT FINAL-height of a phone pole

3. Nose in 10 degree down attitude

(This attitude will result in a 60 KIAS and provides sufficient energy to allow for the perfect round out at the height of a car.

Use this 1.2.3. attitude method to stay on the VASI glide path.

- Two white lights, use 1 (full flap, nose level) until white over/red
- Two red lights, apply half power for two seconds- if still red over red, apply half power for another two seconds.

TOUCHDOWN

Nose up 5 degrees for Touchdown- (45 KIAS for touchdown)

New lesson items: Traffic pattern: Compass headings for the traffic pattern for all runways. How to use slips, S-turns, and mushing to loose altitude. 20 degree bank turns. Discuss the importance being close to the ground (5 feet) before you begin the round out, where you will get rid of any excess energy. Verify the throttle is closed after touchdown. Hold the nose off the runway after landing to dissapte any excess energy prior to lowering the nose to the runway.

COMPLETION STANDARDS: The lesson is completed when the student understands slow flight and has a basic understanding of the traffic pattern and can maintain altitude within 200 feet and airspeed +/- 20 kts in the traffic pattern.