Effects of Controls — In-flight Lesson

CASA Recreational Pilot License (Aeroplane) — Lesson 1

Language choices

> **"Pitch the nose up"** — *not "pull back on the control column." The student should think in terms of what the aeroplane is doing, not what their hand is doing.*

> **"Roll left" / "roll right"** — *not "bank left" or "turn left." Reserve "turn" for when established in a coordinated turn.*

> **"Yaw right"** — *not "kick right rudder." Reinforce the effect, not the limb movement.*

> **"Coordinate"** — *when combining rudder and ailerons, name the concept explicitly.*

Demonstration-Performance

For the sequence of each activity, choose whether you use:

- Demonstration-Performance: Explain, Demonstrate, Performance and Monitor, Evaluation
- DDM: Demonstrate, Direct, Monitor

or some other preference. Each in-flight activity just describes the sequence to be demonstrated and performed, regardless of the method you use.

Before starting the plane

- Ensure seat is locked and learner is comfortable
- Check the attitude — the angle the nose makes with the horizon; have the learner check how many fingers this is for level flying
- Point out the white arc on the ASI and have learner check flaps extension, noting the click feel. Note that we always change flaps in stages since it affects lift — we can sink when retracting flaps at the same speed
- Go through "My aircraft" / "Your aircraft"

During startup

- Student to read checks and we work through them together
- Check if student would like to control the elevator and throttle during take-off (fine either way, no pressure)

Elevator — primary and secondary

Sequence

- Use the elevator to gently pitch down and then up a few times
- Note airspeed then pitch forward to level flight using fingers and hold that attitude, watch speed. Slowly let nose rise back towards horizon and watch the speed.

Ailerons — primary and secondary

At the training area — trim for level flight with 2300 RPM, then:

Sequence

- Use the ailerons to gently roll the plane left and right around the longitudinal axis
- Roll the plane to a 30° angle of bank and watch for the slip and yaw

Rudder — primary and secondary

Re-establish straight and level, then:

Sequence

- Use the rudder to gently yaw the plane left and right around the normal axis
- Gently but firmly push the rudder all the way to the floor and observe what happens

Trim — effect of trim

Re-establish straight and level, then:

Sequence

- Ask student to take control and keep level (check fingers). Explain what I'll be doing with the trim (going to both extremes before returning) and what they will feel.
- Note trim position for return.

Throttle

Re-establish straight and level with 2300 and start heading back towards the airport, CTAF call etc., then:

Sequence

- Ask learner to report the current speed (should be around 90–100 kt)
- Slowly move the throttle to full throttle and observe what happens
- Ask learner to confirm speed
- Slowly move the throttle back to 2300 RPM and observe what happens
- Ask learner to report the current speed
- Slowly move the throttle back to 2100 RPM and observe what happens
- Ask learner to report the current speed

Flaps

Leave RPM at 2100 and, when reaching 4000 ft, trim for straight and level.

Sequence

- Ask learner to report speed and verify that we're in the white arc range
- Extend flaps to first notch and note what happens (possibly to second if needed)
- Re-trim to ensure straight and level, with speed around 80 kt
- Retract flaps (in stages if necessary) and note what happens

Stability

If there's time, demonstrate stability by applying a small rudder and roll input, then release the controls.

My aircraft, then join circuit and land, demonstrating as we go.