



Open Aviation Solutions

Basic Instrument Flight – In-flight Notes

*CASA Recreational Pilot License (Aeroplane) – CASA Sample Syllabus
Lesson 26*

Language choices

"trust the instruments" – the one phrase to repeat all flight, every time sensation and instrument disagree.

"power, wings level, pitch" – the recovery order for either type of unusual attitude.

"maintain control, turn back, tell someone" – the actions if we ever end up in cloud.

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

- Confirm the **hood or foggles** are on board and serviceable, and brief the **safety pilot** role clearly: while the student is under the hood, the instructor (or a second safety pilot) holds the **entire** lookout responsibility
- Confirm today's weather comfortably supports the flight, with a genuine **VMC margin** – this lesson does not fly in marginal conditions
- This is a heavily **assessed** flight – communication, pre-flight actions and inspection, start/stop, taxiing, pre-take-off procedures, radio and transponder operation, and post-flight actions are all revised/assessed today (see Revision assessments below)

Record	Start	End
Tacho		
Maintenance		
Time		

During taxi – instrument checks

- **Attitude Indicator:** allow it to erect; the horizon bar should stay level and steady through straight taxi, and not deflect more than about 5° during a taxi turn
- **Direction Indicator:** should read within a few degrees of the magnetic compass on a known heading; reset it against the compass if it has drifted
- **Vacuum/suction gauge** (if fitted): in the green range
- Any instrument that doesn't behave as expected: **do not fly with it** – report it

After departing / established in the climb

- Assess the **climb** and, on arrival at the training area, brief the transition to instrument work
- Confirm **local area airspace**: geographical features and limits, the transit route, and today's height for instrument work
- Brief the safety-pilot handover: "From here, I have the lookout. You're under the hood from now until I say 'I have control, look up.'"

Establishing on instruments

Sequence

- Level at the briefed height, in clear air, well clear of other traffic and cloud
- Student dons the **hood or foggles**; confirm they can see the full panel and nothing outside
- Instructor takes and confirms the **lookout**, explicitly: "I have the lookout, you're on instruments"
- Settle the aircraft in cruise; have the student identify the **control** and **performance** instruments on the actual panel before starting the scan

Straight and level on instruments

Cruise configuration.

Sequence

- Scan the full panel, AI in the centre; hold a level attitude and a constant heading
- Small corrections only; **wait** for the aircraft to settle before judging the result — do not chase
- If the heading drifts: identify it on the DI first, correct with a shallow bank, confirm with the compass once settled (mind the compass's own turning error close to N/S)
- Instructor introduces a deliberate small disturbance (a gentle nudge) and has the student recover using the scan

Climbing and descending on instruments

Sequence

- From level flight, apply the climb power and attitude; confirm the climb on the ASI, altimeter and VSI (remember: the VSI settles a few seconds behind the others)
- Level off with anticipation – lower the nose before the selected altitude, by about 10% of the rate of climb, in feet
- Repeat for a descent: reduce power, lower the nose to the descent attitude, confirm on the ASI first (it's the most direct indication when descending)
- Level off from the descent, again anticipating the levelling point

Turning on instruments

Sequence

- Roll into a shallow bank (rate 1 – about 15° for a typical training-aircraft cruise speed) using the Turn Coordinator and Direction Indicator, keeping the balance ball centred
- Hold a constant angle of bank; **lead** the roll-out by about half the bank angle before the nominated heading
- Practise turning onto specific headings, confirming the final heading against the compass once settled – allow for **ONUS/SAND** compass error near N/S and on E/W accelerations (from your workbook)
- Repeat with the DI covered, using only the Turn Coordinator and compass – a brief taste of what's lost if a gyro instrument fails

Climbing and descending turns on instruments

Sequence

- Combine the previous two exercises: roll into a turn while establishing the climb (or descent) attitude and power together
- Cross-check constantly – bank angle from the Turn Coordinator/DI, pitch from the ASI/altimeter/VSI
- Roll out on the nominated heading, then level off at the nominated altitude, anticipating both

Unusual attitude recovery

*Ignore the sensations. **Trust the instruments.***

Sequence

- Student closes their eyes (or looks down) briefly; instructor manoeuvres the aircraft into a mild unusual attitude and hands back control
- Student identifies the attitude from the panel – nose-high (airspeed low/decreasing) or nose-low (airspeed high/increasing) – and states it out loud
- **Nose-high:** power – roll wings level – ease forward
- **Nose-low:** power off – roll wings level – ease back, smoothly, no snatch
- Repeat from both attitude types, and with varying angles of bank

Actions upon inadvertent IMC entry

Sequence

- Brief and discuss (do **not** fly into real cloud): "If you found yourself in cloud right now, what would you do?"
- Talk the student through it hands-on, hood still on: maintain control (wings level, on the panel) – turn back onto a reciprocal heading at rate 1 – simulate the radio call and transponder selection
- Discuss why the turn back matters more than any other single action, and why pressing on is the dangerous choice

Revision assessments (as time and flight permit)

Fold these in where they fit the flight – they are revised/assessed this lesson, not new content:

- **Communicating face-to-face and by radio** (C1.1, C1.2) – throughout the flight
- **Pre-flight actions and inspection** (C2.1, C2.2) – already covered before start
- **Start and stop engine** (A1.1) – at start-up and shutdown
- **Taxiing** (A1.2) – including the instrument checks above
- **Pre-take-off procedures** (A2.1) – at the runway
- **Operate radio equipment and transponder** (C3.1, C3.3) – throughout, and in the inadvertent-IMC discussion
- **Post-flight actions and procedures** (C2.3) – at shutdown

Return to aerodrome

- Student comes off the hood/foggles well before the circuit – "I have control, look up" – and resumes the lookout
- **Listen to AWIS/ATIS** – runway in use, circuit direction, QNH
- Fly a normal circuit and landing; this is a good moment to note how much easier the visual picture feels after 30-plus minutes on instruments
- Complete the post-flight actions and administration (C2.3) at shutdown