



Open Aviation Solutions

Climbing and Descending – In-flight Notes

CASA Recreational Pilot License (Aeroplane) – Lesson 3

Language choices

"climb attitude" / "descent attitude" – nose position relative to the horizon, not "pull back" or "push forward".

"level off" – not "stop climbing".

"best rate" (VY – most feet per minute) and **"best angle"** (VX – most feet per distance).

"power idle" – not "engine off"; the engine is still running at idle.

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

- Seat locked, student comfortable
- Review altimeter subscale – set to QNH
- Confirm student remembers climb and glide attitudes from theory
- Review "My aeroplane / Your aeroplane" handover phrases

Record	Start	End
Tacho		
Maintenance		
Time		

During startup

- Student reads checks; work through together
- Brief on engine temperature monitoring during prolonged climb

Climb to training area

- Point out climb attitude relative to horizon; note VY vs cruise climb appearance
- Check engine temperatures on climb — introduce habit of monitoring during prolonged climbs

In the training area

Establish straight and level at cruise power before beginning exercises. Power settings and speeds for each configuration are in the configuration reference on the last page.

Normal (cruise) climb entry and level off

Sequence

- Look out and clear the area ahead
- **Power** — apply climb power; **Attitude** — pitch to the cruise climb attitude; **Trim**
- Maintain with the **ALAP** work cycle — Attitude, Lookout, Attitude, Performance
- Anticipate the level-off by 50–100 ft
- Level off — **APT**: lower the nose to the level attitude, hold climb power until cruise speed, reduce to cruise power, trim

Best rate of climb (VY)

Sequence

- Full power; pitch to the VY attitude; trim
- Note the reduced forward visibility and the steeper nose compared to the cruise climb
- Lower the nose periodically to clear the area ahead
- Level off – APT, anticipating as before

Best angle of climb (VX)

Sequence – brief demonstration only

- Full power; pitch to the steeper VX attitude; note the slow airspeed
- Compare the VX attitude and speed with VY
- Hold only briefly, then level off promptly – poor forward visibility and reduced engine cooling

Powered descent and level off

Sequence

- **Power** — reduce to descent power; hold the level attitude while the speed washes off
- **Attitude** — lower the nose to the cruise descent attitude; **Trim**
- Maintain with ALAP; include the altimeter in the performance check
- Anticipate the level-off by 50–100 ft
- Level off — **PAT**: cruise power first to arrest the descent, raise the nose to the level attitude, trim

Glide (power off)

Sequence

- Power to idle, carb heat; hold the level attitude while the speed reduces to best glide
- Lower the nose to the best glide attitude; trim
- Note the quiet and the descent rate
- Recover — **PAT**, well before getting low: cruise power (carb heat cold), raise the nose to the level attitude, trim

Approach descent (flap stages)

Sequence

- Reduce to approach power, carb heat; extend the first stage of flap
- Note the pitch change — re-trim
- Extend the second stage; note the further pitch change; re-trim
- Adjust attitude for the target approach speed — power controls the rate of descent, attitude the airspeed
- Recover: cruise power (carb heat cold), retract flap in stages, re-trimming each stage

Return to airport

- Retract flaps in stages if extended; establish normal cruise
- CTAF call as appropriate
- Let student fly straight and level during return for consolidation
- Introduce turning to a heading for a taster of next week – could point out the rate-1 turn markers on the turn coordinator
- Brief the approach and circuit entry for your home aerodrome

Configuration reference

Example values for the Piper Warrior 151 – note the equivalents for your training aeroplane:

Configuration	Power (approx)	Speed (approx)	Notes
Cruise climb	Full	87 KIAS	Normal transit climb
Best rate (VY)	Full	75 KIAS	Most ft/min
Best angle (VX)	Full	63 KIAS	Most ft per distance
Best glide	Idle	73 KIAS	Power off
Cruise descent	2200 RPM	90 KIAS	Gentle powered descent
Approach descent	1700 RPM + 2 stages of flap	70 KIAS	carb heat; re-trim each stage