



## Intermediate Rating Study Guide

### **Recommended Reading**

*Performance Flying*, D. Pagan

*Hang Gliders Technical Notebook*, F. Sheehy

*Understanding The Sky*, D. Pagan

*USHGA Information Handbook*

FAA Sectional Aeronautical Chart

### **Topics**

- Angle of attack
- Affect of wing loading on L/D, spin tendencies, stall speed, min sink speed, trim speed, top speed
- Wind gradient
  - How affected by airmass stability, instability.
  - How to recognize stronger gradients.
- Technical aspects of launching a hang glider
- Differences in gentle slope and steep slope launch technique in light winds including:
  - Differences if any in angle of attack, pitch attitude affect differing air mass motions have on glide ratio performance (lift, sink, headwinds, tailwinds)
- Turn coordination, efficient turns, slips, mushing turn, stalling turns.
- Affect of bank angle on wing loading, flight speeds, stall speed, turn radius, pitch attitude
- Adverse yaw and when it is most prominent
- PIO, its cause and different ways to reduce it
- Crab angles; how affected by wind speed and airspeed
- How airspeed affects sink rate
- How airspeed affects glide ratio
- True determinant of stalls
- Pitch attitudes that a glider can stall in
- Chord
- Glide ratio performance, or polar
- Why risks of hang gliding is different among differing pilots
- Relative wind
- Absolute wind
- Horizon or horizontal
- Ground effect
- Lift
- Drag: parasitic, interference, induced, total
- Requirements for thermal activity
- Conditions that enhance thermal activity and thermal strength
- Air density and the conditions that change it

- Lifecycle of a thunder head cloud (cumulonimbus) different dangers posed to hang glider flight
- Safest landing approaches in varying conditions and terrain
- Anabatic and catabatic winds
- Right of way when passing during ridge soaring
- Right away rules
- Safely landing on unusual terrain (gentle slopes, moderate to steep
- Slopes, corn or wheat fields, boulder fields, water, trees
- Courtesies to landowners
- Reserve repack recommendations
- Reserve deployment procedures
- FAR 103 including cloud clearance requirements and minimum visibility requirements.
- Sectional aeronautical chart symbology
- Specific dangers when landing in strong winds
- Ground effect, why, how high, when most problematic