

Common areas trouble areas for check rides

Aircraft Airworthiness: Applicants are required to prove to the examiner the aircraft is airworthy on paper work in the ground part of the practical and airworthy via preflight inspection prior to take off. Many applicants have memorized AVIATE-A and AROW, but are not familiar with logs to be able to demonstrate they can verify airworthiness. REcommendaitons:

- 1) Produce originals or facsimile of airworthiness, registration, weight/balance and POH/AFM. Aircraft manufactured after March 1979 must have an aircraft specific FAA approved POH.
- 2) Log entries for engine, airframe, propellor for required inspections- tab them out for easy reference
- 3) **Airworthiness Directives.** Aircraft owner/operators are required to keep a log of all applicable ADs including how/when complied with and recurrent AD status and next due. This is called an **AD compliance report**. If you don't know where it is or how to look at it, you cannot prove airworthiness. **This report is usually updated every annual.**

Weather: Review requirements in ACS. In short, the applicant has to be able to retrieve sufficient weather products and interpret them to put together a picture of the current and forecast weather to make a go no go decision. If you are using a briefing from an aviation APP, make sure you know where the legends are for interpreting the charting symbols.

- 1) basic concepts of how weather is created and how various air masses/ fronts produce weather what type of weather to expect. Again, a list of weather-related items you may be tested on is in the ACS.
- 2) become familiar with on board weather products: ADS-B IN (TIS_B, FIS-B) and XM weather and their limitations.
- 3) Radar- can you tell where thunderstorms are by radar? What does the radar tell you? What do the colors mean?
- 4) Low Level Wind shear- what is it, what produces it and what are the risks?
- 5) Any chart you pull up in the weather brief, be sure you know what all the symbols mean **or where to look them up.**

Cross country planning: The most common error is the applicant taking a “course” from garmin pilot or other app for their cross country and have no idea if it is a **True Course, Magnetic Course, Magnetic Heading, Compass Heading**. Then apply wind correction and magnetic deviation to the number not realizing the program has already done it. This can induce significant navigation errors that are hard to explain by the applicant. Know what your app is telling you and what the number means. Have some idea how to determine a True course from a VFR sectional and how to convert it to a magnetic heading and then a compass heading. **Use expanded PAVE check list at end of this document.**

Diversions for Emergencies and Malfunctions: I frequently see applicants pull out a check list or start trouble shooting a malfunction while flying AWAY from a perfectly good airport they could land at. If faced with a malfunction that may threaten the safety of flight,

- 1) Turn toward the closest airport (divert)
- 2) then start trouble shooting or using check list.
- 3) If engine is still running, use the available power to get you to a safe spot.

Aircraft performance: The Cross-country planning usually leads to discussion on aircraft performance.

- 1) Know how to use the performance charts. That means knowing how to calculate a pressure altitude any place the aircraft may be, including cruise.
- 2) Converting TAS into ground speed.
- 3) Applicants frequently struggle with the practical application of IAS vs TAS. What happens to IAS compared to TAS as you gain altitude?
- 4) What speeds do you use for take off and landing at high altitude density airports? How does high altitude density affect aircraft performance on take off and landing and why? What risk mitigation strategies do you have for these operations?
- 5) Relative effect of weight, barometric pressure, temperature, altitude on aircraft performance.
- 6) How to lean engine for maximum performance at high altitude take off and cruise.
- 7) How does surface type affect performance for take off and landing? GRASS, WET, DRY, Slope?
- 8) How does bank angle and aircraft load affect stall speed? Can your aircraft stall at 100 kts?
- 9) How does CG location affect aircraft performance?

10) USE THE ACS to see the list of possible questions!!

Night operations: since applicants do not have much experience here, it becomes a grueling memorization effort. Consider every step you would make from preflight planning, preflight of aircraft, taxi, take off, enroute, finding airport and making safe landing. Consider the risks associated with each phase and how you would prepare and mitigate those risks. Use the PAVE checklist to help you. Consider how you would handle and control the airplane giving poor visual references and obstacle clearance especially with featureless terrain. What visual aids might you use both in the cockpit and in the airport environment? **Make a list and bring it to the check ride!!**- Consult the Night operations in training syllabus I sent you. And use expanded PAVE check list at end of this document.

Private Pilots: Flying into IMC as a VFR pilot is an EMERGENCY. Good judgement would dictate rapid egress plan (180 turn) and calling for help/declaring emergency. Then being able to navigate out of it as **instructed by ATC**. Pilots should know the common emergency frequency (121.5) In a real emergency you are not going to be trying to look that up or look up weather while busy flying the airplane in IMC. NOTE: several students try to look up weather on the IPAD and then fly to a VFR airport. Your iPad won't reliably get in cockpit weather without a special receiver. Then trying to fly to a VFR airport on your own in IMC is not only a violation of the regs, but demonstrates poor judgement. **Know how to use the onboard navigation equipment so you can fly to VFR weather!**

Emergency descent- make sure you know the reasons to do an emergency descent.

- 1) Make sure to clear the area first,
- 2) perform memory items
- 3) execute as detailed in the Airplane flying handbook/ACS
- 4) aircraft configuration as recommended in the aircraft specific POH.

- 5) **Please read the ACS on emergency descent!** (hint: use 30-45 degrees of bank, power off!)

Engine Failure-

- 1) **Approach to landing** – this is not the same as an emergency descent. “ABCD”
Airspeed- best glide, Best place to land, Checklist- if time permits, Door- crack it open. Do not spend time and altitude choosing between corn and soybeans please. Land into wind and with flaps.
- 2) **Engine failure at high pitch/power (take off config)** – put nose down!
- 3) **The Impossible turn back to airport**- only if you have practiced it and you know your aircraft can do it. Fatality is 2X higher turning back to airport, especially if aircraft is not capable and pilot is not trained or proficient. It is called the “impossible turn” for a reason

On take off and landings:

- 1) Applicants get nervous and forget to apply x-wind correction for all take off and landings.
- 2) Common mistake is coming in too fast, then pulling power on the descent which destabilizes the approach, then the applicant feels compelled to make the landing. **Make sure you are on speed on final approach.** (Every 5 kts makes you float 100-150 ft too far)
- 3) **Go arounds are always a good idea if you don't like the approach or it becomes destabilized.**
- 4) Don't ad lib or do something new on a check ride.
- 5) Especially don't force the aircraft onto the runway with forward yoke/stick to make the short field landing. Go around.
- 6) **All landings are graded on touch down attitude**, which should be nose high on the mains.
- 7) Soft field landings with minimum sink/descent. **Soft field landings are much easier if you have a small amount of power in before the touch down.** It slows the rate of descent.
- 8) The most common error is coming in too fast which makes accuracy landing quite challenging and gives more opportunity for ballooning, floating, skipping, porpoising, going past your touch down point etc.
- 9) **Unless instructed otherwise, All landings are to a full stop and taxi back. If you are used to doing touch and goes, be wary.**
- 10) **Overall, be sure you are on target approach speed no later than final approach.** IF you are fast and high or really low and slow, it might be better to go around than wrestle the aircraft to the ground and leave the outcome to chance.

For commercial pilots on landings: I see the same errors as listed above. Diving for runway, crossing numbers with excess speed and praying it will work out. This is not what we expect of commercial pilots. You should be stabilized with target approach speed no later than 400 ft AGL

with minor changes in power all the way to the aiming point. If not, GO AROUND. In addition to proper touch down attitude, Commercial pilots are required to touch down on the centerline. **On Commercial 180 power off**, work in flaps and drag devices ahead of time. Adding flaps at the last second destabilizes your approach and makes it a gamble. If you are not doing a slip on final approach, you were too low and leaving your landing to chance. Come in on target airspeed, do not dive for runway and hope for the best. Practice this maneuver 2 or 3 times right before on day of check ride. There are no go arounds (except for unexpected hazards) and only one chance allowed on this maneuver.

Stalls: insufficient pitch attitude to induce a stall leads to a “waffling” or “falling leaf” without a clear buffet or break. This makes it hard to determine and call out the signs of the stall and subsequently recover in a timely fashion. On the other hand, pulling the nose up high and fast leads to fairly dramatic stalls and wing drops which can make it quite interesting on recovery. Slow down, take your time. **Go for the pitch attitude as you were instructed. For the private pilot, ALL stalls are to the FULL stall.** Commercial pilots the stalls are to the FIRST indication.

Steep turns: I recommend reading the ACS and the Airplane flying handbook. This should be an OUTSIDE reference maneuver. Try practicing these with the instruments covered up to polish up your skills. Also, make sure you are looking for traffic. Failure to scan for traffic during maneuvers is not within ACS standards. If you have synthetic vision, turn it off and look outside.

Starting the check ride, the examiner may ask you how you prepared for the cross country flight. Use the expanded pre-flight check list below.

Pilot-----

Currency & Proficiency
Ratings and Qualifications
IMSAFE
Other Human Factors

Aircraft--

AROW
AVIATE-A
91.205 requirements day VFR, night VFR, IFR
Weight and Balance for current flight
Pre-flight

enVironment-

Notams
Weather
Known ATC delays
Runway lengths
Alternates
Fuel Requirements
Take off/Landing distances
And
Navigation Log and Performance charts
Airspace, Obstacles and Terrain

External Factors Everything Else, Other Risks

Rudder use: There have been many pilots that struggle with coordination, having to stare at the ball. Consequently, when pilots become task saturated, coordination evaporates. See the training syllabus I sent (page 48) you on how to maintain coordination without staring at the ball or having to feel your bottom slide around in the seat. Coordinated use of rudders is required for all maneuvers in the ACS. A free training document with pictures is available upon request at fredspine@gmail.com