

Sport Pilot (Airplane) Practical Test Preparation Guide

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It's completely normal to have some pre-test jitters going into any big test, no matter how well prepared you are. It's that FEAR of the *unknown* that we all dread. At least that's how it's worked for me during my own past checkride experiences. And after 35 years in professional aviation, believe me, I've experienced quite a few. In an effort to help you eliminate a good deal of that *fear* factor and more effectively prepare for your own checkride success, I am sharing this list of questions and scenarios that I personally like to use while conducting a Sport Pilot Oral Exam, along with useful tips and practical Do's and Don'ts that will help you polish your skills for the

Flight Exam too. Now don't panic! You won't have to answer *all* of these ORAL questions on *your* checkride, but you can definitely expect questions drawn from the lists I've presented below. After combining what you learn from this Preparation Guide with your own study materials, use this guide again as you complete a *mock* checkride with your instructor. Then when you're all ready, give me a call to schedule a Practical Test that you'll actually enjoy taking because you'll be so well prepared.

I've given *you* the questions; now just give *me* the answers. It's that easy! Let's get started.

THE ORAL TEST

Certificates and Documents

1. What certificates do you need to carry with you when you are PIC (Pilot in Command) and when do they expire?
2. What certificates and/or documents must be actually in the aircraft that you fly?
3. How do you maintain currency to act as PIC on today's flight? Do any of these requirements need to actually be entered in your pilot logbook?

Airworthiness Requirements

1. What are the required maintenance inspections and frequency intervals for the plane we are flying today and how is the activity recorded? Demonstrate how you check these items in your actual aircraft logbooks.
2. What maintenance or repair operations may you conduct yourself and are there any requirements for recording such activity?
3. How do you confirm that an AD (Airworthiness Directive) is not overdue?

(**Hint:** Be *really* comfortable finding *all* these items in your maintenance logs.)

Weather Information

1. Read and discuss a typical METAR, TAF and WINDS ALOFT printout.
2. Are the heights of the clouds in these reports measured AGL or MSL and what cloud coverages constitute a Ceiling? What are the Basic VFR minimums at your airport?
3. What types of flying conditions might you expect near a Cold or a Warm Front?

Cross-Country Flight Planning

1. What checkpoints have you selected for today's cross-country flight and what landmarks are the best and easiest to see/locate while in flight?
2. Based on our planned flight time today, how much fuel are we required to have?
3. You get distracted after takeoff on a cross-country flight and 30 minutes later you finally remember that you haven't activated your VFR flight plan. What facility and frequency would you utilize to activate your flight plan from that position?

4. How did you decide on today's planned cruising altitude? What are the rules associated with VFR cruising altitudes?
5. What is the minimum safe altitude for today's flight and how did you determine this value? What do the charted MEF (Maximum Elevation Figures) indicate/guarantee?
6. How do you determine if an airport has *only* grass runways? How long are they?
7. What does an X on the runway mean and what airports can we use in an emergency?
8. How is a really tall (>1000') radio antenna depicted on the chart? What do the two numbers near the symbol mean?
9. If you wish to update your destination airport weather info while airborne, who and what frequency do you use? Any limitations with this service? (Hint: Call "Flight Watch")
10. During the landing roll the tower advises you to hold short of a particular runway or taxiway. What appropriate airport signage will you look for to comply?

National Airspace System

1. Immediately after takeoff today, what airspace will you be in and what significance does this have on your flight?
2. What are the requirements for flight into Class B and how do we get the required clearance? How would you plan on avoiding a climb into charted class B airspace?
3. Explain the Mode C Veil requirements of a Class B airspace? Are there any additional airspace/altitudes that require Mode C Transponder usage?
4. What are the requirements for Class C operations and who, what frequency do you call on? What services can we receive from a Class C airport? (Hint: RADAR)
5. Explain Class D requirements and the Class D airspace boundaries.
6. What are the minimum Ceiling and Visibility requirements for operations at Class B, C, D, E and G airports for VFR operations?

7. What are the various Special Use Airspaces and how would they affect your flight operation? Do you need a clearance to fly in an *active* MOA or Restricted airspace?
8. During today's cross-country flight, you begin to encounter reduced ceilings enroute and decide to divert to a SFC (Surface) Class E airport. AWOS indicates an Overcast layer of clouds at 900' with a surface visibility of 10 miles. With the airport in sight 9 miles away, what must you do to make a legal VFR approach and landing?
9. Describe the limitations and requirements for Special VFR operations and how do you obtain these clearances?

Operation of Systems

1. While at cruise and scanning your instruments, you notice the Suction/Vacuum pressure gauge reads "0". What instruments would be affected by this and why? What would you now use as backups to the affected instruments? How would this failure affect the remainder of your flight?
2. During the preflight inspection you did not notice the clear tape covering the static port. During the subsequent takeoff roll and initial climbout, what indications would you expect to see on the affected instruments? What actions would you take now?
3. While in cruise, you notice your oil pressure gauge reads "0". What immediate actions would you take? (Hint: Is it an actual oil pressure loss or just a bad gauge?)
4. What indications would you observe if your alternator failed in flight? If your battery subsequently became completely dead, what flight and engine instruments/systems would be affected? Would the engine still run normally? Why?
5. You are cruising at 6500' MSL when you suddenly notice the fuel gauges reading EMPTY even though you departed with full tanks only 30 minutes earlier. What could be causing this problem and how would you handle this situation?

Aeromedical Factors

1. Your passenger on today's flight is reporting symptoms of airsickness. What actions would you

take? What helpful suggestions would you give to your passenger?

2. You and your passenger begin to experience headaches and drowsiness in cruise. What do you suspect and what do you do about it?
3. You learn your passenger has just completed an afternoon of recreational scuba diving. What precautions should you take before you depart? Why?
4. What personal checklist do you use to determine if you are physiologically fit for a safe flight? (Hint: IMSAFE)
5. If your very nervous passenger begins to hyperventilate, what would you suggest to help out? Why does this help?

Performance and Limitations

1. In computing today's weight and balance, locate in the aircraft documents where you find the aircraft's actual empty weight and empty moment figures.
2. If you determine the final CG location is ahead of the forward limit, what could you do to bring the CG back within the allowable CG limits?
3. Describe the effects of extreme forward CG versus an extreme aft CG on aircraft cruise performance, stall speeds and stall/spin recovery characteristics.

4. You are about to takeoff from a grass runway on a hot summer day with an 8-knot wind and a 50-foot power line at the end of the short runway. You are at maximum gross weight so you *wisely* decide to check the required takeoff distance for this takeoff *before* you begin your takeoff roll. What is your Go/No-go decision? Suggestion: Round UP on your temps and altitudes for quick/easy computations and safer (conservative) answers. You might also want to consider and compare a downwind takeoff where there would be no obstacle to worry about. (Hint: Don't forget to adjust for the grass runway surface.)

Principles of Flight

1. In what position relative to the elevator would you expect the elevator trim tab to be if you were to set the pitch trim at the full nose up position? Why?
2. With relation to the effects of torque during a crosswind takeoff roll, which takeoff would be most adversely affected, a left or a right crosswind? How would you correct for this in either case?
3. If you were on final approach behind a large aircraft, what precautions would you take to avoid encountering his wingtip vortices?
4. What effect does a steep turn of 60° have on the airplane's load factor, stall speed and angle of attack?

THE FLIGHT TEST

Preflight Inspection

1. How would water or an incorrect fuel grade appear in your fuel sample?
2. What actions do you take if you notice a nick in the prop during your preflight inspection? Why is this an important action? (Hint: See next question)
3. What would happen and how would you know if a chunk of your prop tip broke off while in flight? What actions would you immediately take in this emergency?
4. Show all of the aircraft documents required for flight and the *current* actual aircraft empty weight and moment from the Weight & Balance data in the plane.

Cockpit Management

Note: From the moment we get into the plane together, I pretty much stop asking questions and become your passenger. So, for the remainder of this checkride guide, I will simply share with you what I would expect to see from a well-trained, competent and successful pilot applicant.

1. During your passenger briefing, don't forget the most important part. That is, tell your passenger how to **RELEASE** the seatbelt and **GET OUT** (How to **OPEN** the door). I am too often briefed only on how to buckle in and close the door.
2. Don't taxi too fast or *ride* the brakes to maintain your proper taxi speed with your power above

idle. Remember, if you're on the brakes, your power *should* be at idle.

3. Based on actual winds, use appropriate flight control positioning during taxi and do your run-up into the wind, if possible, especially if the winds are greater than 10 kts.

Airport Operations

1. During taxi out, pay particular attention to making proper ATC communications. Also, be alert for potential runway incursions and show runway signage awareness.
2. Make sure you *actually look* for traffic whenever approaching taxiways, intersections or runways BEFORE you enter them, even if you have already received ATC clearance. ATC makes mistakes too! This issue carries EXTREME importance!
3. When you are entering a traffic pattern at a non-towered airport, PLEASE, do *all* you can to AVOID overflying the airport above the traffic pattern. This is where a lot of planes all converge from any and all directions and it's very risky. Instead, be aware of the winds or get the winds and active runway info from a nearby source, like local AWOS or UNICOM. Otherwise, use your *best guess* based on earlier winds and listen on the CTAF frequency for other aircraft already in that pattern. Then you can enter the pattern appropriately, without that *risky* overflight step.

Takeoffs, Landings, and Go-Arounds

Some of the biggest problems I see during landings are due to the pilot *not* making a STABILIZED APPROACH. Review the proper stabilized approach profile in

FAA-H-8083-3A, the *Airplane Flying Handbook*. Your airplane should be on the desired approach path that will put the airplane over the runway threshold at precisely the height you wish, at the appropriate speed and with the proper flap configuration for the specified landing. Hint: As a flight instructor, I teach my students to visualize a man standing at the runway threshold holding a hula-hoop over his head. (If you're too young to know what this is, ask your mom.) When you fly your plane right through the invisible hula-hoop at the correct approach speed and configuration, all you need to do after that is make a

nice flare and landing based on the conditions. Don't forget crosswind corrections. Works every time!

1. **Soft-Field Takeoff** During the Soft-Field takeoff, be sure to get the nose up as soon as possible as you accelerate and maintain good directional control on the takeoff roll. There's a lot of P-Factor now and you *must* compensate and be able to see the runway ahead of you. (Hint: Sit up higher than normal.) Then after liftoff, don't allow the airplane to either settle to the runway again or climb out of ground effect until you have accelerated to V_y before climbing. (V_x , if obstacles exist)
2. **Soft-Field Landing** For your Soft-Field landing, make sure you *add* a bit more power for the flare and then *hold* it right to touchdown. Don't look at the Tach! Just *bump* the throttle up a bit (consistent with remaining available runway length) and leave it there until touchdown. Now, *hold it off* as long as possible and touchdown at or *very near* stall speed (with the stall warning ON). This assures a very soft touchdown at minimum speed, which is *exactly* what you want. Then keep that stick back *all the way* as you reduce power to idle as soon as those main tires begin to roll, using *little*, or NO BRAKES as necessary. Beautiful!
3. **Short-Field Takeoff** For your Short-Field takeoff, be sure to use ALL of the available runway *before* you begin the takeoff roll. Get FULL Power going before you *jump* OFF the brakes for a quick acceleration with the control yoke just a bit aft of neutral. Rotate so that you can reach the desired V_x climb attitude just as the airspeed reaches V_x . Hold that speed closely until you clear the obstacle height. Then, accelerate carefully to V_y (without sinking) before continuing your climbout. Finally, raise your flaps, if used for takeoff.
4. **Short-Field Landing** On your Short-Field landing, it's just about the same as the Soft-Field landing *except*, now you REDUCE POWER to IDLE as you *begin* your flare (going through the hulla-hoop). This reduces your float distance. Again, keep that stick *fully* back after touchdown, *use* those brakes (but DON'T skid the tires! Ouch!) and *consider* raising your flaps for better braking action, only if needed for additional braking effectiveness. (Hint: Be sure to fly

through the hulla-hoop at your desired approach speed and with FULL flaps, and you can't go wrong!)

5. **Crosswind Takeoffs and Landings** For ALL Crosswind operations, the most common problem is to reduce, or *worse*, neutralize your aileron inputs at touchdown. This is EVIL! Keep your ailerons into the wind for the takeoff too, reducing aileron control deflection only as necessary to *maintain a wings level attitude* on the takeoff roll. If your wings *aren't* level on the roll, fix it with aileron.
6. **Forward Slip to a Landing** The Forward Slip to a landing is a great tool to get down fast...provided you do it correctly! That is: Power at IDLE, full flaps (if available), ailerons into the wind, and FULL opposite rudder input. *Hold* in that *full* rudder and maintain a safe speed with a healthy dose of nose-low attitude. Be aware that you *can* even S-turn on final *while Slipping* if you're still too high. Finally, don't forget to recover from the Forward Slip when you achieve your desired descent profile. And as always, if in doubt, GO AROUND! Speaking of which...
7. **Go-Arounds** The Go-Around works best when you do the procedure in the *correct* order. Smoothly add FULL power, adjust pitch to control speed, then (if appropriate) Carb heat OFF, and finally, raise the flaps in *increments*. If you went around because of traffic on the runway, you should move over toward the UPWIND LEG side of the runway to avoid the ugly sound of two airplanes colliding.

Performance Maneuver

Steep Turns Keep your steep turns coordinated and, using a *very fast scan* between outside visual reference and your altimeter, make *small*, but timely, pitch changes to minimize your altitude excursions and *maintain* your desired bank angle. (Hint: The *slower* your altitude needle moves, the *closer* you are to the *exact* correct pitch. Don't overcorrect pitch!) Bump up your power to maintain desired speed and don't forget to keep that nose on the horizon as you roll out or you'll quickly gain 100' of altitude. Reduce power after you roll out. Just make a 360° turn at 45° of bank. (Suggested technique: Trim for level flight and *don't* adjust the pitch trim *during* the steep turns.

Also, use BOTH hands on the yoke for better pitch input sensitivity).

Ground Reference Maneuvers

1. **Turns Around A Point** You will probably only have to do ONE of the ground reference maneuvers for your checkride. My favorite is the Turns-Around-A-Point because the first thing Sport Pilots do when they get their new certificate is go do circles around their best friend's house. Go figure! So, maintain a good *safe* altitude and airspeed as you fly a nice *close* radius turn (about a quarter mile) around your selected point. (NOT a house!) In selecting a suitable area, remember to check for nearby obstructions and consider a possible engine failure during the maneuver.
2. **S-Turns** If you do S-Turns, be sure to actually reach a heading that is *perpendicular* to your road as you cross directly over it and then change directions immediately, WITHOUT any straight and level flying. Properly done, you are turning the *entire time*, but varying your bank angle to maintain the same radius around the road on *both* sides. Viewed from overhead, the track you fly over the ground *should* look like there is no wind at all. Watch your coordination and altitude.
3. **Rectangular Course** The rectangular course is what should be flown around the airport in the pattern, so fly your patterns nice and rectangular *every* time. It's a piece of cake!

Navigation

1. **Pilotage and Dead Reckoning** Your flight check will probably begin with Cross-Country Pilotage and Dead Reckoning procedures. To avoid problems here, be sure to determine where you want to be *relative* to the really BIG/VISIBLE LANDMARKS. Large bodies of water, larger cities and two-lane highways (items you can *easily* see even from a long distance) make the best checkpoints. Only use those little tiny railroad tracks, small airports, small roads or radio towers (that you will only see if you're luck enough to be right on top of them) to *positively* identify the large city you *think* you're over. The less prominent landmarks, when used as your primary checkpoints, are *way* too easy to miss. If you do miss them, you'll get behind and become easily

lost. And by the way, if you *do* become a bit lost, all is *not* lost. Don't give up! This would be a *great* time to demonstrate your LOST PROCEDURES to get yourself *un-lost*. You can still pass your ride! Hang in there and DON'T PANIC!

2. **Diversion** You will also have to demonstrate a Diversion to an alternate airport. Select an appropriate airport, based on the scenario (could be bad weather, a sick passenger, a sick plane, pick up another passenger, etc.) and proceed from your *present* (hopefully known) position, to your new destination. Fly as direct a course as possible by first turning to an *estimated* "on course" heading and then promptly begin to select and identify checkpoints that you *should* be seeing that *prove* you're actually tracking your desired course. Estimate distance and time to your new destination. Remember to fly at an appropriate VFR cruise altitude for the new course. Once I see that you know where you are all the time and arriving at your diversion airport is assured, we will proceed with the flight maneuvers portion of the checkride.

Slow Flight and Stalls

As with all your maneuvers throughout your ride, maintain an active scan and awareness for traffic collision avoidance. This is a VFR pilot's PRIMARY RESPONSIBILITY! Don't just *go through the motions* of doing your clearing turns. LOOK OUTSIDE, before, during and after completing ALL turns and maneuvers. This goes along with visually clearing ALL runways before you land on, taxi onto, OR takeoff from them, whether tower-controlled or not. Your head should literally be on a *swivel* throughout your *entire* flying career.

1. **Slow Flight** Slow Flight needs to be done at a speed *just above* the stall. Stall warning system should be active, but DON'T actually stall. Here's a time when many pilots are so engrossed in flying the plane that they completely forget to look out for traffic before they make turns in slow flight. BIG common error! Keep your banks shallow, only about 10-15°. Suggested technique: As your speed is decreasing toward your target value, maintain *altitude* using timely *pitch* inputs. When your speed approaches target, begin adding power to prevent a descent. Once on target speed,

transition to maintaining your *speed with pitch* and your *altitude with power*. A big mistake here is to wait too long to correct for altitude excursions. As soon as you see a trend, even a slight one, make appropriate adjustments immediately. If the altimeter needle is moving very slowly while you're *on speed*, don't make a *huge* power change for only a 20' error, but *do* make a correction. Finally, there's lots of Torque and P-Factor in Slow Flight so keep a good eye on your rudder coordination.

2. **Power-Off Stalls** For Power-Off Stalls, set up as though you were in the traffic pattern. Since statistically, most stall accidents occur while in the traffic pattern while turning Base to Final, I like to simulate that on checkrides. Get your plane fully configured with full flaps at the appropriate approach speed. Then reduce power to idle, or *near* idle, and raise the nose to and maintain a *stall attitude* while turning toward the simulated final approach at 15-20° of bank until the stall actually occurs (Stall buffet or break). *Then* recover smoothly using FULL power application, adjust pitch to stop the stall, add right rudder as necessary and level the wings. Maintain a safe climb attitude and accelerate to the appropriate climb speed (V_x or V_y) as you raise the flaps in increments. Remember, it's very important to *minimize your altitude loss* during recovery from *all* stall maneuvers.
3. **Power-On Stalls and Spin Awareness** For Power-On Stalls, set up your plane like you just departed an airport and on your initial climbing turn to the crosswind leg, you enter the stall. Shallow bank 15-20° with full power, maintaining the stall attitude until the stall occurs. Don't keep raising the nose until the stall happens. This results in a "Whip Stall" with an abrupt and excessive pitch drop upon stall. With power on, the Torque and P-Factor forces will be high and must be coordinated with appropriate rudder inputs. If you aren't maintaining proper coordinated flight as you enter the power-on stall, the aircraft may break to the left (or right if you've overcompensated). If this happens, this would be a great time to show your spin awareness/recovery skills. While spins are *not* normally demonstrated during a checkride, your ability to recover from one that you get yourself into, *is*.

Emergency Operations

1. **Emergency Approach and Landing** At some point in your flight, you will be faced with a simulated emergency that will require a Power Off Approach to a landing or a Go-Around. I simulate a variety of scenarios that would either cause a complete/partial engine failure or other conditions that might require you to simulate shutting down the engine yourself. Examples include fuel starvation, fuel mismanagement, carburetor icing, loss of oil pressure, engine compartment fire, prop tip separation, rough running engine, etc. The secret to success here is to *immediately* select a suitable landing site that is not too far away, then maneuver towards or over it while taking the appropriate actions based on the situation. Finally, get properly set up for the approach from a KEY position as if you were in the traffic pattern above the field. From there, it's just a simple Power Off Approach. Stay a bit *high* on energy (altitude/speed) until you are *positive* you have the runway made. From this position, you can get rid of that bit of extra energy as necessary by using flaps, a forward slip, and/or S-turns to adjust/manage your approach energy on final and land safely, or go around, as directed. Also, be sure to line up *with* the furrows if you've selected a plowed field even if this results in a crosswind landing. CAUTION: If you land across the furrows the plane may flip over during the landing roll. Otherwise, into the wind is great! Given a choice, when selecting an emergency field, (except during the winter months) a brownish green field usually indicates low cut grass or short crop heights allowing for a safer operation. Dark Green or dark black/brown usually indicates either

tall vegetation (corn) or soft, recently plowed ground. Finally, try to avoid selecting a field that requires a final approach over tall obstructions to a short field. This provides little margin for error on your part. Remember, whatever you select, you *must* make safely!

2. **Systems and Equipment Malfunction** While returning to the airport for your landings, you *may* be faced with a simulated burned out flap motor, a flap that is jammed on only one side (strong uncommanded roll when flaps are selected) or some other system malfunction that requires you to demonstrate your good aeronautical decision making, checklist usage and flying skills to cope with the problem. You'll want to be prepared to land with either partial flaps or NO flaps, or for other simulated problems, take whatever actions are appropriate.

After Landing, Parking and Securing

1. Now that your checkride is nearly complete, this would be a really bad time to let your guard down and miss an important ATC instruction, create a potential runway incursion, stop looking for conflicting traffic, stop using your checklists, or stop thinking, in general. Keep being a SAFE PILOT! You're almost there!
2. **Postflight Procedures** Remember to make the appropriate log entries if you need to report any mechanical problems you noticed during the flight. I will *always* allow you the necessary time to complete your entire parking/securing checklist at the ramp area *before* I interrupt you to shake your hand and congratulate you on your success. Congratulations!

Final Points to Consider

Since you will be the PIC (Pilot in Command) during your checkride, it's really best if you can keep yourself in that *mindset* and treat me as your passenger throughout. This will improve your performance and create a more realistic representation of your *true* knowledge and skill as PIC. Don't do or say something just because you think it's what I want to see or hear. Think and act like a PIC!

As much as we'd all *like* to be, you *don't* need to perform perfectly to pass. The test does NOT seek or demand perfection! You *will* make mistakes on your checkride. We all do. You can count on it. As your examiner, I am just as interested in seeing how you *react* to your mistakes as I am in seeing that you don't make too many of them. So, when you make those inevitable errors, do your best to recognize them and then take prompt, appropriate corrective action to fix them. The point is, do your best, but when things don't go as planned, DON'T GIVE UP! Put the mistake behind you and press on, just as if I weren't even there.

Remember that examiners cannot provide *any* instruction or assistance during the checkride. If you still require additional instruction during the checkride, you will need to get that additional instruction from your instructor. Also, if you do a maneuver that you really mess up badly, examiners are *not allowed* to provide you a second chance to do it correctly. However, misunderstanding the examiner's request or inability to complete a maneuver due to a traffic conflict, for example, would be grounds for re-doing a particular maneuver.

If you have questions or concerns with any of the problems, scenarios or flight maneuvers that I have presented here, please feel free to contact me by phone or Email. I'd be happy to expand on my explanations or answer any questions for you and/or your instructor.

Before you head out to the airport on your big day, confirm that you have ALL of your required checkride gear by referring to the Practical Test Checklist, located in your PTS (Practical Test Standards) booklet. And while you have your PTS out, it contains a ton of great points you may want to review, especially in the introduction section of that important *Key to Success* document.

After you have spent some time using this *Preparation Guide* to help you prepare for your Practical Test, I am confident you will find the checkride to be just another challenging and enjoyable flying experience. It would be my pleasure to be your examiner on this very important occasion, to present you with your new pilot certificate and be the first to congratulate you on your accomplishment. I look forward to the opportunity to fly with you soon!

Bob Schmelzer