Stan/Eval Newsletter
CIVIL AIR PATROL
UNITED STATES AIR FORCE AUXILIARY
105 S. Hansell Street
Maxwell AFB, AL 36112

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Tire Inflation

One of the most overlooked items on an aircraft preflight is tire pressure. An underinflated tire will be damaged if the wheel rolls any distance, takeoff distances become longer, and braking is affected. Underinflation is really bad! Overinflation is not as bad but can cause tread wear, but we usually don't have over inflated tires. .It's very difficult to detect an underinflated tire by just looking at it. In fact, a tire can be more than 30% underinflated and it will look identical to a properly inflated tire. By the time you can see underinflation, you are way beyond the critical inflation point. This can cause severe damage to the tire as well as affect aircraft ground performance (takeoff distance, braking distance, turning, and so forth). A tire is underinflated when the pressure is 10% under the recommended value. So, if your mains should be at 46 psi but they are only at 40 psi, you are underinflated and there is no way to tell that without a tire pressure gauge. Every CAP aircraft should have a tire pressure gauge, so let's use them. Note that all tire pressures assume a cold tire. You won't be able to accurately measure tire pressure otherwise.

Improperly inflated tires are bad because:

- They are a safety hazard
- Underinflated tires increase takeoff distance
- They will become damaged quickly and need to be replaced (read costs CAP more money)

There is a wealth of information on tire maintenance and general facts concerning aircraft tires at the Goodyear web site (Click here to go to the Goodyear site tire care manual). You can also view some very useful videos on the proper care and maintenance of GA tires (click here for the videos).

CAPP 130-3 advises that tire pressure must be checked before the first flight of the day. Check Pilots and Instructor Pilots should make sure our pilots are aware of proper tire inflation, avoid riding the brakes on taxi, or excessive braking on landing.

Six Steps to Checkride Success (Lt Col D. English)

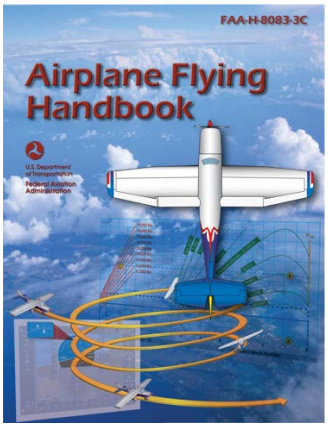
Checkrides are stressful - no doubt! Anytime we take on a major undertaking where the outcome is in doubt, uncertainty, and anxiety figure into the equation. But there are several things we all can do to eliminate that uncertainty. Preparation is the key. Here are some of the things successful checkride candidates do to prepare and make the outcome more certain.

1. Review the relevant FAA Airman Certification Standards (ACS) and CAP Standards 72-5 and 72-6 for the events and maneuvers listed on the CAPF 70-5. Those are the basis for evaluation of specific maneuvers on a CAP checkride. The ACS is a very dry document. When I'm teaching a primary student, I usually don't encourage them to study from the ACS because it's my job as a CFI to teach them to perform to ACS standards. Here's the difference—many of us learned to fly decades ago, in the meantime, the standards have changed. In 2016, the FAA started phasing out the Practical Test Standards (PTS) used for decades and introduced the ACS. It has been around for a while now, though I still find many CAP pilots who are not aware of some of the significant changes in how maneuvers are performed— stalls and slow flight, in particular. It's not good enough to rely on "That's the way I learned it and have always done it" on your checkride. Knowing

the right way to perform an event is half the battle- now you just must fly it! Here are links to the standards you need to be familiar with:

https://www.faa.gov/training_testing/testing/acs/
https://www.gocivilairpatrol.com/members/publications/standards

2. The ACS is very dry and hard to conceptualize for most pilots. We like pictures and descriptions of how to perform a maneuver. This is my primary study tool to prepare primary students, and it should be yours, too. FAA-H-8083-3C, otherwise known as the Airplane Flying Handbook.



It's the definitive "how to" guide. Studying the events and maneuvers will not only help you understand how to accomplish them correctly, it will also help you understand the logic and basis behind the maneuver. You want to understand the dynamics of an Approach to Landing stall? It's in here.

The other "how-to" guide (often overlooked by pilots after they get their certificate) is the Aeronautical Information Manual (AIM). Most of us have an out-of-date copy of the FAR/AIM book gathering dust on our aviation reference bookshelf. Trying to read the FAR portion (Federal Aviation Regulations) often leads to people giving up on the AIM portion. The AIM is the "how to" manual for understanding the FARs. Instead of starting out with "No pilot shall...", it explains things like how to enter a traffic pattern at a non-towered airport, recommended radio and position calls (most general aviation pilots are doing it wrong) and how to use Aviation Weather Services, etc.

If you are getting a Flight Review (It's not a BFR anymore!), you can anticipate a more in-depth oral examination that will cover parts of the FARs. No reasonable check pilot expects you to know every FAR verbatim, though you should at least know how and where to find the information. For example, FAR 91.205 covers what equipment a standard-category airplane must have for VFR, Night, and Instrument operations. So, when the check pilot asks you if a fuel gauge can be inoperative, don't reply with "Some mechanic told me they only needed to indicate accurately when the tank is empty." Impress your evaluator and look it up! By the way, the answer is NO- 91.205b.(9).

You can buy printed copies of the Airplane Flying Handbook and the latest FAR/AIM or you can view it digitally for free:

https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/airplane_handbook/

https://www.faa.gov/air_traffic/publications/atpubs/aim_html/index.html

3. Study the sectional chart, the IFR chart, the airport diagrams and read the Chart Supplement for your area of flight. Maybe you are unfamiliar with the airport—don't assume it's a left-hand pattern on both runways. Verify it! Did an approach change? Is there a new taxiway since you flew your last Form 5 ride? How about when the paved surface gets lengthened, and a displaced threshold is added? What are the hazards you can expect to encounter?

4. Visualization/Mission Rehearsal / "Chair Flying". Now that you have studied and understand the events and maneuvers cold, take the time to fly them in your head. Think through and verbalize each step of a properly flown maneuver. If you would rather write it down, do that. Many of us learned to "chair fly" in military flight training and sat in a straight-backed chair with a plunger for a stick and books for rudder pedals; going through the motions, talking to ourselves and putting our eyes and hand where they would go in the airplane. Yes, your family will think you are crazy--but it works!

5. Own your checkride. There's nothing more frustrating than flying with a candidate who expects the check pilot to direct every aspect of the ride. It begs the question, are YOU really the Pilot-In-Command? Two major enhancements to the CAP Stan/Eval program are the Expectations Document and Plan of Action. Neither one of these is meant to be a directive, rather to start a conversation between the check pilot and the candidate about what's going to happen prior to and the day of your checkride. If you read CAPF 70-5, it will tell you what maneuvers are required, and which are expected. The check pilot should also communicate that in the Plan of Action document. Now, it's just a matter of putting it all together in a flow that makes sense and gets it all accomplished. If the check pilot provides you with a profile to fly, take the time to analyze it and think about (rehearse) what you are going to do. "I'm going to do my air work in this area. When finished, I'm going to this airport. I need to get AWOS and review the approach I'm going to fly, then enter the pattern from the west. I'm going to do a normal landing, taxi-back and then do a short-field takeoff." If the check pilot doesn't offer you a profile, create one that you want to fly and ask the check pilot if you can use it. Pick the airports, the area for air work and run it by your check pilot for approval. You've just shown your check pilot that you are taking responsibility for the successful outcome of your evaluation. Don't just be a control-manipulator be the Pilot-In-Command and take ownership!

6. Give your check pilot a thorough briefing. Picking up ATIS and checking the latest METARs at the airports you intend to use is NOT sufficient. You should obtain a Standard Weather Briefing for your flight, even if you are VFR. You can use 1800WXBRIEF, AviationWeather.gov, ForeFlight or any approved source. Go through it with your check pilot before you step to the airplane, highlighting hazards and anything affecting your flight. Weather includes NOTAMS—don't overlook these because you are "familiar". Planning a full-stop taxi back? It might be nice to know if all the taxiways you used last time are open. Make sure to cover ground emergencies, egress, and emergencies on takeoff and landing. Rehearse your briefing beforehand. The check pilot should tell you what his or

her expectations are as well. Just because you've flown together and are both wearing a CAP uniform, does not constitute a safety briefing. Show the check pilot you are a professional and cover weather, NOTAMS and emergencies.

At the end of the day, a CAP checkride should leave you with a feeling of accomplishment and you should know more at the end than when you started. You aren't going to perfectly fly every maneuver, nor answer every question correctly. But there should be no question in your check pilot's mind that you understand the events and maneuvers, regulations, and flight procedures well enough to be a safe and competent CAP pilot. Invest in your success, knock the rust and bad habits from old knowledge, and prepare! You'll be less stressed and halfway home to a successful outcome!

Practical considerations for flying CAP Missions

The rules for flying in a CAP mission can be a bit different for pilots if you have never been in one. All missions have an Incident Commander (IC) that has the final authority for matters pertaining to the mission including any flying sortie. Although the IC has a lot of rules to follow, he or she has a great deal of latitude over the operation. For example, an IC may direct a Mission Pilot (MP) to land or operate from an airport normally not permitted for CAP. All flights must be released by the IC or a designated representative. You cannot use any FRO other than the one designated for the mission. There are other privileges an IC may exercise that can affect the MP.

CAPR 70-1 normally requires an FAA flight plan for flights more than 50 nm but when on a mission sortie, the CAP flight plan suffices (e-104). The key consideration is that the IC/AOBD (Air Operations Branch Director) knows where you are and where you are going, at all times.

It is standard practice during a sortie to call into mission base on the CAP radio every thirty minutes with flight status, if practical. This is usually just the call sign and a verbal "ops normal". This lets everyone know all is well. If it's not well, report your actual status. Anyone in the crew can make this call but it is usually the Observer's role to do so. In some cases, this may be a challenge due to terrain or other considerations, other procedures should be in place to account for this explained in the mission pre brief and communications plan. When doing a gridded search, it is typical to report when you enter the grid and when you leave a grid. However, all communications are done in accordance with a communications plan unique to the mission. Not calling in "ops normal" creates a problem for the Mission Base. Now they must assume that something is wrong and put a plan into action to find the missing airplane.

Communications with mission base are to be done without explicitly identifying your position. Typically, this is the responsibility of the Observer but falls on the MP if the MP is handling the CAP radio. So, it's ok to report "in the grid" or positions relative to a grid coordinate. But unless necessary, never mention the specific grid ("just entered 89A") and never mention your position ("I'm five miles west of Bangladesh"). CAP missions are often monitored by reporters and other nefarious individuals who may be tempted to interfere with our work (usually with good intentions but bad results). If, for example, you are looking for a downed aircraft and see it, just report "target identified 1 mile southwest of the grid northeast corner" which tells mission base exactly what they need to know without divulging it to outside parties.

During a mission, the IC in cooperation with the Operations Director, AOBD and others will make an assessment about the safety of flight for the mission considering the weather, type of operation and other factors. They may decide a sortie is not to be flown which means you stay on the ground. However, if you are given any sortie that you feel poses a significant safety threat, you as the PIC may (and should) refuse the flight. No matter what anyone tells you, you are still the PIC and the final authority for the safety of the flight. Same goes once you takeoff – it is your responsibility to abort the flight should a serious safety issue occur (generally, spilling your coffee on takeoff is not considered a serious safety threat but there are exceptions).

Mission Pilots should not expect every mission to be flown in CAVU or benign weather conditions. The nature of emergency operations is that some missions must be flown in less than desirable weather. It is the responsibility of the MP to be proficient. Except for practice missions, this is no time to start the process to become proficient. VFR pilots should be current and proficient including being comfortable with night flight. IFR pilots should be current and proficient and ready to deal with weather. If you are not night flight or IFR proficient, let the AOBD know at the very least. A MP can't just be legal but must be proficient. The safety of your crew depends on that.

As is true for any emergency service, the MP (or any crew member) should NEVER put the crew in danger. Injuring or doing something worse to any of the crew members even if done with good intentions just creates another emergency. Trying to be a hero is just not a good idea. Carrying out a mission in a disciplined and safe manner is the best approach to any mission. Don't worry, there are lots of opportunities to be a hero, just don't go looking for them. When given the opportunity to be a hero, don't do it at the expense of the crew, yourself, or anyone else.

Often, CAP sorties are flown while in contact with ATC. Be sure to let them know you are on a mission. ATC is very supportive of what we do and will work with you to accomplish your mission. Working with ATC in a professional manner will allow you and your crew to operate more effectively. Ordinarily, flying over the Dulles International Airport at 1,000' AGL is not something ATC would allow in that busy Class B airspace. However, if they know you are on a mission looking for an ELT that might be in the vicinity of the airport, suddenly the airspace will open for you, no problem (don't ask me how I know this). Just be careful to follow their directions lest you create a new emergency.

It is important for the MP to be flexible and cooperative. Some MPs have the attitude that Mission Base staff works for them but just the opposite is true so adjust your attitude if needed. There have been cases where MP's have informed the AOBD that they will only fly certain aircraft (usually the biggest and fastest) and refuse to fly the lowly C172. This is not helpful and a good AOBD will summarily dismiss that MP from the mission. Likewise, some MP's will only fly with certain crew members. Again, not a good idea. Your job is to make it easy for the Mission Base staff when and where you can. Maybe even help them out in doing paperwork or administrative tasks if it makes sense.

Boredom and Fatigue

Believe it or not, in a big complex mission boredom can be a big factor. It may come as a shock to a MP that the universe or at least the mission, does not revolve around them. You will be tasked when there is something useful to do. So be prepared to spend time with nothing to do on the ground between sorties. Bring a book or an iPad with some good videos (of CAP training of course) to bide the time. Better yet, see if you can be useful to the Mission Base staff even if that means being the errand boy (or girl) getting coffee for the base.

Fatigue can be another big issue in missions. Even a single sortie mission with just the IC, the crew and you can be challenging if done in the wee hours of the night for many hours. Multiple sorties in a day in hot humid conditions can be very fatiguing as well. Be cognizant of your duty day. The clock starts when you arrive at the Mission Base, not when you get into the airplane. Although Mission Base staff should be tracking that, with a complex mission it can be a challenge so help them out by tracking your time. Let them know when you are getting near your limit.

Operational Risk Management

Operational Risk Management (ORM) is a fundamental skill of a MP. Much is available from CAP on this important topic and won't be repeated here. The MP needs to exercise this skill in the planning and during the execution of the sortie. ORM is a team sport so be sure to include your crew!

Planning

It's important to understand that there are two general scenarios that a particular sortie may be executed under (with lots of variations). It may just be a single sortie flown from your home airport with no mission base. It's just the IC, you and your crew. The other scenario is where you have a mission base with lots of air and ground crews. This discussion assumes the second scenario with a mission base. However, a single sortie with no mission base really must do all the same things but more of the work falls on the MP and aircrew. So, this discussion is still relevant for single sortie missions.

The MP and aircrew get a lot of help from mission base staff. There is usually a morning briefing summarizing the status of the mission. A weather briefing for the day is also gone though. The plan of the day is briefed (usually the tasks and objectives to be accomplished for that day) and covers both air and ground activities. It's also a good forum to ask questions. In a big mission, the brief may be given by FEMA or other non-CAP sponsor organizations. In fact, the overall IC may be from FEMA or state emergency agency. Nevertheless, there will always be a CAP IC even if they work for a non-CAP IC.

With a mission base and a mission base staff, much of the sortie planning gets done for you. You are usually given a route, search area, and an objective (or objectives) to accomplish. The sortie will already be entered into WMIRS. Although much of the planning may have been done for you, you are always responsible for final preparations. These include the following tasks (good time to get your crew to help you with these).

- Review the pre brief section of the e104 in WMIRS and fill in any missing required information. The e104s are always important but they are critical in a real-world mission. Take them seriously. Should anything go wrong, they immediately become lawyer fodder so be careful.
- Ensure the aircraft has the appropriate fuel load.
- Do a W&B. This is important as with a full crew it's easy to be out of W&B.
- Do a final check on the weather. Have a diversion airport in mind.
- Do a preflight with special emphasis on equipment critical to the sortie.
- Do a sortie brief with your crew. This should include a discussion of CRM, ORM, and any other items appropriate for the sortie.
- Do a final go/no go decision. You are still the PIC!

Post Flight

It is critical that any squawks or aircraft deficiencies be reported immediately as the next crew must know the aircraft status. It is also a courtesy to leave the aircraft as you would want it – clean out any trash, clean the windscreen and windows and make sure all is tidy. Again, this is a team sport so don't be afraid to ask your crew for help. Replace all covers and ensure the aircraft is secured properly. There may be ground marshallers to help. If the aircraft is making a quick turnaround, you can forgo replacing the covers and may just want to chock the aircraft vice tying it down. Use your common sense and follow the direction of any ground marshallers.

Following the sortie there is normally an extensive debrief the results of which go into the e104. Key points of interest are whether the sortie objectives were met, with what effectiveness, and any other relevant information. The planning section will use this information as a basis for future tasking. For example, if the sortie didn't accomplish certain objectives new sorties will be planned. New information might drive additional objectives that need to be accomplished. Again, the e104 is the official record so be brief, complete, and accurate with no irrelevant information. If anything goes wrong or not done properly, the e104 will be prime fodder for lawyers.

Revised AIF (NHQ/DOV M. Moyer)

The new AIF (CAP Form 70-8) and AIF Standard (CAP STANDARD 72-4), dated 01 December 2021 are now published on the NHQ website. The documents have been redesigned with the assistance of the National DOV Team and your Region DOV's.

The new AIF content can be found at https://www.gocivilairpatrol.com/members/publications/forms

The new AIF Standard (CAP STANDARD 72-4) can be found at https://www.gocivilairpatrol.com/members/publications/standards

The redesign removes many tabs, mostly those including printed documents that are now found online and in the ForeFlight app. Additionally, the new AIF Standard allows for a variety of binder sizes and divider styles to assist with locally supplied material. The transition suspense is 01 March 2022, allowing a good three months to convert the fleet.

The AIF is a required document in CAP aircraft for flight, and it must be kept up to date. This redesign makes it much easier to keep the material current, but it still takes some effort. During preflight, every pilot should check the AIF to ensure it is in the aircraft and current. The AIF is as important to CAP flight legality as the aircraft registration or airworthiness certificate is to the FAA. Instructor pilots should ensure that they take the opportunity with students to ensure they teach this requirement. Check pilots should also evaluate the applicant's knowledge of CAP flight legality, including AIF materials, inspections, currency, and requirements.

An example of good pilot judgement (LtCol T. Day)

The number one cause of accidents and incidents in general aviation is poor aeronautical judgement. Good judgement is a very difficult attribute to teach and to learn. We often read stories of pilots making poor decisions causing an accident or incident. But in this example, the CAP pilot makes an excellent decision that avoided what could have been a serious accident. On 27 April 2021 Maj G. Morton was the pilot of Civil Air Patrol Cessna C182 aircraft (N399CP). The pilot checked the weather and received his flight release. The observer and the scanner were briefed as to the mission and procedures—notably hazards, weather, and G1000 operations. The pilot conducted the preflight utilizing the checklist. The pilot then pulled the aircraft from the parking space about three feet to further inspect the tire for flat spots and to check the nose gear for abnormalities. Upon receiving clearance from the tower, the pilot taxied the aircraft to the hold short line of the active runway. The pilot noted that there was a crosswind which was within the demonstrated cross wind limit. The pilot applied the appropriate crosswind controls and added power smoothly to accelerate down the runway. At about 40 knots a severe vibration was felt. The pilot immediately reduced power, pulled back on the yoke to reduce pressure on the nose wheel, and attempted to abort the takeoff. The pilot noticed that steering with rudder pedals was no longer possible. He resorted to differential braking to safely steer the aircraft off the runway and back to the parking area. Post flight inspection revealed that the bolt above the nose tire that links steering mechanism to the nose gear was missing. As the bolt could not be located the cause of the loss of the bolt cannot be determined.

The pilot's prompt decision to abort the takeoff at the first indication of trouble averted what likely would have resulted in an accident. His judgement and skilled piloting averted any injury to the crew or damage to the aircraft. His crew members confirm that the pilot handled the situation calmly, promptly, professionally, and most importantly, safely.

We can learn an important lesson from this incident. On the takeoff roll, it's a lot easier to abort the takeoff before becoming airborne than to continue the flight and try and fix it in the air. We don't need an engine failure or engine fire to consider aborting the takeoff. Any anomaly is cause for aborting. Even if you abort the takeoff only to discover on post flight that the anomaly was minor and could have been ignored, good risk management dictates you abort and then determine that the flight can still be made safely. In this case, the anomaly was not minor and continued flight (actually landing!) would have most likely resulted in an accident.

Articles for the National Stan Eval Newsletter:

These articles have been written to present ideas, techniques, and concepts of interest to CAP aircrews rather than provide any direction. The articles in this newsletter in no way should be considered CAP policy. We are always looking for brief articles of interest to CAP aircrews to include in this newsletter. CAP has many very experienced pilots and aircrew who have useful techniques, experiences, and tips to share. Please send your contribution to stephen.hertz@vawg.cap.gov. You can view past issues here.