



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

**July 2021**

Cadet Flight Training (LtCol D. Anderson) .....2  
Back to Basics - Descent Planning .....5  
Turning George Off .....6

### **Cadet Flight Training (LtCol D. Anderson)**

So, you want to provide flight training for cadets? If you're like many of us, the thought of trying to figure out the ins and outs of training cadets is a little daunting. You have all of the "standard" FAA hoops to jump through, but now you've got additional requirements with CAP.

I'm a bit of a caveman when it comes to figuring things out; I learn via trial and error. And sometimes it's taken a club to hammer a point home. The goal of this article is to share lessons learned so you can do the training effectively while following the CAP procedures. And in an attempt to make it pilot friendly, I've put it into a checklist format.

As the flight instructor you should be familiar with CAP Standards 71-1 (Aircrew Training, Airplane) and 71-6 (Cadet Wings, Cadet Wings). Most of the information in this checklist comes from those documents and CAPR 70-1.

### CADET FLIGHT TRAINING CHECKLIST

#### *PRE-FLIGHT REQUIREMENTS:*

1. Identify your student.
  - a. Wings Cadet
  - b. Self-Funded
2. Fill out CAPF 60-86 with your student (form found on CAP Publication Library webpage). This is a critical requirement and one that many Instructor Pilots may not know about. You do not want to be instructing cadets without this in place.
  - a. CAPF 60-86 describes CPPT rules for cadets, parents and instructors during flight training
  - b. Must be routed through Sq/CC, Grp/CC and WG/CC Rep
  - c. Must be completed prior to commencing training
  - d. CAPR 60-2, *Cadet Protection*, Para 2.9 discusses flight training with cadets.
  - e. CAPP P60-43 Discusses the Cadet Wings Program. This may or may not apply to you depending on whether this is a Wings Cadet, or the cadet is self-funding (a euphemism for "parent funding" in most cases)

#### *NOTE:*

Use common sense when training with cadets. It is our responsibility to protect cadets. Conduct your briefings and debriefings in a public area of the FBO, if possible. When emailing or texting the cadet courtesy copy another individual.

3. Fulfill standard FAA Requirements (IACRA Student Pilot Application, FAA Flight Physical or Basic Med, TSA requirements, and so forth).
  - a. Ground School: EAA offers free memberships to CAP Cadets. Once they are a "Young Eagle" they get a certificate for *Sporty's* "Learning to Fly" for free.
4. eServices:

#### *NOTE:*

As an instructor, you are building a *CAP Solo Pilot*. If you use the "What Do I need?" in Pilot Ops Quals for Solo Pilot, then you're on the right track. In order for a solo flight to be released in WMIRS, the student must hold a *CAP Solo Pilot* qualification.

- a. Upload the student's FAA Information to eServices and have it validated in eServices.
- b. Solo Endorsement: Scan the solo endorsement from the student's logbook and upload to eServices for approval. Then submit "Solo Pilot Training" date. It will need to be approved by Sq/CC, Grp/CC and WG/CC Rep in eServices. It's a good idea to let the Squadron, Group, and Wing know that the qualification has been entered for approval, so they are looking for it. Otherwise, it could be lost in space.

## *FLIGHT TRAINING*

### 1. WMIRS

- a. Wings Cadets: Wings Cadets get a specific mission in WMIRS. It is an A40 mission. As a Wings Instructor, you will get specific emails from CAP NHQ with additional info.

#### *CAUTION:*

Wings Cadet Flight Training has additional scrutiny in WMIRS by the Wing and NHQ. Ensure the e104 is filled out completely (both brief and debrief sections). Specify which Syllabus is being used.

- b. Self-Funded Cadets: B28 or C28 Mission?

#### *NOTE:*

If you are utilizing a CAP approved Private Pilot Syllabus (review CAPS 71-1 & 71-6 for list of approved syllabi) then the cadet is authorized to use a "B" mission. As the insurance is a little better with a B mission, it is in the cadets (and your) best interest to use it.

- i. B28: Cadet Training if using an approved syllabus
- ii. C28: Cadet Training if not using an approved syllabus.
- iii. B27: Instrument Training (post-Private Pilot Certificate) if using an approved syllabus
- iv. C27: Instrument Training (post-Private Pilot Certificate) if not using an approved syllabus

#### *Technique:*

Instructor Pilots should complete WMIRS for their students up until the solo flight. Post-Solo, students should be given training on the use of WMIRS and should create missions in WMIRS. However, the CAP Instructor Pilots are responsible for their students and must ensure WMIRS is filled out correctly and must check for accuracy for every sortie. If something is amiss, the Instructor Pilot will be held responsible.

2. Airplane: Most instructors would prefer a C172, however it is not required. CAP NHQ's vision is that you use whatever plane is normally found in your area. It is recommended that whatever aircraft you start your student is what he/she finishes in.
3. Uniform: Cadets are required to be in ABUs, FDU or flight suit. Ensure Cadets meet grooming and uniform standards.

4. Solo:

*NOTE:*

In order to have your student solo in an airplane she/he has to be a CAP Solo Pilot. See “eServices” above. The Flight Release Officer will not be able to release the solo sortie if the student is not a CAP Solo Pilot.

*Technique:*

After the cadet submits the qualification in eServices, send an email to the Sq/CC, Grp/CC and Wg/CC rep (Stan-Eval) so they know to check their approvals in eServices.

*Technique:*

Because it takes time the required approvals for Cadet Solo Pilot qualifications, I sign the Solo Endorsement several days prior to the expected solo date and upload the documentation into eServices. It’s a good idea to also alert the Squadron, Group, and Wing to expect it in their approval queue so they are looking for it. Otherwise, it may languish unnoticed.

*Technique:*

I recommend that Instructor Pilots that are teaching cadets become Flight Release Officers. Your student should be calling you prior to their solos anyway, so it is easy to release their flights after discussing the sortie with them. Its more cumbersome for someone not familiar with the Cadet to release the flight but certainly acceptable.

- a. *CAP Solo Pilots* are not authorized touch and go landings unless accompanied by an instructor pilot per 70-1
- b. Maximum Crosswind is 10 kts and max surface winds are 20kts. There are no wind waivers.

**POST FLIGHT TRAINING**

1. Check ride: FAA DPEs are authorized to fly in CAP Airplanes. Ensure a CAPF 70-9 is completed for the DPE and filed IAW CAPR 70-1. DPEs are authorized to receive payment for their services.
  - a. FAA DPEs may complete portions of the CAPF 5 for a VFR Pilot. CAPF 5 requirements are to become a *CAP VFR Pilot*. Your student will likely require training on how to complete the required CAP Forms.
  - b. If the DPE does not complete the F5, the student will require a CAPF 5 from a CAP Check Pilot after completing the check ride.

**CAUTION:**

According to the National Operations Center (NOC) there is a “known issue” with WMIRS when it comes to the “FAA Checkride” in the B28 or C28 sortie. It will not allow a FRO to release the sortie. The NOC directed the use of the “Solo Flight” C28 or B28 and then add the FAA DPE as a passenger. Stay tuned however as this may change if they fix the software.

Congratulations! If you're at the end of this checklist you've successfully put a CAP Cadet through flight training. And probably created a CAP Life Member. Well done. Please ensure your leadership knows of your accomplishment so the cadet can be recognized by NHQ.

Please feel free to share your lessons learned with me. I can be reached at [dean.anderson@vawq.cap.gov](mailto:dean.anderson@vawq.cap.gov). I would love to hear of your successes, too.

### **Back to Basics - Descent Planning**

If you fly your Piper Cub at 500', planning your descent is easy. Strap on your oxygen mask, climb up to traffic pattern altitude, and then land. But for most pilots who fly a bit higher, descending can take a little planning. If you are on an IFR flight plan, ATC will probably specify your descent with either an arrival procedure or other instructions. But sometimes what ATC gives you may not be advisable, so you need to know what is appropriate and request a different arrival. If you are VFR, then a descent is pretty much under your control. Here are some factors to keep in mind before you descend.

*Don't hit anything.* This may sound obvious but approaching an unfamiliar airport or even a familiar airport at night takes a bit of thought and planning. If you are at 6500' inbound for an airport at 500' AGL ten miles away, then a 600' per nm descent may be the answer but not if there is intervening terrain or towers in the way. Part of descent planning is to figure out how to descend safely and not just blindly descending. Folks who regularly fly in the mountains know that not only do you need to worry obstacles in the path of your descent but maneuvering around terrain may also be required to descend efficiently. Even in the flatlands, there may be some pretty tall radio towers or other obstacles in the way that one has to take into account.

*Begin your descent at an appropriate distance away:* Generally, we don't want to stay at cruise altitude, fly to the airport, and then spiral down (although in some cases that may be the best option). We should start our descent at a point that gives us a reasonable rate of descent. Something on the order of 500' per minute gives a good descent rate but there is a lot of flexibility here. Avoid any descent rate greater than 1000' per minute. Doing that near the ground is just asking for trouble and doing that at higher altitudes may make for an uncomfortable ear popping descent. A good rule of thumb is the rule of three (fast airplanes may use the rule of 4 – an equally complex rule). It's easy to remember and works pretty well assuming terrain is not a big issue. The rule is to start your descent three miles out for every thousand feet of altitude. For example, if you are descending from 8500' into an airport with a pattern altitude of 1500' you need to lose 7,000'. Using advanced math  $3 \times 7 = 21$  which means about 21 miles out we need to start descending. For our CAP aircraft, using 500' per minute works fine. But you just don't apply the rule at the beginning. Periodically check using your current altitude to see if you need to increase or decrease your rate of descent as the wind will be a factor. You also need to consider if you want to be at traffic pattern altitude a mile or so before you get to the airport (or you may want to overfly the airport for a look see at say 2,000 feet).

For the advanced student, descending 1,000' feet every three miles is, golly, about 333 feet per NM. If you are descending at a 90-knot groundspeed that's about 500 fpm. At a 120-knot groundspeed, it's about 670 fpm. Using the equally complex rule of 4 gives a descent rate of 250 feet per NM. At 90 knot groundspeed that's 375 fpm and at 120 knots 500 fpm. Another way is to use the following formulas to determine how many miles out to start a 500-fpm descent:

- At 60 kts ground speed, 2 times the thousands of feet you need to lose (rule of 2)
- At 90 kts ground speed, 3 times the thousands of feet you need to lose (rule of 3)
- At 120 kts ground speed, 4 times the thousands of feet you need to lose (rule of 4)
- At 180 kts ground speed, 6 times the thousands of feet you need to lose (rule of 6)

For example, if you need to lose 5000 feet at 500 fpm to reach pattern altitude at 120 kts ground speed: 4 times 5 (5000 feet to lose) = 20 nm

Plan a descent route. When you begin your descent, making a beeline for the airport may not be the best plan. We already noted that we don't want to hit anything on the way doing so consider terrain and obstacles in approaching the airport. We also want to consider where we want to be as we approach the airport. Where to end our approach may depend on which runway is in use, what pattern is being flown, noise avoidance and other considerations.

Use your GPS. Our G1000 and GNS400 have descent planning tools available. Using the "Direct-To" function on the G1000 you can generate a glide slope from your current position to any point you want. This can be very handy but beware that it doesn't take into account terrain or other considerations. It's just a "direct to" with a glide slope.

Use your flight planning tools: Descent planning can be done with many flight planners like Foreflight and others. Providing a vertical view makes descent planning a bit easier.

### Turning George Off

Many of our airplanes are equipped with very capable autopilots. The GFC700 has capabilities that many airliners didn't have up until a few years ago. But as capable as our autopilots are the most important thing, we need to know about it is how to turn it off. Although our autopilots can be overpowered by a pilot (that is how they are designed), fighting an autopilot is not something that you want to do.

In normal operations, pressing the auto pilot disconnect button is all that is required. But we need to be prepared for situations where the autopilot will not disconnect. If you fight the autopilot, chances are you will create a severe out of trim condition as the autopilot moves the trim to counteract the pilot's input which makes the aircraft difficult to control. So, knowing how to get George to quit can be a serious matter.

In a recent issue of "Flying Lessons Weekly" we read the following:

**"The first LESSON is how to disconnect the autopilot** in the event of malfunction. The possibilities vary based on airplane type, but will always include some if not all of these actions:

- Push the **autopilot disconnect** button. A prominent pushbutton, often mounted on the upright portion of the pilot's control wheel, will shut off the autopilot when pushed. This same button may also interrupt the operation of electric trim associated with an autopilot for as long as you hold the button down and is usually the first step of a Trim Runaway emergency checklist. But pushing such a button once (and releasing it) will turn off the autopilot.
- **Turn off the autopilot on the autopilot controller.** Self-explanatory.
- **Switch off the trim switch.** Many autopilot trim systems have a toggle or rocker switch on the panel. Turn off the switch and you turn off the autopilot's ability to control the aircraft.
- **Pull the autopilot circuit breaker.** This removes power from the autopilot, rendering it inoperative.

- **Pull the trim circuit breaker.** This removed power from the electric trim system, which is the motive force of the autopilot.
- **Turn off the avionics master switch.** In a pinch this will remove power from the autopilot and trim system.
- **Turn off the battery and alternator switches.** Overkill, perhaps, and a worst-case, but if you have to this will remove electricity from the autopilot and the trim that serves it.

**This** is the *LESSON* we talk about fairly often. **If you fly an aircraft with an autopilot, you should be able to list every possible way to turn it off** in the event it's doing something other than you want or can control.”

#### **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](mailto:stephen.hertz@vawg.cap.gov). You can view past issues [here](#).