



STAN-EVAL NOTES
CIVIL AIR PATROL VIRGINIA WING
UNITED STATES AIR FORCE AUXILIARY
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The Nall Report: The most recent Nall report documenting the general aviation safety record for CY2009 was recently released. Not surprisingly, not much has changed. Although the number of accidents was significantly lower than in previous years, this is mostly due to decreased flight activity. There were all the usual culprits: maneuvering flight, VFR into IMC, inadvertent stall/spin, and loss of control. CAP usually does better than the overall GA rate, but our record is still in need of a lot of improvement. As in most accidents and incidents, pilot error is by far the biggest single cause.

Interestingly, operations involving student pilots have a very low accident or incident rate. This is in part to the close supervision of the CFI. Think about student solo pilots. They have almost no experience, their skills are not developed, they are flying aircraft with few if any safety systems, and their technique is immature. Sounds like accidents waiting to happen and they are. But CFI's and their students work hard to manage the risks which results in a very low accident and incident rate for solo flights. It shows that we can really do a good job of risk management and exercising good judgment when we focus on that. We should approach our own flights as accidents waiting to happen which they are.

In CAP, we have several tools that make a difference in safe operations, but only if we take them seriously. The two biggest tools are Operational Risk Management (ORM) and the Form 5. Using ORM effectively in all our flight operations goes a long way in improving pilot judgment and good decision making. We can all encourage strong ORM whether we are the pilot or part of the aircrew. Instructor pilots have a special responsibility to instill an ORM culture in our pilot population. Likewise, flying disciplined Form 5 check rides ensures that our pilot population is competent, skilled, and current. Form 5 Check pilots must ensure that these check rides are done professionally and to the appropriate standards. But they need to go further in weeding out pilots who may fly a great Form 5 but are either unwilling or incapable of exercising good judgment. Although we don't want check pilots to flunk pilots capriciously nor on a whim, neither should a check pilot sign off on a pilot when their tummy doesn't feel right.

Operational Risk Management and the Tactical Risk Management Form: We encourage all aircrews to do a realistic assessment of risk before every flight. This risk assessment needs to be a team effort and not just the job of the PIC. After all, if something goes wrong, the entire crew is at risk, not just the pilot. Rather than try and list every possible risk that might be encountered (volcanic ash, earthquakes, tornadoes, and so forth), it is useful to just come up with the top three risks for the particular flight and focus on those. The top risks will change based on the flight. For example, on a CAVU day, the top risk might be other traffic whereas on an IFR day it will most likely be weather.

We can approach a known risk in several ways:

- We can mitigate it, that is, try and lessen its impact. If it's a CAVU day and the top risk is traffic, we can make sure everyone is looking for traffic and try and avoid high traffic areas.
- We can accept the risk. For example, for an IFR flight we are accepting the risk of low visibility.
- Or we can avoid the risk. For example, if the IFR conditions are beyond our comfort zone, we cancel or delay the flight.

Being able to identify and deal with risks takes practice. Some pilots' mind goes blank when you ask them what risks are associated with an upcoming flight while other flights are delayed by months because the pilot is still identifying risks that no one could really believe will happen. But with practice, you can come up with a realistic and reasonable set of risks in short order. Before every flight we should make assessing risk part of our pre flight. A helpful tool is the Tactical Risk Management form that is available on the CAP Pilots page on the NHQ website. This helps us to identify the most common risks and assign a numerical value to each risk. By adding up the numbers, it can help us to evaluate the total risk. This is one of the lessons learned from many NTSB accident reports where most untoward events result from several, not one factor. So this helps us to think about how many risks are out there and if maybe we should think about flying another day. Uploading the completed TRM to WMIRS helps document that the crew has taken risk management seriously. This is a really good idea for O rides and A missions but makes sense for any mission, even a C17.

The most dangerous risk is the unknown risk as we can't mitigate or avoid a risk we don't know is there. Part of the preflight is simply identifying what might have been an unknown risk. Situational awareness includes recognizing all of the relevant risks.

Instructor pilots and check pilots must help to enforce a risk based culture in our aircrews. Our more experienced pilots can help as well by setting an example.

The GFC700 is not a wing leveler (revisited): In a previous article we discussed how the GFC700 would not level the wings when activated but would simply hold whatever roll and pitch the aircraft was in when activated. LtCol Shelton, the WSWG StanEval officer pointed out that it is not quite that simple. The table below shows what the GFC700 will do when activated:

Bank Angle	Flight Director Response
< 6 degrees	Commands wing level
6 – 22 degrees	Commands current a/c roll attitude
> 22 degrees	Limit bank to 22 degrees

Setting flaps: Flaps are a wonderful device and our Cessna fleet has quite effective flaps. We all know that flaps change the configuration of the wing and provide:

- Lower stall speeds
- Steeper descents for landing
- Greater lift for a given airspeed
- Shorter takeoff runs
- More drag

The POH for our aircraft specify flap settings for certain operations. For example, in C182 aircraft we should set flaps at 20 degrees for a short field takeoff and full flaps for a short field landing. Our Cessna's feature electric flaps and the switch has detents corresponding to 10 degrees, 20 degrees, and full settings. Unfortunately, on some of our older Cessna's, setting the switch to the detent does not always give you the expected setting due to maladjustment of the switch. It is important for the pilot to cross check the flap setting by looking at the actual flap position on the wing. Manually adjusting the switch may be necessary to get the desired flap setting. It's what the actual flap setting is that counts, not where the switch position might be.

Propeller Safety: A preliminary NTSB report (CEN12LA125) on the propeller accident that left 23-year-old model Lauren Scruggs seriously injured provides a chilling reminder of the dangers of a leaving the engine running when loading passengers, unloading passengers or any time anyone is near a running aircraft. A spinning propeller is invisible and can be deadly for the unwary. Even experienced aircrews have been victims of propeller strikes and such accidents are usually fatal. A recent accident at KIAD by a linesman left the victim dead as she was removing a chock from a running turbo prop aircraft. We need to be especially careful in

operations that involve cadets whether it is orientation rides or missions where cadets assist with aircraft marshalling. In missions involving spinning propellers, be sure propeller safety is discussed in the safety brief.

A best practice is to shut the engine down before disembarking or embarking crew. This is especially important in any operation involving cadets or individuals unfamiliar with aircraft operations. There are very few instances where it makes sense to keep the engine running. If an operational need exists and we must keep the engine running, make sure that anyone leaving the aircraft or approaching the aircraft stay behind the strut and go behind the airplane. Even then, there is the possible threat of prop wash tossing FOD and injuring the individual.

A CAP flight or sortie is defined (with a few exceptions) as beginning with engine start and ending with engine stop (CAPR 60-1 paragraph 1.3(o)). This definition may have the unintended consequence of encouraging keeping the engine running when an aircrew needs to make an unscheduled stop (due to biological necessities or other reasons). If you find yourself in this situation, just shut the engine down and get another release. It's not worth the risk as your observer goes and takes care of business.

Using the right form: We all know CAP stands for "complete all paperwork". More and more emphasis is being put on getting the paperwork done and getting it done properly. Sloppy or inaccurate paperwork can take hours of staff time to correct as well as put the aircrew at risk for non reimbursement of flight costs, revocation of flight privileges, or worse, denial of insurance coverage. Part of this also includes making sure we are using the correct form. Sometimes the changes are cosmetic but often they are significant as in the last update to the Form 5. If you are in the position to validate paperwork in Ops Quals, be sure not only the content is correct but that the most updated form is used as well.

The Go Around (GA) button: Our G1000 aircraft have a GA (go around) button that can be very useful. It does four things:

- Disconnects the auto pilot
- Changes NAV source to GPS
- Un-suspends way point sequencing
- Commands a wings level pitch up attitude

It is designed to be used when doing a missed approach in IFR conditions and lessens the pilot workload by doing the four things with one button push. But it doesn't do everything. You still need to apply power and retract flaps when safe to do so. You will also need to re engage the autopilot once above 800 feet AGL and ensure compliance with the missed approach procedure. Some pilots use GA on takeoff in night conditions to assist in establishing a proper climb. Not a bad idea.

Upcoming Workshops: We are planning for a Mountain Flying Clinic 14-15 April at OKV. Col Duke Stanton is the poc for this if you are interested. We are also planning an Instructor Pilot/Check Pilot workshop 2 June at VAWG HQ (KFCI) as well as a Form 5 clinic 7 July at Danville. Capt S. Hertz is the poc for these. Look for more details as the planning matures.

VAWG Glider Program Restart: We are attempting to restart the glider program in VAWG by working with MDWG. If you are a CFIG or a qualified tow pilot, contact Larry Randall or Pat Riley. There are a lot of challenges to overcome to get this program on track, but there is a tremendous amount of interest and enthusiasm to get this done. The plan is to use the MDWG glider. With any luck, we can be flying cadets this spring.

Interesting videos: Here are a couple of video sites you may find interesting. The first video courtesy of Gene Harrison shows the importance of tie downs in winds:

<http://www.wimp.com/parkedaircraft/>

The second video is off the AVweb site and is a great tutorial on how to crab and kick landing in a cross wind. Although I prefer a wings low approach in a high wing aircraft, this could be a better way when CAP switches to B777 aircraft.

http://www.avweb.com/avwebflash/news/Crab_And_Kick_Tutorial_206022-1.html

Articles for the VAWG Stan Eval Newsletter: We are always looking for brief articles of interest to VAWG pilots 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 steve.hertz@ngc.com. If your article is accepted, you will get a pro rata share of the VAWG Stan Eval Newsletter subscription fees.