



STAN-EVAL NOTES
CIVIL AIR PATROL VIRGINIA WING
UNITED STATES AIR FORCE AUXILIARY

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Adjusting airspeeds for actual weight: Many airspeeds such as stall speed, maneuvering speed, and best glide are dependent on the weight of the aircraft. The POH will have these speeds for the maximum gross weight but not always for weights less than maximum. For example, if your checklist has an approach speed of 65 knots, it is probably only valid at gross weight or maximum landing weight. Using that speed when you are under gross (and most of the time you will be) results in excessive float and a longer landing distance than necessary. These airspeeds can be adjusted for the actual weight by multiplying them by the quantity $\sqrt{\text{actual weight/gross weight}}$ affectionately known as alpha. If you are computing landing speeds, replace gross weight with max landing weight. This multiplication must be done using calibrated airspeed (CAS) and not indicated airspeed (IAS). The procedure would be to take the particular airspeed of interest and convert it from IAS to CAS. Then multiply by alpha, and convert the resulting airspeed back to IAS.

This procedure only applies to airspeeds that are weight dependent. Airspeeds like V_x and V_y are not weight dependent (but you knew that, right?) but are altitude dependent. A similar consideration should be given to performance envelopes (VG diagrams). VG diagrams are only valid for a particular weight. Again, these are usually computed for gross weight. If the weight is less, you need to redraw the diagram based on the actual weight.

TAA Training Materials: CAP is upgrading some of our older C172's and C182's to more modern electronics which qualifies them as Technically Advanced Aircraft (TAA). VAWG recently acquired the ASPEN equipped C172 (N4813C/CAP 4530) which is a TAA aircraft. The national website (members.gocivilairpatrol.com) now provides access to training materials for the G1000, Aspen PFD, GMX 200, and the GNS430. It is available on the StanEval page under the training sub heading. VAWG pilots who are transitioning to or already flying N4813C should review these materials.

Flight Instructors Model Code of Conduct: The newest release of the Flight Instructor's Model Code of Conduct is now available. You can read about this on the AOPA website and a link is provided to the actual text of the code. All VAWG instructors should read this as it provides an excellent summary of the principles that all flight instructors should adhere to.

A Safety Tip from the FAA Safety Team: During landing, if your sink rate is faster than it should be, there is a tendency to increase the pitch attitude too rapidly. This can start the airplane climbing and is known as ballooning. Ballooning can be dangerous because the aircraft altitude is increasing, airspeed is decreasing and the airplane is rapidly approaching a stall. When ballooning is slight, a constant landing attitude should be held and the airplane allowed to gradually decelerate and settle onto the runway. When ballooning is excessive, it is best to EXECUTE A GO-AROUND IMMEDIATELY; DO NOT ATTEMPT TO SALVAGE THE LANDING. Power must be applied before the airplane enters a stalled condition. Do you want to know more? The Airplane Flying Handbook and other FAA manuals are available here.

New Form 5: There is a new Form 5 that has been published. It is almost identical to the previous version but has two changes. It deletes the check box for night flight (we never used this anyway) and adds a check box for turbo a/c (which VAWG does not have). Be sure to use the updated form on your next check ride.

The Final Walkaround: A good practice for VAWG pilots is to do a final walk around after the preflight is complete and just before getting into the aircraft. This highly recommended practice has caught many overlooked items such as chocks still chocked, tie downs still tied down, gas caps missing or loose, tow bars still in place, baggage doors open, and other items. Although pre flight checks should have taken care of all of this, there is always the time after the preflight is complete and before you get in the airplane for one or more items to be reset. After all, the wind is pretty gusty so you may not want to un-chock the aircraft while you are

pre-flighting. Or one of your enthusiastic crew wants to help and checks the gas after you have done so but forgets to properly replace the gas cap. Or a late arriving crew member needs to put a bag in the baggage compartment. Do the walk around after all the crew is in the a/c and just before you board. It may save you some embarrassment or could even save your life.

Back to Basics - Stall and Slow Flight proficiency: Slow flight and stalls are often an area of concern on Form 5 check rides. It is often the case that the pilot has not practiced stalls or slow flight since the last Form 5. This skill is important for the pilot to be judged a safe pilot. Instructor pilots should ensure that all pilots perform these basic maneuvers whenever practical. Slow flight and stalls requires sufficient altitude to ensure safety. Although the FAA requires a minimum 1500' AGL, 3000' AGL provides a much better margin. Slow flight should be practiced with flaps up and flaps down. With flaps up the aircraft should be flown down to the bottom of the green arc and with flaps down the aircraft should be flown to the bottom of the white arc. Once in slow flight very gentle (less than 15 degree banks) should be practiced. Be sure the pilot understands that slow flight, especially with flaps down, requires a lot of power because of the high angle of attack and the flaps. For power off stalls, have the pilot initiates a turn (gentle) while stalling as this is how most inadvertent stalls occur. Accelerated power off stalls is also useful to demonstrate that stalls can occur at any airspeed. Put the a/c in a steep turn, power to idle, ball centered, and pull back to stall.

For power on stalls, recovery should be at the first indication – don't wait for a full stall as the engine torque can cause the aircraft to spin if one is sloppy. Keep the ball centered and recover by simply lowering the nose (reducing angle of attack) at first indication and applying full power. First indication will be the stall warning horn or buffeting.

It is also important to demonstrate the use of rudder during stalls. The aileron can be very ineffective during a stall and can encourage a spin. The rudder is very effective at righting an a/c during stall recovery and any time you have low airspeed.

Pilot IFR Altitude Deviations (courtesy of the FAA): Pilot altitude deviations often occur when flying a published departure or standard arrival procedure. Many procedures have published altitudes that ATC expects the pilot to follow. A thorough understanding of the following ATC phraseology and ILS altitude information will reduce deviations and subsequent danger to pilots and passengers.

SID/STAR Phraseology	Pilot Response
DESCEND AND MAINTAIN	Instructs the pilot to descend now (at a standard rate) to the newly assigned altitude and maintain that altitude until a new altitude assignment is received. The pilot will disregard all altitudes published on the STAR.
DESCEND VIA	Instructs a pilot to rejoin the lateral confines of the arrival only. Previously issued speeds and altitudes are still required.
RESUME THE ARRIVAL	Instructs a pilot to rejoin the lateral confines of the arrival only. Previously issued speeds and altitudes are still required.
CLIMB AND MAINTAIN	Instructs the aircraft to climb now (at a standard rate) to the newly assigned altitude and maintain that altitude until a new altitude assignment is received. Pilots will disregard all altitudes published on the SID.
RESUME NORMAL SPEED	Instructs a pilot to comply with speeds published on the SID
DELETE SPEED RESTRICTIONS	Instructs the pilot to disregard all previously issued speeds including speeds on upcoming portions of an RNAV SID
RESUME THE DEPARTURE	Instructs a pilot to rejoin the lateral confines of the departure only. Previously issued speeds and altitudes are still required.

ILS Altitudes A Precision Final Approach Fix (PFAF) and/or a Glideslope Intercept Point defines the final approach segment (the end of the “feather”) as depicted in the Profile View on the approach plate. From the PFAF or Glideslope Intercept Point to the runway, use of the approach mode (APP) is the proper way to navigate the ILS. Without explicit guidance otherwise, there is no provision for capturing the glideslope beyond the PFAF or Glideslope Intercept Point and all altitude constraints must be met. Published altitudes at fixes outside of the Precision Final Approach Fix are part of the initial or intermediate segments of the approach and provide vertical separation from obstructions or other aircraft. An extension of the glideslope may not satisfy the minimum altitudes published outside the PFAF. A review of Chapter 5 in the Aeronautical Information Manual (AIM) can refresh your understanding of Departure, Enroute, and Arrival procedures. Here is a direct link which you can copy and paste into your browser:

http://www.faa.gov/air_traffic/publications/ATpubs/AIM/chap5toc.htm (This information is provided to all pilots, those with instrument ratings and those without, because the principle of following established procedures applies to all. In addition, just in case you are getting your instrument rating next week, we wanted you to have this information, as well.)

G1000 Emergency Procedures Gotcha: All G1000 pilots should understand a not so obvious implication of shutting down Bus 2. If this becomes necessary, it is critical that radio one be selected for transmit before shutting down Bus 2. If this is not done, you will not be able to change frequencies on the COM or NAV radios. For more information, consult the POH section 3 under Electrical Power Supply System Malfunctions.