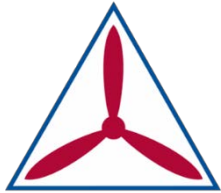




**Stan/Eval Newsletter
CIVIL AIR PATROL
UNITED STATES AIR FORCE AUXILIARY
105 S. Hansell Street
Maxwell AFB, AL 36112**



December 2021

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Winter is Coming (or already here!)

The seasons are changing and it's time to think about winter flying. Winter flying can bring enhanced performance to our fleet due to the lower density altitude. Takeoff runs will be shorter, and climbs will be faster. Here are some points to consider when flying in cold weather.

- Trying to do a leisurely but careful preflight in the biting wind and cold is a challenge. Take no shortcuts. It's also important to dress warmly in case of an off-airport landing ("Dress to Egress!"). Pilots often assume the trip will be in a nice warm airplane only to find they are facing a long freezing hike through inhospitable terrain. Make sure your crew dresses warmly as well.
- Although we should always do a thorough preflight, cold weather means that some items get special attention. Checking that the pitot-heat works in the middle of summer is probably not important unless you fly in the flight levels. However, it's critical during cold weather. Ensuring that lights work is also important when considering the shortening days. Check to be sure that the CO (carbon monoxide) detectors are not expired. Look for any signs of cracking or leaks in the exhaust system.
- In flight, it's important to check for any signs of CO poisoning. Most newer aircraft have CO detectors, and some pilots also carry their own. Your body can often detect CO poisoning before any other detector though. Be alert for signs of CO poisoning in any of your crew. Headaches, nausea, and general feelings of ill health are all possible signs of carbon monoxide poisoning. Open a window and turn off the heat to see if the symptoms go away. Sporty's has a good article on CO poisoning which you can access [here](#).
- When the temperature is below freezing, you need to pre-heat the engine unless the engine is already warm (from a previous flight or the airplane has been hangared). Preheat doesn't heat everything. Starting will strain the starter so, be vigilant for any signs of starter stress. Cold weather saps battery strength resulting in fewer amps being available. Keep in mind the thickening of oil in colder temps can be a compounding factor. Pre-heating doesn't do anything for your electronics so, expect them to come up slowly.
- Engine pre-heats and deicing can be expensive. If this is a self-funded flight, there is no reimbursement so consider that before heading out to the airport. But don't skip the preheat just because you don't want to pay. The damage you do to the engine could be very expensive. CAPR 173-3 does allow reimbursement for some Air Force Funded Missions (AFAM) but is limited to actual missions. There is no reimbursement for pre heat for O-rides and other missions even if A missions.
- Frost must be removed from all flying surfaces before flight. Experience has shown that any frost on flying surfaces is a safety hazard and must be removed even on polished surfaces. In some parts of the country, frost can be an early morning problem but gone once the sun comes up. It can also help to reposition the aircraft where the sunlight can be most effective. For days where waiting isn't going to remove the frost, you will need some help to get rid of it. If it's light frost, there are solutions you can spray on. Talk to your (AMO) Aircraft Maintenance Officer about which solutions are safe to use (you could



damage the paint if you use the wrong one and they are almost always bad on the windscreen). Be sure the frost is really gone. Anything other than light frost will need the FBO to deice the aircraft.

- It's a good practice to remove snow (broom, soft bristle brush, leaf blower...being careful not to scratch paint) right after it accumulates, even if you are not flying soon. This takes the weight off the tail and allows more time for the sun to do its work. Check carefully to make sure that snow was not brushed into mechanical assemblies that could cause controllability problems. If the snow is heavy and icy, you will risk damaging the paint or even mechanical assemblies in trying to remove it. You could order a deicer from the FBO, or just go home.



- Ice is not just a problem on flying surfaces. Frozen water in control linkages or other mechanical assemblies is an accident waiting to happen. Ice can get into enclosures that you can't see. Recently, some Citation jets had controllability problems when ice built up in the tail cone and started interfering with elevator control. The BEST way to get rid of ice is to get the aircraft somewhere warm so it will thaw out. Be sure everything is dry before you take the aircraft out again or the water will refreeze in hard-to-get places. If you don't have access to a warm hangar, then deicing may be your only option.
- Turn on your pitot-heat anytime the outside temperature is $<4.4^{\circ}\text{C}/40^{\circ}\text{F}$. This ensures that you don't lose your airspeed indicator. This is especially critical when you are IMC but, it's good practice in VFR as well as there could be moisture already in the pitot tube.
- Taxing, takeoff, and landing on icy surfaces can be challenging or even impossible (Ok, I hear the ski plane pilots laughing). Snow or ice on taxiways or runways may mean cancelling a flight even after the snowplows do their job. Taxiing, takeoff, and landing in a cross wind can cause loss of control due to the slick conditions. Make sure your controls are set to counteract the wind. Your tires may not provide much traction at all, and there may be little or no braking. Even if flight is possible, you will find that the ordinarily smooth runway is now very rough due to the snow and ice. The crosswind limit on CAP aircraft is 15 knots but may not be achievable on wet or contaminated surfaces. The published demonstrated cross wind was done with a dry runway.
- Our CAP airplanes are not certified for flight in icing conditions and your preflight planning should ensure you don't go there. The best way to avoid icing is to stay in above freezing temperatures. That's not always practical but should be the objective. Foreflight and other sites have some excellent resources to predict and avoid icing, including useful PIREPs. If in doubt, simply DON'T GO! No CAP pilot should ever consider launching if there is a chance of icing in flight. If you do encounter unforeseen icing in the air, you need to deal with it immediately by exiting the icing conditions as quickly as possible (easier said than done). Anything more than trace icing is hazardous, and the trace icing may be a warning of things to come. Keep your airspeed up, don't use flaps and ensure your pitot heat is on. Turn the heat/defrost on full to keep your windscreen clear if possible. Consider carb heat if you suspect induction icing. Let ATC know and don't hesitate to declare an emergency. Remember, ATC can't fly the airplane, so aviate first. Inflight icing is extremely hazardous to small GA aircraft. Before you take off, ensure there is no chance of icing, otherwise stay home.

- Your preflight planning should ensure you never encounter snow in flight. Flying in snow is IFR and poses a serious safety hazard. If the snow is dry, chances are you will not accumulate ice, but you need to exit the conditions as quickly as possible. If the snow is wet, you are at risk of in-flight icing.
- In extremely cold conditions, your altimeter will be in error even if set properly. The following table indicates changes to approach minimums versus temperature but can also be used by a VFR pilot to estimate altimeter error due to temperature.

Table 7-2-3
ICAO Cold Temperature Error Table

		Height Above Airport in Feet													
Reported Temp °C		200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
	+10	10	10	10	10	20	20	20	20	20	30	40	60	80	90
	0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
	-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
	-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
	-30	40	60	80	100	120	140	150	170	190	280	380	570	760	950
	-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
	-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Example: Temperature - 10 degrees Celsius, and the aircraft altitude is 1,000 feet above the airport elevation. The chart shows that the reported current altimeter setting may place the aircraft as much as 100 feet below the altitude indicated by the altimeter.

NOTE: Values are to be added to published altitudes.

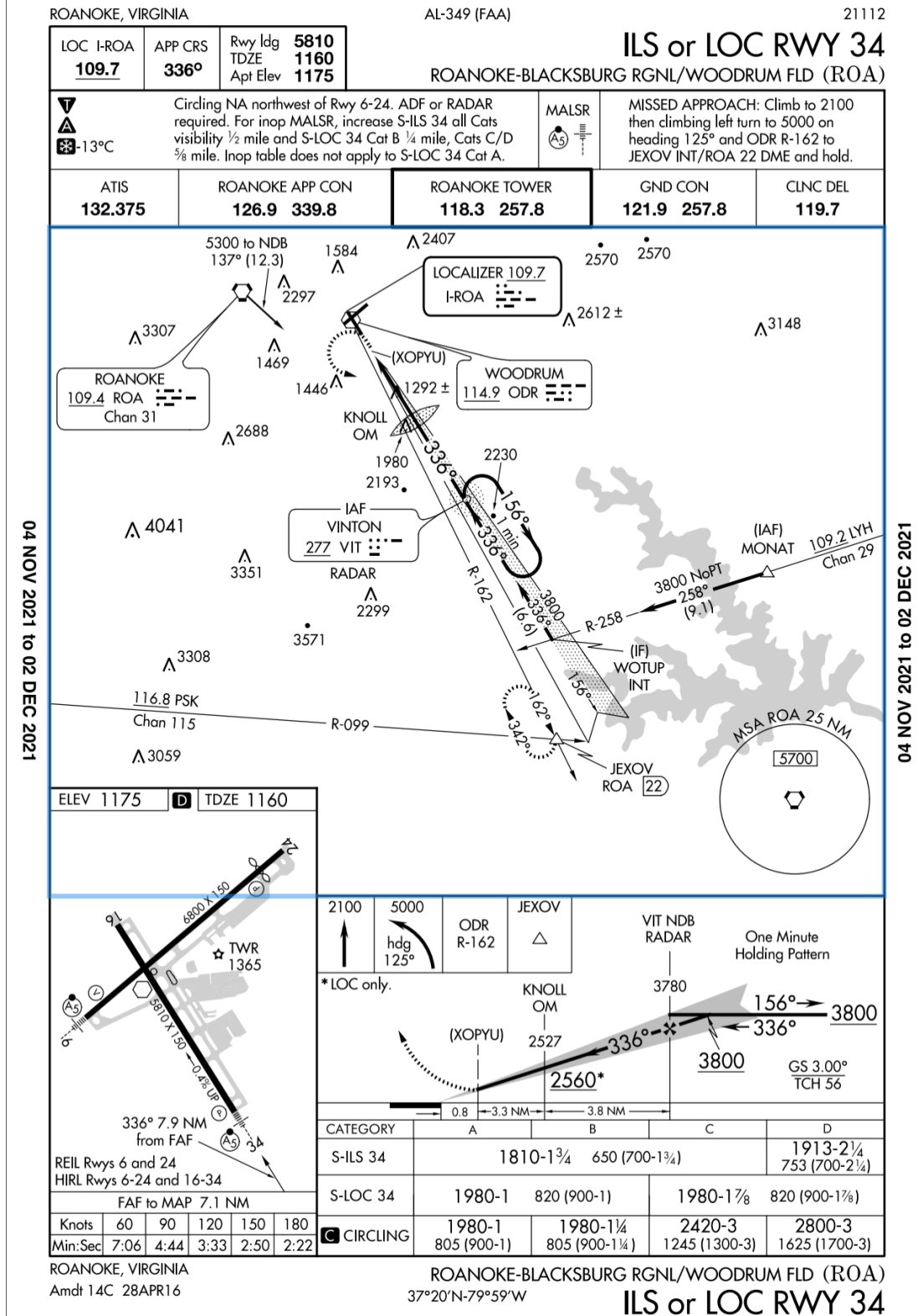
ICAO COLD TEMPERATURE ERROR TABLE

You can also read a good article that recently appeared in Flying Magazine [click here](#).

Cold Temperature Restricted Airports:

If the outside temperature is significantly cold, you may need to adjust your minimums on an approach. The reason is that altimeters can be adjusted for barometric pressure but there is no correction for temperature. While some Technically Advanced Airplanes can do just that, the G1000 does not. The Aeronautical Information Manual (AIM) Section 7.3 has an excellent discussion of cold weather airports. It also explains the procedures to follow. Forelight provides a handy list of all the cold temperature airports. Just go to “DOCUMENTS > FAA > WINTER OPERATIONS > COLD TEMPERATURE ALTITUDE CORRECTIONS.”

Each airport listed identifies at what temperature (or lower) you need to apply the correction and to what approach segment it applies (see AIM section 7.3). You may need corrections not just to the minimums but the various approach segments as well. The good news is that you don’t need to reference this table as approach plates are now annotated (if applicable). Here’s an example for KROA.



NOTE: Temperature Restricted Airports are identified by a “snowflake” icon (top left of chart) and temperature limit, in Celsius, i.e., -13°C, on U.S. Government approach charts or a “textual” Note published on commercial charting publications.

It does not specify which legs must be corrected but it is acceptable to correct all legs and the minimums (won't hurt). However, if you adjust a leg altitude for cold temperatures you must let ATC know. You don't need to tell them you've adjusted minimums.

The procedure for cold temperature restricted airport is the following:

- Adjust the altimeter to the reported setting. Never try and correct for cold temperatures by changing the altimeter to anything but the reported barometric setting.
- If the approach plate has the snowflake icon and the temperature is at or below the published threshold, adjust all altitudes on the approach by the correction factor in the table (Foreflight, or the ICAO table).
- Let ATC know that you will be flying cold adjusted altitudes.

After landing, consider the wisdom of flying in such cold weather. Maybe move to Florida to avoid all this.

Extreme Ownership – A Commander's Culture of Continual Compliance

(Col Jayson A. Altieri)

One of a Civil Air Patrol Squadron or Flight Commander's most important duties, regardless of whether or not they hold a Federal Aviation Administration (FAA) pilot rating, is the custodianship of CAP aircraft. Our CAP aircraft fleet is one of the largest in terms of size for a private corporation outside of the airline industry. Although the Wing Commander and Wing Aircraft Maintenance Officer exercise oversight (see for example CAPP P130-3), the responsibility to ensure our aircraft meet both CAP and FAA regulatory requirements lies squarely with the unit commander. While a Squadron or Flight Commander may delegate the responsibility of aircraft maintenance and upkeep to others like a unit Maintenance Officer, the unit Commander has custodianship of the U.S. Taxpayer's investment in CAP property. To ensure that commanders are in fact meeting these responsibilities, our CAP-U.S. Air Force (USAF) partners conduct periodic aircraft compliance inspections utilizing the CAP Form 71, Aircraft Inspection Checklist, in accordance with CAP Regulation 130-2, Civil Air Patrol Aircraft Maintenance Management. Recently, a CAP-USAF Liaison Region Officer conducted a scheduled courtesy compliance inspection of two aircraft (a Cessna 182S and a Cessna 182T) in the Southeast Region. The CAP-USAF inspector found no significant discrepancies on either aircraft and the following topics are three lessons learned: Aircraft Documentation, Aircraft and Hangar Cleanliness, and Unit Commander or Aircraft Custodian Presence, that resulted from that recent inspection.

Aircraft Documentation – Unit Commanders or their designated representatives must review and update the CAP Form 70-8 Aircraft Information Files (AIF) and supporting documents. Additionally, pre-inspection areas must include: AIF checked for out-of-date or extraneous documents which must be removed; Book binders and tabs that are old and damaged must be replaced; CAP or aircraft current checklists are available; Fire Bottle and VOR checks are conducted monthly (the former even if the aircraft is not flown); Pilot Operating Handbook and GPS manuals are available and within reach of the pilot station; Maintenance logbooks and Airworthiness Directives are up to date and/or old aircraft maintenance discrepancies closed out when possible. The CAP-USAF Inspector noted that both aircraft AIFs met or exceeded standards, to include that all Fire Extinguisher and VOR checks were conducted monthly. In one

case, a unit commander directed the Fire Extinguisher inspection still be conducted, despite the fact his assigned aircraft was grounded for 2-months due to a National Headquarters directed avionics upgrade.

Aircraft and Hangar Cleanliness – Unit Commanders or their designated representatives should ensure aircraft in their custody are washed and interiors cleaned monthly or more often as needed. Exterior cleaning of the aircraft should include the underside of the engine cowling and fuselage where an excessive amount of dirt and grease collects during normal flight operations. Leading edges and windscreens should be wiped at the end of each flight to reduce the buildup of dirt and insects which reduces pilot visibility and aircraft performance. A good practice is for Unit Commanders to designate a monthly (if practical) aircraft washing roster to be performed to ensure both the aircraft is cleaned and to reinforce our volunteer's taking ownership of the U.S. Taxpayer's aviation property. Many of our aircraft are valued at more than \$0.5M so take care! The CAP-USAF Inspector noted that one of the inspected units maintains a monthly aircraft washing program (including hangar cleaning) that is performed by the Squadron Commander himself (who holds no FAA pilot rating) and all pilots utilizing the assigned aircraft. Our CAP aircraft fleet is one of our organization's greatest recruiting tools and both general aviation and professional pilots will use the cleanliness of our aircraft and hangars as an initial indicator of our CAP's volunteers' ability to hold themselves a high standard of accountability and custodianship.

Unit Commander or Aircraft Custodian Presence – Unit Commanders or their designated representatives should be present during the CAP-USAF Liaison inspection of assigned aircraft. While not a CAP-USAF requirement, the presence of the Unit Commander or aircraft custodian demonstrates to our CAP-USAF partners our willingness to take ownership of our assigned property and provides an opportunity for our CAP volunteers to engage with the CAP-USAF team. Additionally, the presence of the Commander or aircraft custodian helps facilitate the inspection process by having the aircraft unlocked, open, and documents available for the CAP-USAF inspector – thus reducing delays in completing the inspection in a timely manner. The CAP-USAF Inspector during the inspection noted that both the unit's leadership was present to help facilitate the inspection process and address any discrepancies onsite that the inspector noted.

In the interest of clarity, this author uses the word “must” to reinforce a Squadron or Flight Commander's authorities and responsibilities in accordance with CAP Pamphlet 40-2, Civil Air Patrol Transition Guide: A Workbook for Incoming Unit Commanders, dated October 2020, which states, “Compliance is a substantial responsibility of commanders. CAP commanders at all levels are responsible for ensuring members under their command comply with all publications released under their authority and with all higher headquarters' directive publications. Units do what commanders' value and prioritize. A commander, who makes meeting deadlines and expectations a priority, creates a culture. In a culture of continual compliance, members work ahead of deadlines and make meeting expectations a part of their routine.” This means the unit Commander (regardless of whether they are a pilot or not) has extreme ownership of the CAP aircraft compliance inspection process and must take steps to ensure the U.S. Taxpayer's aircraft are maintained in accordance with CAP and FAA regulatory standards. A commander creating a culture of continual compliance not only meets the CAP National Commander's intent but is in keeping with Department of Defense and Aviation Industry best practices. For those Commanders who are new to the culture of continued compliance, your fellow CAP volunteers ask you adopt these processes in the interest of safety, standardization, and professionalism. For Unit Commanders who are already taking extreme ownership of the compliance process – Thank you!

Obstacle Departure Procedures

An obstacle departure procedure (ODP) is a procedure for departing an airport to ensure terrain and obstacle clearance (e.g., you won't hit anything if you follow the ODP). Many pilots are surprised to learn that there are ODPs at most airports we fly out of. Now here's the bigger surprise: if you are departing an airport with an ODP on an IFR clearance you should follow the ODP unless you are departing in visual conditions and can avoid terrain and obstacles visually. ATC does not explicitly include an ODP in your clearance, but it should be followed, and ATC expects you to follow it. A good practice when copying your clearance is to let ATC know you plan on flying the ODP so they will know where to expect you to pop up on radar.

Failure to follow ODPs can be fatal. There was a recent accident at KFRR (Front Royal) where an SR22 departed in IFR conditions from runway 28 and promptly hit a ridge just west of the airport. If the pilot had read and followed the ODP (which ATC had expected he would), he would have realized that departing runway 28 was NA. The clearance he had received from ATC did not contain the ODP (nor should it have) but it is assumed that ODPs will be followed. The reader should take the time to review the ODPs at airports they normally fly out of. ODPs are found in the Terminal Procedures Publication (TERPs) Section L (which also has the takeoff minimums). On Foreflight, the ODPs for an airport can be accessed by going to the airport page of interest, "procedures/departure/takeoff minimums." An excellent case study of how badly things can go when you ignore an airport's ODP can be found [here](#). Read and heed!

If you have a departure procedure (DP) in your clearance, you are assured of terrain and obstacle clearance (assuming you follow it!). In that case you must not fly the ODP but the DP instead. ODPs are not just for IFR flights. They are a lifesaver for VFR flight at night or in marginal conditions. Follow the ODP and you won't hit anything on departure.

Operations Note: ATD & ATA:

In the first week of DEC 2021, several Operations Documents and forms will be updated. CAPP 70-12 (Pilot Onboarding), CAPF 70-8 (AIF Content) and the CAPF 104 (Mission Flight Plan/Briefing Form). ONE of the many changes across these documents, is the way we record ATD & ATA. The new definitions and instructions will read.

ATD – Actual Time of Departure. This is the time of aircraft engine start, for the purpose of flying the sortie. This is not wheels up time. Ensure that the time entered is correct based on the time zone setting used (Zulu or local).

ATA – Actual Time of Arrival. This is the time of engine shutdown of the aircraft, at the conclusion of the sortie. This is not wheels down time. Ensure that the time entered is correct based on the time zone setting used (Zulu or local).

This change is to better align the Aircraft Hobbs time, with the length of the sortie and the time logged by crew.

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](#).