



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



**January 2024**

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**Mountain Qualified?**

When a CAP pilot says they are mountain qualified, it can be a bit confusing as there are two types of mountain qualifications. One qualifies you to do search and rescue as a Mission Pilot in mountainous terrain. The other qualifies you to simply fly in the mountains in specific states (mostly in the Rocky Mountain Region and Alaska).

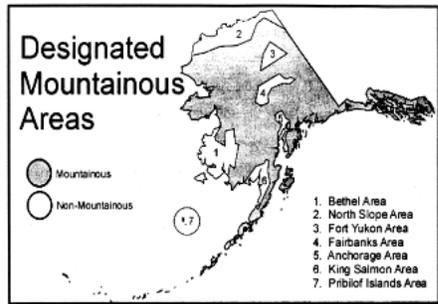
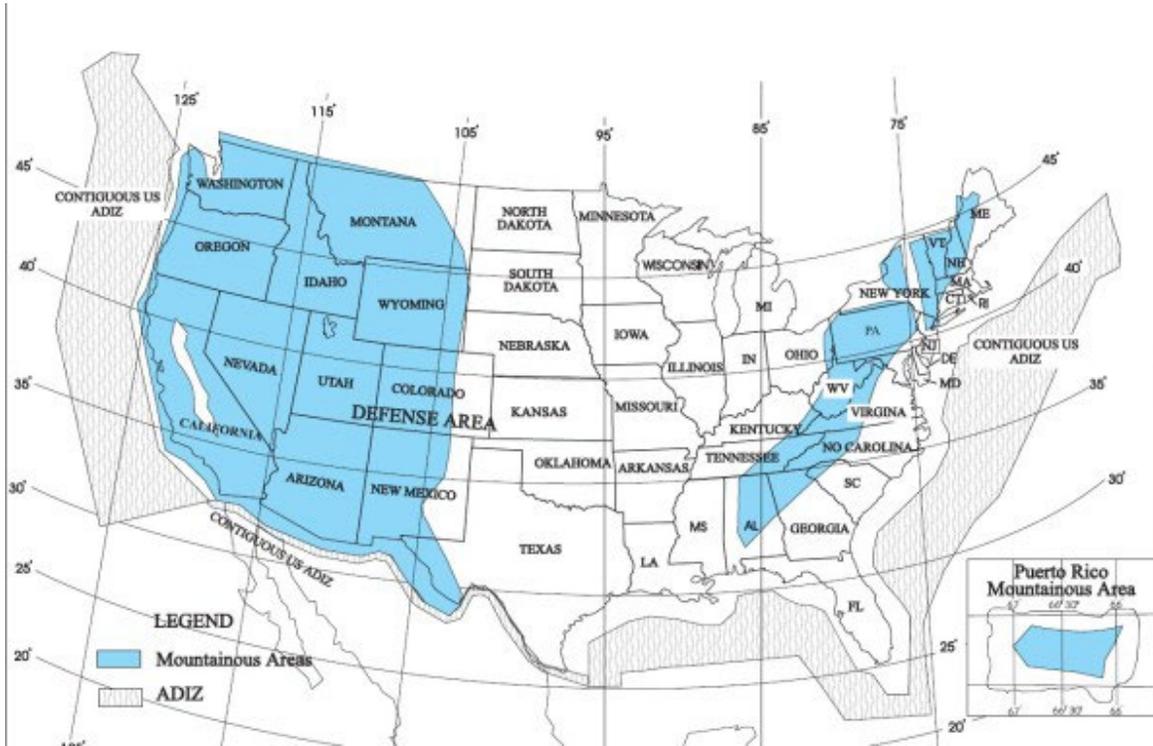
To fly a mission in mountainous terrain requires not only that you be a qualified Mission Pilot but also that you are also a mountain qualified Mission Pilot. In this case, mountain qualified means that your F91 Checkride included the mountain tasks being accomplished (signed off by a Mission Check Pilot who must also be mountain qualified) and that your MFC qualification on your 101 card is current. The F91 tasks include mountain specific searches such as contour searches and canyon searches. Without this and a current MFC, you are limited to doing missions in the flatlands. The F91 requirements for the mountain flying privilege is standardized across CAP and controlled at the national level.

CAP MISSION PILOT CHECKOUT		DATE OF FLIGHT CHECK:		
MEMBER'S NAME (print or type)	CAPID	CHARTER NO.	ICUT DATE	FORM 5 ANNUAL DATE
<b>I. ORAL DISCUSSION</b>		<b>IV. ELECTRONIC SEARCH PATT &amp; PROC</b>		
A. CAPT 116 Written Exam Passed (initial only)		A. Locate Starting Point (with & without elec aids)		
B. Mission Base Procedures (Sign in, Flight Plans, Reimbursement Forms)		B. Establish Search Altitudes		
C. Air-to-ground Signals		C. Contour Procedures		
D. Mission Safety Principles		D. Creeping Line Procedures		
E. CAP Radio Procedures (as req)		E. Aural (build-fade) Procedures		
F. Individual & Crew Equipment/Clothing		<b>V. MOUNTAINOUS TERRAIN PROCEDURES</b>		
G. Search Procedures		A. Locate Grid/Area (with & without elec nav aid)		
H. Map and Chart Reading		B. Establish Search Altitude		
<b>II. PREFLIGHT PLANNING</b>		C. Contour Search Procedures		
A. Determine Performance Limitations		D. Canyon Search Procedures		
B. Obtain Mission Briefing		E. Ridge Crossing Procedures		
C. Gridded Sectional		F. Communication Procedures		
D. Observer Briefing		G. Wind/Updrafts/Downdrafts		
E. Fuel Planning & Reserve		H. Mountain Wave Effect		
F. Ground Team Coordination		<b>VI. SAFETY AWARENESS</b>		
<b>III. VISUAL SEARCH PATTERNS &amp; PROC</b>		A. Clearing of Collision Avoidance		
A. Locate Grid or Area (without electronic aids)		B. Vigilance		
B. Establish Search Altitudes		C. Cockpit Resource Management		
C. Grid Search Patterns		D. Risk Management		
D. Creeping Line Search Procedures		E. Judgment		
E. Expanding Square or Sector Search				
F. DAART System Procedures				
G. Airborne Photographer Procedures				
I certify that I have administered a CAP mission pilot flight check as indicated and that the above named member (evaluator initials blanks):				
<input type="checkbox"/> Has demonstrated proficiency required to fly as a mission pilot, see comments below.				
<input type="checkbox"/> Has demonstrated proficiency required to fly as a mission check pilot, see comments below.				
<input type="checkbox"/> Is not qualified, requires additional training and recheck. See comments below.				
COMMENTS				

The MFC qualification on your 101 card must be renewed every three years via a SQTR. We should be careful to realize that having a mountain F91 with the MFC qualification in no way provides you with the training to fly to Aspen or Telluride!!! It simply means you know how to do mountain searches.

Unfortunately, neither CAPR 70-1 nor the instructions for the F91 indicate what constitutes mountainous terrain. So, it's up to the Wing and/or the Incident Commander if you need the Mountain F91 and MFC endorsement to support a specific mission.

The FAA has designated certain geographical areas as mountainous (see FAR Part 95 Subpart B), but it's still left to the IC or Wing commander on whether a mountain F91 and MFC are required. CAP has not adopted the FAA definition.



This [link](#) will bring up a study the FAA made of what constitutes mountainous terrain. Again, this is the FAA and not CAP.

The second type of mountain qualification allows you to fly CAP aircraft in mountainous terrain in a specific state or region. This qualification is noted on the F5 (not the F91) by an endorsement at the top of the form and the successful completion of Section 6 of the F5. The requirement for this endorsement varies by state and or region. Many states do not require a mountain endorsement at all on the Form 5 nor can you obtain one in those states. For example, neither Florida nor Virginia use the “Mountain Flight” endorsement at the top of the Form 5, however, states like Colorado and Utah do. There is no standardized requirement or process at the national level. States and regions determine their own requirements although there are efforts to standardize the requirements. See for example [here](#). Having the “Mountain Flight” qualification on your F5 does mean, at least, your Colorado based Check Pilot thinks you are competent to fly to Aspen or Telluride.

**CAP PILOT FLIGHT EVALUATION - AIRPLANE**

<input type="checkbox"/> Annual	<input type="checkbox"/> Abbreviated	Date of Evaluation	
Member's Name			CAP ID
Ops Quals Endorsements (Evaluator's Initials)			Aircraft Make and Model
<input type="checkbox"/>	Instrument Demo	<input type="checkbox"/>	G1000 VFR
<input type="checkbox"/>	High Performance Demo	<input type="checkbox"/>	G1000 IFR
<input type="checkbox"/>	Complex Demo	<input type="checkbox"/>	G1000 TP
<input type="checkbox"/>	Turbo Aircraft	<input type="checkbox"/>	Mountain Flight
Other Endorsements:			Orientation Pilot
			Instructor Pilot
			Check Pilot
			Airplane Class
			Sortie Flight Time

Section 1. FAA ACS Tasks for VFR Evaluation				
I. Preflight Preparation	Q	QT	U	V NP
A. Certificates and Documents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Airworthiness Requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Weather Information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

VI. Navigation	Q	QT	U	V NP
A. Pilotage and Dead Reckoning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Navigation Systems and Radar Services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Diversion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B. ATC Clearance and Traffic Procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Holding Procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Intercept/Tracking Courses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

F. Non-Precision Approach	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Circling Approach (verbal at a minimum)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Missed Approach	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 5. CAP G1000 IFR Endorsement				
XVI. CAP G1000 Instrument Tasks	Q	QT	U	V NP
A. Autopilot Instrument Procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. WADS and RAIM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 6. CAP Mountain Flying Endorsement				
XVII. Preflight	Q	QT	U	V NP
A. Wind Direction and Turbulence Zones	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Flight Information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Flight Limitations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

XVIII. Inflight	Q	QT	U	V NP
A. Identify Approach Tactics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. ID Areas of Turbulence and Downdrafts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Canyon Flying	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 7. CAP Turbo Aircraft Endorsement				
XIX. Preflight	Q	QT	U	V NP
A. System Knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

XX. Inflight	Q	QT	U	V NP
A. Run-up and Takeoff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The Wing or Region sets the requirements for this endorsement. Although each Wing is different, the Colorado Wing Supplement to CAPR 70-1 is illustrative and states:

“7.3.1. Added. COWG Mountain Flight Training. To obtain or renew a Mountain Flight Endorsement on a CAPF 5, the pilot must present a completed COWG Form 9 or equivalent training, documenting mountain flight training to the check pilot. Non COWG training will be submitted to the COWG DO or DOV for approval prior to the CAPF 5 check ride. This endorsement is required prior to acting as PIC over terrain at or above 8000 feet MSL.”

What if you did the mountain portion in another Wing? Will it be good anywhere? According to COWG, mountain evaluation (for the purposes of a F5) outside of COWG must be approved by the COWG DO or DOV. So, it is best to ask vice than assume.

Lest there be any confusion about what constitutes mountainous terrain for the purposes of a Form 5, the Rocky Mountain Region Supplement to CAPR 70-1 states that “Mountainous terrain is defined by wings as part of their mountain flying program.” So, you must take the course to figure that out!

Another way to look at these two qualifications is that a Virginia Wing Mountain qualified Mission Pilot would not be able to fly in the Rockies above 8,000’ let alone do a mission without first qualifying with Colorado Wing for Mountain Flight.

### **Airvans Forever?**

Well maybe not, but this is of interest to all you GA8 pilots who thought the Airvan was an orphan. Click [here](#).

### **Anti-Collision Lights (Maj B. Schmelz, INWG)**

Consider yourself in the following situation. Operating a CAP C182T (or any CAP aircraft) during the day you have completed the CAP checklist, received your taxi clearance and are heading to the departure runway. During your taxi, the ground controller instructs you to contact the following telephone number after landing. You copy the number and verify it with the appropriate readback. A new distraction has entered the cockpit for the flight, one you hopefully have not heard of before. After securing the aircraft you contact the number and find yourself speaking with the FAA. You are asked to verify you were piloting Nxxxxx that departed Kxxx today at approximately that time. As you confirm yes, your mind is reviewing every step of your departure for any possible problems. Then hear the next question, "Are you familiar with FAR 91.205 regarding the operation of aircraft lights"?

Hopefully I have you thinking about this situation. Do you see a potential problem? You successfully followed the CAP checklist, under the section highlighted "Starting Engine (Using battery)" and the line "Beacon Light Switch... ..... On". But you are informed that a letter will be mailed to you documenting your violation of 91.205(b) by operating an aircraft without the anticollision lights operating.

You refer to the POH (Pilot Operating Handbook) to show compliance with the regulation, specifically section 2, the Kind of Operations Equipment List (KOEL). Cessna's KOEL shows the beacon light is not required for VFR day/night nor IFR day/night operations. The Strobe light system is required for all these operations.

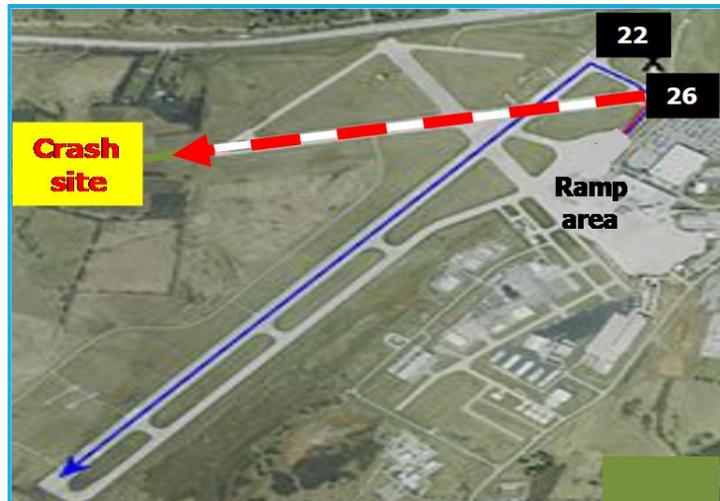
If piloting a CAP aircraft, or any aircraft, give the scenario above some thought. I have always enjoyed discussing a variety of scenarios with a group of pilots as each has been a learning experience for me.

### **Your Full Attention (Maj M. Banner, FLWG)**

After receiving clearance to taxi to runway 22 (7,003 feet long) for takeoff, pilots of a Bombardier Canadair Regional Jet 100ER (Comair flight 5191) crashed while attempting to takeoff from Blue Grass Airport in Lexington, Kentucky during night visual conditions on 27 August 2006. All 47 passengers and two of the three flight crew members were fatally injured. The surviving first officer sustained serious injuries.

#### How and Why

While taxiing to the runway, the three flight crew members were engaged in non-pertinent conversation of topics not related to the flight. With their attention distracted by conversation, the pilots lost situational awareness (SA) of their position on the airport's surface. As a result, they taxied from the ramp area and then onto the first runway sighted, runway 26 which was of insufficient length (3,500 feet long) to accommodate a safe takeoff for the jet and began the takeoff roll. Subsequently, the airplane ran off the end of the runway and crashed.

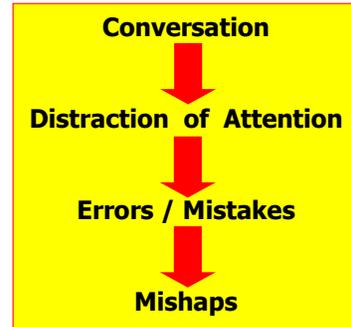


**Red dashed line indicates the runway used, blue solid line indicates the runway that should have been used.**

The NTSB determined that the probable causes of the accident were the flight crew's: (1) non-pertinent conversations during taxi, which resulted in a loss of positional awareness; (2) Failure to use available cues and aids to identify the airplane's location on the airport's surface during taxi; and (3) Failure to cross-check and verify that the airplane was on the correct runway before takeoff.

Risk Management (RM)

Although the preceding fatal mishap involved commercial air carrier pilots, conversation distractions can adversely affect U.S. Air Force Aux. / Civil Air Patrol pilots and general aviation (GA) pilots as well. Distractions, things that direct one’s attention in a different direction, predispose to loss of SA, errors, and mishaps. To mitigate distractions and promote flight safety, pilots need to apply RM controls (best / safest course of action). *An overall and salient RM control is to always apply your full attention when performing flight-related duties.*



As stated in the FAA Private and Commercial pilot Airman Certification Standards (ACS), when taxiing, as well as other flight-related flight operations the pilot applicant shall be able to demonstrate the ability to apply basic RM concepts, i.e., *identify, assess, and mitigate risks involving inappropriate activities and distractions.* For example, casual conversation, while taxiing, can distract and interrupt a pilot’s attention, compromising flight safety. Once learned for their FAA checkride, the flight crew apparently forgot the importance of identifying, assessing, and mitigating the risks of casual cockpit conversation.

Sterile cockpit rules – RM control

After reviewing a series of accidents caused by flight crews who were distracted from their flying duties by engaging in non-essential conversations and activities during critical parts of the flight, in 1981 the FAA imposed *sterile cockpit or sterile flight deck rules as a RM control.* This regulation (FAR 121.542) mandates that below 10,000 feet, only activities required for the safe operation of the aircraft may be carried out by the flight crew, and all non-essential activities in the cockpit are forbidden. For example, in-person conversation and using personal or portable electronic devices (PED) like smart phones and tablet computers are prohibited. Considering their behavior while taxiing, the Comair flight crew was in non-compliance with the regulation.

The foregoing regulation applies to Part 121 flight operations (passenger air carrier and air cargo operations). Because there is no sterile cockpit FAR for Part 91 flight operations, pilots involved in GA operations may be more susceptible to conversation-distraction type mishaps. For mitigation, the NTSB and AOPA recommend that GA pilots flying under Part 91 voluntarily abide by sterile cockpit rules.

Sterile cockpit rules are *mandatory* for Civil Air Patrol flight crewmembers (CAPR 70–1, section 9.11.2.1) to enforce a pilot’s full attention to flying duties. The regulation specifies that non-essential conversations, activities, and otherwise distracting actions shall not occur during critical portions of the flight, i.e., taxi, takeoff, climb, descent, landing and operation in high-density traffic areas or heavy ATC periods. (As an aside, as a check pilot examiner I’ve noticed many prospective Civil Air Patrol pilot candidates are unable to define sterile cockpit rules as stated in the above regulation. Violation of sterile cockpit rules during a CAPF 5 checkride is a reason for disapproval.)

Related taxiing and takeoff RM controls

In addition to employing sterile cockpit rules while taxiing, four additional RM controls include: (1) *Prior to taxiing, review the airport’s taxiways and runways* to understand and become familiar with

the airport's layout, as well as have an airport diagram available and in view at all times; (2) *Use GPS ground position software* for real time determination of your aircraft's position on the airport's surface, for example, Garmin's *SafeTaxi™* ; (3) *Look outside for taxiway and runway signs* for guidance and verification of your aircraft's position; and (4) *Communicate with tower personnel* about your aircraft's position on the airport's surface or progressive taxi instructions.

After taxiing and lining-up on the takeoff runway, and before applying full takeoff power, a final *RM control is to pause a few seconds to correlate the magnetic compass reading to the assigned takeoff runway heading*. If the compass reading correlates, takeoff; if it does not, abort the takeoff, promptly vacate the runway, and contact control tower personnel for taxi instructions to the correct takeoff runway. Had the Comair flight crew employed this RM control while on the runway they would have seen "26" not "22" as the compass reading and realized immediately their airplane was on the wrong runway, thereby averting the tragic mishap. Preceding all takeoffs, it is recommended to use the magnetic compass to validate that your aircraft is on the correct runway.

*Pre- and postflight talking hazards.*

In-person conversation with a friend distracted a pilot's attention during preflight check responsibilities leading to an expensive mishap. As the pilot of a Piper PA – 46 (Malibu) was moving his airplane from the hanger with the tow bar attached on a cold winter morning, he became distracted while in conversation with a friend arriving with two pets. He stopped moving the airplane and they immediately boarded due to the cold temperature. In a hurry to get heat into the cabin, he forgot about the attached tow bar and started the engine. He taxied to the runway and departed. Subsequently, because the nose gear was unable to retract due to the attached tow bar, the pilot chose to return to the airport. Upon landing there were sparks under the airplane due to the tow bar striking the runway and propeller. This resulted in substantial damage to the propeller, engine and nose landing gear, as well as an expensive repair bill. A pilot must give his/her full attention to properly completing all ground critical preflight tasks, like removing the nose wheel tow bar for example. *As a RM control, when engaged with preflight actions requiring one's full attention, the pilot should advise others to stand by and not engage in conversation.*



Smart phone conversation and texting distracted a pilot's attention during preflight inspection leading to a fatal mishap. In 2011 a Eurocopter AS350 B2 helicopter, operated by a company named Air Methods, was conducting a patient transport flight. Distracted by smart phone usage, the pilot failed to confirm the helicopter's fuel supply as specified on the preflight checklist. *If an item is on the checklist, it needs the pilot's full attention.* While enroute, fuel exhaustion occurred causing the helicopter to crash resulting in the deaths of the pilot, flight nurse, paramedic, and patient. As evidenced by his smart phone conversation and preflight activities, the pilot was

distracted by multiple personal issues both before departure and during the flight. As a contributing accident factor, the NTSB cited the pilot's distracted attention due to smart phone conversation and texting during ground and flight operations.

During postflight operations, smart phone conversation distracted a pilot's attention resulting in a fatal mishap. While shutting down the engine of Cessna 172 by pulling the mixture control to the idle/cuff-off position, the propeller stopped, and just at that moment the pilot's attention was distracted by a smart phone call. While talking on the phone, he was distracted from completing the shutdown procedure by forgetting to turn the ignition key to the "OFF" position and left the key in the ignition switch in the "ON" position. This rendered the magnetos active, and the engine could be re-started if the propeller were to be accidentally moved. Subsequently, while moving the airplane, a lineman accidentally moved the propeller, the engine started, the propeller struck the lineman's head causing a fatal injury.

*As a RM control for smart phone-related distractions, prior to conducting preflight inspection, inflight duties and postflight engine shutdown activities, silence and put smart phones aside and store them away from the pilot.*

#### Awareness and prevention

NASA promulgated four general RM controls / "lines of defense" for mitigating distractions: (1) Be aware that conversation is a powerful distracter; (2) Be aware of the impact of head-down tasks while taxiing and flying; (3) Suspend non-critical duties when appropriate; and (4) Treat distractions as red flags. For flight safety, take the time to identify and then apply controls to mitigate hazards like attention-stealing conversation distractions. A pilot's full attention is always required.

#### **Enjoy the View (LtCol B. Herkert, MOWG)**

I recently flew an instrument proficiency check in a Cessna 182. Despite not being afforded the luxury of using the multi-function display (MFD) on the Garmin 1000-equipped aircraft, things were going well. I managed a GPS approach, went missed and held for a turn or two. The next approach was a hand-flown ILS. The instructor told me to plan to circle and make a full-stop landing. The approach was stabilized, and my confidence was growing by the minute. The end was in sight. The instructor asked, "without looking down at your approach plates, what is the missed approach procedure?"

While I knew the initial missed approach procedure prior to commencing a circle involved climbing straight ahead, I could remember nothing else. The instructor reminded me to always assume I would have to execute the missed approach. It's a lesson I hope not to forget and has parallels to every gliding flight. While gliders are unlikely to go-around, every tow or launch involves the very real possibility of premature termination of tow (PTT).

Glider pilots should always know where they plan to land if the rope breaks or a land out is needed. Similarly, tow pilots should always be prepared to release a glider in an emergency and similarly be prepared to land in a field. Whether an off-airport landing is required for a glider or tow plane, the considerations of where to go are similar and should always be in the front of your mind. Here's a summary of considerations from my Off-Airport Landings article from the July 2017 Soaring Magazine.

-SHAPE – It doesn't have to resemble a runway. For example, a circular shape would allow the pilot to perform a landing directly into the wind. Not every suitable runway is in the shape of a rectangle.

-SIZE – The bigger the better. Be careful not to pass up a good field for a better one you can't glide to. I tend to notice fields appear much smaller the closer I come to landing in one.

-SLOPE – An uphill slope is the best and a downward slope is the worst. I would accept a downwind (within reason) upslope over a downslope with headwind. Landing downhill can be difficult. Slope can be difficult to detect until you get closer to landing and then it is probably too late to find a new field.

-SURFACE – Pick a harder surface over a softer one and look at the crops (height and type). Crops tend to be taller the closer you get. It's important to know the type of crops for the region you are flying. While flying in Montana a few years back, an instructor told me to "go for gold" when picking a field because gold fields are typically harder surfaces as a result of recently harvested wheat, versus softer green fields with growing crops.

-SURFACE WINDS – Determining wind speed and direction can be a challenge, but here are a few indicators: Whitecaps or lack of water movement on the upside side of a body of water, trees and crops swaying, smoke and dust. Preflight weather reviews of expected surface winds also help.

-STOCK (LIVESTOCK) – Some animals just don't care for people or airplanes. Some animals are attracted to aircraft and seem to think they are edible.

-SURROUNDINGS – Fences, power wires, tall trees. Our organization had a terrible accident where a helicopter crashed into some power wires. The sun made them difficult to see. Stay committed, unless there is an obvious and major problem with the initial field selected.

While there are a few additional considerations and requirements for landing off field, hopefully these items will at least provide you with an easy to remember way of evaluating a field in a pinch. Remember to enjoy the view, including the view of fields where you may need to land.

**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 should in no way 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@vawq.cap.gov](mailto:stephen.hertz@vawq.cap.gov). You can view past issues [here](#).