



The Safety Beacon is for informational purposes. Unit safety officers are encouraged to use the articles in the Beacon as topics for their monthly safety briefings and discussions. Members may also go to LMS, read the Beacon, and take a quiz to receive credit for monthly safety education.

February / March 2019

What's Wrong With "First Aid" Mishaps?

Those who are familiar with SIRS know that there is an option to mark "First Aid Only" on those minor bodily injury mishaps. To the system, this means the mishap doesn't need to be seen by the wing or region commander and doesn't need a mishap review. But ...

Let me repeat what I've said numerous times ... WE STILL NEED TO KNOW WHAT LED UP TO THE MISHAP!!! The entire goal of reporting mishaps is to find out WHAT CAUSED THEM so we can try to prevent them. We need to find out WHY they happened.

Please follow the following guidance on "First Aid" mishaps until new regulations are published and SIRS is changed:

- 1) If you are reporting a mishap in SIRS, *DO NOT* mark "First Aid Only."
- 2) If you are reporting a mishap in SIRS, *DO* tell us the factors that led up to the mishap (see the "5 M's" features at the end of this Beacon).
- 3) Wing Directors of Safety, please look at each bodily injury mishap. *IF* it only required first aid (no medical treatment) ... *AND* ... the person reporting it listed the contributing factors ... *THEN* you can mark "First Aid" and we will look at it to see if we can close it.

Send us an e-mail if you have any questions. Thanks!! safety@capnhq.gov

What Else is in the Beacon?

- There's a guest article from one of our members on some tips for being out in the cold ... the winter isn't over yet, so it is a timely reminder.
- With Maj Gen Smith's emphasis on Aircrew Professionalism, I offer my own thoughts about the important role that check pilots and instructor pilots play in Civil Air Patrol
- We look at a type of mishap that can occur when aircraft are being parked in a type of tie-down area that is found in many general aviation parking areas. Are you using risk management in these cases?
- Finally, we have a look at a minor cadet injury that was originally listed as "First Aid Only" (see above). You'll see how much we can learn from every mishap if we use the "5 M's."

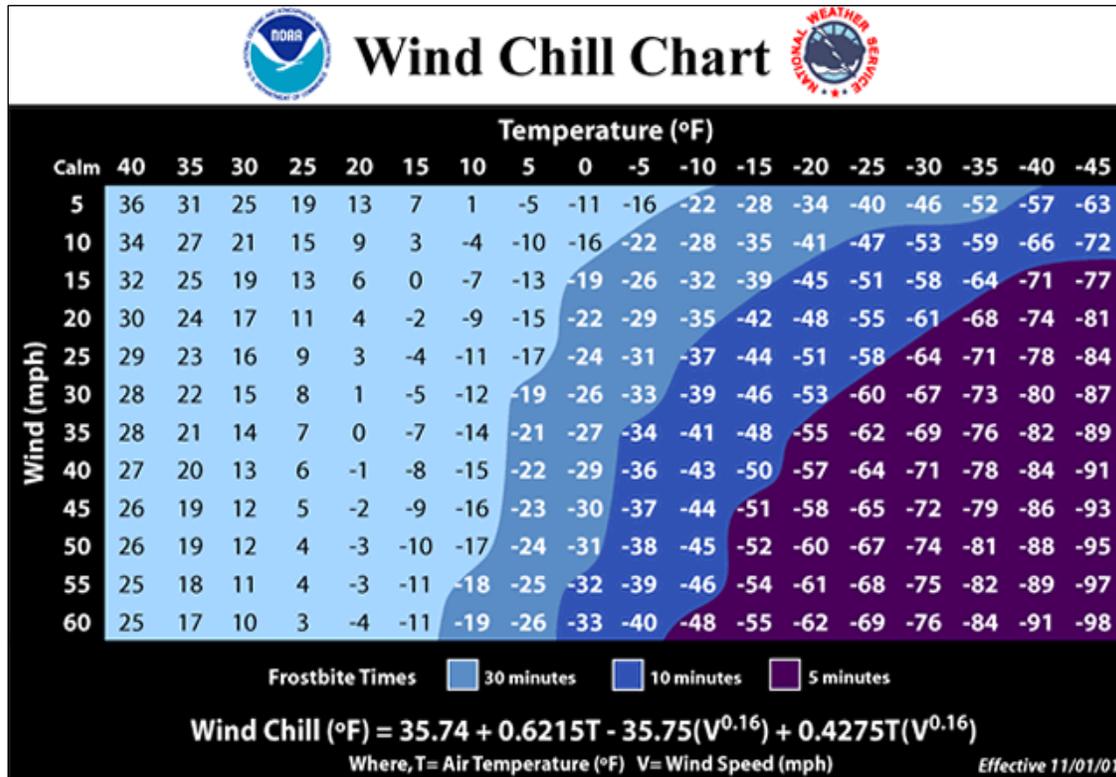
Cold Weather Operations

By 1st Lt Darien Morrison, Omaha Composite Squadron
 Edited by Collin Kightlinger, CAP/SEA

Editor's Note: As the northern half of the country thaws from a deadly cold spell, there are still a couple more months of winter ahead. Our thanks to Lt. Morrison for sending us this article with some excellent information he picked up from his arctic survival training in the Army.

At this time of year when the weather is cold, I am reminded of my Arctic training and how it could pertain to search and rescue operations. There are several risks that need to be managed in these kinds of temperatures.

One of the risks in operating during cold weather is frostbite. The main type of frostbite that you might see is 1st degree frostbite which is where the skin appears red like a sunburn. In second degree frostbite the skin is damaged a bit deeper and appears white. In a search and rescue operation it is possible to come upon someone with 3rd degree frostbite in which the skin is damaged deep enough to be blackened. Lately, some medical authorities have added 4th degree frostbite which goes deep enough to damage muscle tissue.



Most of you are familiar with the wind chill chart or have heard of wind chill. The wind chill chart shows frostbite times to exposed skin in 30 min, 10 min, and 5 min increments. Any skin can be frostbitten, but the most susceptible parts of the body are the extremities. I like to remember them as the ears, nose, fingers and toes. The best way to avoid the risk of frostbite is to keep skin covered and to dress in layers. In the Arctic we wore long underwear to wick any moisture away from the body, then quilted insulated long underwear, then fatigues (BDUs) then over whites that would cut the wind. A parka is the best type of coat to wear in extreme cold because it will keep the head and neck warm where much of your body heat is lost. Mittens are warmer than gloves because it allows the fingers to keep each other warm.

A second risk during cold weather operations is dehydration. I was very surprised that in arctic operations that we needed to consume large amounts of water, but if you think about it, when you can see your breath that is water vapor escaping from your body. Be sure to take plenty of water with you just like during warm weather operations.

A third risk during cold operations is overheating to the point of sweating. If you are properly dressed for the cold but work yourself to the point of sweating, when you slow down you will get cold much faster. To avoid the risk of overheating and sweating just remove an article or two of clothing during periods of exertion, then put them back on when you start to get cold. Additionally, it is a very good idea during cold weather operations to carry a dry pair of socks. If you are wearing warm enough foot wear your feet may sweat. In arctic operations we would change our socks every hour to an hour and a half and put the moist socks inside of our shirt to dry for the next change. Dry feet stay much warmer.

A fourth risk during extreme cold operations is one that may surprise you. This risk is usually encountered by running at temperatures below -20F. The esophagus normally warms the air before it gets to the delicate lung tissues. If you run at very cold temperatures, you could cause internal damage to your lungs since the air is taken in too fast to warm it.

Although there are risks during extreme cold weather operations such as a search and rescue, they can be managed by proper preparations, and it could mean life or death to someone we are searching for.

Who's in Charge?

In your airplane?

George Vogt, CAP/SE

A few years back, I read an article in a well-respected flying safety magazine, entitled “Who’s In Charge?” As I recall, the article was several pages long and took a detailed walk through all the applicable portions of 14 CFR regarding who could log PIC under what circumstances, including times when you could log PIC while not acting as PIC, and times you could act as PIC but not be able to log PIC, and even situations where both pilots could log PIC even though only one was acting as PIC. Even with all of that, I personally think the article fell short of its title because it never really talked about “who’s in charge.”

I’d like to offer my thoughts on the “who’s in charge” question while talking a little about the roles and responsibilities of the Check Pilot and Instructor Pilot in Civil Air Patrol. This article isn’t “guidance” or a regulation, or official training. It is just a chance to share some of my own thoughts as your CAP Chief of Safety after a career that included service as the CAP-USAF Commander and other flying Commands, and acting as an instructor, a check pilot, and check pilot evaluator on airplanes as small as the T-37 and as big as the Boeing 737. Take it for what it’s worth...

The “logging” part can be confusing. The “who’s in charge” part should be crystal clear on every flight. Yet we still see the occasional mishap on an instructional sortie or a check ride where the instructor or check pilot did not intervene to prevent the mishap and the reasoning was, “the other pilot was the PIC.” In my mind, the person receiving the check ride is *acting* as the PIC, and they are *logging* PIC, but the check pilot is *in charge*.”

I have always viewed “instructor pilot” and “check pilot” as leadership positions in any flying organization. Not only do we rely on them to be the experts in our aircraft, but we trust them to teach other pilots to meet the standards we have put in place, and then to verify those pilots maintain those standards.

Check Pilots and Instructor Pilots as leaders? Yes, and not just in the airplane. The way they walk and talk. The way they use the checklist on a preflight. The way they know, and verbalize, and follow the regulations. The way they elect to go-around when a final approach isn’t up to standards, then the ability to explain what went wrong and how to fix it. They are always being watched by newer, younger, less experienced, or new-to-CAP pilots. Their actions are demonstrating the “accepted” CAP way of flying, whether their actions are correct or not. After all, if a new CAP pilot sees a veteran CAP check pilot do it, it must be correct. Right? All you need is for one CAP Commander or DO or check pilot to rush a preflight or not use a checklist, and they have just set a standard that will be hard to erase. That’s not the standard we want to set.

The role of the IP or CP in the airplane? They may be familiar with, and even friends with, the person they are instructing or evaluating, but they have a very specific purpose on that sortie. If an instructor or check pilot is required on that flight, it is because there is some doubt whether the person in the other seat is fully qualified. If it is an annual Form 5 for example, it is done because the regulations require a pilot to “prove” they can perform those maneuvers ... that alone means the IP or CP needs to monitor the pilot’s performance with the assumption they may make an error. The CP or IP has an obligation to prompt, direct, or intervene to prevent a mishap or avoid a potentially dangerous situation. If they are “just” flying as a “safety observer” that role ought to be the same. They “observe”, and when needed they intervene to prevent a situation that isn’t “safe.”

The key to good Crew Resource Management is for everyone in the airplane to be on the same page as to duties and responsibilities in the air and on the ground. That means sitting down and discussing it before the flight. It might be something as simple as the check pilot explaining that the pilot being evaluated is to act as the pilot in command and run the mission as if the check pilot were a passenger, but the check pilot has the authority to intervene if needed ... followed by both crew members nodding their heads in agreement.

What if, heaven forbid, there is a mishap? The role of IP, CP or “safety observer” brings with it a rebuttable presumption that the instructor perhaps didn’t intervene soon enough. That doesn’t mean a mishap is the instructor’s “fault.” However, if we think of the instructor as a “risk control” that is put in place to reduce the risk of the other pilot making an error, then the mishap review should look at the effectiveness of *all* the risk controls that were in place to see what went wrong. That includes the training the pilot received, and the CRM, and the instructor’s actions on that particular sortie.

The CAP/DO National Staff is working on a new CAP pamphlet that will help guide the way aircrew evaluations are conducted. Check Pilot responsibilities will be addressed in the pamphlet, and ought to be discussed before *every* flight as a part of good CRM. It is still in draft form, but the words in the pamphlet will go something like this:

- Regardless of who is the PIC, there must be an understanding that the check pilot has the authority to assume control of the aircraft at any time and to direct flight activity.
- Check pilots have an affirmative duty/role to anticipate and remedy situations that may lead to mishaps, and their role as check pilot will be scrutinized in any mishap review that may take place.

Aircrew Professionalism is a strong emphasis item from the CAP National Commander, and he has launched the CAP Aircrew Professionalism Initiative. Information is on the [Aircrew Professionalism webpage](#). As part of the initiative, CAP aircrew members are asked to read the material and then take an LMS “quiz” wherein they commit to the tenets of the CAP Aviators Code of Conduct. The program is gaining momentum but has a ways to go. Have all the pilots in your unit made their commitment to Aircrew Professionalism? Why not?

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Fit to a “T”

Those T-shaped tie-downs can be risky!

George Vogt, CAP/SE

If you are a pilot, you have seen and used the “T” shaped tie-down parking places mapped out on airport aprons. You can see an example in the satellite photo to the right, with the “T” showing how the aircraft is to be parked, and the little white circles showing where the wing and tail tie-downs are. Sometimes the tie-downs are in the middle of a large expanse of tarmac. In many cases they are at the edge of the airport, lined up on the edge of the apron or near the airport fence. In this case, the fence shown in the satellite photo is the same fence in the photo below this paragraph.



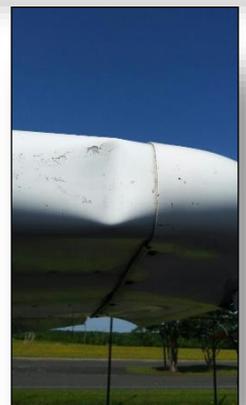
This style of T-shaped tie-downs allows the airport to provide more parking places for transient or local aircraft. When these T-shaped tie-downs are in the middle of a large expanse of apron, there can be some options for taxiing your aircraft into the parking spots provided you carefully look for other aircraft, vehicles or obstacles. However, when those same T-shaped tie-downs are located near the edge of the apron, or near a fence, or near a hangar the maneuvering options go way down, and the risk goes way up. I think it is safe to say that the airport design team intended for pilots to stop their aircraft and push them back into those spots when they park.

With that being said, we have seen some cases of mishaps caused because the pilot has elected to taxi towards the fence, or towards the edge of the apron, then do a 180° turn to taxi into the T-shaped tie-down area. All of you pilots have seen it happen. Some of you have even done it, and some do it regularly. To make it happen, it probably means the pilot is exceeding the “slow walk” speed required when taxiing within 10’ of an obstacle. Sometimes it means the pilot is taxiing within 3’ of an obstacle, which is prohibited in CAPR 70-1. In all cases, it means the pilot probably isn’t doing an adequate risk assessment.

In case you’re wondering, the wingtip in the picture to the right hit the fence shown above. Looking at the way those parking places are laid out, do you think the pilot stopped, considered what could go wrong, and what he could do to prevent it from happening? Turn the page ... there’s more.



To the right you can see an aircraft “parked” with its wingtip resting on the top of a fence. In a scenario that was very similar to the last page, the pilot was sitting in the left seat, and attempted to make a left 180 to roll into the parking space. He later said it was hard to judge the distance to the fence because of the grass embankment behind it.



In the above sequence of photos, we have a very similar scenario, but a different fence. In this case, the pilot taxied toward the fence, and began a right 180 to pull into his parking place. In the second and third photos you can see how his wingtip scraped along the chain-link fence until the wing tip came to rest against a fence post. In each of these cases, we could go into an elaborate risk management discussion about the hazard and the risk, the probability and severity of a mishap, and what risk controls should be used. But in common English, it would go something like this: “I need to park there. That fence is pretty close. I *think* I can make the turn but there’s an outside chance I’ll hit the fence and I can’t stand the results if I do ... I think I’ll shut down and push it in.” THAT, my fellow CAP members and pilots, is real-time protect-your-ego don’t-break-the-airplane risk management.

The final picture below. A very similar scenario, but a light pole instead of a fence.



IMPORTANT: We look at mishaps so we can figure out *why* they happened and how to prevent them. The common thread in each of these was inadequate risk management. To fix that, you can pledge that before you park an airplane you will stop, survey the situation, and ask yourself what can go wrong and whether you’re doing all you can do to prevent it. Throw in some CRM and ask the person with you if they agree. You’ll be a better pilot because of it.

The 5-M Method of Mishap Review

An Example

Collin Kightlinger, CAP/SEA

In a mishap not long ago, a recently joined thirteen-year-old cadet was working with his squadron to support a large community event. Helping move some material, the cadet was tasked by a senior member to move a cart containing parking cones to another location. The cadet pulled the cart which gained momentum, and the cadet could not slow down or stop the cart. Subsequently, the cart ran over the back of his foot, trapping it underneath the cart, injuring the cadet. Let's examine the circumstances and apply the 5-M method to see where the breakdown in Risk Management occurred and learn what we could have done better to prevent the mishap from happening.

First on the list is **Member**. What hazard does the member present? A new thirteen-year-old gung-ho cadet with very little CAP training is teaming with hazards. In this case he didn't possess the strength to overcome the momentum of the heavy cart. There's also a good chance he didn't have the confidence to say so, possessing a desire to say, "yes sir!" before he would ever say, "I can't."

Next is **Media**. What was the weather? What condition was the parking lot in? Was there a slope to overcome? Was there limited maneuvering space? Fortunately, there were no hazards presented by the media that contributed to the mishap, but that doesn't mean there weren't media hazards present.

Following Media is **Machine**. What condition was the cart in? Was it overloaded? We didn't find out too much about the cart, other than it being too much for one cadet to handle.

Next up is **Mission/Activity**. What hazards are specifically presented by the mission of moving a cart from point A to point B? Moving cars in the parking lot? Distance? The mission itself was fraught with hazards, and it may have been that the cadet attempted to stop the cart because a vehicle pulled out in front of him. We don't know, but many hazards existed during the mission that were not mitigated any more than the hazards that actually caused the mishap.

Lastly is **Management**. In this mishap, management plays a direct role. From the information offered, it appears the senior member didn't give the cadet any guidance other than, "move this cart from here to over there." He didn't tell the cadet how to operate the cart, what to watch out for, and apparently didn't supervise the cadet once he began moving the cart. If the senior member had supervised, he may have been able to intervene and keep the cadet from getting injured. With Risk Management a key part of the "Character" element of the cadet program, did the senior member take this opportunity to reinforce risk management skills with that cadet?

So, after all was said and done, a cadet was injured because he was unable to stop a cart that was too heavy, that he didn't know how to operate, and was unsupervised while engaged in the activity. If the hazards had been identified prior to executing the plan, it is very likely that the mishap would not have occurred, or that the senior member may have concluded that the cadet was not suited to carry out the task – either way, mishap averted.

The 5-M method is a great tool for both risk management prior to an event and during a mishap review. It can help us brainstorm hazards from all areas of concern and lead our choices for risk controls prior to an event or find the causes and contributing factors in a mishap.

NOTE: Turn the page and you'll see a reprint of the "5 M's" and how they can (and should) be used for every mishap review. The "5 M's" is an essential item in every Safety Officer's toolkit.

The “5 M’s”

A “cheat sheet” for mishap reviews

George Vogt, CAP/SE

For all of you out there who are appointed as a review officer for a mishap, and find yourself wondering what it is you’re supposed to look at, I assure you that help is on the way!

Coming with the new safety regulation will be some more specific guidelines on who reviews mishaps and what those mishap reviews should look at. We’ll follow that with instructional material on how to actually do a review and how to write a mishap review report ... there really isn’t much guidance on that right now. The final vision will be for SIRS to guide you through that process in an automated format. But for now, here’s a glimpse into the future...

“5 M’s.” It is easy to look at the mishap itself, and what might have happened right before it, but how do we know what to look for when we are considering all the factors and processes and circumstances and policies that might have influenced the mishap? The “5 M’s” will be used to guide the reviewer through that process. The “M’s” stand for **Member**, **Medium**, **Machine**, **Mission**, and **Management**. Let’s take a look at how these “M’s” can lead you through the review process:

Member: Take a look at all the information about the person themselves. A few examples:

- Was the member trained for the mission or activity?
- Were they physically able to perform the task?
- Were there human factors like fatigue, dehydration, or illness that might have been a factor?

Medium: This refers to the environment at the time of the mishap and what effect it might have.

- What was the weather and what effect did that have on the mishap? Heat? Cold? Rain?
- How about the terrain? Was the “playing surface” appropriate for the activity?
- What was the lighting? Was it noisy? Distractions? Anything else about the “conditions?”

Machine: This looks at the airplane, the vehicle, and ALL the equipment that might have been used.

- Was the equipment well-suited to the task or mission?
- Was the equipment well-maintained? Well designed? What “broke” and why?

Mission: This refers to how the actual mission or activity was planned and executed.

- Was the activity well-planned?
- Was a Risk Assessment accomplished before the activity and were risk controls actively used?
- What happened during the activity, and what decisions were made?
- Was the mission or activity too complex for the members involved?
- What was the chain of events that led to the mishap; what went wrong?

Management: This refers to the organizational factors that influence our activities and missions.

- What do the regulations and written guidance say about the activity?
 - Are they clear? Easy to understand? Were they followed?
- Is there any other informal guidance or local standards or “the way we’ve always done it?”
- Who was in charge? Was there adequate supervision?
- Did the plan define everyone’s role, and did everyone perform that role?

What next? Hopefully, by using the “5 M” approach, you were able to take a close look at all the things that might have played a role in the mishap. But what do you do with that information?

In most cases, you ask the question, “why?”

For example, you might look at the “Member” and see that the member wasn’t trained to drive that kind of vehicle. If the training is a risk control meant to prevent this type of mishap, then asking “why” can help you find out where things went wrong. “Why” did the member feel the need to drive the vehicle if they weren’t trained? “Why” weren’t they trained?

Another common example can be seen when we look at “Management.” No risk assessment done before the activity? “Why?” No clear guidance on the right way to do this task? “Why?” Did this cadet activity lack the proper supervision? “Why?”

You get the idea. Don’t be satisfied that you found “the cause.” Take the time to find out what allowed that “cause” (there may be several) to happen, and then you can figure out what changes can be made to control the risk(s) that you’ve identified.

NFWOD? A term you will be hearing more of is “Non-Factor Worthy of Discussion” (NFWOD). As you look through all the factors that influenced the mishap, you might find other issues that are worth looking into. They might not have anything to do with the actual mishap, but they are “worthy of discussion.” You might find some outdated guidance. You might witness an inconsistency in the way members are interpreting a certain regulation. You might even find a stairway railing that needs to be replaced. Those might not have influenced this mishap, but they are worth noting and letting the appropriate leadership know what you found so it can be addressed/fixed/improved.

LET’S PRACTICE!

Using the “5 M’s” is something all safety officers and commanders should be comfortable with. It would be a great topic for a monthly safety meeting discussion!

1) Pick a mishap that happened in your squadron, or one that you heard about in the wing or read about in the Beacon.

2) If you want to make it more interesting, add a few more details and a few more “factors” that your members can help uncover.

3) Begin the discussion. Lead the members through the “5 M’s” so they get used to looking at all the things that can lead to a mishap. Prompt them to ask questions like “why” and “how can we fix that?”

4) Do it for real! If you have an actual mishap in your unit, get the people involved to help you through the process. This will work great if you get a team of cadets on the job! Learning all the things that can lead to a mishap, will help grow your appreciation of how mishaps may be prevented!

Let us know what you think: safety@capnhq.gov