



## Keep Driving Mishaps Down Every Quarter, not just the 4th Quarter

**U**nited States Army Combat Readiness Center as many of you have heard, aviation mishaps spike most years during the fourth quarter. During FY15 to FY19, 40 percent of aviation mishaps occurred during July through September with August typically containing 50 percent of those mishaps. Based on this analysis, the Combat Readiness Center provided a full press campaign in FY20 to ensure everyone was aware of the convergence of issues that occur during this time and enable commanders to make informed, proactive decisions to combat these known issues. These issues all focus around transitions – people, weather, training and money to name a few. However, I am excited to say that commanders have taken this proactive approach and reversed the trend of the dangerous fourth quarter.



So, how do we know that we as the Army Aviation Enterprise have been successful in addressing this trend? First, we need to look at mishaps during the fourth quarters since the campaign started. In FY20, there was only one mishap during the fourth quarter as opposed to FY17 = four, FY18 = four and FY19 = five. Additionally, in FY21, there was only one mishap during the fourth quarter and it was due to environmental factors, a lightning strike.

These numbers alone, FY17 to FY21, are astounding. However, this year has another huge indicator during August. This is the first year since 2014 (7 years) that we did not have a Class A aviation mishap during August and only the second time in over 10 years. All that being said, the 4th Quarter Spike in mishaps is all but eliminated. But, the factors surrounding it are not gone. Commanders just approached the period differently, more aware, more proactive.

Now, it's time to address the real crux of how our approach to this time period drastically changed mishap dynamics during the most dangerous part of the year. In general, we are all aware of the challenges during the fourth quarter, but often individually. However, when we aggregate the challenges coupled with statistics, we provide a different sense of awareness and that "aha moment." This drove us to proactively make an action plan to address these challenges in aggregate and in context against our mission. This continued reminder of the dangers coupled with a proactive approach led to shared understanding across the Army and impacted our safety culture. Finally, we need to review what we've done that made the organization successful and share it across the enterprise. This is operationalizing the risk management process at its finest and on a large scale.

Where do we go from here? This is about applying our lessons learned throughout the entire year to minimize mishaps overall. The fourth quarter was about a proactive approach to transitions (change) in people, weather, and training when we know that risk levels rise. While we addressed the fourth

quarter, in particular, there are major transitions we can apply the same rigor to aircraft fielding/transitions, mobilizations, collective gunnery operations, combat training center rotations, and deployment preparations to name a few. Then, combine that with specific nuances of the unit when it comes to personnel and environment to apply mitigations and leadership at the points of highest risk. Then, we need to make sure we share our successes and challenges across the Army to help our brothers and sisters have more tools in their kitbags for success.

What did your unit do differently that drove mishaps down? What other challenges did you notice that we didn't bring awareness to? What did you see as the highest risk during your time? Please share your lessons learned with the CRC or Flightfax. Let's continue to drive our mishaps down by learning together. ■

**LTC Randy James**  
**Chief, Aviation Division**  
**Directorate of Assessment and Prevention**  
**U.S. Army Combat Readiness Center**

## Winter is Coming *Flightfax September 1996 message*

**P**repare for the harsh winter conditions ahead. Proficiency training in winter operations should already be on every Crewmember's agenda because the warm days of summer will soon give way to the snow, ice, and freezing winds of winter.

Operating and maintaining aircraft in cold weather can be physically demanding and hazardous. Regardless of winter's adverse environmental conditions, the Army must continue to defend our Nation's interests around the world and train future warfighters. To do so safely requires taking cold weather training seriously and applying risk management effectively.

Now is the time to start brushing up on winter flying techniques, maintenance

procedures, and survival skills. Review the known hazards associated with cold-weather operations, identify any hazards specific to your unit's mission



or area of operation, and develop effective control measures that will reduce the risks.

Advance preparation and effective risk management won't keep the snow from falling or the cold winds from blowing, but they will help you prevent costly accidents and cold weather injuries when winter descends upon us again. ■

# Winter Icing

**A**fter the long, hot summer, many people look forward to cooling off during the fall and winter months. Watching the leaves change, taking a hike, watching football, celebrating the holidays with family and friends...perhaps these are a few of your favorite things. The fall and winter months also bring many aviation weather hazards. Chief among them is icing.



## Icing

In the mid-latitudes, icing is most frequent during the winter months. This is because frontal systems are more numerous during this time of year, and frontal systems are the No.1 culprit.

Icing increases the weight of the aircraft. But more importantly, it disrupts the smooth flow of air, increasing drag while decreasing lift. This is a bad combination. Some tests indicate that icing can reduce wing lift by up to 30% and can increase drag by up to 40%.

## Aircraft Impacts

The accumulation of ice on aircraft surfaces can affect the control of the aircraft. If ice forms on a propeller's blades, the propeller's efficiency decreases, and additional power is required to maintain flight. Ice accumulation on rotors and propellers can cause dangerous vibrations. Ice can also form in an engine's intake, disrupting the combustion process. Ice may even break off and be sucked into the engine creating ice FOD. Icing can also cause improper operation of control surfaces, brakes or landing gear; reduction of the aircrew's outside vision; and incorrect flight instrument readings. If ice collects on the radio antenna, comms will likely be affected.

There are two main categories of icing, structural and induction. In simplest terms, structural icing requires two conditions temperatures at or below freezing and visible moisture (i.e. clouds). Induction

icing can occur with temperatures well above freezing and/or in the absence of clouds.

## Structural Icing

Structural icing is described in terms of type and intensity or amount. The three main types of structural icing are clear, rime and mixed. Frost is another form of icing that mainly affects the aircraft during takeoff and landing.

We classify structural icing by amount or intensity. The four icing intensities are trace, light, moderate and severe. Trace icing is when icing first becomes noticeable. It generally does not pose an operational hazard unless it lasts for longer than an hour. Light icing occurs when icing conditions persist for more than an hour. Accumulation continues and can become problematic for the aircraft. Occasional use of deicing equipment helps keep accumulation under control. With moderate icing, the rate of accumulation is greater and even brief encounters can be hazardous. Use of deicing equipment is necessary. When the rate of accumulation is so great that deicing equipment does not reduce or control the icing, you have severe icing. Severe icing is an extremely hazardous situation and if you ever encounter it, you should immediately divert.

The rate of icing accumulation depends on three variables airspeed, droplet size, and aircraft size/shape. As the airspeed of the aircraft increases, so does the rate of ice formation---to a point. At very high airspeeds (575 knots or greater), heat generated



by friction on the skin of the aircraft actually serves to melt the ice. The rate of ice formation increases as the droplet size increases. When an aircraft flies through clouds or precipitation, the smaller droplets move with the deflected air stream and therefore do not collect on the aircraft. Although larger drops are not so easily deflected and can form ice deposits. Finally, the rate of ice accumulation depends on the size, shape and smoothness of the aircraft surfaces. A large, non-streamlined aircraft will see ice accumulations more quickly than a thin, smooth, streamlined aircraft. It should be noted that once ice accumulation begins, the rate of accumulation increases because the ice increases the aircraft's surface area.

### Induction Icing

Induction icing, sometimes referred to as engine icing, occurs when ice forms around the air intake and blocks the air filter before air enters the engine resulting in a loss of power. It most commonly occurs in the air induction system but may also occur in the fuel system. Which leads us to carburetor icing.

Carburetor icing is extremely dangerous and can cause complete engine failure. Carburetor ice forms during the fuel vaporization process. With the right combination of moisture and temperature inside the carburetor, ice can form at the discharge nozzle, in the venturi, on the butterfly valve or in the carburetor passages. Carburetor icing is considered one of the most dangerous of all icing threats because it can occur in the absence of clouds and temperatures well above freezing.

### Forecasting Icing

Your friendly Air Force Weather forecaster will provide you a run-down of expected icing conditions for your mission on a DD 175-1 block 24. We'll

brief you on what type of icing to expect (rime, mixed, clear) and in what amount (trace, light, moderate, severe). We'll tell you the flight levels of the icing as well as the location. Remember, when we brief hazards, we are considering the corridor encompassing +/- 25NM of your route of flight and +/- 5,000 feet of your planned flight level. If your route of flight is not a relatively straight line, let us know so we can paint the best picture possible of en route hazards.

Please note that block 24 is ONLY for structural icing and is ONLY for icing outside of thunderstorms. If you are piloting an aircraft with other icing sensitivities, please alert the forecaster to ensure you receive a proper and thorough weather briefing.

For icing conditions during takeoff and climb, a remark will be entered in block 13. Icing conditions at the terminal during landing will be noted in block 30.

Where is that information in block 24 coming from? We look at many products, including the Operational Weather Squadron's upper and lower level icing charts. We also look at satellite, radar, surface observations, upper-air observations and pilot reports (PIREPs). We especially like to look at a forecast Skew-T diagram, a vertical profile of the atmosphere. That gives us a snapshot of the temperature and dew point from surface to the troposphere for any particular location. A quick look can tell us the height of the clouds, the amount of cloud coverage, and the temperature dew point spread. This is all very helpful in pinpointing areas of icing.

### Conclusion

As the fall-winter months approach, we will see an increasing number of frontal systems. It is around these frontal zones that we have to be vigilant for hazards such as icing, turbulence, low-level wind shear and fog. Our focus today was icing. Icing is extremely dangerous to both fixed-wing and rotary-wing pilots and can affect both internal and external components of your aircraft. Knowledge is power and I hope you are empowered today! ■

**Cindy L. Howell**

**OL-C, 18th Combat Weather Squadron  
Ft Rucker Weather Ops**

# Class A - C Mishap Tables

Manned Aircraft Class A – C Mishap Table											as of 27 Sep 21
Month	FY 20				Fatalities	FY 21					
	Class A Mishaps	Class B Mishaps	Class C Mishaps	Fatalities		Class A Mishaps	Class B Mishaps	Class C Mishaps	Fatalities		
1 <sup>st</sup> Qtr	October	2	2	4	0	0	0	10	0		
	November	1	0	2	2	2	2	7	7		
	December	1	1	2	3	0	1	4	0		
2 <sup>nd</sup> Qtr	January	0	0	5	0	1	1	4	3		
	February	1	0	5	0	2	0	7	3		
	March	0	2	4	0	1	1	6	0		
3 <sup>rd</sup> Qtr	April	0	1	1	0	1	1	8	0		
	May	0	0	6	0	0	0	7	0		
	June	0	0	6	0	0	2	9	0		
4 <sup>th</sup> Qtr	July	0	2	8	0	1	0	9	0		
	August	1	2	7	2	0	2	6			
	September	0	2	8	0	0	0	7			
Total for Year		6	12	58	7	Year to Date	8	10	84	13	
Class A Flight Mishap rate per 100,000 Flight Hours											
5 Yr Avg: 0.94		3 Yr Avg: 0.99		FY 20: 0.63		Current FY: 0.87					

UAS Class A – C Mishap Table											as of 27 Sep 21
	FY 20				Total		FY 21				
	Class A Mishaps	Class B Mishaps	Class C Mishaps	Total			Class A Mishaps	Class B Mishaps	Class C Mishaps	Total	
MQ-1	5	2	3	10	W/GE	9	1	4	14		
MQ-5	0	0	0	0	Hunter						
RQ-7	0	14	21	35	Shadow		8	22	30		
RQ-11	0	0	1	1	Raven			1	1		
RQ-20	0	0	1	1	Puma						
SUAV	0	0	0	0	SUAV						
Other	0	0	1	1	Other						
UAS	5	16	27	48	UAS	9	9	27	45		
Aerostat	3	0	0	3	Aerostat	1	0	0	1		
Total for Year	8	16	27	51	Year to Date	10	9	27	46		
UAS Flight Mishap rate per 100,000 Flight Hours											
MQ-1C Class A	5 Yr Avg: 8.40		3 Yr Avg: 5.71		FY 20: 4.82		Current FY: 11.42				
RQ-7B Class B-C	5 Yr Avg: 67.23		3 Yr Avg: 78.53		FY 20: 107.19		Current FY: 83.52				

# Mishap Review: UH-60L NVG IIMC

**D**uring an annual proficiency and readiness test/night vision goggle (NVG) evaluation in a UH-60L in mountainous terrain the weather deteriorated due to rain and snow. The crew was unable to maintain visual reference and encountered instrument meteorological conditions (IMC). During the inadvertent instrument meteorological conditions (IIMC) recovery, the aircraft impacted terrain below a ridgeline resulting in three fatalities and destruction of the aircraft.

## History of Flight

The UH-60L crew's mission was to complete required annual evaluations on the pilot (PI) in the right front seat and the instructor pilot (IP) in the left front seat at night under visual flight rules to include terrain flight in a mountainous environment. The standardization pilot (SP) was to conduct both evaluations from the right crew chief station.

The PI planned the mission with supervision and assistance from the IP. Weather called for winds out of the NW at 15 knots gusting up to 25 knots with 6 statute miles visibility, rain showers and overcast

skies at 3,000 feet. Illumination was zero percent (skies were overcast and moon had not risen at the time of accident resulting in zero percent lunar illumination) with a temp of +4 C. Additionally, there were AIRMETs for moderate turbulence SFC – 18,000 feet and mountains obscured by precipitation, clouds, and mist. The risk common operating picture was assessed as LOW risk. The mission was briefed by the mission briefing officer (MBO) and approved by the final mission approval authority (FMAA).

The mishap aircraft departed the airfield at 1850L, conducted some local training and then departed for the nap-of-the-earth (NOE) flight training area at 1905L with additional evaluation maneuvers completed en route. Internal communication with other unit aircraft operating in the area reported areas of reduced visibility in pockets of rain and snow mix and deteriorating weather in the NOE area.

As the mishap crew flew their pre-planned route to the east, turning north into the NOE training area, they began to encounter pockets of rain and snow occasionally reducing their visibility. At the same time, a snowstorm was approaching their location





from the west. Once the mishap crew completed the training and evaluation tasks, they turned west towards the airport.

At 1943L, the mishap aircraft reported to flight operations that they were en route back toward the airfield and began working their way along the snow-covered terrain as the weather continued to deteriorate. The aircraft encountered increased precipitation and reduced visibility, and initiated an IIMC recovery at 1949L. The aircraft impacted terrain below a ridgeline resulting in destruction of the aircraft and fatal injuries to the three crewmembers.

### **Crewmember Experience**

The IP/PC seated in the left pilot's seat had 1,255 hours total time with 877 in the H-60. Total IP hours were 290 and total NVG hours of 202. The PI had 1,147 total hours, 385 in the H-60 and 163 hours NG. The SP, located in the right rear crew chief seat, had a total of 5,628 hours with over 4,900 in the H-60 and nearly 850 under NVGs. Total IP/SP/IE time was 2,738 hours.

### **Commentary**

When responding to IIMC it is important for aircrews to maintain proper aircraft control, transition to instrument flight and initiate a climb.

Continuous crosschecking the attitude, heading, torque, trim, and airspeed is required during the IIMC recovery procedure to attain and maintain a positive climb and ensure obstacle avoidance. Additionally, the crew should cross monitor performance of the pilot on the controls during execution of the recovery procedure. Simulator training with a focus on IIMC recovery procedures allows exposure to different conditions - mountainous terrain, NVG, initiation from low airspeed, etc.

During flight, crews should apply real-time risk assessment to changing conditions such as deteriorating weather/operating in degraded visual conditions (DVE) and adjust mission execution based on encountered or forecast conditions. MBO and FMAA must ensure key mission elements are evaluated, briefed, understood and applied to the mission by the pilot in command per AR 95-1 and effective and detailed controls to mitigate risk are implemented. ■

**Aviation Division**  
**Directorate of Assessment and Prevention**  
**U.S. Army Combat Readiness Center**

# Blast From The Past:

*Articles from the archives of past Flightfax issues*

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## Communication is the Key December 2011

**D**uring Fiscal Year 2011, the errors most often made by aviators involved overconfidence/complacency, aircrew coordination failures, inadequate mission planning and assumption of “low risk” missions when, in fact, the missions ended up being high risk. In a previous article, I discussed complacency and overconfidence, the most common human errors cited in Army aviation accidents, and compared the similarities of errors attributed to aircrews and aviation maintenance crews. Within this article, I’d like to discuss another important similarity in the groups, the absolute necessity for good crew coordination. Many aviation and aviation maintenance accidents stemmed from poor crew coordination because people involved in the process were not communicating effectively. They were not on the same page.

The Army defines crew coordination as a set of principles, attitudes, procedures and techniques that transform individual pilots into an effective crew. Substitute “aviation mechanic” for pilot and everything else still applies. According to our FY11 accident statistics, the lack of good crew coordination between pilots contributed to 28% of the Class A and B aviation accidents. If we had the ability to look in-depth at all aircraft maintenance errors — not just the ones that contributed to aircraft accidents — the error rate due to poor crew coordination would probably be similar.

How do communication errors happen? There are many ways. Critical information doesn’t get passed from one shift to another because someone assumes they already have the information. A distracted crewmember may not glean all the necessary information out of a conversation. Some people may be afraid to speak up because the person they need to address is senior to them and doesn’t respond well to being questioned by a junior. A very common reason for poor communication, as cited in the literature and in many accident reports, is fatigue.

It could be something as simple as a crewmember being exhausted because a new baby cried all night and they didn’t get any sleep.

I don’t know about you, but when I’m tired, I get a smidge grumpy. I tend to be short-tempered and don’t want anyone to bother me. For those of us who have worked graveyard shift or pulled a double shift, you know what I’m saying. It’s tough to interact with people when your brain is not as sharp as it could or should be. If you’re really tired, let the rest of your crew know. There is no sense trying to hide it or tough it out alone, because you are just asking for trouble in the form of a human-error accident. I’m not saying that you need to make excuses, but if you give your crewmembers a heads-up, they can be a bit more vigilant for you.

As those examples show, we are human and can be influenced by many work and non-work related issues, so it’s important to actively work to keep the lines of communication open. Sometimes it’s not easy to talk with a person who just ticked you off. In circumstances like that, just stop, take a deep breath and think about what you are going to say and why. If you verbally slam someone because you’re a bit miffed, don’t be surprised if you get back what you gave or get completely shutdown. We all know it’s not always easy to diffuse a situation headed in a bad direction, but sometimes you need to be willing to walk away and cool off.

If you notice a crewmember is not doing something correctly, you can offer your assistance, but do it without being smug, condescending or confrontational. You can also challenge a superior, like that 06 who hasn’t flown for a long time, but suddenly wants mission time, or that shift supervisor who hasn’t used avionics repair equipment for a decade, but now wants to jump in because a big deadline is fast approaching.

The key is to point out errors in a way that avoids a bruised ego. Rather than telling your boss that he/she is a moron, open a TM or AR and say something

like, "Hey, I guess we got confused about that. It says here in the TM that (fill in the blank)?" In addition to preventing an error, this option lets your boss save face and doesn't make you look confrontational. Again, we have all been there when our boss has had a "brilliant" idea. Rather than telling him that he's an idiot — even though you really want to — act like you're the "slightly challenged one." Ask him to describe the idea more thoroughly. You can then use the parroting technique by repeating back the information, just so you can be clear on the issue. Many times when people hear their ideas verbalized by someone else, they discover the looming flaws for themselves. Even if you don't care about your boss's personal well-being, you can't stand by and watch the mistakes happen. This is a time for tactful action.

Advancements in technology have revolutionized the ways we communicate. It has crept into both our work and our personal lives. Electronic communication, for example, can literally be done from anywhere at any time. While these types of communication are convenient, their use can put us at a bit of a disadvantage. How? Electronic communications remove our ability to see or hear an individual, and without the opportunity to "read" the other person, we lose valuable information in the process. As an example, you send a text saying, "How r u?" You get one back that says, "FINE." What does that really mean? In cyber language, you use all caps to shout. Is the cap lock stuck? Is that person really mad at you and "FINE" is not fine at all? If the person were standing in front of you, his or her body language and facial expression would probably give you those answers. At work, after you email the third response to the same question, you realize that it would've been faster, easier and less frustrating just to walk to the other person's office. The simple act of walking over to someone's office and asking them about a situation can resolve potential conflicts and

help clear up the "muddy waters" that can develop when transferring information. Sometimes it is better to speak face to face with people.

Advances in technology have also made our aircraft true technological marvels, but with the advanced capabilities has come increased workload. This is true for both the operators and maintainers. You have to pay attention to more things at the same time. When something out of the ordinary distracts you or tunnel vision develops because you're trying to concentrate, communication starts to suffer. Research has shown that the average human can only process seven (plus or minus two) bits of data at a time. That's why we originally had 7-digit phone numbers. That limitation includes our communications with each other, which might be why we're starting to see distraction/fixation errors show up more and more in our accidents. You need make a conscious effort to avoid letting these situations shut down your communications.

You must have personal interaction on all flights and maintenance projects. If you intend to do something, clearly announce your actions and acknowledge the actions of others. Just because you have flown or wrenched together for hundreds, if not thousands of hours, it doesn't mean those people can actually read your mind, even though it may often feel that way. Provide updates during flights or maintenance processes so that everyone stays on the same page. It's easier for someone to coordinate their actions if they have current information and know what you plan to do. The one time you don't say it out loud may be your last. ■

**Dr. Patricia LeDuc**  
*assigned as the Human Factors Director,  
USACR/SC in December 2011 when this article was  
written.*

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# Selected Aircraft Mishap Briefs

Information based on preliminary reports of aircraft mishaps reported in August and September.

## CARGO HELICOPTERS

### H-47

- During aircraft ground taxiing at a civilian airport, the aft rotor system struck the FBO sign resulting in loss of approximately 1/2 length of each aft rotor blade. Subsequent debris caused additional damage to forward rotor system. Aircrew completed emergency shutdown. (Class B)



## ATTACK HELICOPTERS

### AH-64

- **D model.** While performing maintenance on the aircraft, the Soldier looped a rigging pin around his index finger while climbing into the crew station. The flag on the rigging pin caught in the environmental control system return fan which pulled his hand and finger towards the fan. This resulted in a severance of his right index finger from the tip down to the fingernail cuticle through the bone. (Class B)
- **E model.** During ground handling of an AH-64E at night as they were approaching the pad, the tractor driver backed the tractor to adjust the position of the towed aircraft. The tractor backed into a parked aircraft behind his position causing damage to multiple components. (Class C)



## UTILITY HELICOPTERS

### H-60

- **L model.** During aircraft run-up and HIT check, the PC heard a whining noise from the No. 1 engine. The No.1 engine was borescoped and five blades on the Stage 1 of the cold section module were found damaged beyond repair limits. (Class C)
- **M model.** Hot start occurred during engine start with the intake cover installed. (Class C)
- **L model.** During a weekend, the aircraft was struck by lightning while parked at the AASF causing damage. (Class C)



- **M model.** During maintenance test flight training an overspeed occurred after the No. 1 PCL was placed in lockout. The crew was unaware that any limits were exceeded until after the analysis of IVHMS data. A gradual NP climb occurred for both engines: 25 seconds above 105%, 12 seconds above 107%, and a max NP of 110.5% for 3 seconds. The No. 2 engine (not in lockout) followed the No. 1 engine up to 108%, then dropped out/decoupled, while the No. 1 engine (in lockout) climbed to 110.5%. The No. 2 engine TQ remained below 5% throughout the incident. (Class C)

- **M model.** The Soldier was undergoing sling-load progression training when the SM fell out of the aircraft at approximately 20-30 feet height. The Soldier was seen and released from a local medical center. The Soldier received quarters for several days. (Class C)
- **L model.** While conducting CASEVAC operations the aircraft landed at a hasty landing zone (LZ) to pick up personnel. After landing then taxied forward beyond a tree in the LZ. A low hanging branch made contact with the rotor system. The crew took off and the ground unit was notified the aircraft had made contact with the tree. After landing and shutdown, damage was discovered. (Class C)
- **M model.** While on the ground and during a standardization flight evaluation, the pilot placed the No. 1 engine in lockout resulting in an NP speed of 107 for 17 seconds exceeding -10 limits. The instructor pilot lost track of time during the lockout at the NP speed of 107. (Class C)
- **M model.** While conducting aerial gunnery, the right cockpit door window shattered. Pieces of the broken window entered the No. 2 engine inlet valve and caused a high pitch engine whine. The crew immediately placed the aircraft on the pad and shutdown. (Class C)

## UNMANNED AIRCRAFT SYSTEMS

### RQ-7B



- Unit lost signal with unmanned aircraft (UA) during platoon 24-hour flight operations. Once signal was regained, complete control of the aircraft was not regained and the aircraft started to roll right and then rolled left. The wing panels then rotated up uncontrolled by the operators which forced the aircraft into a descent from 500 feet above ground level until it crashed. (Class B)
- During landing, after an hour flight, the UA veered off the runway during the automated landing

phase and struck the arresting system drum that was anchored to the runway. The landing gear was ripped off and the payload was damaged. There were no injuries and no major damage to any other equipment with the exception of a bent stake anchoring the drum to the runway. (Class B)

- While attempting to land during a crosswind approach, the tactical automated landing system displayed errors and did not correct the aerial vehicle's path to the center of the runway. The aircraft landed and exited the right side of the runway through brush and rocks until it came to a stop. (Class C)

**If you have comments, input, or contributions to Flightfax, feel free to contact the Aviation Division, U.S. Army Combat Readiness Center at (334) 255-3530, DSN 558-3530.**

## Near Miss Briefs

*Information based on reports via the Near Miss Reporting Tool.*

**Subject:** While in flight the FLIR screen produced smoke.

**Description:** During flight, the pilot in command (PC) of the aircraft turned on the FLIR screen. The FLIR screen then began to produce smoke. The PC turned off the screen and the smoke stopped. The crew continued flight to the nearest maintenance facility. The screen was replaced.

**Subject:** Aircraft flew past torque checks.

**Description:** Aircraft was assigned to the flight schedule to be flown 2nd and 3rd periods, for four flight hours. Following a maintenance action, the aircraft was due for a 9-11 TR cable tension check in 3.5 flight hours. During the logbook scrub prior to issue and flight, the production control office and the PC missed the inspection write-up referencing the TQ check and when it was due. A similar issue occurred in nearly the exact same way on another aircraft three weeks prior to the first incident. An aircraft was assigned and flown with the 9-11 TQ check past due. Two weeks later the aircraft was flown again on an MTF. These flights resulted in the aircraft being flown 2.3 hours beyond a STAB hinge fitting TQ check.

**Subject:** CH-47 aft No. 2 tire was damaged during towing operations when the tow bar popped off and impacted the tire.

**Description:** A CH-47F was being moved from the hangar to the parking pads located in front of the hangar. During a left turn while lining the aircraft up with its parking pad, the tow bar detached from the aft No. 2 wheel. A part of the tow bar impacted the sidewall of the tire and tore a gash approximately 12 inches in length on the sidewall. The tow bar wasn't damaged but the tire was deemed unserviceable as a result.

**Subject:** Encountered flight-related emergency and failed to have flight reference cards available.

**Description:** During a training flight, an aircrew received indications of a fire on one of the aircraft's main engines. The crew's initial reaction to the emergency was IAW the current UH-60 ATM. However, as the crew continued to the diagnose phase of the FADEC-F process it became apparent that the crew had failed to sign out and bring the fighter reference cards to appropriately respond to this emergency. As the crew continued to respond by memory, the fire light extinguished and the crew

landed as soon as practicable back to the home base without damage to equipment or injury to personnel.

**Subject:** SM was changing a part on the aircraft when hydraulic fluid leaked down his arm, side, and torso.

**Description:** SM was replacing a part on an aircraft when hydraulic fluid leaked from the metal lines into his sleeve, down his arm and right side of torso to his waist. SM immediately went to emergency showers less than 50 feet away. He removed his blouse and T-shirt and rinsed off. SM was then told by his squad leader to go back to the barracks and shower. SM was taken back to his room, showered and changed all within 15 minutes of incident. SM was then taken to the TMC to be evaluated. The medical personnel declared SM was fit and return to duty.

**Subject:** Hovering CH-47 rotor wash caused minor damage to parked UH-60M.

**Description:** While redeploying from the field a CH-47 hovered approximately 80-100m from a UH-60M. The UH-60 crew was loading equipment into the helicopter. The pilot on the right side of the helicopter had closed the right pilot's door but the door failed to latch. The pilot was at the 1100 position within arms distance off the nose when the CH-47 began repositioning. The downwash caught the unsecured door and the door swung forcefully open. When the right door came to an abrupt stop, it sustained damage to the lower spherical bearing door attachment point. The aircrew returned to base, doors off and door was repaired.

**Subject:** Bird strike.

**Description:** While flying at approximately 25 feet above ground level between checkpoints on a nape-of-the-earth flight training route, a small bird flew beneath the left seat pilot station and struck the underside of the aircraft. Crew conducted a precautionary landing. No damage was discovered. Flight was conducted at night using night vision goggles under very low illumination conditions. In the future, consider using searchlight to better illuminate birds and/or increasing altitude above the river to avoid the low-level concentrations of birds.

**Subject:** Blade-hangar contact.

**Description:** During towing operations, a blade

made contact with edge of hangar opening. When the contact became imminent, the call of "halt" was properly given. After the movement of the aircraft ceased, slack in blade rope allowed further movement of the blade and the blade struck the edge of the hangar opening. Recommend additional training and perhaps pre-towing operation briefings for future towing operations. NOTE: at the time of contact, operations immediately ceased and the safety officer and the maintenance officer were immediately notified. The response of the incident made assessment and response efficient and appropriate.

**Subject:** Damaged gunner window during unscheduled egress training.

**Description:** Fire station was conducting unscheduled egress training on a UH-60L. The training was not coordinated with the aviation unit. Fire fighters damaged a gunner window during the training. ECOD of approximately \$4,000.

**Subject:** Fire extinguisher left unattended.

**Description:** One crew chief being progressed and one FI progressing him put a fire extinguisher on the WSPS of a UH-60L Black Hawk during startup at KPAH, the item was left on the WSPS and after departing the traffic pattern, a pilot witnessed the extinguisher fall from the WSPS and land in a field. The extinguisher was not recovered.

**Subject:** An approximate 9-inch hole was found on the bottom of an aircraft.

**Description:** While de-paneling the helicopter to begin a 40-hour maintenance inspection, a 9-inch hole was discovered on the bottom of the tail cone. The crew that flew the aircraft the night prior did not notice the damage to the aircraft before, during, or after the flight.

**Subject:** During maintenance procedures, a spider crane cable snapped and almost struck a service member.

**Description:** A maintenance team was assembled to remove an auxiliary power unit from a UH-60M. The team consisted of five individuals. The team assembled their required equipment and one went and signed out a self-propelled crane (SCAMP) from the back shop. They moved the SCAMP to the location and set it up for operations. A SM removed

the lock pins, unfolded the legs, and reinserted the pins. The NCO on controls of the SCAMP raised and leveled the SCAMP for usage. The NCO on controls raised the boom arm, and turned the SCAMP to ready it for operations. Once moved, the hook would not move up or down as it should have. The NCO kept attempting to raise and lower the hook. He adjusted the controls to lower the hook all the way, even though it was not moving. The NCO on controls then attempted to move out the arm at which time the metal cable snapped and swung, missed a nearby Soldier working on an unrelated task on the aircraft by less than 2 feet. No environmental conditions present were relevant to the incident. All personnel involved were on their fifth hour of a normal duty day. All had gotten at least 6 hours of sleep. Alcohol and drugs were not thought to be a factor. Upon investigation by the safety NCO and aviation safety officer it was determined the operator of the SCAMP was not licensed on the equipment they were using. It was determined a proper PMCS was not accomplished and the metal cable had been wrapped over itself on the barrel causing it to snag, and preventing its movement and eventual equipment failure. Finally, the back shop had noticed the metal cable was frayed during motor pool maintenance but did not write it up or let anyone else know about the deficiency. No personal protective equipment was in use at the time other than the SCAMP operator wearing an Army combat helmet. Causes determined were inadequate unit training, in a hurry, unlicensed, inadequate on-the-job training, improper supervision, and overconfidence.

**Subject:** Near mid-air collision.

**Description:** A single CH-47F was cleared present position to depart from the Port Au Prince cargo ramp sod. The CH-47 crew requested to proceed directly across runway 10/28 from the south with a departure to the north. While crossing the active runway the aircraft was nearly struck by a landing cargo jet. At the time of the incident, there were four personnel on board. Unit was conducting disaster response operations in Haiti. During the operation, the airport and airspace became highly congested. At the time, the Port Au Prince control authority had one position controlling all aircraft movements from the ground to 30NM outside of

the airport, fulfilling the role of ground, local and approach control. After the incident procedures were developed internally to remain south of the extended runway centerline until clear of landing and departing traffic.

**Subject:** While taking a fuel sample the crew chief got JP8 on his undershirt contacting his skin causing irritation.

**Description:** Crew chief was not paying attention to fuel hose as he took the sample and allowed it to splash on him while he removed it from the tank. Crew chief had his flight suit top removed during this procedure, and the AMR timeline did not support him changing clothes before takeoff.

# Flightfax

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**Environmental Factors.** Aircrews may encounter cold weather flying conditions in many parts of the world. Extreme conditions vary according to latitude and season. Extreme cold and blowing snow pose special problems and difficulties in ground operations, preflight and actual flight conditions. TC 3-04.4 Fundamentals of Flight, Chapter 3.

**Operational Procedures.** Problems occurring when operating in extreme cold are related to preparation for flight, ice and snow, cold weather engine starts, taxiing, takeoff, en route and landing. Problems presented by ice, snow, or freezing rain are such that provisions must be incorporated into flight planning to eliminate or reduce their effects. Remove all snow and ice from the airframe before any operations. Such accumulation adversely affects all aspects of flight performance in varying degrees. Before any flight operations, aviators move all control surfaces to confirm full freedom of movement.

**Training.** Units qualifying aviators in cold weather operations are responsible for conducting a well-organized training program. Training programs are geared to instill confidence and develop skills in all areas of cold weather operations. Instructor pilots and supervisory maintenance personnel must be highly qualified and skilled in all areas of cold weather operations. A recommended program of instruction for qualifying aviators in cold weather operations is provided in TC 3-04.4.

### Five Hazards Associated with Cold Weather Operations

**1. Weather.** Rapidly changing weather is one of the greatest hazards to cold weather operations and presents difficult flying for both inexperienced and experienced aircrews. Various factors—such as temperature range, snow conditions, and icing potential—are subject to rapid and dramatic changes and require crewmembers to be prepared at all times.

**2. Icing.** The most hazardous condition associated with flying in cold weather (excluding aircraft preflight) is aircraft structural icing. Icing accounts for loss of aircraft and personnel each year and must be a critical consideration. Rotor blade icing begins near the blade root. This ice buildup may cause loss of lift, which requires additional engine power.

**3. Snow.** Like so many elements of winter weather, snow is most dangerous to the aircrews that rarely fly in it and do not adequately prepare for its effects. Snow varies widely in its characteristics. It may range from dry, fluffy flakes to a wet, heavy consistency clinging to every surface. Snow visibility estimates and frequency/duration of snowstorms are difficult to forecast. Flight into snow conditions is very disorienting and can easily lead to inadvertent instrument meteorological conditions (IIMC).

**4. Whiteout.** As defined in meteorological terms, whiteout occurs when a person becomes engulfed in a uniformly white glow. The glow is a result of being surrounded by blowing snow, dust, sand or water. There are no shadows, no horizon or clouds, and all depth-of-field and orientation are lost. A whiteout situation is severe in that there are no visual references. Flying is not recommended in any whiteout situation. Flat light conditions can lead to a whiteout environment quite rapidly. Both whiteout and flat light conditions are insidious, occurring quickly as visual references slowly begin to disappear. Whiteout has been and continues to be the cause of several aviation accidents.

**5. Static Electricity.** During cold weather, especially when the air is very dry, static electricity creates serious problems. It is generated by activities such as moving an aircraft through the air, brushing snow and ice from the aircraft, and dragging steel ground cables over the snow. This is particularly hazardous during refueling and rearming operations. It is important to have aircraft properly grounded and bonded to prevent injury and reduce the potential for an explosive reaction. In addition, aircraft external load operations also present a serious potential for static electricity. Preparation should include measures such as ensuring static probes are available for use and verifying personnel are properly trained.