Flightfax
Number 103 August 2021 Online Newsletter of Army Aircraft Accident Prevention

August – the Most Dangerous Month

Many of you have heard the mantra over the past two years about the dangers of the fourth quarter when it comes to Army Aviation Class A mishaps — known as the 4th- Quarter Spike. At the risk of sounding like a broken record, I would be remiss if I didn't remind everyone that from fiscals 2015-19, the fourth quarter of each year was responsible for 40% of the Class A mishaps even though the amount of flight hours was relatively the same, 27% for the year. However, a point I think is often overlooked is the danger associated specifically with the month of August, which accounts for more than half of the Class A mishaps during the fourth quarter. It is the pinnacle of the convergence of factors concerning weather, training and the backside of leadership turnover.

August has a long history of Class A mishaps — 16 mishaps with 15 fatalities. Over the past 10 years (fiscals 2011-20), only 2014 had no mishaps during August. Half of those years had two or more mishaps in August. In fiscal 2020, the Army had only one Class A mishap from mid-February through the end of the year, and it occurred in August, costing us another two lives. So, August is an exceptionally dangerous time of year, but one we can continue to plan to defeat proactively.

The reason August remains a dangerous month is the convergence of those factors that challenge the fourth quarter overall — weather, changes of formal and informal leaders, and increases in training. It cannot be understated that August is the hottest month of the year with some of the most unpredictable weather. Semiannual weather briefs and numerous professional articles corroborate this challenge and offer awareness in our approach to it. The summer season also accounts for roughly two-thirds of the permanent changes of station in the Army. Our formal and informal leaders are not immune to this, which means this is a time when two-thirds of our leaders will turnover as well. Combine this with summer vacations and kids out of school and it results in a lull in our training and flying during June and July. This leads to a significant uptick in training on the backside of these events. August has the most flying hours by far of any month throughout the rest of the year. This is a combination of progressing new crewmembers, rated and nonrated, as well as attempting to complete the annual flying hour program. As you can see, August is ripe for mishaps without a deliberate approach.

We must attack the factors we can control going into August and continue through the fourth quarter. While we can't change the weather, we can remain aware of its impacts on our aircrews and aircraft performance. Reviewing High, Hot and Heavy as well as heat illness prevention will go a long way in providing awareness to our formations. We can apply this to our aircrews and ground support Soldiers.

For the most part, we cannot prevent the changeover of key personnel, whether for the needs of the Army or to take care of our Soldiers' careers. However, we can place more emphasis on deliberately integrating these Soldiers into our formations. The combination of deliberate integration of new Soldiers and increased flying/training goes hand in hand. Risk withholding may need to be elevated until the key leaders are more familiar with the changes in personnel and crew dynamics. Leaders must approach these risks proactively to reduce the impact they have during August.

We can defeat this spike of mishaps during August through awareness and proactive planning. However, we must remember that this approach applies throughout the year. Like G.I. Joe says, "Knowing is half the battle." What we do with our identification of the risks is the other half. ■

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

Message from the Chief of Staff

UNITED STATES ARMY

THE CHIEF OF STAFF

29 JUN 2021

Aviation Leaders,

About this time last year, I sent a note to the field highlighting increased aviation mishaps during the fourth quarter of the previous five fiscal years. This "fourth-quarter spike," identified by the U.S. Army Combat Readiness Center, accounted for 40 percent of all aviation mishaps, with August the peak month of the July-September time frame. While no single cause was responsible for the spike, several factors — the hot and heavy environmental season, leadership flux with permanent change of station moves throughout the summer, execution of end-of-year flying hours, and extended daylight impacting training schedules and crew duty days — were pinpointed by the USACRC as a perfect storm of challenges that make the fourth quarter especially risky.

As always, Army Aviation picked up the gauntlet and completed FY20's fourth quarter with only one Class A mishap, contributing to the branch's lowest annual mishap rate ever. This accomplishment is the direct result of you, your subordinate leaders and your crews working together to solve the problem and ensure safety on every mission. Aviation remains the Army's risk management leader.

We are rapidly approaching another fourth quarter, the culmination of what has been a difficult FY21 for aviators and crews. After FY20's record lows, current mishap totals and rates are the highest in five years. Most significantly, the 11 Soldiers killed in aviation mishaps thus far in FY21 is equal to or greater than each of the past five years' annual totals and higher than FY19 and FY20 combined. We can and will do better for our Soldiers and their Families.

We know personnel transitions are happening, we know the environment is about to tax our aircraft and crews, and we know the fourth quarter is the riskiest time of year for aviation mishaps. We also still have time to plan for these and other issues both before and during the fourth quarter. Dynamic risk management, where we constantly reassess mission hazards using real-time, real-world conditions, will be key to turning around FY21's trends and ensuring a safe fourth quarter for our aviation formations.

Building upon lessons learned from last year, the USACRC has released an updated fourth-quarter spike communications campaign, available at https://safety.army.mil/4QS. This year's effort includes leader talking points, informative articles, and exportable training briefings focused on current mishap trends and prevention tools. I encourage you all to maximize this material within your units — knowledge and engaged leadership are the cornerstones of managing risk.

Thank you for what you do every day.

People First — Winning Matters — Readiness Through Safety!

JAMES C. McCONVILLE
General, United States Army

Fourth-Quarter Aviation Risk Management in the 10th CAB:

Innovation No. 1: Learning from Jumpmasters in the 18th Airborne Corps

In the 10th Combat Aviation Brigade (CAB), we've put together the most intensive six-day aviation training exercise seen in the North Country, New York, in decades. Falcon Peak 2021 kicked off Aug. 8. Being devoted members of the 10th Mountain Division (Light Infantry) and the 18th Airborne Corps provides us with unique ways to mitigate the elevated risk associated with exercises of this scale. Knowing this is historically the highest-risk 90-day period (July-September) across our flying fleet, we've been pushing innovative ways to prevent mishaps for weeks leading up to the exercise.

Today's topic — jumpmasters! Jumpmasters play a key role in the airborne community by ensuring the safety of all paratroopers, inspecting equipment and making sure conditions are set for a successful operation from start to finish. One of their most vital tasks is to perform the by-the-number jumpmaster parachute inspection (JMPI) on a paratrooper. This task is conducted by the very best and most senior paratrooper. He or she will "inspect" and offer the iconic seal of approval before author izing a jumper to safely exit an aircraft.

"In Army Aviation, we have experts who serve a similar role. Our "jumpmasters" are the mission briefing officers."

In Army Aviation, we have experts who serve a similar role. Our "jumpmasters" are the mission briefing officers (MBOs). There are parallels between jumpmasters and MBOs that leaders in 10th CAB are currently using to help mitigate risk. These officers fully understand their vital role. Following a tragic mishap, an MBO — just like a jumpmaster — carries the silent burden of authorizing and approving the launch. We forever carry the worry that we should have been that first line of defense. We often wonder if only there'd been another way to prevent the mishap or tragic outcome. We are also held accountable for our mistakes and negligence, just like jumpmasters in the airborne community.

Therefore, we are implementing some safety lessons from our jumpmaster cousins in the 18th Airborne Corps. We've established an "MBO Breakfast" program modeled after Fort Bragg's "JM Breakfast," where all experts in the brigade meet, hear from a senior and, most importantly, share close calls, best practices and lessons learned. It's amazing how far this goes toward mitigating risk. We have already addressed several close calls leading up to our Falcon Peak 2021 training events.

We also certify and mentor our MBOs. We guide each other and carefully manage qualification and certifications in the brigade. Most units in the CAB are assigning supervisory sponsors for a trial period. This, modeled after primary, assistant and safety jumpmaster roles enforced by airborne operations, is aggressively preventive. It is also working for us as aviators.

Our goal is to execute risk management flawlessly and prevent all mishaps. Yet, historically, we fall short as aviators. Therefore, 10th CAB's theme in this traditionally risky fourth quarter is "Innovate to Mitigate." We kicked off Falcon Peak with our best foot forward, our "pre-jump" complete, and we are confident we've paved the way for safety in our mission.

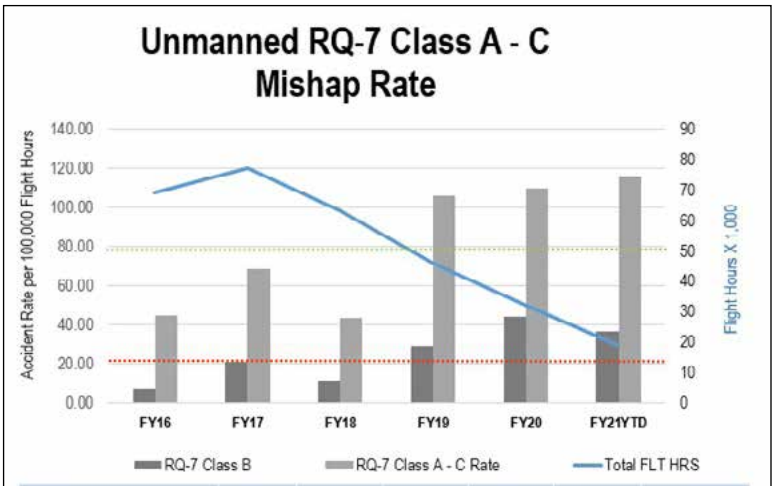
Falcon Peak is bound to be epic in terms of flight hours and gained experience. However, all of those achievements mean very little if we don't empower our leaders, MBOs and aircrews to take action and stop mishaps before they happen. Stay tuned for Risk Innovation No. 2: Managing the Transition, where we will describe how the 10th CAB mitigates risk during changes of command and trains our newly selected aviation final mission approval authorities. ■

COL Travis L. McIntosh
10th Combat Aviation Brigade, 10th Mountain Division (Light Infantry)
Fort Drum, New York

COL McIntosh is commander of the 10th Combat Aviation Brigade, 10th Mountain Division (Light Infantry), at Fort Drum. A master aviator and instructor pilot, jumpmaster and aviation high-risk mission approval authority, he may be reached at travis.l.mcintosh.mil@mail.mil.

TUAS – Correlating the 'Flying Season,' Flight Hours and Mishap Rates

Over the last five years, unmanned aircraft systems (UAS) have seen a steady decrease in flying hours. As of May 30, 2021, the RQ-7B Shadow has experienced a 25.6% reduction of flight hours as compared to the same time period in 2020. Along with the reduction in flight hours, our Class A-C mishap rates have increased. In the next few paragraphs, we will explore the number of tactical unmanned aircraft system (TUAS) flying hours, how it affects our mishap rates, and safety mitigations we can put in place to help compensate for the reduction in flying hours.



RQ-7	2016	2017	2018	2019	2020	2021YTD
Class B Mishaps	5	16	7	14	14	7
Class B Mishap Rate	7.26	20.72	11.24	29.15	42.88	36.84
Class C Mishaps	26	37	20	38	21	15
Class B – C Mishap Rate	45.01	68.64	43.34	106.19	107.19	115.79
Total # of Flight Hours	68,871	77,286	63,226	48,025	32,651	19,000

as of 28 Jun 2021

Figure 1

Flight Hours & Mishap Rates – Where's the Problem?

Due to the varying levels of environmental restrictions affecting TUAS, a large portion of training flight hours are executed in third and fourth quarters. It's no surprise that between April and September, the weather is at its best and lends itself to TUAS operations. Along with the bulk of flight hours occurring during these two time periods, the majority of our mishaps occur here as well. This in itself is not alarming; what is alarming is the significant increase in mishaps correlating with the decrease in flight hours. The consensus from the field (TUAS operators/maintainers and TUAS leadership) is the expectation that mishap rates would decrease with a reduction in flying hours. However, this is not the case.

In Figure 1, the U.S. Army Combat Readiness Center's RQ-7B Class A-C Mishap Rate Chart clearly depicts the reduction in flight hours dating back to fiscal 2017 and the increase in mishap rates accordingly. Recognizing there is a correlation in flight hours — or lack thereof — and mishaps, the question becomes what type of mishaps are we encountering and why? This is a fairly simple question to answer. Between June 1, 2020, and May 31, 2021, the Army had a total of 33 Class B or C mishaps for the RQ-7B. Of those, human error-procedure accounted for 50%.

Procedure mishaps continue to be the No. 1 driver in TUAS mishaps across the force. These procedure mishaps show how the reduction in flight hours has affected proficiency in our operators and maintainers. Flying hours equals proficiency in this case, and lack of proficiency equals human error mishaps. The expectation is that as the flight hours decrease, they will at some point plateau; will our mishap rates as well? How can we improve them? One mishap is too many, and each one affects readiness within an organization. We must always strive to reduce our mishap rates and improve proficiency.

Planning for the Problem

How can we get ahead of the TUAS "flying season" and prepare ourselves? There are three significant things we can do within a TUAS organization to help curb mishaps during these periods. The first is awareness. Our leaders must make our operators and maintainers aware of when the organization will be most susceptible to a mishap. This can be done through multiple ways — one being to execute a safety awareness day during down periods that incorporates unit-specific safety

improves/sustains preparing the organization for operational timeframes. Second, develop a robust academic program that includes frequent operator and maintainer classes that focus on safety and standards discipline. Third, develop a simulation program that keeps our operators fresh and prepared for flight. Developing flight schedules that incorporates emergency procedure training, mission training and run-ups in the simulator will help keep our operators ready during the long winter months of the first and second quarters.

Summary

TUAS maintains a Class A-C mishap rate 11 times higher than manned aviation. Recognizing the reduction in flight hours, TUAS organizations must understand when they will fly the most, when down periods are and how to take advantage of them, and how to make our operators and maintainers aware of the proficiency gaps that could arise throughout the year. Reducing our mishap rate will increase our readiness and build confidence in our operators, maintainers and leadership. ■

CW3 Nathan J. Koch
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Aviation related articles can also be found on the USACRC website at:

https://safety.army.mil/MEDIA/Risk-Management-Magazine/PID/7428/ev/1/CategoryID/183/CategoryName/Aviation

The current repository has over 340 articles of varying topics waiting for your review.

You may also choose to submit your own at the same site.

To review archived issues of Flightfax, visit:
https://safety.army.mil/ON-DUTY/Aviation/Flightfax/Archives.aspx

Computing Aviation Mishap Costs

After an estimated cost of damage (ECOD) has been provided by your maintenance personnel, adjustments to some of those values are required to classify an accident properly. This is not an Army-only process; rather, it is a Defense Department-wide one that originates in Department of Defense Instruction (DoDI) 6055.07.

The DoDI states, "When components are damaged to the extent they must be returned to a repair facility, the cost of damage shall be reported as the actual cost for repairs, if such figures are available within DOD Component reporting guidelines. If actual repair costs cannot be determined, use the repair facility established standard repair costs or standard repair costs provided by the DOD Component safety center. If these figures are not available, the reported cost for repair shall be computed at 15 percent of the initial unit cost. For components, including engines or engine modules, damaged beyond economical repair, use replacement cost."

The U.S. Army Combat Readiness Center (your DOD component safety center) has provided you with percentages of component costs that represent the average cost for repairs if the actual cost cannot be determined. For main rotor blades, tail rotor blades and fixed-wing propellers, 44% of Army Master Data File (AMDF) cost will be used. For aircraft engines, 17% of the cost will be used. Other aircraft components returned to the depot for overhaul or inspection will be computed at 15% of the component cost.

Aircraft structural damage will be calculated at 3% of aircraft cost for minor damage and 6% for major damage. Unrepairable damage will be calculated at fuselage cost (if available) or 40% of aircraft cost. Depreciation and/or supply turn-in credits will not be used when calculating damage costs to determine mishap classification. Removing a damaged component and replacing it with a new one to decrease the number of man-hours and costs for purposes of mishap classification is prohibited.

Unmanned aircraft (UA) damage costs will be computed by the local field service representative and obtained from the appropriate program office until national stock numbers and part numbers are available in the AMDF. Reductions discussed above are not authorized. Man-hour costs should be calculated at $41 per hour unless actual labor costs are available when you are completing your report. Department of the Army Pamphlet 385-40 has an extensive list in paragraph 1-10 of which man-hours to include in your mishap cost computations.

Fair wear and tear (FWT) damage should not be included in mishap costs. Damage to helicopters incurred solely from flying debris during operations in confined areas and unimproved landing sites is FWT. Discovery of cracks, breaks, wrinkles or ruptures during required periodic or scheduled inspections is also considered FWT. ■

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

Class A - C Mishap Tables

	Manned Aircraft Class A – C Mishap Table									as of 29 Jul 21
	Month	FY 20					FY 21			
		Class A Mishaps	Class B Mishaps	Class C Mishaps	Fatalities		Class A Mishaps	Class B Mishaps	Class C Mishaps	Fatalities
1st 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	5	0
2nd Qtr	January	0	0	5	0		1	1	4	3
	February	1	0	5	0		2	0	7	3
	March	0	2	4	0		2	0	6	0
3rd 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	8	0
4th Qtr	July	0	2	8	0			2	6	
	August	1	2	7	2					
	September	0	2	8	0					
	Total for Year	6	12	58	7	Year to Date	8	9	68	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: 1.21			

	UAS Class A – C Mishap Table								as of 29 Jul 21
	FY 20					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	7	1	4	12
MQ-5	0	0	0	0	Hunter				
RQ-7	0	14	21	35	Shadow		8	16	24
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	7	9	21	37
Aerostat	3	0	0	3	Aerostat	1	0	0	1
Total for Year	8	16	27	51	Year to Date	8	9	21	38
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: 10.46		
RQ-7B Class B-C	5 Yr Avg: 67.23		3 Yr Avg: 78.53		FY 20: 107.19		Current FY: 96.22		

Mishap Review: *MC-12S Single-engine Training*

During a single-engine landing following a simulated engine failure, the aircraft crossed the approach end of the runway with airspeed below minimum and left of course. The instructor pilot (IP) attempted to conduct a go-around but was unable to recover the aircraft. The aircraft impacted the ground left of the runway, resulting in serious damage. The crew was uninjured.

History of Flight

The unit's mission was to conduct a mission equipment validation/training flight. The mishap aircraft underwent a number of system updates to the mission equipment and required validation of those systems. Upon completion of the checks, the crew conducted emergency procedure training. Once established on the final course, approximately 4 miles from touchdown, the IP introduced a simulated No. 1 engine failure for the pilot (PI) to respond. The PI responded correctly and continued the approach to the runway. As the aircrew crossed the approach end of the runway, the aircraft began to drift and yaw left of centerline and rapidly decreased its airspeed. The IP took the controls in an attempt to conduct a go-around. The aircraft impacted the ground with its landing gear and flaps retracted in a generally level attitude. It was deemed a total loss.

Crewmember Experience

The IP had more than 5,700 hours total time, with nearly 5,000 civilian fixed-wing hours as a CFI/CFII/MEI. The PI had 531 total hours, with 380 hours in the MC-12.

Commentary

Human error was present and contributing to the mishap. While conducting single-engine landings, it is important for the crew to maintain proper control inputs to maintain airspeed, rate of closure, rate of descent and aircraft position over the runway. Reduction in airspeed too early during the approach can result in an unsafe degraded profile, aircraft operations below a minimum safe airspeed for the maneuver and stall with a loss of lift.

A delayed response by an IP to correct improper control inputs in a timely manner is often caused by the IP's overconfidence in the PI's ability to initiate appropriate corrective actions or the IP's own overconfidence in his or her ability to correct the situation. This can result in the aircraft being outside the performance envelope when transferring the controls to recover the aircraft. ■

Blast from the Past

Articles from the archives of past Flightfax issues

War Stories

19 January 1983

Ever wonder why the events that make a good war story happen? In combat most flying stories come about because someone is shooting back, which is expected. But what about peacetime in the controlled training environment? Not much shooting goes on, at least with real bullets. So how do the events to make a good war story come to pass? "Did you hear what happened to old 'ACE-IP' today? Boy he was lucky ...." so the story begins.

There is an old saying that there is a fine line between an "Aw-shucks" and an "Atta boy." Some days everything goes perfect: you brush that line and come out smelling like a rose, with a good war story. Then other days everything isn't quite perfect: that fine line is crossed, and someone is looking to rip your lips off.

Where is that fine line? That is a very hard question to answer. It is fluid, much like mercury used in thermometers. You ever try to pick that stuff up? It's elusive. The line moves; it is very dependent on individual experience, capability, and the conditions at the time it is approached. As IPs, it is part of our job to know where that line is and never to cross it. That is all well and good; but if I cannot define it nor get a hold of it, what good is it, and how can I prevent crossing it? The best answer I can offer is experience. Believe it or not, that is why only highly experienced and qualified pilots should become IPs. Experience coupled with ability helps an individual to develop the sixth sense to know when he is approaching that magical line. Ability and experience in flying aircraft is something that is generally not lacking among instructor pilots. Gaining experience with students is an ongoing thing and something none of us will ever get enough of. Just as sure as the world turns, when you think you've seen it all, some one will show you a new way to do a hi yo-yo, an approach to landing, or a new formation wing position.

How do you survive until you've had time to develop that sixth sense? The same way you got your flying experience - either by being lucky or by being semi-conservative. The biggest difference when gaining your own experience as a pilot compared to that as an IP is that you had better control over your own situation as a pilot. You knew your capabilities and what was going on in your mind. Ever heard, "I tried to stop them, but they did it before I realized they were going to?" I believe I can safely say that no one will know completely what someone else is thinking, especially in our business. It is far easier to know what a student is not thinking than what he/she is. If the airspeed is going berserk, you can bet they're not thinking about airspeed. If airspeed is important, who really cares what they were thinking as long as they get back their mind back to what is important? That's the job of the instructor - to teach them what is and isn't important and how to make it work right.

What then causes most IPs to get on the backside of the magical line? I believe there are a couple of reasons. First, overconfidence and inattention to details. Overconfidence in either the IP's self or the student will cause relaxing on the IP's part, which can result in inattentiveness. Ever wonder why the statement "the most dangerous aircraft is one in which two IPs are flying together" was made? Overconfidence.

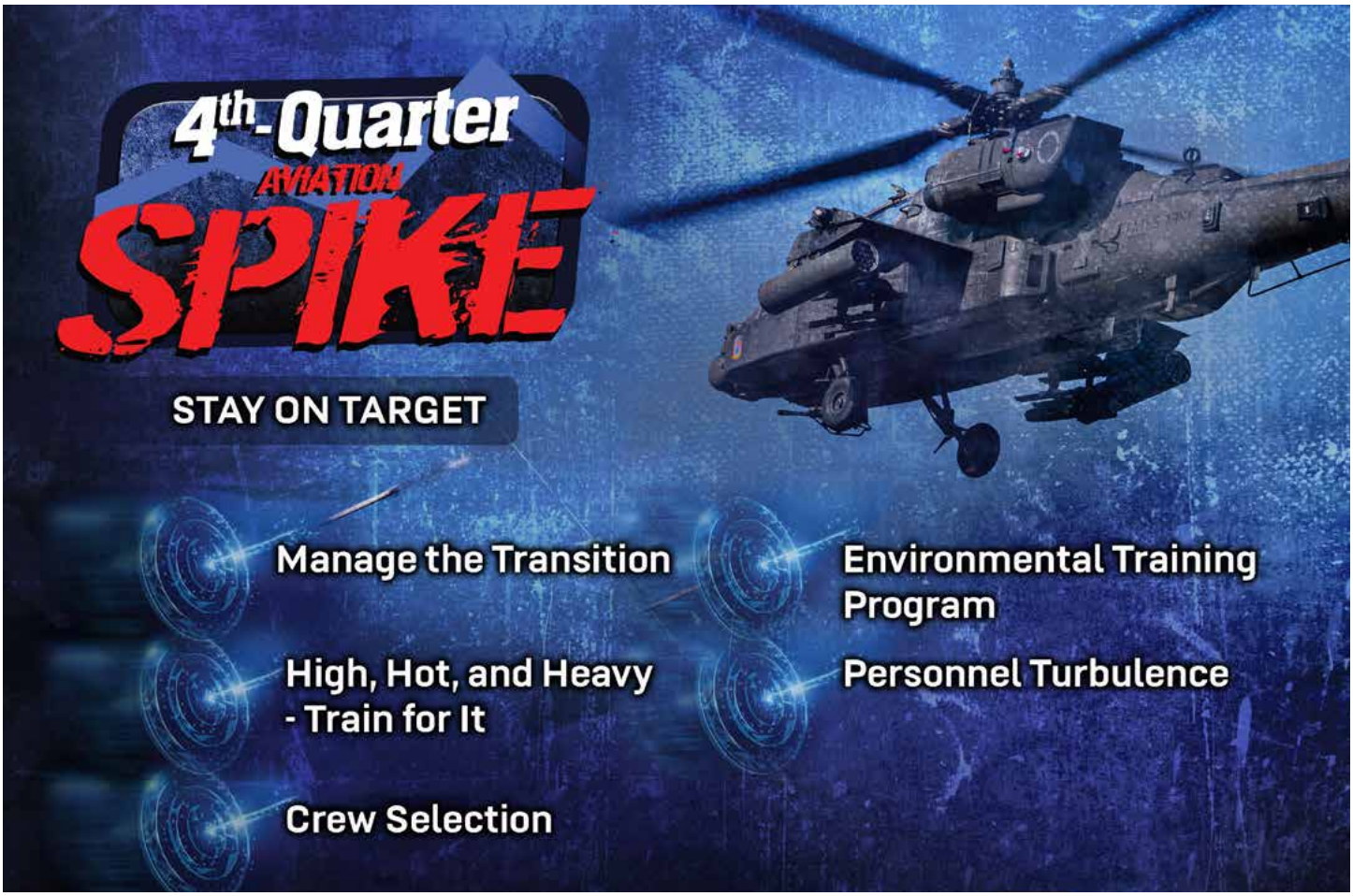
The second reason is the approach, or method of training. The spectrum goes from total trial and error to a style that only allows perfection. The optimum point of teaching, I believe, is somewhere in between, and most of us use a combination. We demonstrate maneuvers and watch the student's attempt at duplication. The philosophy that a student learns by his errors is true; however, that can be a very expensive and time-consuming method of learning. Pure trial and error started going out the window when man first began communicating and

passing on his experiences. This is why and how the IP comes into play.

The question that comes up is, at what point do I as an IP pass on my experience? The tendency to let the student experience the results or to recognize and correct his mistakes has probably caused more gray hair (check mine after 2,000 hours IP time) among IPs than anything else. The question is, how far can I let him go? If I take the aircraft early, he may have recognized and corrected the situation by himself. All the while that magical fine line is rapidly being approached. On the other hand, what learning is produced by flying around in ignorance? Ignorance is bliss, right? I don't think so. I don't have the answer for every situation because they are all different but here are a few helpful hints. As a hard rule, I do not trust anyone when it comes to flying an aircraft that I am responsible for. Next, I divide all phases of flight into two categories: critical and noncritical. This is where ability comes into play. Any time I must take immediate action to prevent an accident or to prevent a dangerous situation from developing, time is critical. Therefore, I am very close to the stick. I don't ride the flight controls because that is very annoying to the other jock, no matter how light you think you are on the stick; but I'm only a gnat's hair away. For example, you'll never see me in close formation with my arm resting on the canopy rail, no matter who is flying. Same way on final approach, even if it is the third one and everything up to that point has been wired. What I use as a guide is the amount of time I have to react if something unforeseen happens. Hardware failures are hard to anticipate. However, think of the worst case that could happen in the situation, determine the amount of time necessary for you to react, and that is how close you need to guard. If your reaction time required is less than a nanosecond, you're across the magical line, and it is time to exercise your IP prerogative and do something.

Lastly, don't assume anything.

-from TAC ATTACK
LTC James H. Wood
479 TTW Chief Stan/ Eval



Selected Aircraft Mishap Briefs

Information based on preliminary reports of aircraft mishaps reported in May and June 2021.

FIXED-WING

C-37A

- While taxiing for departure, the aircraft's left wing struck the blade of a civilian helicopter (parked, not powered). (Class C)

Attack helicopters

AH-64

- **D model.** During takeoff from a field training site, the main rotor blades struck a tree. All four main rotor blades were damaged. (Class C)
- **D model.** During postflight inspection following a training mission, the crew discovered the Modernized Target Acquisition Designation System shroud was missing on the night sensor side of the assembly. The component was found destroyed on the departure end of runway. (Class C)
- **E model.** During aircraft ground taxi, the main rotor blades contacted the pilot night vision system. (Class C)

Utility helicopters

H-60

- **L model.** After initiating engine start on the No. 2 engine, the crew noticed no rise in engine RPM and a slow rise in NG and initiated an abort-start sequence. During an inspection, it was discovered that the engine inlet cover was not removed on preflight and was ingested into the engine during start. A complete engine replacement is required. (Class C)
- **L model.** The aircraft experienced a compressor stall on the No. 2 engine while at idle in parking during shutdown (Class C)
- **L model.** The aircraft started to proceed onto the runway and abruptly maneuvered to stop, resulting in damage to the stabilator when it contacted the ground. (Class C)

M model. During engine start, the aircrew observed higher than normal TGT and aborted start. The fireguard noticed the engine inlet plug was still installed. (Class C)

L model. During a practice autorotation, the nose compartment door came unlatched and struck the windshield. (Class C)

- **M model.** While serving as a blade walker during UH-60M tug operations, a Soldier removed his uniform top and approached an open door to throw it into the cabin. The aircraft rolled over his left foot and right leg. As a result, the Soldier's right leg was broken and left foot was crushed. (Potential Class B)

Cargo helicopters

H-47F

The aircraft struck a tree in a remote training area while conducting hover work under night vision goggles. The aircraft rotor system was damage. (Class C)

Unmanned Aircraft Systems

MQ-1C

- After takeoff, with the aerial vehicle (AV) at approximately 60 feet above ground level, the aircraft yawed to the side, lost airspeed and altitude, contacted the runway and then lost link. The AV landed at an approximate 45 degree angle off the runway heading and continued on that trajectory before exiting the runway and traveling roughly 60 feet into the grass. (Class A)

RQ-7B

- During flight, the AV reported an uncommanded climb, accelerometer fail, airspeed sensor failure and erroneous GPS data. Shortly after, there was a loss of the primary and secondary link to the AV, and the crew was unable to regain control of it. The AV crashed and was recovered, but it was destroyed. (Class B)
- While in flight, the engine RPMs reduced to 2,000-3,600 RPMs and the AV began to decrease in altitude rapidly. At 500 feet, the flight crew deployed the flight termination system. (Class B)
- The UA was established at a recovery altitude of 1,500 feet mean sea level to prepare for landing. The UA was commanded to land. When the UA reached the decision point, it was in position to land, and landing proceeded as normal. After touchdown, the UA caught the arresting gear, which failed and caused the aircraft to stop abruptly, shearing off the main landing gear and damaging the sensor payload. The UA came to rest on its fuselage and nose wheel. (Class C)

Near Miss Briefs

Information based on reports via the Near Miss Reporting Tool

UH-60 Flight

During takeoff, the aircraft yawed 66 degrees to the right and experienced a momentary TR QUAD FAIL caution before control authority was restored and the aircraft was returned to the ground safely. The aircraft climbed to 33 feet above ground level at a max ground speed of 12 knots. Total time spent in the air was one minute and 18 seconds before landing. The pilot (PI) was on the controls when the right yaw occurred. The instructor pilot (IP) immediately took the controls and applied full left pedal, which had no effect. Airspeed was increased to streamline the aircraft and slow the rate of yaw. As pedal authority began to return, the aircraft landed at the departure end of the runway. Foreign object debris (a self-locking nut) was discovered lodged behind a tail rotor pulley. It bound the tail rotor (TR) cable, resulting in a momentary TR QUAD FAIL caution until the nut popped free of the cable. The total cost of all major replacement components and repairs was $1,875.04, including a new TR cable, pulley and connecting link.

RQ-7B

Upon landing, the aerial vehicle contacted the ground with enough force to cause it to bounce/porpoise down the runway before catching the second set of arresting pendants (approximately 339 feet from the touchdown point) on the north side of the runway. The aircraft sustained damage to both (2x) tail boom caps (broken free of the boom but still attached via rivets) and (2x) elerudders (each elerudder was scraped on the trailing edge corner closest to the boom caps). During de-fueling procedures, it was noted approximately 75% of the remaining fuel was in the right wing, and 25% in the left wing (fuel on landing was recorded at 24.22 liters). This led to performing an inspection on the fuel lines to confirm or deny any pinch points and/or obstructions in the system. Nothing hindering the fuel line and/or fuel system was found. (A vacuum test confirmed the visual inspection). It was learned that the crew flying the aircraft had been performing a right roll for most of the flight training and practicing aircraft control. (There is no TM limitations on the amount of time an operator can spend in a roll.) From discussion with FSRs, it is suspected the aircraft (a gravity-fed fuel system) used the fuel in the left wing during the 5.5-hour flight, thus making the aircraft right-side heavy upon landing, which may have contributed to the hard landing and subsequent bouncing that was experienced. The system is designed to self-level fuel while in straight and level flight, but it may not have had enough time in level conditions to level the fuel prior to landing.

UH-60

A service member (SM) was driving a forklift in the hangar to move equipment. They failed to open the hangar doors completely to allow for sufficient space to maneuver the forklift around a UH-60 parked inside. While attempting to exit the hangar, the SM turned the forklift, resulting in its right-rear canopy support contacting the right-rear portion of the aircraft stabilator. The forklift only sustained three-quarters of an inch of damaged paint. The aircraft stabilator tip cap had a thin crack (repairable). The stabilator had a small dent in the back-right most/trailing edge three-quarters of an inch in length (repairable). Total cost of damages was $321.73. The SM had a valid license to operate the forklift and was using all required personal protective equipment, but did not use a ground guide.

Preflight

During preflight checks, flight crews were removing blade ropes. During the rotation of the blades, an SM stepped in front of the blade path. The SM decided to jump from the top of the aircraft (roughly 12 feet) rather than be knocked down by the blades. The speed of the blade rotation and lack of awareness exhibited by the flight crew could have led to serious injury.

Maintenance

A maintenance NCO conducting a records scrub of aircraft identified a component that was overflown by approximately 37 hours. Upon further review, it appeared that during changeover to ACN, component calculations were not calculated correctly during the migration. The unit and facility subsequently scrubbed all aircraft, identifying and correcting other discrepancies that occurred during ACN migration.

Aircraft precautionary landing (PL) due to smoke in the cabin

A maintenance test flight for a post phase completion was being conducted. During taxi, the aircrew noticed smoke in the cabin and cockpit. The crew decided to exit the runway and conduct a PL. The crew executed an emergency shutdown on the taxiway and exited the aircraft without incident. The left main landing gear brake pad did not release, and the prior taxi event caused it to smoke. There were no additional issues.

CH-47F

During postflight inspection of the No. 2 engine, anti-chaff tape particles were found inside the engine cowling as well as tape loosely applied to the No. 2 engine starter hydraulic line. The aircraft recently came out of a phase. Hotter temperatures on the flight and what appeared to be the incorrect tape caused the tape to fail. There is a specific high-temp anti-chaff tape that is to be used. Recommend the correct tape be identified and used in future applications.

UH-60M

Four SMs were conducting maintenance on a UH-60M: one in the pilot's seat monitoring brakes; one putting on covers; one de-paneling the left strut; and one, who was responsible for the near miss, driving the standard aircraft towing system (SATS). The driver was towing a nitrogen cart because they didn't want to wheel it out by hand and attempted to get it as close to the aircraft as possible. The aircraft was about to be towed, so blade ropes were over the blades, not tied to aircraft, and gust lock was out. Once the SATS was under the rotor disc, the blade rope got caught on the door hinge and cinched around the blade, bending the trim tabs. Lesson learned: There was no need for the nitrogen cart to be towed or the vehicle to drive under the blades. This near miss could also have been avoided if the other three SMs at the aircraft stopped or guided the driver. The maintenance test pilot was later able to bend the trim tabs back into place and rebalance the blade.

UH-60L

While opening the hydraulics compartment cowling on the aircraft, a technician lost his balance when the stand he were using moved. The technician attempted to regain his balance by placing his hands on or near the nose of the aircraft. In doing so, the technician struck and broke the resistor thermal probe and lacerated his left palm. The laceration was cleaned and bandaged. No stitches or medications were required.

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AIRCRAFT GROUND MISHAPS

An aircraft ground mishap is an aviation mishap in which there was no intent for flight but an incident resulted in damage to an aircraft or death or injury involving an aircraft. The aircraft engines may or may not be in operation. Examples include mishaps involving aircraft run-up and shutdown procedures, ground handling, aircraft maintenance operations, storm damage and injury to personnel conducting aircraft-related activities such as maintenance, preflight, etc. This applies to aircraft both on land and on board a ship.

There must be an aircraft associated with an aircraft ground mishap. For example, during the course of inspecting a pitch control rod on top of a UH-60M, the technical inspector slips and falls to the ground, resulting in lost workday injuries. This incident was associated with a maintenance action on a particular aircraft.

A non-aircraft ground mishap is not associated with a particular aircraft. For example, while conducting a foreign object debris walk on an aircraft parking ramp, a service member slips on ice, resulting in lost workday injuries. Because this action was not associated with a particular aircraft, it would be reported as a non-aviation ground mishap. Additionally, damage to an aircraft while it is being handled as a commodity or cargo is not reportable as an aviation mishap; it is considered as a ground – industrial/occupational mishap.

Intent for Flight

Intent for flight begins when power is applied or brakes are released to move the aircraft under its own power for the purpose of commencing authorized flight with an authorized crew. Intent for flight ends when the aircraft is at a full stop and power is completely reduced. Intent for flight is the physical act of applying power to move the aircraft, not the thought process of the crewmember as to what is going to occur in the future.

5 Questions

1. Sometime during the night, a parked aircraft is struck by lightning, causing Class B damage. Is this an aircraft ground mishap? Yes
2. A UH-60M is ground taxiing into fixed-base operator parking when the main rotor blades strike an unseen light pole, causing Class C damage. Is this an aircraft ground mishap? No. Power is applied to move the aircraft. This is an aircraft flight mishap.
3. During removal of a main rotor blade from an aircraft, the blade retaining clamp slips, allowing the blade to fall to the ground and sustain Class C damage. Is this reported as an aircraft ground mishap? Yes. A maintenance action is being accomplished on an aircraft, resulting in accidental damage.
4. An aircraft engine is in the engine shop being prepped to be installed on an aircraft when it falls from the engine stand, causing damage. Is this an aircraft ground mishap? No. This incident is not directly associated with an aircraft maintenance action. Had this occurred while the engine was being installed on or removed from the aircraft, it would have been reported as an aircraft ground mishap.
5. During an annual standardization evaluation, after one hour of flight, the aircraft sets down in the sod and goes to flat pitch to discuss maneuvers. Subsequently, a loud bang is heard from the No. 2 input area with associated loss of torque on the No. 2 engine and erratic Np indications on both engines. Is this a manned flight or aircraft ground incident? Aircraft ground. The aircraft is at a full stop in the sod with power completely reduced.