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2019 Goal for Army Aviation: Zero mishaps during ground taxi operations

Army Aviation has achieved historically low mishap rates in the last three years. However, during the last two fiscal years the Army has experienced an increase in ground taxi mishaps that, while fortunately resulting in no loss of life, have caused significant damage to aircraft and aviation support structures. During FY18, we demonstrated the mind-numbing propensity to drive our otherwise perfectly good aircraft into static obstacles after landing. At year-end count, we recorded four Class A ground taxi mishaps that seriously damaged or destroyed five aircraft and other support structures, to the tune of over $50 million in lost resources and reduced readiness. Three of these aircraft — two CH-47s and one AH-64 — were damaged extensively in combat locations, directly affecting our ability to fight and win.

In one instance at night at an uncontrolled municipal airport, we drove a UH-60 into the lone static control tower on an otherwise empty 20-acre parking ramp. In another, during recovery operations at an uncontrolled municipal airport, we deviated off the yellow taxi line and turned into a static hangar in broad daylight despite a crew chief's verbal concern for clearance with the structure. In yet another, we seriously diminished combat readiness in theater when a CH-47 crew taxied at night into the CH-47 to their front during FARP operations. Most of these mishaps involved poor planning or poor risk management, an absence of effective command and control, and disturbingly, direct leader failures. In each case, the crews exhibited an urgency to get home or otherwise hastily execute ground operations in order to carry on and complete the mission. Likewise, in each mishap the crews demonstrated they had figuratively 'exhaled' and let their collective guard down after completing that portion of the flight and landing safely.

Causes

Not surprisingly, safety investigations determined human error was the root causal factor in each of these ground taxi mishaps, and they all share some common leading and underlying causal characteristics. The following were causal factors in one or more instances:

- **Mission command failure**
  - Failure to issue an order
  - Failure to rehearse airfield reception or FARP operations
  - Failure to integrate risk management into the planning process

- **Direct leader failure**
  - Failure to take actions to mitigate risk or remedy known hazards during execution
  - Failure to utilize ground guides or other external command and control measures to avoid obstacles

- **Poor crew coordination**
  - Pilot-in-command established or enabled an undisciplined climate in the cockpit and cabin, leading to distraction or improper clearance coordination
  - Pilot-in-command failed to prioritize tasks to ensure aircraft clearance above other less critical tasks

- **Poor crew coordination — improper or ineffective solicitation and response during clearance and obstacle avoidance coordination**
  - Failure to acknowledge clearance response before continuing movement
  - Failure to actually clear the aircraft before verbally responding that the aircraft was clear
  - Failure to provide additive detail or distance estimation to paint an accurate or confident picture for the rest of the crew
  - Failure to pause aircraft movement and determine the best course of action before proceeding
  - Crewmembers in a non-effected crew station carrying on non-mission essential banter, thereby interrupting and distracting essential clearance communications between other crewmembers
  - A junior pilot or crew chief demonstrated excessive professional courtesy to a senior crewmember, or excessive deference to and trust in that senior crewmember's experience and judgment
  - Failure to be assertive

- **Individual failure — poor judgment, or failure to execute primary crew duties to clear the aircraft**

The direct leader failures are of note; in multiple instances, one or more company grade leaders — who own the aircraft, the mission, and the risk — were present and/or directly involved but took no part in proactively mitigating hazards to avert the mishap. Those leaders sat idly by, distracted by flight duties or an otherwise inexplicable lethargy to act, as the mishap occurred literally right under their proverbial noses. In one instance, an RL2 platoon leader was in the right seat, on the obstacle side of the aircraft, during the mishap collision, but was not heard at all on audio during the mishap sequence. In that same mishap, the company commander passively observed from

the ramp the entire mishap sequence from landing until shutdown, but took no action to influence the situation. Either leader had multiple opportunities to halt operations and take some mitigation measures or implement an alternate course of action. The mission approval process, risk assessment worksheet, and mission briefing officers all are tools to aid in risk management, but our leaders own the process, and there is no substitute for active leader involvement throughout.

Also noteworthy is our tendency to relax our attention after landing. Pilots-in-command must demand a sterile cockpit and cabin, dictate effective communications, and prioritize tasks accordingly after landing. Likewise, individual crewmembers must maintain vigilance in crew duties and recognize their principal responsibility to maneuver the aircraft with appropriate clearance during ground operations. Effective crew coordination is every bit as critical to safe operations during ground taxi as it is during flight.

As the current commanding general of 10th Mountain Division, MG Walter Piatt, once noted years ago, every single time we crank an APU or push the starter button on an Army aircraft, it is a live-fire event. While we should strive to eliminate all Class A mishaps — and most are overwhelmingly preventable — it is not too much to expect that our aircrews refrain from driving our aircraft into static obstacles on the ground. So let us make that a goal in FY19: zero mishaps during ground taxi operations. This is a perfectly reasonable and attainable goal that will pay off in combat readiness. ■

Readiness Through Safety!

COL Christopher W. Waters
Deputy Commanding Officer
U.S. Army Combat Readiness Center

This article originally ran in ARMYAVIATION Magazine's November 2018 edition. Since its publication, there has been one ground taxi mishap thus far in FY 19.

The Importance of Platoon Leaders serving as Air Mission Commander

Based on observations during recent rotations at the National Training Center (NTC), it is noteworthy and concerning that warrant officers rather than commissioned officers are serving as the air mission commander (AMC) during the majority of missions. In accordance with Army Techniques Publication (ATP) 3-04.1 Aviation Tactical Employment, the AMC is the commander or the designated representative of the supporting aviation unit, yet it seems that utilizing a warrant officer has become the rule rather the exception. As young officers move through their career progression without gaining training and experience as an AMC, they fail to obtain the proficiency and expertise necessary to lead flight formations during planning and execution, and to fully grasp their responsibility to develop and employ tactical capability, as they become company and battalion commanders. We cannot expect our green tab platoon leaders, company commanders, and battalion commanders to build and deliver combat capability and understand and mitigate risks without the experience and expertise of directing and leading tactical missions.

Photo by SSG William Reinier

It seems obvious, but our platoon leaders and company commanders – who own the aircraft, the mission, and the risks – must appreciate their direct and inherent responsibility for mission success and accountability for risks and hazards during mission planning and during execution with every operation involving their Soldiers and equipment. It appears this fundamental responsibility is lost on junior leaders during recent mishaps: – the platoon leader or company commander seemed distracted by crew duties or individual progression, or has abdicated leadership and decision-making for directing the flight to a warrant officer. The very best way to instill responsibility for risk mitigation and mission success is to place our junior leaders in formal leader positions during the mission, as pilots in command in the cockpit, and as AMCs for the flight.

Train the Trainer

Training Circular (TC) 3-04.11 Commander's Aviation Training and Standardization Program details how commanders will reduce risk. It is evident that just as battalion/squadron commanders are the primary trainers for company commanders and AMCs, so it is that company commanders are the primary trainers for their unit AMCs.

Photo by SPC Avery Cunningham

From an operational risk management standpoint, if platoon leaders and company commanders are not gaining experience as AMC, they will lack the ability to maintain shared understanding of all the risks associated with the tactical employment, and therefore may not incorporate effective risk mitigation during planning or proactively make effective risk decisions during execution. Units must establish deliberate AMC training programs to train platoon leaders as proficient

flight commanders who can lead from the front and make proper risk decisions.

AMC Training Program

Tough realistic AMC training programs are critical pathways to success to ensure our junior leaders become effective company commanders. Per TC 3-04.11, the training program is an identified and annotated task on the DA Form 7122. These 6000 series task are designed to train aviation leaders to assume the responsibilities of making critical risk decisions throughout mission planning and during mission execution.

Commanders should understand that the AMC designation goes hand in hand with actual hands-on mission experience. TC 3-04.11 states, "The AMC is selected to lead an assigned mission based on the appropriate level of aviation proficiency, experience, and leadership." So as commanders build their training programs, they also must ensure that their junior commissioned officers are directly involved as formal leaders during flight operations. An obvious and effective tool during AMC training is to place an experienced warrant officer with the commissioned officer in the cockpit, and likewise, proficient company commanders should fly with and mentor platoon leaders as often as possible during training.

Conclusion

Platoon leaders and commanders are responsible for delivering combat capability, which they build through effective training plans based on their directed mission essential tasks. The AMC training program is a critical component of this training plan for formal tactical leader development. Just as it is important that our junior leaders become pilots in command so that they can effectively lead and fight their individual aircraft, it is also important that they develop proficiency and expertise leading and directing the employment of the entire capability that they are responsible to deliver, to include active risks recognition and proactive risk decision-making. These steps will guarantee competent leaders and commanders at echelon that can lead and fight in the complex environments that decisive action large scale combat operations demand. ■

COL Christopher W. Waters
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This article originally ran in ARMYAVIATION Magazine's December 2018 edition.

Photo by SGT Amber Bohlman

Aviation Ground Support Equipment (AGSE) Update

The Aviation Ground Support Equipment (AGSE) Product Office is the life cycle manager for common Army aviation ground support equipment. The AGSE PO is embracing several acquisition initiatives to field safe and reliable systems more quickly – to include leveraging commercial off-the-shelf products developed by our industry partners. We are in continual communication with the platform PMs, our sister services, and international partners to drive synergy, commonality, and increased buying power. The AGSE team continually looks for ways to reset and modernize AGSE while ensuring U.S. Army aviation maintainers have the "right tools, at the right time, at the right place."

The Self-Propelled Crane Aircraft Maintenance and Positioning (SCAMP II)

The SCAMP II expeditionary crane will remove and replace major aircraft components in support of Army aviation maintenance forward on the battlefield. The crane is internally transportable in the CH-47 Helicopter. The SCAMP achieved low rate initial production milestone in August 2018 and will complete system user evaluation and customer test to inform a 3QFY19 full rate production decision.

Self-Propelled Crane Aircraft Maintenance and Positioning (SCAMP II)

Next Generation Aviation Ground Power Unit (NxG AGPU)

AGSE PO will execute a commercial competition to replace the legacy AGPU. The NxG AGPU will provide increased power, hydraulic flow, and pneumatic pressure while providing enhanced technologies to better remove air, water and particulates from the hydraulic fluid. AGSE will conduct a fly-off in FY19 and anticipates contract award in 2020.

Aircraft Armament Repairer Tool Kit (AARTK)

In September 2018, AGSE begun fielding a modification for the Individual Aircraft Armament Repairers Tool Set (IAARTS) for our Armament/Electrical/Avionic System Repairers (15Y). The Aircraft Armament Repairer Tool Kit (AARTK) is LIN: W59034and NSN: 5180-01-667-9530; it will replace the following IAARTS: LIN W59034, NSN 5180-01-578-3697; LIN W59034, NSN 5180-01-5160223; and LIN W59034, NSN 518001-433-4469.

Aircraft Armament Repairer Tool Kit (AARTK)

Unmanned Aircraft System General Mechanics Tool Kit (UGMTK)

AGSE PO is developing a common Unmanned Aircraft System General Mechanics Tool Kit to support Gray Eagle and Shadow maintenance performed by Unmanned Aircraft System Repairers (15E). Fielding will begin in FY19.

Unit Maintenance Aerial Recovery Kit (UMARK)

The AGSE Team modernized 139 UMARKs in FY18. The modernization work order significantly improved safety, extended sling lengths (from 60'to 90' Legacy UMARK to 150' Modified UMARK), and increased sling storage life from five years to 15 years, eliminating the recertification requirement.

Tool Set, Aviation Unit Maintenance

The Tool Set, Aviation Unit Maintenance: No. 2 Airmobile-Enhanced (formerly Alpha 92) modernization effort is in final modification development and testing. The modification will improve maintenance support for the aviation maintenance company and enhance split-based maintenance operations. The modified Tool Set will introduce five key enhancements: 1. replaces three obsolete S280 shelters with three Army Standard Family of Shelters; 2. provides enhanced storage space for common and peculiar ground support equipment; 3. modernizes the tool load; 4. adds a proven 7.5 ton commercial trailer (NSN 2330-01-5065979) for each shelter; and 5. enhances rail, sea, air, and highway transportability, and improves physical security of internal shelter equipment.

Tool Set, Aviation Unit Maintenance

Non-Destructive Test Equipment (NDTE)

The NDTE suite underwent a modification through 2018 (MWO 1-1500-204-50-2, -3, and -4). This modification includes replacement of the 2000D and 1000e+ model Flaw Detectors and 1200M model Ultrasonic Detector. Interim inspection procedures for the modernized equipment are provided in an Aviation Maintenance Action Message (PD AGSE-17-AMAM-01) until technical manual updates are completed. New equipment training is being provided during modification installations.

Non-Destructive Test Equipment (NDTE)

Flexible Engine Diagnostic System (FEDS)

AGSE PO is developing a modification to the FEDS. The modification will provide digital components, enhanced safety features, reduced cabling, government owned software, and the ability to test digital "bussed" engines. Fielding of the first three modifications will occur in FY19.

Aviation Ground Support Equipment Assistance

Please work closely with your unit logistics assistance representative (LAR) for assistance in fixing aviation ground support equipment. The AGSE Team utilizes the Joint Technical Data Interchange (JTDI) website for communicating technical information, product updates, addressing issues and concerns, and providing a link to our online help ticket for our customers in the field.

The AGSE tab on JTDI is currently under construction to ensure we provide the field with the most accurate and authenticated information on our products. More information on JTDI registration, access, and use is available at https://www.jtdi.mil. The AGSE Help Ticket (upper right corner at JTDI) allows users to submit equipment specific questions directly to a subject matter expert. An automated email notifies customers of their query progress. Responses are sent via email to ensure customers can reference them as needed.

Mr. Craig Besaw is the product director, and LTC William Graham is the operations officer, for the Aviation Ground Support Equipment Product Office, Aviation Systems Project Office, Program Executive Office, Aviation at Redstone Arsenal, AL. ■

Mr. Craig Besaw and LTC William H. Graham

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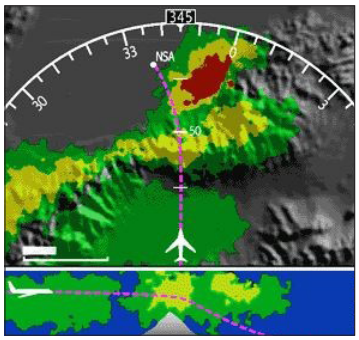
Declaring an Emergency

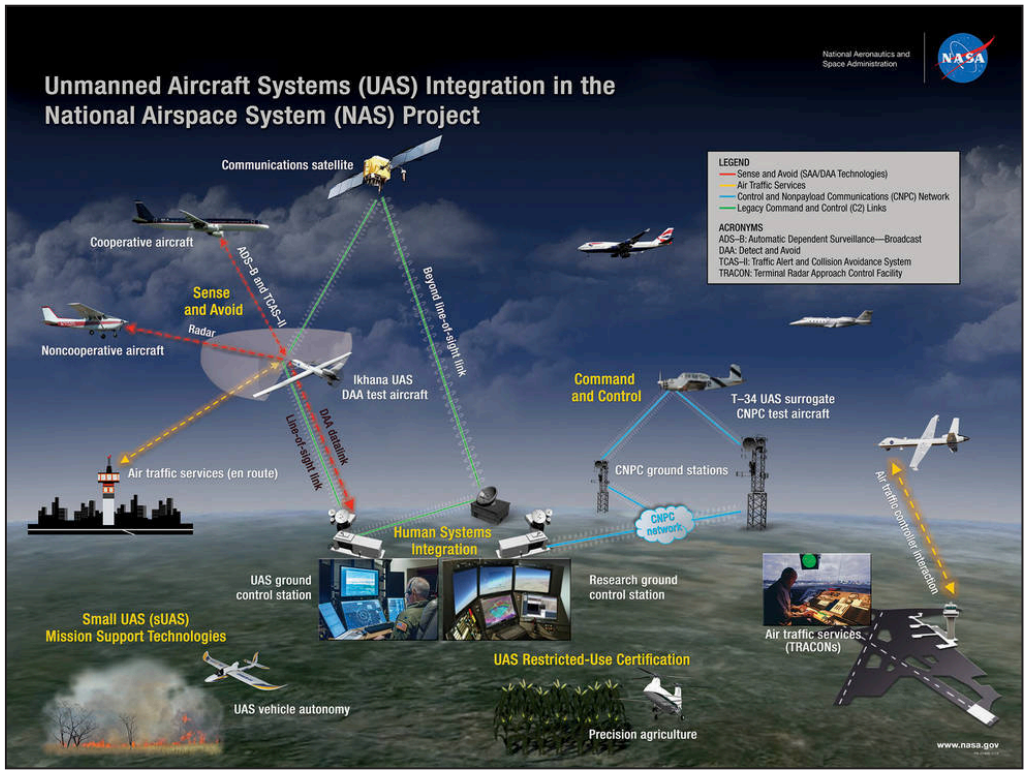
When do you declare an emergency? According to the Aeronautical Information Manual (AIM), pilots do not hesitate to declare an emergency when they are faced with distress conditions such as fire, mechanical failures (i.e. engine issues), or structural damage (i.e. bird strike). However, some pilots are reluctant to report an urgency condition when they encounter situations which may not be immediately perilous, but are potentially catastrophic. As a pilot in command (PIC), you are directly responsible for and the final authority for the safe and continued operation of an aircraft. Ultimately, whatever you decide to do as either a crew or as the PIC, the responsibility rests with you, the PIC.

What then is the difference between a distress and an urgency condition? According to the Pilot/Controller Glossary, they are both defined as an emergency. Urgency is a condition of being concerned about safety and of requiring timely but not immediate assistance; a potential distress condition. To transmit an international radio call of urgency, the call would be prefaced with 'PAN' repeated three times, which indicates uncertainty or alert and would be followed by the nature of the urgency. Distress is a condition of being threatened by serious and/or immediate danger and of requiring immediate assistance. To transmit an international radio distress call, 'Mayday' repeated three times indicates immediate and grave danger and that immediate assistance is requested. *Distress*/'Mayday' communications have absolute priority over all other communications and commands radio silence on the frequency. Urgency/'Pan' communications have priority over all other communications except distress/'Mayday' communications.

Why the difference? When to choose urgency or distress? Without getting into too much detail – remember, this declaration of an emergency or request for assistance does not apply to a lost communications situation (refer to the Flight Information Handbook for Lost Communications/Two-Way Radio Failure procedures) – this request or declaration requires that the aircraft have two-way radio communications. A lost communications scenario alerts radar facilities via equipment so that Code 7700 normally triggers an alarm or special indicator at the controller's position, however, this only works when within a radar coverage area. Therefore, let's assume that a crew has established communications and they desire to transmit an urgency or distress radio transmission. They would preface the initial call to the air traffic facility or agency in whose area of responsibility the aircraft is operating with either 'Mayday' or 'Pan', followed by the nature of the difficulty, pilot's intentions or request, and the assistance desired. Remember that the aircraft is in at least an urgency condition when the pilot or the crew is doubtful with regard to their position, their fuel endurance, the weather they are experiencing, or any other situation that could adversely affect the safety of their aircraft and the remainder of the flight. Waiting too long to declare an emergency or choosing the lesser of the two emergency conditions, i.e. Urgency/'Pan', when the safety of the crew, the passengers, the aircraft, and the mission is already in question is a potential problem, but not asking for help or assistance could elevate an urgency situation into a distress condition with little to no options.

Take for example an aircraft on an IFR flight that has enough fuel at the time





of departure, to make it to the destination airport including the approach and until over the first point of intended landing, with a 30 min IFR reserve at cruise per AR 95-1. BUT WHAT IF THE weather at the destination is less than 400'/1 above the military weather planning min for the approach to be flown at ETA thru 1hour after ETA, or what if radar is required for the approach, or the approach NAVAIDs to be used are unmonitored? Then an alternate would be required and would require additional fuel to make it from the missed approach point at the destination to the missed approach holding point, one circuit in holding, then from the missed approach holding to the alternate airport including the approach and landing time, as well as an IFR reserve of 30 minutes at cruise. Assuming the crew has conducted their preflight, en route and arrival planning properly, the crew would have accounted for the alternate airfield and the additional fuel required. But what if actual weather conditions are different than what was forecasted? And what if you did not have sufficient fuel to make it to an alternate? Would you declare an emergency, 'minimum fuel' or 'low fuel'? Per the AIM, 'minimum fuel' is not an emergency situation but merely an advisory that indicates an emergency situation is possible should any undue delay occur. Also be advised, that a 'minimum fuel' does not imply a need for traffic priority. But, if your remaining fuel available, due to un-forecast weather at your destination, is not enough to get you from the missed approach point to an alternate, then you should declare an emergency due to 'low fuel' and report your remaining fuel in minutes. This emergency declaration of 'low fuel' in no way guarantees your safe arrival, but it does get relayed to the facilities and controlling agencies and advises the controller(s) to be alert for any occurrences that may delay your aircraft. The key word to remember is emergency. 'Low Fuel' is an emergency declaration as is urgency and distress. Once an emergency has been declared, (besides priority handling, expeditious assistance, weather updates and advisories, radar vectors, and in some cases even intercept and escort services) more options become available. Could you normally land in a National Park, a U.S. Fish and Wildlife Service area, or a U.S. Forest Service area without authorization – the answer is no, however, once you have declared an emergency, which is beyond your control, and assuming you are in visual meteorological conditions (VMC) and can see to land, then a wildlife refuge becomes an option. Normally landing at a private airport or at a military airport without a prior permission request (PPR) approved is prohibited. But, once you declare an emergency you certainly can. Rather than panic, stress, push the envelope and make a situation even worse, consider declaring an emergency. You may have to explain your situation and circumstances and reason for declaration once you are on the ground, but you and your crew and passengers are alive and safe on the ground.

Remember, the declaration of an emergency, *urgency*/'Pan', *distress*/'Mayday', or 'low fuel' is always an option. If you become apprehensive and concerned for your safety you should request assistance immediately. Air traffic control services are responsible for monitoring and managing the flow of air traffic throughout the national airspace (NAS), in a safe, orderly and expeditious manner. Whether you are visual flight rules (VFR) or instrument flight rules (IFR), never hesitate to declare an emergency. Delay in declaring an emergency has caused accidents and cost lives. Make sure you take the appropriate course of action, sooner rather than later, and live to fly another day. The safety of the crew, the passengers, the aircraft and yourself rests on your ability to make the right decision. Never take declaring an emergency out of your decision making matrix! ■

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Mishap Review: HH-60M Severed Hoist Cable

While conducting night vision goggle live hoist operations training, the non-rated crew member (NRCM) serving as the hoist operator reeled the hoist cable in and called for an increase in altitude when responding to significant oscillations. As a result, the flight medic suffered fatal injuries when the hoist cable was severed due to contact with the airframe forward of the main landing gear.

History

The crew started their duty day at 1300 at the operations and intelligence (O&I) update brief at the task force (TF) tactical operations center (TOC). From 1400-1530, the aircrews conducted a team-brief, aircraft-brief, preflight check, and engine health indicator tests (HIT) checks. The mishap aircrew also conducted hoist preoperational checks during this time. Upon completion of HIT checks, the crew shut down and assumed first-up duties awaiting a simulated 9-Line call for training. The team departed their location at 1710 for local flight training which included four iterations of day live-hoist training. The crews returned to base and shut down at 1840 assuming first up duty until receiving an "exercise" 9-Line MEDEVAC request from the supported unit. The team conducted after action reviews of the daytime flight, ate dinner and readied night vision goggles (NVG) for night operations. The team departed at 2043 on an "exercise" 9-Line and returned to parking at 2206. Refuel was deferred and the team took off to conduct 45 minutes of training at 2218. The mishap PIC notified the base tower at 2232 that they were an H60 with a broken hoist cable and one of the crew had fallen. The chase aircraft, which was training close by, relayed an update to the TF TOC. The chase aircraft transported first responders to the mishap location. The crewmember did not survive the fall.

Crew experience

The pilot in command (PC) had 644 hours in MDS and 1,392 hours total time. The pilot had 70 hours in MDS and 184 hours total time. The crew chief had 298 hours total time and the flight medic had 441 hours total time.

Commentary

Hoist operations are particularly risky because they are impacted by multiple factors such as pilot induced oscillations, hoist operator induced oscillations, and environmental conditions such as high or shifting winds. These risks increase with increased height of the aircraft above the ground and extended cable lengths. While maintaining a stable hover during sling-load operations is important, the ability to maintain a stable hover during hoist operations is CRITICAL! Rated crewmembers should be trained on the use of the flight director during hoist operations IAW the ATM and the aircraft operator's manual while nonrated crewmembers should be thoroughly familiar with actions necessary to prevent hoist cable contact with the aircraft and actions necessary if oscillations become significant. Briefing officers and PICs of aircraft conducting live hoist training must understand the critical nature of live hoist operations and fully develop the mission plan for the training exercise or real world mission. Encompassed in this preparation is thorough maintenance preparation of the hoist and cable. Followed by dry run walk through of the hoist operation with all crewmembers present and rehearsing their actions. These should be conducted to standard, not time. This allows crews to gain effective communication with new or non-habitual crew members and for the team to correct any deficiencies they may find during the rehearsals. Ultimately the PIC is responsible for ensuring that the crew is trained and capable of safely completing the training or able to execute real world hoist operations. Remember "ACTS": effective crew Actions, Coaching by instructors and senior crewmembers, Thinking through the task, and See the error and make corrections on the spot. ■

Class A - C Mishap Tables

	Manned Aircraft Class A – C Mishap Table									as of 12 Mar 19
	Month	FY 18					FY 19			
		Class A Mishaps	Class B Mishaps	Class C Mishaps	Fatalities		Class A Mishaps	Class B Mishaps	Class C Mishaps	Fatalities
1st Qtr	October	1	2	7	0		1	1	3	0
	November	0	1	4	0		0	0	5	0
	December	1	0	8	0		1	1	1	0
2nd Qtr	January	1	1	3	2		1	1	0	0
	February	0	0	2	0		2	0	0	0
	March	0	1	11	0					
3rd Qtr	April	1	2	4	2					
	May	1	0	5	0					
	June	1	1	5	0					
4th Qtr	July	1	0	6	0					
	August	3	1	6	1					
	September	1	1	8	1					
	Total for Year	11	10	68	6	Year to Date	5	3	9	0
	Class A Flight Accident rate per 100,000 Flight Hours									
	5 Yr Avg: 1.23		3 Yr Avg: 1.05			FY 18: 1.30			Current FY: 1.57	

UAS Class A – C Mishap Table									as of 12 Mar 19
	FY 18					FY 19			
	Class A Mishaps	Class B Mishaps	Class C Mishaps	Total		Class A Mishaps	Class B Mishaps	Class C Mishaps	Total
MQ-1	3	1	3	7	W/GE	2	0	1	3
MQ-5	1	0	0	1	Hunter				
RQ-7	0	7	20	27	Shadow	0	2	10	12
RQ-11	0	0	0	0	Raven				
RQ-20	0	0	0	0	Puma			1	1
SUAV	0	0	0	0	SUAV				
UAS	4	8	23	35	UAS				
Aerostat	4	2	1	7	Aerostat				
Total for Year	8	10	24	42	Year to Date	2	2	12	16

Blast From The Past:

*Articles from the archives of past **Flightfax** issues*

PRELIMINARY ARMY AIRCRAFT MAINTENANCE MISHAP DATA
maintenance fax

VOL. 2, NO.8. 29 MAY 1974

Pop-Off Lid?

Ever wonder what can happen if the transmission oil filler cap on the OH-58A helicopter is improperly installed? The accompanying photographs show one result.

Witness marks are aligned and filler cap appears secure *(photo 1)*. However, space between serrated collar and filler flange is greater than width of collar.

During operation, pressure builds up within transmission housing, unseating filler cap, and blowing it into flight controls *(photo 2)*. When cap is properly seated and secured, space between flange and serrated collar is less than collar width and witness marks are aligned *(photo 3)*. Although use of witness marks on PHOTO 1 transmission oil filler caps is not required, these marks help alert flight crews to a possible unsafe condition and their use is recommended.

Our thanks to the Canadian Helicopter School for furnishing us these pictures that were taken after an actual occurrence was detected just moments before the affected aircraft was to have been lifted to a hover.

Champagne corks are intended and expected to pop off; transmission oil filler caps are not. Make sure those on your aircraft are properly installed.

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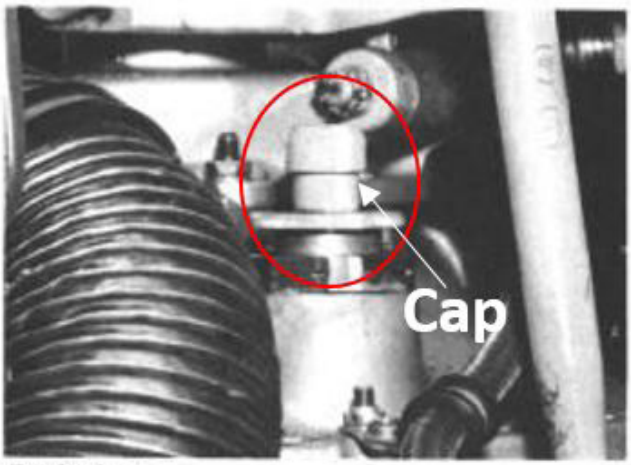

PHOTO 1

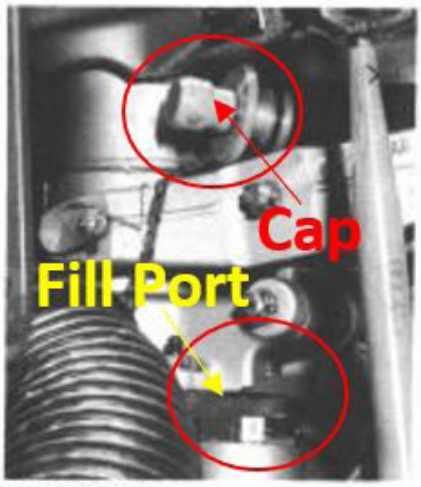

PHOTO 2

PHOTO 3

Observations, Insights, and Lessons Learned
National Training Center
Eagle Team Combat Aviation Trainers

Hot Topics

Protecting the Aviation Task Force

(U) Observation:

Aviation rotational unit tactical assembly areas (TAAs) at the National Training Center (NTC) generally position well within the range of enemy cannon and rocket artillery. In the context of the scenario at NTC, this provides the unit with the opportunity to train on 'react to indirect fire' and exercise mass casualty (MASCAL) contingency plans, as well as reconstitution of personnel and equipment. While proximity of the aviation TAA provides the unit with close access to the forward line of troops and friendly objectives, it places the aviation unit firmly within observation of enemy reconnaissance units, and, therefore, at high risk of observed indirect fires. With friendly attack aviation being near the top of every enemy's high priority target list; this makes the task of protecting the aviation task force daunting and unachievable by a wholly organic aviation unit.

(U) Discussion:

To achieve the operational reach afforded by a TAA located near the forward line of troops, the commander must consider how to mitigate the additional risk of detection by enemy reconnaissance efforts and the potential for indirect fire. ADRP 3-0, paragraph 2-53 states, "Protection is an important contributor to operational reach. Commanders anticipate how enemy actions and environmental factors might disrupt operations and then determine the protection capabilities required to maintain sufficient reach." In order to extend operational reach, the task force commander must either augment his security force with enough strength to deny the enemy's ability to observe the TAA or position the TAA with enough standoff to prevent enemy observation. The latter course of action would provide economy of force and minimize risk of detection.

(U) Recommendation:

Producing the personnel and equipment to defend an aviation TAA is a formidable task, even with a relatively benign threat. The size and type of terrain required makes the task force difficult to mask from enemy detection. An enemy force can effectively disrupt aviation operations with a small reconnaissance effort when the aviation TAA is positioned near the forward line of troops. In lieu of more frequent survivability moves that disrupt planning and mission command, units should maximize the use of jump FARPs and tactical command posts to extend operational reach without compromising the survivability of aviation task forces. Leveraging the small size of the jump FARP, along with its inherent mobility, minimizes the enemy's opportunity to observe, identify, and destroy aircraft while they are on the ground and most vulnerable. ■

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Mishap Briefs #73

Utility

H-60

L Model – Crew was conducting night training flight and attempting a landing in reportedly degraded visual environment (DVE) conditions when the aircraft landed hard. Initial damage: four main rotor blades (MRB); collapsed tail strut; separated tail rotor (T/R) drive shaft. (Class B)

H-72

A Model – Aircraft initiated un-commanded spin during basic warfighter skills night vision goggle (NVG) training and landed hard, following autorotation by instructor pilot (IP). Aircraft sustained significant damage; Crew was able to egress, following aircraft shutdown. (Class A)

Unmanned Aircraft

MQ-1

C Model – The mishap aircraft landed with the gear not in the fully extended position, resulting in gear collapse on touchdown. It was configured with landing gear control set to manual and commanded down, causing the mishap aircraft to extend the gear immediately after control transfer. Approximately two minutes later, the crew switched landing gear control from manual to auto and commanded an "all bump up" gear command (manual movement), moving all three gear slightly out of the fully extended position. During landing, the landing gear collapsed after touchdown (only held in position by the actuators). The aircraft sustained significant damage. (Class A)

RQ-7

B Model – Crew reportedly experienced engine-temp spike and RPM anomalies while air vehicle (AV) was in flight and subsequent engine failure during TALS loiter. Recovery chute was deployed and aircraft was recovered with damage. (Class C)

BV2 Model – During the mission the air vehicle (AV) experienced degraded engine performance. The AV was returned to base (RTB) but a tactical automatic landing system (TALS) recovery was not successful. The flight termination system (FTS) was initiated but was unsuccessful due to the low altitude. (Class B)

BV2 Model – Crew reportedly experienced TALS malfunction during the landing sequence. Aircraft was recovered with damage. (Class C)

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Accident and Incident Classes

Accident classes are used to determine the appropriate investigative and reporting procedures.
Accident classes are as follows:

Class A accident: An Army accident in which –
(1) The resulting total cost of property damage is $2 Million or more;
(2) An Army aircraft is destroyed, missing, or abandoned; or
(3) An injury and/or occupational illness results in a fatality or permanent total disability.
Note: *Unmanned Aircraft Systems (UAS) accidents are classified based on the cost to repair or replace the UAS. A destroyed, missing, or abandoned UAS will not constitute a Class A accident unless replacement or repair cost is $2 million or more.*

Class B accident. An Army accident in which –
(1) The resulting total cost of property damage is $500,000 or more but less than $2 million;
(2) An injury and/or occupational illness results in permanent partial disability; or
(3) When three or more personnel are hospitalized as inpatients as the result of a single occurrence.

Class C accident. An Army accident in which –
(1) The resulting total cost of property damage is $50,000 or more but less than $500,000;
(2) A non-fatal injury or occupational illness that causes 1 or more days away from work or training beyond the day of shift on which it occurred; or
(3) Disability at any time (that does not meet the definition of Class A or Class B and is a day(s)-away-from-work case).

Class D accident. An Army accident in which –
(1) The resulting total cost of property damage is $20,000 or more but less than $50,000;
(2) A nonfatal injury or illness results in restricted work, transfer to another job, medical treatment greater than first aid, needle stick injuries, and cuts from sharps that are contaminated from other person's blood or other potentially infectious material, medical removal under medical surveillance requirements of an OSHA standard, occupational hearing loss, or
(4) A work-related tuberculosis case.

Class E ground accident. An Army ground accident in which the resulting total cost of property damage is $5,000 or more but less than $20,000.

Class E aviation. An Army aviation accident in which the resulting total cost of property damage is $5,000 or more but less than $20,000.

Class F aviation incident. Recordable incidents are confined to aircraft turbine engine damage because of unavoidable internal or external foreign object damage, where that is the only damage (does not include installation aircraft auxiliary power units).

5 Questions

1. Are accident classes used to determine the appropriate investigative and reporting procedures?

2. A UAS has an estimated repair cost (ECOD) of $1,500,000. What class is this accident?

3. During a ground accident, five personnel are hospitalized as inpatients from the single occurrence. What class accident were these five soldiers involved in?

4. A soldier receives a non-fatal injury during an accident that results in medical treatment greater than first aid. What class accident was this soldier involved in?

5. During an accident, an individual receives an occupational illness that results in that individual missing four consecutive days away from work. What class accident was this individual involved in?

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