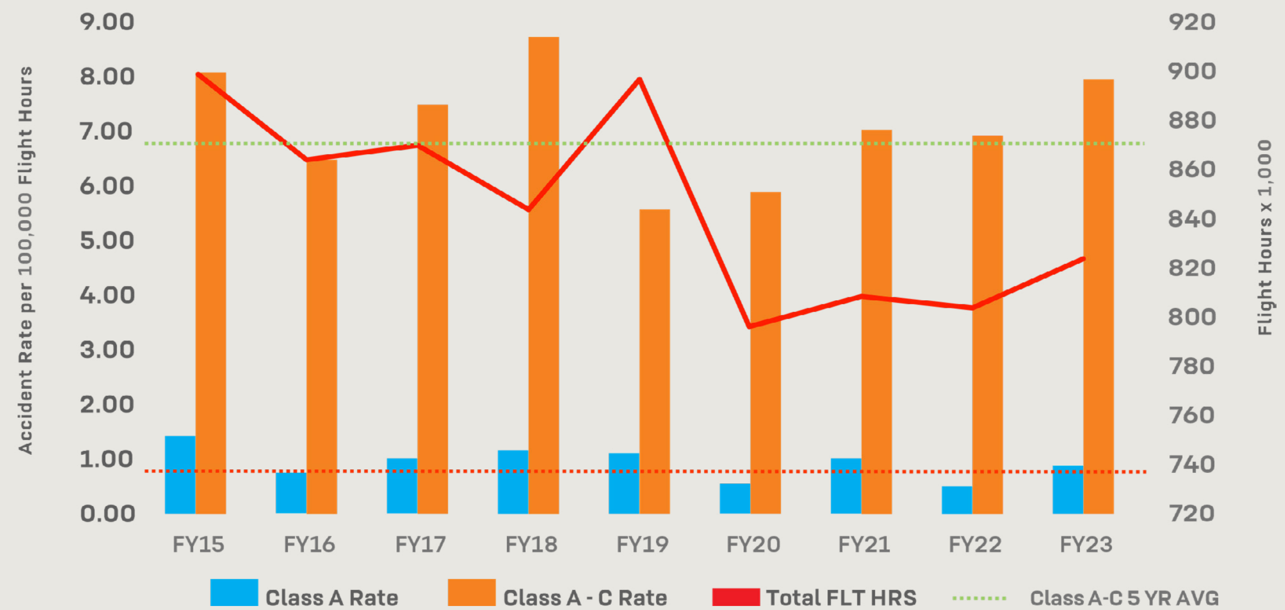
Flightfax
Number 127 January 2024 Online Newsletter of Army Aircraft Accident Prevention

FY23 Aviation Annual Assessment

Manned Aviation

This year Army Aviation experienced 10 Class A mishaps and a rate above the five-year average of 0.85. As a result, the Army's mishap rate has risen above 1.0 for the first time since FY19. As shown in figure 1, FY23's manned Class A flight mishap rate was 1.08 per 100K flying hours. FY23 also had the most aviation mishap fatalities (14) in the last 10 years and is the highest since FY10 when Army Aviation sustained 16 mishap fatalities. There were 10 Class A mishaps (9 flight; 1 aircraft ground) reported in FY23 with approximately 835,063 hours flown.

Figure 1: Manned Aviation Flight Mishap Rates



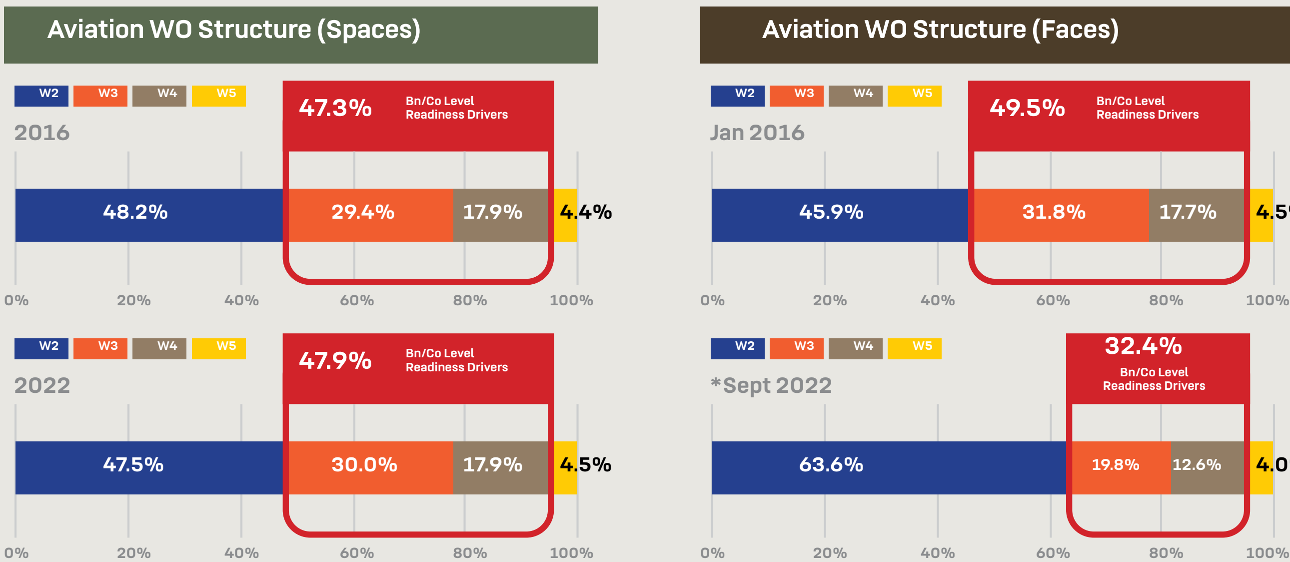
MANNED	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total Class A Flight Mishaps	13	9	12	11	12	6	8	8	10
Class A Flight Mishaps	12	7	8	10	10	5	7	4	9
Class A Flight Mishap Rate	1.34	0.81	0.92	1.18	1.12	0.63	0.87	0.50	1.08
Total Class A-C Flight Mishaps	89	74	BB	93	65	75	108	114	114
Class A-C Flight Mishaps	72	55	6B	71	50	46	58	57	65
Class A-C Flight Mishap Rate	8.02	6.37	7.58	8.39	5.62	5.82	720	7.09	7.78
Fatalities	13	8	10	6	3	7	13	2	14
Flight Hours	897,827	864,075	870,682	846,219	890,021	789,678	805,838	803,683	835,063

Four Class A mishaps involved AH-64s, two involved loss of tail rotor effectiveness, one whiteout event, and one midair collision involving two AH-64 aircraft. There were three H-60 mishaps, one involved spatial disorientation in instrument meteorological conditions, one spatial disorientation from a whiteout event, and one midair collision involving two H-60 aircraft. One UH-72 experienced a hard landing while conducting emergency procedure training. Additionally, there was one MH-47 flight and one CH-47 aviation ground mishap. Nine mishaps (90%) were attributed to human error and one aviation ground (10%) to an environmental cause factor.

Figure 2: WO Personnel Strength Shift

Regular Army aviation warrant officer shift in personnel strength from January 2016 (1:4 senior-junior ratio) to September 2022 (1 :8.5 senior-junior ratio). This reflects rank (not flight hour) experience.

**September 2022 TOPMIS data updated & valid/predates IPPS-A which is not yet accurate enough for this level reporting.*



Even though there has been minimal change in structure, aviation lost significant mid-career (W3-W4) strength. The get-well plan includes increased accessions to fill seats, but in the form of a larger than normal junior population that will take years to achieve W3-W4.

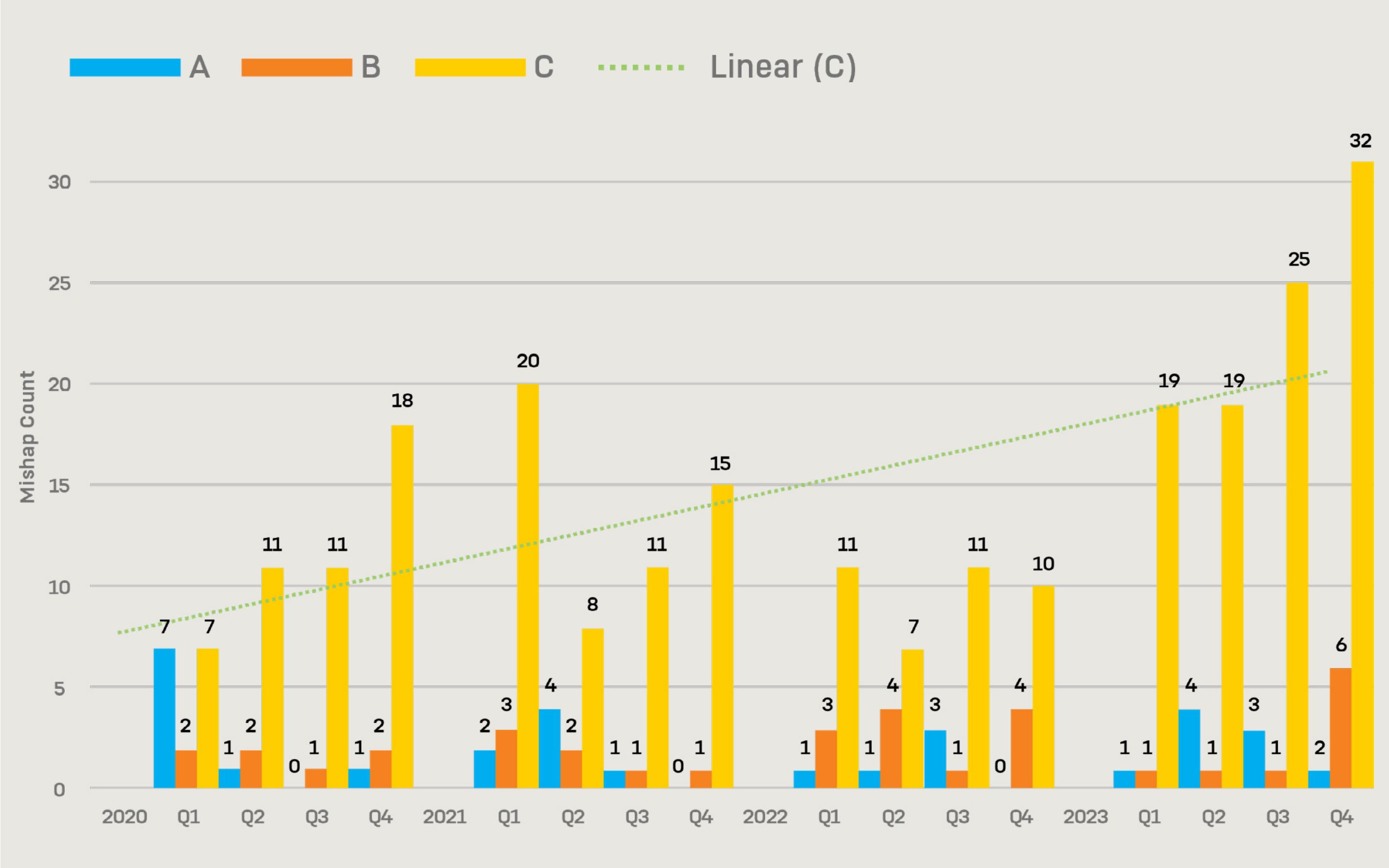
The U.S. Army Combat Readiness Center started to focus its efforts on ways to mitigate the mid-level experience gap through hazard awareness, coordinating with the U.S. Army Aviation Center of Excellence to adjust the aviation risk common operating picture to better reflect the experience levels of the force and initiating staff studies to better understand the problem set (see figure 2).

In FY23, there were two Class A mishaps during the 4th quarter as compared to the following: FY17 = 4, FY18 = 4, FY19 = 5, FY20=1, FY21 = 0, and FY22 = 0. The reduction in 4th quarter Class A mishaps from FY17-23 is encouraging. However, as illustrated in figure 3 on page 3, Class B and below mishaps continue to be a concern. There is an overall upward trend in Class C mishaps since FY20 (see figure 3, linear C trend line) and the start of the 4th Quarter Spike Campaign. While Army Aviation has enjoyed great success in reducing Class A mishaps in the 4th quarter, there is still a lot of work to do in maintaining this and reducing the number of Class C mishaps year-round. The 4th quarter of FY23 demonstrates the factors surrounding the 4th Quarter Spike are not gone with one Class A mishap and the increase in Class B-C mishaps. Continued vigilance is needed during this period of elevated risk.

Unmanned Aviation

As shown in figure 4, on page 4, Gray Eagle had a significant improvement in its mishap rate in FY23 with a Class A mishap rate of 1.51 and a Class A-C rate of 4.52. This contrasts with FY22 with a Class A mishap rate of 10.32 and a Class A-C rate of 11.97. In

Figure 3: 4-Year Quarterly Mishap Comparison



FY23, MQ-1C Gray Eagle experienced one Class A mishap, a lost link event caused by a dual generator failure. Total flight hours for FY22 were 14% below FY21 numbers and FY23 was 2% below FY22. This continues a downward trend in MQ-1C flight hours. In addition to the one Class A mishap, there was one Class B and four Class C mishaps reported. Gray Eagle's FY23 Class A mishap rate of 1.51 per 100,000 flight hours is 85% lower than FY22 and 80% lower than the five-year rate. The Class A-C mishap rate of 4.52 is 62% lower than the FY22 average and 58% below the five-year level.

The RQ-7B Shadow flight mishap rate has increased from a Class B rate of 19.59 in FY22 to 61.83 in FY23. The Class B-C rate also increased from 72.76 in FY22 to 130.93 in FY23. The RQ-7B experienced 18 Class B and 19 Class C mishaps during FY23. Primary cause factors were associated with engine failures, improper site set up (arresting gear, tactical automatic landing system spacing, etc.), and procedures not followed correctly (checklist discipline). As depicted in figure 5, on page 5, the Shadow's FY23 Class B mishap rate of 61.83 per 100,000 flight hours is 216% higher than FY22 and 90% higher than the five-year rate. The Class B-C mishap rate of 130.93 is 80% higher than FY22 average and 101% above the five-year level. The hours flown in FY23 are roughly 23% less than FY22 hours. This continues a significant downward trend in Shadow flight hours.

To combat these issues, PM UAS continues to take an active role in material improvements to both systems, specifically related to RQ-7B Block III. TRADOC has also begun the process of implementing additional training into the advanced individual training program of instruction in response to the identified procedural deficiencies.

Lessons Learned and Developing Trends

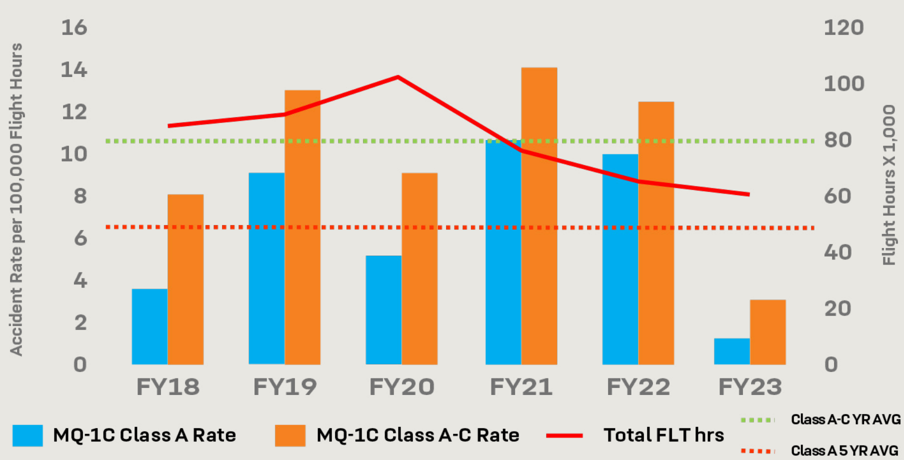
The mid-level experience gap is a trend that will have to be managed for at least the next 3-5 years. To help manage this hazard, we recommend adhering to Training Circular 3-04.11's (Commander's Aviation Training and Standardization Program) essential elements in risk management by ensuring the following:

- Leader training and certification.
- Leader positioning.
- Progressive training (crawl, walk, run).
- Shared understanding through mission command.
- Rigorous pilot-in-command, flight lead, and air mission commander programs.

With the Class A mishap rate holding at about the one mishap per 100,000 flight hours, the Aviation Division at the USACRC has continued its emphasis on Class C and below mishaps that account for 88% of the flight and flight related mishaps. The leading mishap category between FY18 and FY23 were object strikes/controlled flight into terrain. Often these Class C mishaps are only inches and seconds away from being a Class A. To help reduce these numbers, we recommend training on thorough terrain flight mission planning and good hazard/obstacle reconnaissance as part of your flight planning.

Another continued area of focus to help reduce our Class C and below mishaps is aviation ground, which represent 43% of all reported aviation mishaps. The leading category for these ground mishaps continues to be ground handling and servicing. These accidents are Army Aviation's most preventable mishaps, as most of them are attributed to not following procedures resulting in aircraft contacting stationary objects while being towed. This is consistent with ASMIS near-miss reporting that has ground servicing and handling as its leading category.

Figure 4: MQ-1C Mishap Rates



MQ-1C	2019	2020	2021	2022	2023	5 Year
Total Class A Mishaps	8	5	9	7	1	30
Class A Flight Mishaps	8	5	9	7	1	30
Class A Mishap Rate	8.77	4.82	11.42	10.32	1.51	7.35
Total Class A-C Mishaps	12	10	14	9	10	55
Class A-C Flight Mishaps	12	10	11	8	3	44
Class A-C Mishap Rate	13.14	9.63	13.96	11.97	4.52	10.78
Total # of Flight Hours	91,262	103,795	78,787	67,783	66,434	408,061

Trend Comments

- Flight hours from FY22 to FY23 remained constant (within 2%)
- FY23: 1 x MQ-1C Class A mishaps, rate 1.5
- FY23: 6 x Class A-C mishaps, rate 3.0

MQ-1C FY23 Trends to Monitor

- Human Error:
  - 2 x Ground Handling
  - 1 x MX procdure not followed
- Material failure causal factors:
  - 2 x Dual Alternator Failure
  - 1 x Servo Failure
- Environmental:
  - 1 x Weather Event

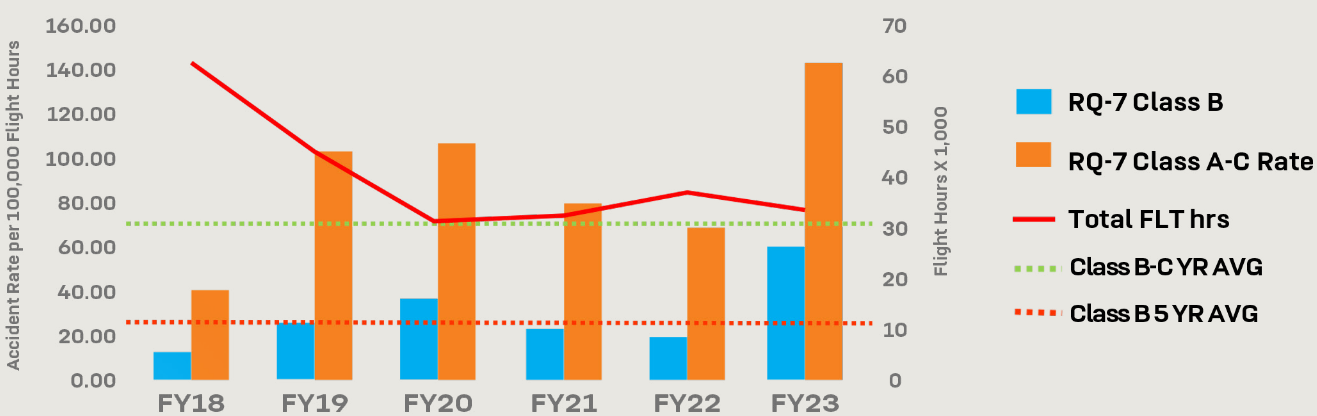
Additional Comments

- Positive downward trend in Gray Eagle mishaps following implementation of recommendations from the 2016 assessment team and implementation of engineering solutions to materiel failures.
- FY23 had the lowest MQ-1C mishap rate in the past five years.

Focusing on mitigating the overall trend of increasing Class C mishaps will assist the force in maintaining readiness through reduced maintenance downtime, greater aircraft availability for training, and avoiding the end of year rush to execute flight hours.

Due to the 180% increase in RQ-7B Class B mishaps over the five-year average, our final focal point for improvement is reducing the unmanned flight mishap rate. After a review of the unmanned aircraft mishaps from FY17 to present, the information shows most of the human errors are due to not following established procedures and local SOPs. These mishaps can be avoided through by the book ground servicing/maintenance, proper mission planning to avoid known obstacles, following the checklist to ensure proper tactical automatic landing system configuration before landing, and confirming the system is properly configured to execute the desired lost link procedure. ■

Figure 5: RQ-7 Mishap Rates



RQ-7	2019	2020	2021	2022	2023	5 Year
Total Class B Mishaps	14	14	8	7	17	60
Class B Flight Mishaps	14	14	8	7	17	60
Class B Mishap Rate	29.15	42.88	23.49	19.59	61.83	33.71
Total Class C Mishaps	38	21	22	21	20	122
Class C Flight Mishaps	37	21	20	19	20	117
Class B-C Mishap Rate	106.19	107.19	82.20	72.76	134.57	94
Total # of Flight Hours	48,026	32,651	34.062	35,734	27,496	177,969

Trend Comments

- Material failure was the leading cause for mishaps in FY23. Primarily caused by the powerplant/propulsion system in both Version 2 and Block III RQ-7B's.
- Steady reduction in flight hours since FY18 are increasing the number of mishaps (25% fewer hours flown in FY23 vs FY22).
- Indiscipline - (procedural) Both maintenance and flight operations exhibited a lack of knowledge of fundamentals and limited experience, primarily relating to site emplacement. Training for this is being added back into AIT POI.
- Failure in mission planning/Risk identfication - Failure to integrate risk mitigation into mission planning.

Leading Causes: Material Mishaps

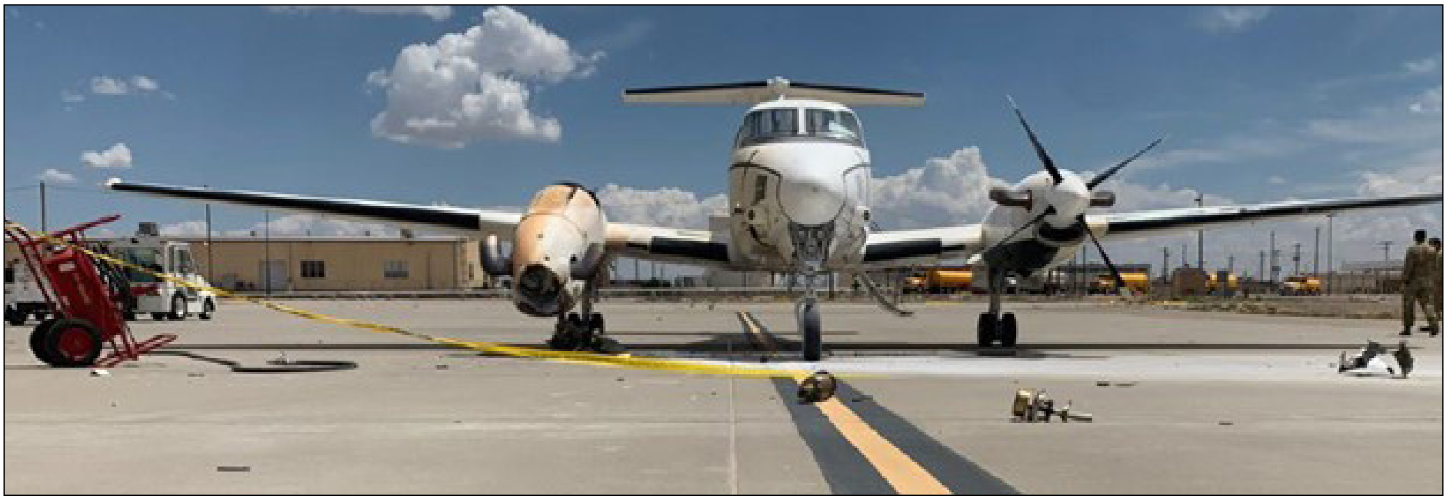
- Powerplant: Class B-C
- Electrical System: Class B-C
- EFI Control System: Class B-C
- ECU Harness: Class C

Leading Causes: Human Error Mishaps

- Site Emplacement Errors: Class B-C
- Checklist Error (emplacement): Class B
- Incorrect Maintenance Prodcedure: Class C
- Exceeded Limitations: Class B

Mishap Review: *C-12U*

While conducting engine run-up procedures, the number two propellor struck the aircraft fuselage at the avionics bay which resulted in Class A damage.



History

The mission for the single C-12U aircraft was to conduct a readiness level (RL) progression and training flight. The mishap aircraft had completed a training flight earlier in the day with no discrepancies noted. The crew received the mission to conduct the training flight during the commander's approval of the weekly flight schedule. The crew arrived and completed their normal flights duties of gathering weather, NOTAM's, risk worksheets, filed flight plans, and conducted a crew mission briefing and training briefing. The mission was assessed and briefed by the mission briefing officer (MBO) and approved by the Company Commander with a residual risk level of low. All crew members acknowledged the briefing and their duties prior to proceeding to the aircraft. The mishap aircrew moved to the aircraft and conducted their pre-flight inspection and secured their gear in the aircraft. The mishap aircrew started the aircraft using the approved aircraft checklist utilizing a ground power unit provided by maintenance personnel. During the rudder boost check of the number two engine the instructor pilot (IP) noted that he did not feel the right pedal advance forward during the check. The pilot (PI) proceeded to do the check using the checklist and noted a loud explosion with an orange fireball from the number two engine. The crew immediately conducted an engine fire emergency procedure on the ground, made a radio call to ground control, and then exited the aircraft via the air-stair door. Air traffic control and flight line maintenance personnel witnessed the fireball and immediately activated primary crash rescue and flight line maintenance moved towards to aircraft with fire extinguishers. Maintenance personnel were able to extinguish the fire with a flight line fire extinguisher just prior to Aircraft Rescue and Firefighting (ARFF) crew and apparatus arriving.

Crew Experience

The mishap Instructor Pilot (IP) had 1164 total hours 1,091 in military fixed wing and 107 Instructor Pilot hours. The mishap Pilot (PI) had 263 total hours, 53 in military fixed wing and 39 hours in the C-12.

Commentary

While performing a rudder boost check on the number two engine the aircraft experienced a catastrophic failure of the number two propellor hub resulting in liberation of propellor, extensive engine and aircraft fuselage damage. The board suspects that internal fatigue cracking exacerbated by high rotational energy initiated this event. The aircrew in this mishap did everything right by securing the engine that was on fire and rapidly egressing the aircraft in accordance with their crew brief. Great job and awesome situational awareness by flight line personnel that extinguished the fire by employing flight line fire extinguishers. ■

ACT 2024

After thoroughly analyzing FY23 accident data, it's worth taking a second look at our crew coordination techniques and asking ourselves if we need to adjust to the current aviator population. Thinking in terms of the experience imbalance, are we focusing our attention effectively and does our current flying force understand the specific challenges that have brought Army Aviation to our current state? In FY23, Army Aviation had nine Class A Flight/Flight Related mishaps, resulting in 14 fatalities and destruction of five AH-64 and four H-60 airframes. All nine Class As and five Class Bs for FY23 involved a breakdown in crew coordination.

Aircrew coordination patterns begin with the accomplishment of crew-level pre-mission planning, rehearsal, and after-action reviews. Pre-mission planning includes all preparatory tasks associated with accomplishing the mission, including assigning individual responsibilities, and conducting all required briefings and brief-backs. Pre-mission rehearsal involves the crew collectively visualizing and discussing expected and potential unexpected events for the entire mission. Through this process, all crewmembers discuss and think through contingencies and actions for difficult segments, equipment limitations and failures, or unusual events associated with the mission, and develop strategies to cope with possible contingencies (METT-TC).

Each crewmember must actively participate in the mission planning process to ensure a common understanding of mission intent and operational sequence. The PC must prioritize planning activities so that critical items are addressed within the available planning time. Crewmembers must then mentally rehearse the entire mission by visualizing and discussing potential problems, contingencies, and assigned responsibilities. The PC ensures that crewmembers take advantage of periods of low workload to review or rehearse upcoming flight segments. Crewmembers should continuously review remaining flight segments to identify required adjustments, making certain their planning is consistently ahead of critical lead times.

After each mission, the crew should conduct a debrief and critique of all major decisions, their actions, and task performance. This should include identifying options and factors that were omitted from earlier discussion and outline ways to improve crew performance in future missions. The discussion and critique of crew decisions and actions must remain professional. "Finger pointing" is not the intent and shall be avoided; the emphasis should remain on education with the singular purpose of improving crew and mission performance.

As printed in Flightfax 126, the United States Army Aviation Center of Excellence (USAACE) is currently undertaking a comprehensive review of Army Aviation spatial disorientation (SD) training. SD remains a stubborn problem in Army Aviation and is the physiologic factor that contributes most often to aircraft mishaps. USAACE has identified three rapid corrections to doctrine that may provide some risk reduction. We absolutely understand these marginal fixes are not enough to prevent every SD-related mishap, but it is a start. The corrections you will see in the field are—

1. Incorporation of an SD mitigation discussion on the risk common operating picture, mission briefing officer (MBO) section. In the MBO section, following the AR 95-1 checklist, this statement will be added: "If conditions are conducive to spatial disorientation, discuss mitigation techniques." This discussion may not be required for every flight. Do not let it become a platitude or empty box check. It will open the conversation with the MBO. When needed, have a forthright discussion about the risk and give the crew tools to counteract SD. Discussion and awareness can make the difference.
2. 2024 Aircrew Coordination Training (ACT). The theme is communication. USAACE wants to highlight, encourage, and place emphasis on an immediate announcement for aviators that are experiencing recognized SD. This goes beyond SD; in a stressful, high workload, distracting environment, "coning of attention" or "narrowing of attention" can occur. Basic tasks will become difficult; a practiced instrument scan may breakdown. Task saturation can quickly lead to an overwhelmed aviator. The best thing to do in this situation

is communicate early. Inform your crew; give them time and decision space to react. If task saturated, do not hesitate or delay announcing. If you are having difficulty controlling the aircraft or experiencing the onset of recognized SD, communicate. It takes critical seconds for the pilot not on the controls to shift focus, analyze the situation, understand the instruments, the aircraft's position and attitude then counteract the situation.

a. In a state where there is pressure to make a rapid response, there may be a trade-off between speed and accuracy.

b. In situations where delay can have very serious consequences, there will be pressure to make a response before sufficient information has been processed.

c. Conditions which increase excitement level led to faster but less accurate responding.

Give your crew reaction time to counteract the situation. Discuss this before the mission and during crew briefs. Be prepared to communicate and do not delay.

Crew coordination has to be in the fabric of everything we do in Army Aviation. We must continue to teach and train effective means of crew coordination, adapting our doctrine and processes, and learning from previous mistakes. We have to depend on each other for experience and effective crew coordination! ■

Keep em' safe!

Forum

Op-ed, Opinions, Ideas, and Information
(Views expressed are to generate professional discussion and are not U.S. Army or USACRC policy)

Stabilized Approach: It's the Key to Success

A stabilized approach is one in which the pilot establishes and maintains a constant angle glidepath towards a predetermined point on the runway. It is based on the aviator's judgment of certain visual clues and depends on the maintenance of a constant final descent airspeed and configuration. Throughout both rotary and fixed wing aviation, the significance of maintaining a stabilized approach during the final descent and landing phase cannot be overstated. This fundamental practice is integral to achieving a seamless and secure landing, encompassing principles of safety, predictability, enhanced decision-making, and precision.

Safety First: Ensuring Control and Minimizing Risks

At the core of our profession is an unwavering commitment to safety. A stabilized approach serves as a foundational element, significantly reducing the risk of accidents and runway excursions. By maintaining the aircraft in a controlled state, pilots can navigate with confidence, minimizing the potential for unexpected deviations or loss of control.

Predictability and Consistency: Controlling the Flight Path

A stabilized approach introduces an element of predictability and consistency to flight. Manipulating controls and power with a determination to follow a predetermined path provides yourself with predictability and a stable platform to execute a successful landing. This predictability allows pilots to anticipate and adjust to the aircraft's behavior, fostering a sense of control during the final descent and landing. Every runway is unique, but a commonly referenced optimum glidepath follows the "3:1" principle. The principle, also seen as a descent ratio, means that for every three nautical miles flown over the ground, the aircraft should descend 1,000 feet. This flightpath profile simulates a 3° glideslope.

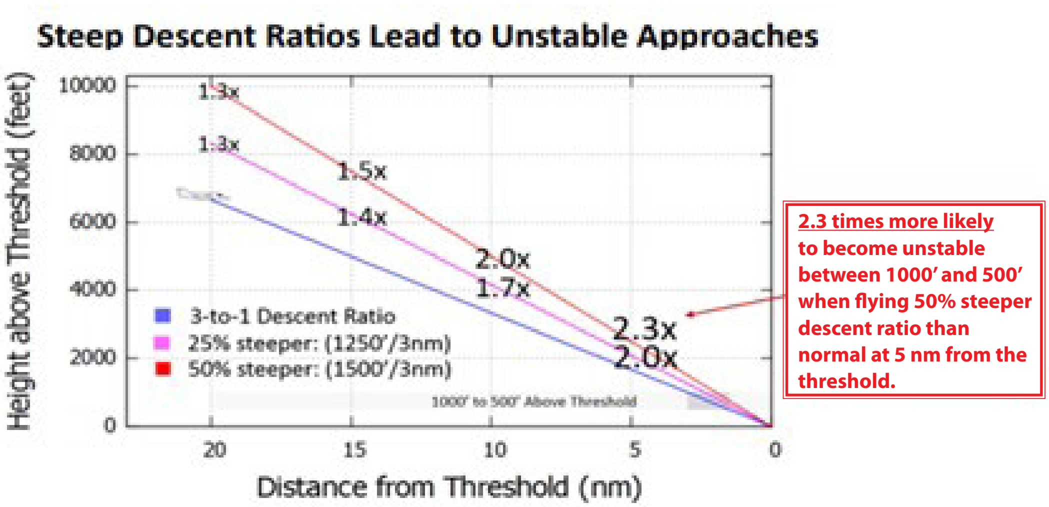
Enhanced Decision-Making: Time and Focus for Informed Actions

In the dynamic landscape of aviation, quick and informed decision-making is crucial and one of the pillars to success. A stabilized approach affords pilots the luxury of time and mental focus. With the aircraft in a stable state, pilots can attentively monitor instruments, assess the situation, and respond effectively to any challenges that may arise during the descent, contributing to safer and more controlled operations.

Precision in Landing: Touching Down with Accuracy

The ultimate goal of any aviator is to land safely and precisely. A stabilized approach plays a pivotal role in achieving this by guiding pilots to the desired touchdown point on the runway. It is key to carefully manage approach speed, altitude, and configuration, reducing the likelihood of floating over the runway or landing short of the intended zone, ensuring a precise and controlled landing.

The emphasis on a stabilized approach is not merely a procedural requirement but a critical practice rooted in safety and operational efficiency. As aviation continues to evolve, the adherence to a stabilized approach remains an essential component in ensuring the safety and well-being of all those involved. Take an opportunity during your next flight to discuss the components of a stabilized approach and practice them in real time… It could make all the difference one day.



CW2 Raymond, Douglas
501st MI BDE Safety Officer
"Strike with Fire"

Near Miss Briefs

Information based on reports via the Near Miss Reporting Tool. (As of 11/30/2023)

50679: Oil cap discovered not properly secured or installed during preflight checks.

Prior to conducting RL progression flight training during preflight checks by aircrew, the #2 (right side) engine oil cap was discovered unsecured and not installed. The aircraft logbook had a closed DA 2408-13-1 entry for a PMD that certified the inspection was completed in accordance with the preflight check and was determined to be in an airworthy condition three days prior (Friday afternoon). It was also discovered the logbook entry was signed off by an aircraft maintainer who was not present on the day the entry was made and was not involved in the PMD inspection.

50705: Bird strike.

PC and PI were flying to complete training. As they were taking off, the PC felt the controls move involuntarily. He asked the PI if he had accidentally bumped the flight controls, to which the PI replied no. As a crew, they decided to set the aircraft down and just take a second to look around the aircraft and through the cautions and advisories to ensure that there was nothing wrong. After careful examination, they found nothing, and all agreed that they felt comfortable trying to take off again. Upon return to KGTB, they shut down the aircraft and that is when they noticed the blood of the bird on the blades. No damage to the aircraft was found.

50780: Aircraft departed from range with #2 nacelle door unlatched.

Door came open in flight causing repairable damage to door and wing on #2 side of aircraft. Aircraft departed range following a static display event. Upon departure, crew was immediately notified by the command post on range that the #2 engine nacelle door had opened. Aircraft immediately landed and shut down to access damage. Flight duration was approximately 4 minutes. Analysis of aircraft determined that the nacelle door foot, the nacelle door stop, and the wing on the #2 side were damaged but repairable. Accessed damage cost is estimated at approximately $3,300 and the repair will be completed at the unit level. Aircrew statements indicated that a thorough walk around was not completed and neither crew member physically checked the nacelle door prior to departure. Recommend all PCs receive a brief on good techniques associated with conducting a walk around inspection prior to flight.

50792: FOD found post-flight.

Upon completion of a flight, it was discovered that a 'tech wipe' had become shredded and dissolved between the intermediate tail rotor gear box, section four driveshaft, and the tail rotor gear box. A corrosion control inspection had been performed 6 days prior and a flight had been completed the day prior without the discovery. Discovery was made after the second flight post CCI. Some damage is observed on electrical cable housing in the intermediate gear box section.

50857: A circuit breaker (KGV-72) was loose, causing arching and multiple aircraft system failures.

Multiple system failures occurred over the course of 3 weeks on an HH-60M helicopter to include ESH, DTS, and caution advisories. After hours of trouble shooting from the avionics technician, it was discovered that the KGV-72 circuit breaker on the #2 DC primary bus panel was loose and arching. The circuit was added as part of a BFT-2 modification approximately 1-2 months prior. The circuit screw on the back side of the circuit panel on the bus bar was tightened approximately four turns. Arching stopped and systems returned to normal.

50914: AH-64D over torque of 230% (combined) for 0.32 seconds.

Aircrew were flying AH-64D back from a mission with the PI on the controls in the front seat with the attitude hold and altitude hold modes on. PI was at approximately 80% torque straight and level when they hit turbulence. The SP heard the tone and saw 104% on the torque, and immediately lowered the collective. SP checked the exceedance page and aircraft had written >230% torque. Aircrew notified operations of the incident. Aircraft MDR was downloaded upon return, and they were over 100%

for less than 6 seconds and over 230% combined for 0.32 seconds. Visual inspections were conducted per the IETM with no damage to the aircraft.

50978: Possible mid-air collision between MQ-1C and UH-1.

An MQ-1C was attempting to land at their airstrip. Upon final heading 250, the instructor operator (IO) noticed 2 x UH-1s at their same altitude heading 080. This put the UH-1s on a direct path to collide with the UAS. The IO immediately exited the shelter and began to waive off the UH-1s. Upon noticing that they were on a collision path with the UAS, the UH-1s banked left, and turned northwest of the runway. The MQ-1C, upon seeing the UH-1s in their flight path, aborted the landing and began to climb back to pattern altitude. Range control was called immediately, and an OHR is being submitted.

51201: While installing the CPG seat, SM had their fingers smashed.

Two SMs were installing a CPG seat in AH-64D. While lowering the seat into place, the weight shifted and pinned the SM's right hand between the seat and door frame. This left the SM's pinky and ring finger with abrasions and soreness. First aid was administered, and band aids were applied to the abrasions. ■

Selected Aircraft Mishap Briefs

Information based on preliminary reports of aircraft mishaps reported. (As of 11/30/2023)

MANNED

AH-64

- Aircraft was conducting dust landings. On approach, aircraft was approximately 30 feet and 30 KIAS above touchdown when the crew received audio and visual engine autopage indications of low rotor RPM. Aircraft yawed and the pilot on the controls landed the aircraft. Upon landing, everything was back to normal, with no further indications of a problem. Rotor was back to 101 RPM and the crew conducted a max power check. Crew discontinued dust landings and continued mission. Upon arriving back at the home airfield, crew conducted numerous landings to the east sod. Landings were made using manual stabilator, NOE mode. Crew completed mission and upon taxiing in were getting strange indications from the tail wheel lock and stabilator. Upon shutdown and post flight inspection, it was found that the rear strut had stroked and there was damage to the center of the stabilator. (Class C)

MC-12S

- Aircraft initially entered icing with both PC/PI at controls. Upon exiting the icing condition, PC went to the back of the plane to utilize the restroom. While the PC was away from the controls, the aircraft entered icing conditions again and the PI turned on ice vanes and increased power in order to maintain minimum airspeed for icing flight. He then refocused his attention on airspeed and altitude. As a result of the ice vanes being opened, the temperature increased, resulting in an overtemp of the No. 1 engine (L) at a peak of 832 degrees Celsius and an average of 827 degrees Celsius for a total time of 41 seconds. (Class C)

UH-60L

- While conducting routine maintenance on the tail rotor of a UH-60L aircraft, the SM turned the tail rotor in order to access hardware. This resulted in the main rotor turning which contacted another main rotor system of an aircraft sitting next to the aircraft being maintained. The result was catastrophic damage to the main rotor blade parked beside the aircraft being maintained. (Class C)

UNMANNED AIRCRAFT SYSTEMS

RQ-7BV-2

- Air vehicle (AV) 4140 launched and climbed to 9,500 feet AGL where they received warnings, cautions, and alerts for a generator failure and electrical power failure around 1610 local. Engine RPMs dropped to zero for a complete engine failure above 2,000 feet AGL. Flight termination system deployed at 1,800 feet AGL. Around 1619, AV 4140 crash landed. No injuries; equipment damaged is RQ-7Bv-2 Shadow. (Class B)
- While in flight, the AV's engine temperatures started to climb and reached above limitations. The operator decided to RTB, however, the AV could not maintain altitude, resulting in AV experiencing an uncontrolled decent and impacting in a field. Initial ECOD was $1,000,000 and expected to be a total loss. (Class B)
- During the landing of a RQ-7Bv2, it experienced a strong cross wind, making it veer off center of the runway and causing it to strike the landing gear drum with its right wing. (Class C)
- During landing, AV touched down on center line of runway and then guided itself into the right arresting gear drum, making contact with left wing. (Class C) ■

Class A - C Mishap Tables

	Manned Aircraft Class A – C Mishap Table									as of 31 Dec 23
	Month	FY 23					FY 24			
		Class A Mishaps	Class B Mishaps	Class C Mishaps	Fatalities		Class A Mishaps	Class B Mishaps	Class C Mishaps	Fatalities
1st Qtr	October	0	0	6	0		0	0	7	0
	November	0	1	6	0		3	1	7	5
	December	1	0	7	0		0	0	4	0
2nd Qtr	January	0	0	9	0		0	0	0	0
	February	2	0	6	2		0	0	0	0
	March	2	1	4	9		0	0	0	0
3rd Qtr	April	1	1	6	3		0	0	0	0
	May	1	0	9	0		0	0	0	0
	June	1	0	10	0		0	0	0	0
4th Qtr	July	1	1	13	0		0	0	0	0
	August	1	3	11	0		0	0	0	0
	September	0	2	8	0		0	0	0	0
	Total for Year	10	9	95	14	Year to Date	3	1	18	5
	Class A Flight Mishap rate per 100,000 Flight Hours									
	5 Yr Avg: 0.85		3 Yr Avg: 0.83		FY 23: 1.08		Current FY: 1.51			

UAS Class A – C Mishap Table									as of 31 Dec 23
	FY 23					FY 24			
	Class A Mishaps	Class B Mishaps	Class C Mishaps	Total		Class A Mishaps	Class B Mishaps	Class C Mishaps	Total
MQ-1	1	2	3	6	Predator	0	0	2	2
RQ-7	0	18	19	37	Shadow	0	7	4	11
RQ-11			3	3	Raven			2	2
RQ-20			4	4	Puma			0	0
SUAV					SUAV				
Other					Other				
UAS Aerostat					UAS Aerostat				
Total for Year	1	20	29	50	Year to Date	0	7	8	15
UAS Flight Mishap rate per 100,000 Flight Hours									
MQ-1C Class A	5 Yr Avg: 7.35		3 Yr Avg: 7.98		FY 23: 1.51		Current FY: 0		
RQ-7B Class B-C	5 Yr Avg: 99.46		3 Yr Avg: 94.56		FY 23: 134.57		Current FY: 125.12		

Blast From The Past:

Articles from the archives of past Flightfax issues

JUNE 1984 • VOL 12 NO. 135

OH-58 first half FY 84 review

The Army Safety Center received 334 OH-58 Preliminary Reports of Aircraft Mishap (PRAM) from October 1983 through March 1984. Stated in perhaps more meaningful terms, we are averaging at least a mission abort or delay for every 320 hours of OH-58 operation.

Five Class A mishaps occurred. Two involved loss of tail rotor effectiveness (LTE). One was weather related; the pilot flew the aircraft into the ocean while trying to avoid clouds. One was NOE related; a main rotor blade struck a large rock during desert operations. The remaining Class A mishap involved an unsuccessful autorotation; the pilot entered the autorotation based on cues indicating a power droop. One crewmember and one passenger were killed as a result of these mishaps.

No Class B mishaps were reported.

Of the eight Class C mishaps, two involved engine failure. Other Class C mishaps involved hard landing during practice autorotation, power droop, tree strike, hanger bearing failure, intermeshed rotor blades on parking ramp, and mechanic's fingers hit by tail rotor blades during tracking.

Twenty-five Class D mishaps were reported. There were five tree strikes, five hot or improper engine starts, three hard landings during practice autorotations, two doors blown off by rotorwash from other aircraft, and two bird strikes. The other Class D mishaps were caused by the following: lower wire cutter striking ground during autorotative landing; refueling personnel throwing helmet into main rotor blades; oil seal improperly installed; overtorque/overtemp; compressor failure during ground run; hard landing by student pilot during hovering flight; FOD; and a heater malfunction resulting in smoke in the cockpit.

Class E mishaps totaled 296. Following are those cause factors occurring four or more times:

- Fuel boost pump failures - 29
- Chip detector lights (11 engine, 4 transmission, 3 tail rotor) - 18
- Oil pressure high or low (7 engine, 6 transmission) - 13
- Unforecast weather (3 inadvertent IMC) - 10
- Engine failures (6 on ground, 2 hover, 2 cruise flight) - 10
- Hot starts - 9
- Tachometer generator malfunctions - 9
- High frequency vibrations - 9
- Transmission oil hot lights - 8
- Generator malfunction - 8
- Hard landings (5 spike knock) - 8
- FOD - 7
- Tree strikes - 6
- Power droops - 6
- Fuel filter clogged - 5
- Electrical shorts - 5
- Bird strikes - 5

1) According to HFACS Guidebook Version 8.0, ______________ remains the leading cause of Army mishaps.

A. Human Error *B. Materiel Failure* *C. Environmental*

2) The Army HFACS model incorporates the three tiers of the traditional HFACS model (preconditions, supervisory influences, and organizational influence) into the five-system inadequacy (SI) categories better suited for the US Army application. The five SI categories are—

A. Training, Command, Leader, Standards, Collective B. Individual, Leader, Support, Training, Standards C. Support, Command, Supply, Leader, Mentor

3) According to the DA Pam 385-40, how many phases are there in the Army mishap investigation plan?

4) Users will report mishaps and near misses using the latest automated mishap reporting system on the USACRC website. What is the latest application users will use to report mishaps?

A. Report It B. Don't Report It C. ASMIS 2.0 Mishap and Near Miss Reporting (M&NMR)

5) Army mishap costs are based on the severity of injury, occupational illness, and/or property/environmental damage (Army and non-Army) resulting from Army operations. (True/False)

Answers:

1) **A.** Human Error (HFACS Guidebook, pg. 3)

2) **B.** Individual, Leader, Support, Training, Standards (HFACS Guidebook, pg. 3)

3) The plan consists of four phases: 1) SIB organization and training, 2) Mishap site examination and data collection, 3) Analysis and deliberations, 4) Completion of the field report. (DA Pam 385-40 para. 1-7)

4) **C.** ASMIS 2.0 Mishap and Near Miss Reporting (M&NMR). (M&NMR) is a part of the Army Safety Management Information System (ASMIS 2.0) Assessments, Inspections, and Surveys Application and the Hazard Management Application in support of current policy.)

5) True (DA Pam 385-40 para. 1-8)

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FY23 MISHAP RATES

MANNED AIRCRAFT MISHAP RATE								
FY	Hours	Army Fatal	A	A FLT	A FLT Rate	A-C	A-C FLT	A-C Rate
FY23	835278	14	10	9	1.08	116	65	7.78

UNMANNED RQ-7B MISHAP RATE								
FY	Hours	Class B	B FLT	B Rate	Class C	C FLT	C Rate	B-C Rate
FY23	27496	17	17	61.83	20	20	72.74	134.57

UNMANNED MQ-1C MISHAP RATE							
FY	Hours	Class A	A FLT	A Rate	Class A-C	A-C FLT	A-C Rate
FY23	66434	1	1	1.51	10	2	3.01