



Personnel Turbulence, Reducing the Risk during the Transition



Personnel transition must be managed efficiently in order to reduce the risks to mission and the force. This is particularly critical during the 4th quarter of each fiscal year, which has a noted spike in mishaps accounting for 40% of the Class A mishaps over the past five years. Due to the highly technical skills required to perform aviation duties, the transition of key personnel in aviation units presents an exceptionally challenging time and requires deliberate planning to compensate for losing proven aviation leaders and replacing them with new members of the team. Regardless of new personnel just arriving at their first assignment, as experienced nonrated

crewmembers (NRCM) or as a senior, tracked aviators, they still require specific, focused integration training at the new unit and new location to reduce the risk associated with the transition. This program must be holistic, including the local mission approval process, Aviation Procedure Guide (APG), and ensuring new aircrew members receive training specific to their positions.

Briefing and Approval Authority Management

Training is a must for all new personnel who conduct mission briefings and initial mission approvals. Regardless if these personnel were briefing officers or had mission approval authority

at their previous duty assignments, they still require integration into the new unit briefing officer/mission approval training program in accordance with (IAW) Army Regulation (AR) 95-1, paragraph 2-14 which states:

“Commanders will establish a training and certification program to ensure standardization and understanding of the mission approval and risk management process for personnel.”

Paragraph 2-14, a. (2) tells commanders what criteria they will use to select briefing officers. It states the selection should be based on their experience, maturity, judgment, and ability to effectively mitigate risk to the aircrew and they will be designated in writing. As well for manned aircraft briefing officers, they must be a qualified and current pilot-in-command (PC) in the mission profile as determined and designated by the commander.

Initial mission approval authority is the unit commander or their designated representatives who will determine the mission feasibility and accept or reject the mission. To best integrate briefing officers and initial mission approval authorities, training should include both groups in the same training program. For these officers to understand the organization’s particular tactical risks, discuss complexities with the operational environment, and understand the complete mission approval process, it is complementary to have selected briefing and initial mission approval authorities to complete the training together.

Once the briefing officers and initial mission approval authorities have completed training, implementing a graduated authority to brief and/or approve missions is a valid method to integrate them into the mission process. This graduated authority allows the commander to evaluate their subordinate briefers and mission approvers’ actions and apply additional training or instruction where necessary to better prepare the briefers and mission approvers to advance to full duties. It provides newly trained officers the advantage to learn the mission,

establish relationships, and develop decision-making skills through the mentorship of leaders with greater experience in the unit’s mission.

Aviation Planning Guide

Training new unit members on the APG provides them with essential standardized procedures. The APG should be thoroughly covered and included in each crewmember’s readiness level (RL) training. This has the added value of the crewmember’s learning from the local flying area standardized guide.

Instruction should combine classes on the local area weather and weather in extended training areas. Units may be located in areas where they don’t have conditions that replicate the weather encountered at deployed locations. In order to train and simulate these scenarios, simulators should be used to the maximum extent to replicate those conditions which aren’t available for training with aircraft [e.g., brownout or whiteout landing and takeoff, high-density altitude (DA)].

Additional topics should include operations in degraded visual environments (DVE) while explicitly covering any local area specific DVE considerations (e.g., typical environmental conditions frequently encountered specific to that location). Recovery



procedures and local hazards should be covered in detail while ensuring that the personnel being trained have access to visuals of the hazards and their location on a map.

Utilization of the simulator in conjunction with situational training exercises (STX) incorporating classroom topics covered will assist with evaluating a student's understanding of the APG and the complexities and uniqueness associated with their new environment. The STX should challenge the crews with demanding situations based on local conditions that require thought and sound judgment.

New Personnel

New personnel fall into three categories and all must do the training.

- **1st Unit Assignment:** These personnel are fresh out of their initial aviator training or their advanced individual training for enlisted personnel. They should be incorporated into the training to provide the rated or NRCM with a guided first look at the task and how the unit operates. This primacy of teaching the task right the first time is crucial to mission success and reduction of mishaps.
- **Nonrated Crewmembers:** The NRCM is an important part of the crew and aviation operations. They should be integrated into the training just as the experienced rated aviators. This provides the standardized operations that Army aviation requires to minimize risk to mission and force. Rated aviators depend on NRCM to be active members of the crew and equally responsible for safe aircraft operations.
- **Tracked Rated Crewmembers:** Tracked aviators who have been school trained in an aviation specialty are not immune to the hazards of entering a unit without the appropriate integration training. They should attend the crewmember training and APG classes with additional training as required to be progressed to operate in their specialty field. Examples of tracked aviators are Aviation Safety Officer (ASO), Maintenance Test Pilot (MTP), and Instructor Pilot (IP). While these aviators may be more senior, they may not be as experienced or proficient in the particulars of the new unit's mission and/or environment.



Continuity of Effort

Continuity of effort is essential to maintaining standardized operations across a unit during personnel turnover periods. Unit personnel should produce a continuity book for each position that is a tracked specialty, each additional duty position, and each leadership position (i.e., S3, platoon leader, platoon sergeant). A continuity book complements the unit's SOP and helps to reduce mission degradation during transitions in these specialty positions. The commander should define the continuity books required within their organization and enforce maintaining it.

Conclusion

Personnel transition in a unit must be managed to reduce the risk. The ability to sustain mission support, decrease mishaps, and manage risk during personnel transitions is not a simple task. However, by effectively integrating new leaders into the unit, setting standards with training, and employing TTPs to sustain continuity during transitions aviation units will posture themselves for success. Transitions during the 4th quarter represents a complex convergence of numerous risk factors, but working as a team of professionals we can reverse the trends associated with this time period. ■

Aviation Division

Directorate of Assessments and Prevention

United States Army Combat Readiness Center

The Mission Briefing Officer - the Commander's First Line of Defense

The Mission Briefing Officer (MBO) is the first set of eyes outside of the aircrew that takes a holistic look at a mission, evaluates the mitigation strategies employed, and ensures nothing is overlooked. It is important that each commander has a process of certification for MBOs that promotes the command's guidance and risk management procedures. This certification process requires commanders to determine the selection, training, and empowerment of the MBO to maintain decentralization of mission briefings in support of the mission approval process.

According to AR 95-1, "Commanders will select briefing officers based on their experience, maturity, judgment, and ability to effectively mitigate risk to the aircrew." Part of the challenge in this requirement is the ambiguous, subjective criteria for selecting MBOs. It is essential for commanders to develop their own metrics for measuring these subjective requirements during records reviews including observing operational environments, previous unit mission requirements, previous designation as a MBO, and comments entered in Individual Aircrew Training Folders. This holistic review helps to ensure raw, objective metrics are not the primary means for assessing MBO experience. Additionally, just because someone is designated as an instructor pilot (IP) or maintenance test pilot (MTP) does not mean he/she will be an MBO; the previous metrics for subjective review of MBOs remains true based on overall experience. It might be more appropriate to select MBOs with certain limitations imposed by the commander such as, "MTPs conduct MBO duties for all Maintenance Test Flights (MTF)." This decision is based on the ability to effectively mitigate specific risks to the aircrew. In preparation for selecting



MBOs, commanders must take the time to determine how they define an experienced aviator with the requisite knowledge to best mitigate risk to the aircrew.

As part of the MBO selection and designation process, commanders must have a plan to set expectations and train MBOs. The first step of training MBOs, or any Soldier for that matter, is to make the standard known. Commanders should do this through counseling and thorough discussion with the MBO before designation in writing. This should include defining the commander's guidance associated with the ten minimum key areas of the mission planning process listed in AR 95-1. Next, the commander needs to determine how to incorporate training of the mission briefing task through incorporation into Readiness Level progression training and Pilot-in-Command (PIC) training and evaluation so that it becomes second nature. This training should involve training through deliberate interaction by all MBOs during the mission approval process for all progression flights. Over time, this deliberate interaction should result in more effective mission briefings at all levels resulting in overall improved risk management. Finally, once designated as an MBO, commanders should ensure continuation



guidance. Empowering MBOs is a force multiplier and results in a more professional, unified and safe organization.

Commanders are the Final Mission Approval Authority (FMAA), based upon levels of command authority and not rank (AR 95-1). While MBOs are the first set of eyes after the aircrew, the commander is the last set of eyes prior to mission execution. The purpose of the Mission Approval Process is to ensure that multiple experienced aviators look at the overall risk of the mission and control measures instead of the

burden lying on just one person. In order to do this most effectively, commanders must have certification processes in place for the selection of MBOs, training at all levels in the formation, and empowerment of MBOs as key lines of defense of the force. Through taking a proactive, deliberate process, commanders ensure that risk management is at the forefront of mission planning and not a hasty, react to contact drill. ■

training and evaluation throughout the year as part of the commander's task list (CTL). Through training on the mission briefing process, the entire unit will conduct more thorough risk assessments resulting in a unit with safety at the forefront of mission accomplishment.

Finally, the commander must empower their MBOs when it comes to performing these duties as the first line of defense outside of the aircrew's risk common operating picture (R-COP). In order to be effective at identifying risks to the force and mission, commanders must encourage detailed flight and mission scrutiny. However, when MBOs scrutinize the crew and the mission, they should do it under the premise of "what controls do we need to implement to make this mission as safe as possible?" The MBO should focus on implementing realistic control measures, adding them to the R-COP, and ensuring the aircrews are crystal clear on their left and right limits. Once MBOs implement control measures, commanders should reconfirm these control measures as well as any additional control measures prior to mission approval. If MBOs were trained properly, the commander reconfirming and reiterating MBO control measures empowers MBOs to enforce the commander's

burden lying on just one person. In order to do this most effectively, commanders must have certification processes in place for the selection of MBOs, training at all levels in the formation, and empowerment of MBOs as key lines of defense of the force. Through taking a proactive, deliberate process, commanders ensure that risk management is at the forefront of mission planning and not a hasty, react to contact drill. ■

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What is FOD?

How many times have you conducted a preflight, post-flight, or general maintenance on an aircraft/vehicle and found something out of place? It may have been a pebble tracked in from your boots, hardware from a maintenance task that had been performed and left behind, or general debris. These items may result in damage to equipment and become a contributing factor to an incident or mishap.

I'm sure everyone has heard the term FOD at some point in their career and thinks it only applies to them during a safety class. Walking the flight line while looking for items to pick up is often seen as a waste of time but is a valuable part of the FOD program. Let's take a minute to understand what FOD is and how it can affect us.

Army Regulation 385-10 defines FOD (foreign object damage) as damage to an Army vehicle, equipment, or property as a result of objects alien to the vehicle or equipment damaged. Some examples of alien object debris are cotter pin clippings, pieces of safety wire, hardware, and even tools left behind after maintenance. Even though many measures are in place to prevent items from being left behind, we can't rule out the human factor. Soldiers are the first line of defense and should always have a clean-as-you-go mentality when conducting maintenance. Ensuring you have the accountability of your tools and hardware before and after working on any equipment is pivotal.

Over the past two fiscal years, 26 mishaps have been attributed to FOD, resulting in nearly \$4.7 million in damage to manned and unmanned aircraft. These were all preventable mishaps. Strict discipline and individual oversight will minimize our FOD findings. Department of the Army Pamphlet 385-90, paragraph 2-8, states, "An effective FOD prevention program can enhance combat readiness by saving material, manpower, and money. Therefore, FOD prevention must be an essential part of each unit's aviation accident-prevention program." A unit standard operating procedure should clearly specify what is required as stated in DA PAM 385-90 and can be tailored to the needs of the unit.

While working for the Defense Contract



Management Agency, I quickly learned FOD and tool control are a big concern for both DCMA and government contractors during the production of new aircraft for the military. Many control measures are in place to prevent the migration of hardware or manufacturing debris on the product. Constant vigilance and supervision are needed to mitigate debris from being left behind.

When FOD is found on an aircraft, both the contractor and government representatives go to great lengths to determine the root cause and corrective action, attempting to prevent any future findings. In my experience, this is not necessarily the case in Army aviation. Most often, if FOD is found on an aircraft, it's removed and often not reported. This is not the preferred method when FOD is found; FOD incidents should be reported and root causes determined to prevent future incidents in the Army as well.

As a whole, we need to work together to support the FOD program and report findings to help enforce it. Educating Soldiers on what right looks like and to have the integrity and discipline to recover items left behind or lost during maintenance is critical. It is always better to take extra time to look for a piece of cotter pin that was clipped and dropped to the bottom of the flight controls than to find out later something happened while the aircraft was flying. ■

CW4 Robert Moran

Investigator

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United States Army Combat Readiness Center

Mishap Review - UH-60L Power Management

While performing combat maneuvering flight (CMF), the pilot-in-command (PC) placed the aircraft in a 60-degree right bank, a 24-degree nose-low attitude at an altitude of 400 feet above the highest obstacle (AHO). Consequently, the power required to maintain flight exceeded the power available causing the aircraft to descend into the trees. The aircraft was destroyed in the crash and four crewmembers sustained injuries.



History

The mishap crew's mission was to conduct four segments of continuation training with another aircraft including CMF, visual flight rules (VFR) cross country, VFR cross country with refuel, and high altitude training in confined areas with CMF for crew chief (CE) readiness level (RL) progression.

The mishap crew reported for the mission at 0900, where they conducted pre-flight, mission briefing, and run-up. The non-mishap crew had a maintenance problem and was delayed. Therefore, the mishap crew changed their flight plan and took off direct to the mountain training area (MTA) to conduct high altitude training while waiting for the second aircraft to join up once their aircraft was operational.

The two aircraft linked up at 1226 where they began the second segment of training. The flight of two completed their VFR cross country flight and stopped at a civilian airport to eat and refuel their aircraft. The flight of two departed the civilian airport and headed to the MTA for high altitude training in confined areas and CMF. Once the aircraft landed at the first landing zone (LZ), the flight broke up into single ship operations. The aircraft began conducting CE RL progression training for the CMF task of breaking contact. During the breaking contact CMF maneuver, the PC placed the aircraft in a 60-degree right bank, a 24-degree nose-low attitude at an altitude of 400 feet above the highest obstacle (AHO). At this altitude with the severity of the maneuver, the aircraft had insufficient power to recover prior to contact with the ground.

Crew

The PC had 1,207 hours in MTDS and 1,368 hours total time. The pilot (PI) had 135 hours in MTDS and 256 hours total time.

Commentary

The PC, on the controls, improperly estimated the amount of control input that the aircraft performance and environmental conditions would allow. The PC failed to determine the environmental effect that operating above 9,000 feet mean sea level (MSL) would have on aircraft performance. When the PC placed the aircraft in a 60-degree right bank, a 24-degree nose-low attitude at an altitude of 400 feet AHO, he exceeded the power available which prevented him from pulling up and subsequently crashed into the trees. The PC's actions were a result of indiscipline and overconfidence.

High altitude CMF operations require deliberate performance planning. Crews should take into account what missions they will be performing and what tasks will be needed. Had the PC in this mishap reviewed the specific tasks and performed some additional planning he may not have ended up in the trees. Additionally, conducting Army aviation flight operations is a team event. The entire crew must be involved in the planning and understanding of the performance parameters for the aircraft and their part in assisting the pilot on the controls (P*) with effective crew communication. In this mishap, the crew coordination was poor with little assistance given to the P* on aircraft parameters and limits during the CMF maneuver by the PI and other crewmembers. To prevent poor outcomes during CMF, PCs should ensure they have done diligent planning for the mission by understanding the tasks that may be necessary and the aircraft performance in relation to those tasks. A thorough crew briefing on the mission, aircraft performance, and crew communication during high task load maneuvers such as CMF should be utilized to ensure the mission is completed safely with full knowledge and assistance of all crewmembers. ■

Class A - C Mishap Tables

Manned Aircraft Class A – C Mishap Table											as of 25 May 20
Month	FY 19				Fatalities	FY 20				Fatalities	
	Class A Mishaps	Class B Mishaps	Class C Mishaps	Fatalities		Class A Mishaps	Class B Mishaps	Class C Mishaps	Fatalities		
1 st Qtr	October	1	1	4	0		2	1	4	0	
	November	0	0	3	0		1	1	1	2	
	December	1	1	2	0		1	1	2	3	
2 nd Qtr	January	1	1	0	0		0	0	5	0	
	February	2	0	0	0		1	0	5	0	
	March	0	1	5	0		1	1	4	0	
3 rd Qtr	April	0	1	3	0		0	1	1	0	
	May	2	2	6	1		0	0	3	0	
	June	0	0	5	0						
4 th Qtr	July	2	1	2	0						
	August	1	0	3	1						
	September	2	1	8	1						
Total for Year		12	9	41	3	Year to Date	6	5	25	5	
Class A Flight Mishap rate per 100,000 Flight Hours											
5 Yr Avg: 1.08			3 Yr Avg: 1.09			FY 19: 1.15		Current FY: 1.01			

UAS Class A – C Mishap Table											as of 25 May 20
	FY 19					FY 20					
	Class A Mishaps	Class B Mishaps	Class C Mishaps	Total		Class A Mishaps	Class B Mishaps	Class C Mishaps	Total		
MQ-1	9	2	3	14	W/GE	5	1	2	8		
MQ-5	1	0	0	1	Hunter	0	0	0	0		
RQ-7	1	12	38	51	Shadow	0	6	12	18		
RQ-11	0	0	0	0	Raven	0	0	0	0		
RQ-20	0	0	1	1	Puma	0	0	1	1		
SUAV	0	0	0	0	SUAV	0	0	0	0		
UAS	11	14	42	67	UAS	5	7	15	27		
Aerostat	1	1	1	3	Aerostat	2	0	0	2		
Total for Year	12	15	43	70	Year to Date	7	7	15	29		
UAS Flight Mishap rate per 100,000 Flight Hours											
MQ-1C Class A	5 Yr Avg: 9.56			3 Yr Avg: 9.87		FY 19: 8.77		Current FY: 9.22			
RQ-7B Class A-C	5 Yr Avg: 58.29			3 Yr Avg: 69.64		FY 19: 109.84		Current FY: 97.56			

Blast From The Past: *Articles from the archives of past Flightfax issues*

Flightfax

Volume 9
Number 12
17 December 1980

Additional Information on Mishap Briefs Previously Published *CH-47 Class A Mishap (on 6 Aug 80 issue)*

The departure route the aircraft took from the airfield placed the helicopter at a density altitude and gross weight condition that exceeded its capabilities. The pilot had not computed a performance planning card (PPC) and was not aware of the power available versus the power required for the conditions. Performance planning data relating to the current aircraft configuration had not been provided. The aircraft crashed in a box canyon, killing the copilot and injuring the other crewmembers. The pilot had only flown the aircraft in its present mission configuration, with a ferry fuel tank system installed, three or four times and these were during maintenance test flights. The copilot had never flown the aircraft in this configuration prior to the mishap.

This mishap occurred in 1980 and from our issue mishap review, we see Army aviation continues to suffer from the same mishaps due to improper



power management procedures. It is imperative that aviation personnel understand the performance requirements of conducting aerial maneuvers in demanding and limiting environmental conditions. Additionally, it is imperative that the command knows the limits of their aircrews' experience, maturity, and judgment when it comes to flying aircraft in multiple configurations specific to the environment. Know your crew, you're your aircraft limitations, understand your performance planning numbers, and know the environment. ■

Mishap Briefs #90

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

ROTARY WING

Utility

H-60

L Model



• The crew was conducting training operations in the local area. The crew training mission was contour flight maneuvers and practice landings at local airports. The crew did not land at any unimproved surface during the duration of the flight. Following the training flight, the crew returned to their home station and conducted the second portion of their mission, maintenance checks, which required letting the engines go to flameout. Once in parking, the crew waited for the engines to flame out. The No. 1 engine flamed out and followed with the No. 2 engine flame out. Damage to the stabilator was observed on post-flight following a local training mission involving terrain flight. (Class C)

rotor (RPMR) overspeed (117 %) were observed. The IP terminated the remainder of the flight and returned to base with no further incident. (Class C)

UNMANNED

MQ-1

C Model



• During climb to mission altitude the air vehicle (AV) experienced a full authority digital engine control failure/high pressure fuel issue which resulted in a power-off uncontrolled landing to an unimproved area. The AV impacted the terrain approximately 4 nautical miles from the ground data terminal. (Class A)

• After takeoff, the AV landing gear malfunctioned with the nose landing gear partially retracting. The aircrew attempted to lower the nose landing gear, but the nose gear would not extend. Multiple attempts were made to raise and lower the nose gear with no effect. The aircraft landed on the runway with the nose gear partially retracted which caused extensive damage to the aircraft nose and payload. (Class A)

Cargo

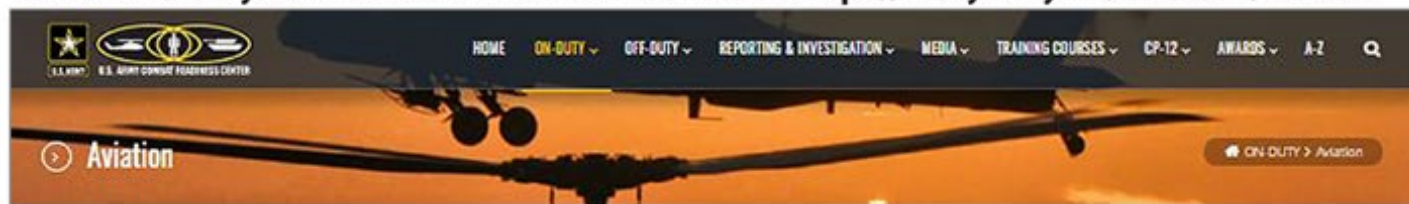
H-47

F Model



• During conduct of Task 2127, Perform Combat Maneuvering Flight, at 3,000 feet mean sea level and 100 knots indicated airspeed indications of a

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Flightfax

Online newsletter of Army aircraft mishap prevention information published by the U. S. Army Combat Readiness Center, Fort Rucker, AL 36322-5363. DSN 558-2660. Information is for mishap prevention purposes only. Specifically prohibited for use for punitive purposes or matters of liability, litigation, or competition. **Flightfax** is approved for public release; distribution is unlimited.

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Power management is a critical component of whether a mission is successful or unsuccessful, especially when conditions are high, hot, and the aircraft is heavy. When Army aircrews are operating in combat environments or simulated combat environments, it is of utmost importance for crews to understand their aircraft performance capabilities. Tasks in the aircrew training manual (ATM) for each aircraft talk directly about instances where it is critical for all crewmembers to understand their responsibilities when conducting high power requirement maneuvers. To understand this a little better let's take a look at what the UH-60 ATM says about one of these high power requirement tasks.

UH-60 ATM

➤ Task 2127 Perform Combat Maneuvering Flight

- This task is a high power requirement task. The UH-60 ATM states:

“DESCRIPTION:

1. Crew actions.

- a. The PC will brief the crew on the combat flight maneuvers to be performed. The PC must ensure the crew is aware of the effects of the environmental conditions on flight performance and consider the effects of an engine failure during combat maneuvering flight.”

- So what does it say about the pilot not on the controls during these maneuvers?

“c. The P will maintain airspace surveillance and monitor instruments to ensure torque, trim, airspeed, RPM R, maneuver parameters, and aircraft limitations are not exceeded. The P will announce when his or her attention is focused inside the cockpit. The P will provide adequate warning to avoid enemy, obstacles, or traffic detected in the flight path and if any deviation is necessary to complete the maneuver.”

- Aviators should be very familiar with warnings in the ATM for their aircraft, the UH-60 ATM warns pilots conducting CMF:

WARNING

Initial training should be conducted at sufficient altitudes to allow for longer recovery times due to uncoordinated flight control inputs and pilot experience. Helicopter flight performance based on the environmental and aircraft conditions must be the determining factor in selecting altitudes that ensure adequate room to recover after maneuvering.

Power management is a critical aspect of Army flight operations supporting combat maneuver. Learning, understanding and training in accordance with the ATM and your aircraft operator's manual is the key to safely and successfully executing the mission.

5 Questions

1. What are the mission tasks your specific aircraft performs that have a high power requirement?
2. When training tasks that have a high power requirement what airspeeds are recommended in your ATM?
3. What is the determining factor when selecting altitudes to train CMF?
4. Only the PC should know the aircraft performance capabilities during a mission. True or False?
5. What are the tasks of the pilot not on the controls during CMF?

KEEP it in the BUCKET

Know your common terrain flight power management factors

- **BANK ANGLE** — Maneuvering
- **BUCKET SPEED** — Type of energy
- **HEAVY** — Limited maneuverability



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