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HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON TACTICAL AIR AND LAND FORCES
UNITED STATES HOUSE OF REPRESENTATIVES

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE
HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON TACTICAL AIR AND LAND FORCES
UNITED STATES HOUSE OF REPRESENTATIVE

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SUBJECT: Army, Navy, and Air Force Aviation Safety

STATEMENT OF: Maj Gen. John T. Rauch, USAF
Chief of Safety

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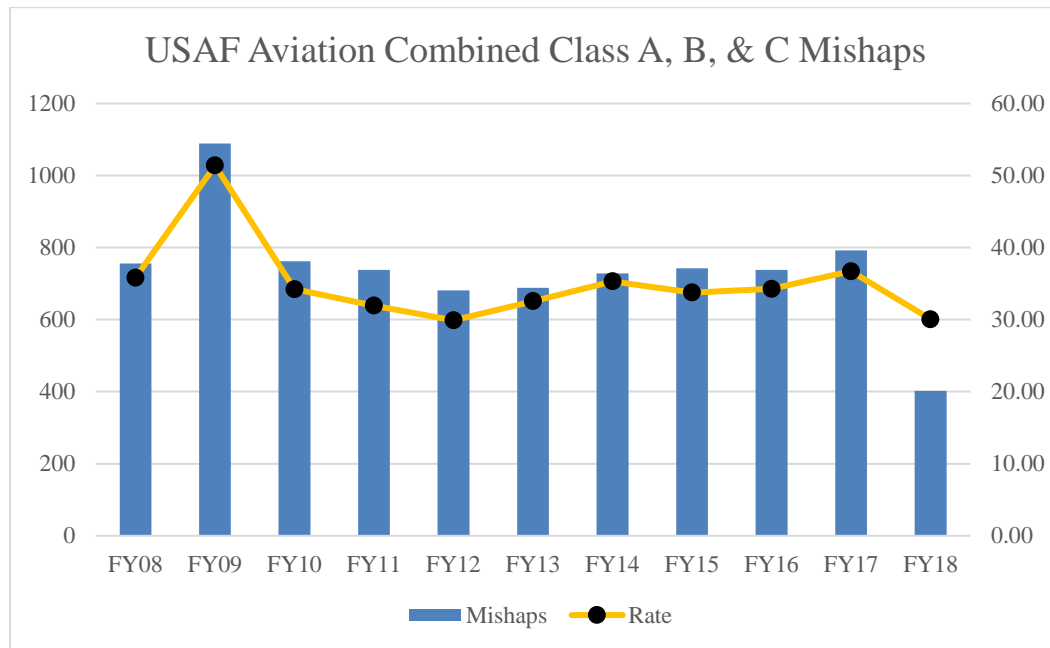
INTRODUCTION

Chairman Turner, Ranking Member Tsongas and distinguished members of the Tactical Air and Land Forces Subcommittee, thank you for the opportunity to provide an update on the United States Air Force Aviation Safety program. Safety remains a top priority for our service to ensure the preservation of our critical personnel and equipment and in the end our precious combat capability and readiness. While risk will always be present in our missions, especially in the aviation domain, our goal is to understand the associated hazards, and to eliminate or mitigate them to greatest extent possible, both during training and combat operations.

Since any preventable mishap is one mishap too many, our safety processes are designed with future mishap prevention as the focus. Ideally, our proactive efforts will prevent a mishap from ever occurring. When a mishap does occur, however, we strive to quickly and accurately learn the lessons from the mishap's cause and apply them to prevent similar incidents. We thoroughly investigate each mishap, and ensure root causes are identified. In addition, safety recommendations from these mishaps are documented and tracked until resolution. The success of these methods is evident in the long-term mishap rate reductions in aviation—from fixed to rotary-wing and in both manned and unmanned aircraft—our safety programs and culture have realized reductions in overall aviation mishap rates steadily over the last few years. It is also important to note that our service safety center maintains constant communication with the safety centers of the other services regarding trends and critical information about specific incidents whenever appropriate. This collaboration and coordination allows the synergy of each service's safety programs to support efforts across the Department of Defense.

AVIATION MISHAPS

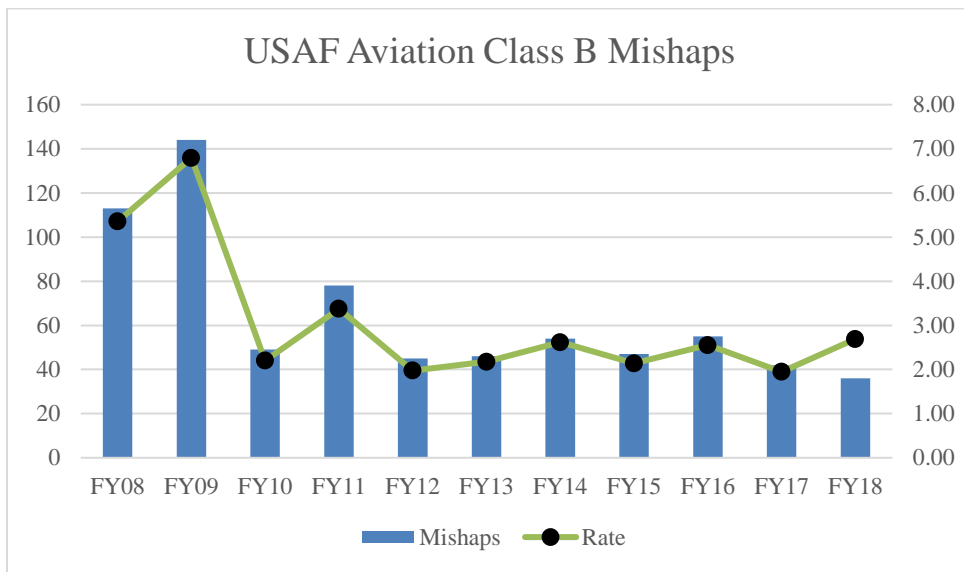
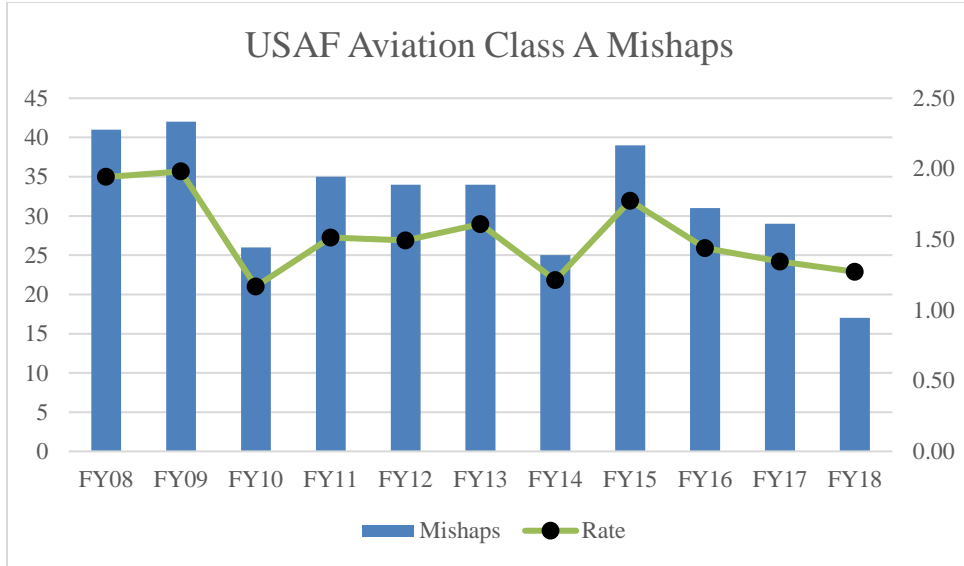
To date, our aviation mishap rates, as calculated by mishaps per 100,000 flying hours, are as follows:

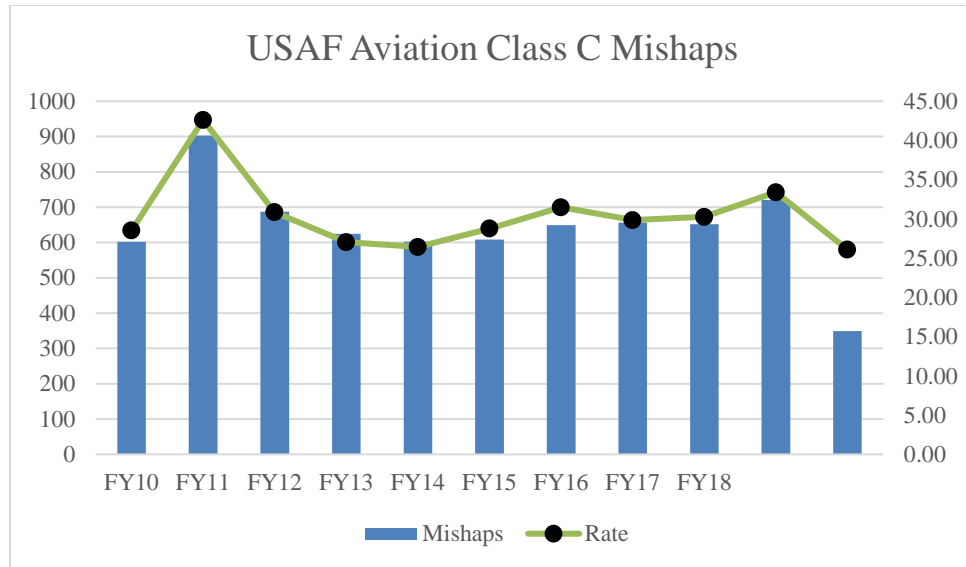


-- Last decade (since FY2008): the combined aviation Class A through C rate, including both manned and unmanned aircraft, has decreased by 16%. Specifically, our aviation Class A mishap rate decreased 35%, the Class B mishap rate decreased 50%, and the Class C mishap rate decreased 9%.

-- Last two years (since FY2016) – the Class A mishap rate decreased 12%, the Class B mishap rate increased 5%, and the Class C mishap rate decreased 14%.

-- In FY2018 (as of 23 May 2018), the overall Air Force aviation Class A mishap rate has decreased 5%, the Class B rate increased 38%, and the Class C rate decreased 18% when compared to FY2017. However, a breakout of manned aviation mishaps in the Class A category highlights a rate increase of 53% compared to FY2017. Meanwhile, the unmanned aviation Class A mishap rate has decreased 100% compared to FY2017.





We realize any long-term reductions in mishap rates do not replace the need for near-term adjustments when necessary. We continually monitor, analyze, and adjust our safety efforts to ensure the focus remains on the current issues. From trends analysis to directed safety reviews, the intent is always to understand and mitigate any emerging hazards. Together, these safety efforts fully support diverse missions across the spectrum of operations ensuring the preservation of our personnel and resources.

INVESTIGATIONS

Investigations are a core aspect of the safety efforts in our service. While we definitely work to prevent mishaps from occurring, when one does occur we need to fully understand what happened and apply these lessons learned to prevent another mishap. In this sense, mishap investigations are also proactive—although it is in response to a mishap that already occurred, obtaining the key recommendations from an investigation and then applying them is indeed proactive. The Air Force maintains a trained cadre of personnel that are tasked to investigate every

aviation incident that meets certain thresholds. The severity and type of mishap drives the response composition and footprint.

The most comprehensive investigation team is assembled for Class A aviation mishaps (those with a fatality, permanent disability, destroyed aircraft, or cost greater than \$2M). This includes a safety-trained O-6 grade or higher officer for the Board president, a trained investigating officer, a current and qualified pilot, a trained maintenance officer, a flight surgeon/officer, as well as other expertise as deemed necessary based on the specific mishap. This team is also provided a representative from the Air Force Safety Center for guidance and reach back support for technical assistance.

Normally, this team, designated as the Safety Investigation Board (SIB), has 30-45 days to complete their investigation and formulate their formal report. This timeline may be extended as necessary to ensure a thorough and accurate investigation. The SIB's final report contains findings, causes, and recommendations to prevent similar mishaps in the future. After having its investigation approved by the Convening Authority (normally the commander of a Major Command), the report is processed at the Air Force Safety Center and each of the report's recommendations is formally assigned to an office of primary responsibility. Each recommendation is then updated in a centralized safety database every six months by this office until it is closed. Even if it takes several years to fully implement a recommendation, such as a material modification on a fleet of aircraft, the recommendation will stay open until the last aircraft is modified. This ensures full tracking and awareness of the recommendation's implementation status in case something changes. Each Air Force Major Command, as well as Headquarters Air Force, maintains a staff process to manage recommendations from formal safety investigations. A notable example of a modification to Air Force systems that originated as a safety investigation

recommendation is the recent incorporation of the Automatic Ground Collision Avoidance System, which prevents controlled flight into terrain in the F-16 and F-22 fighters. This system has been accelerated for implementation in the F-35.

In some investigations, critical safety issues may become evident that require dissemination prior to the approval and release of the formal report. In these situations, a “Critical Safety Information” process is followed that allows a more rapid dissemination or corrective action. When a SIB discovers information that seriously impacts the safe operation of a system, they immediately notify their Convening Authority. This ensures other agencies get notified and ensures access to required technical information by the aircraft’s program manager. Also, the Air Force Safety Center disseminates the information to the Federal Aviation Administration and National Transportation Safety Board (if required for military variants of civil aircraft). This process, when required, ensures the most rapid resolution of issues that may impact ongoing operations. Recent investigations have used this process to ensure actions, such as one-time inspections across an aircraft fleet or adjustments in flight planning procedures, prior to the conclusion of an investigation.

For lower mishap classes, the investigative footprint may change. For Air Force Class B mishaps, the board composition remains identical but the Convening Authority may change to the Numbered Air Force, rather than the Major Command. For Class C mishaps and lower, the investigation is normally conducted by a single investigator assigned to the installation, and the Convening Authority is normally the local wing commander. Regardless of the investigation’s footprint or approval level, a thorough investigation to understand the root cause and provide recommendations is always the top priority, and all recommendations are tracked until final resolution.

ANALYSIS

Analysis of trends and other safety information is a continuous effort in the Air Force and occurs at multiple command levels in the safety system. Primarily, Air Force aggregate safety trend analysis is accomplished by the Air Force Safety Center and is greatly aided by the fact that all Air Force mishap information is collected and managed via a database called the Air Force Safety Automated System (AFSAS). This cloud-based database is used by all safety investigators in the Air Force during mishap investigations and it contains every finding, cause, and recommendation from every Air Force safety mishap investigation, regardless of mishap level. AFSAS also contains analytical tools that allow categorization and sorting based on numerous facets, including aircraft types, dates, and other details.

Since the database's mishap catalog reaches into aviation mishaps from the 1990s, it allows thorough research and on-demand trend analysis by the Air Force Safety Center's aviation safety experts. Using the AFSAS database, we continually conduct analysis for trends within aircraft types, mission areas, and mishap causes. The AFSAS data greatly supplement overall qualitative assessments that are accomplished by Air Force Safety Center aviation experts. Some recent examples of this analysis include examining the physiological incidents in some Air Force platforms and an on-going "deep-dive" into Class C aviation mishaps. Also, it's important to note that AFSAS information is available to any safety office across the Air Force—not just the Air Force Safety Center, analysis may be performed at each Major Command, Numbered Air Force, Wing or Squadron for their respective mission areas and aircraft.

Other analytical efforts that may assist a commander's safety focus is the Air Force Combined Mishap Reduction System, which consists of a commander-requested survey to assess a unit's safety culture. After completion, the commander receives an in-depth debrief and analysis

to help identify hazardous areas of safety culture and unit climate. To date, over 680,000 surveys have been completed in the Air Force. Similarly, we can also conduct an in-person Organizational Safety Surety Assessment when required to further assess a unit's safety culture. In many cases, these assessments result in actionable recommendations to improve the culture and climate within the unit. This process has been used recently to aid the efforts regarding physiological issues in some Air Force aircraft fleets.

PROACTIVE EFFORTS

Proactive Safety is a crucial portion of our safety efforts. While post-mishap investigations are important to understand a mishap and prevent it from occurring again, our proactive-focused programs discover hazards and stop mishaps from happening at all, in essence applying actions “left of boom.”

These programs include the Military Flight Operations Quality Assurance (MFOQA), where aggregate flight parameters are collected from numerous missions and then analyzed to understand if hidden hazards are present. With this program, we've learned of issues such as adverse aircraft parameters and hazardous air traffic procedures prior to these hazards leading to an actual mishap, permitting modifications in our guidance and training to eliminate or mitigate the previously unidentified risks. Currently in the Air Force, the equipment to enable this program is featured on 12 major aircraft types, with additional aircraft planned for the future.

Another successful program in the Air Force has been the Line Operations Safety Audit (LOSA), which entails having safety observers record non-attributional aircrew performance across numerous flights. The results of these observations are then analyzed by a team to understand if there are systemic issues that may require corrective actions, such as training adjustments. In the Air Force, this program has been heavily utilized in our airlift and tanker fleet

within Air Mobility Command. Recently, the LOSA program has also been used on our unmanned MQ-9 Reaper aircraft by Air Combat Command.

Allowing line personnel to submit non-attributional, identity-protected comments in safety channels is another proactive program that may highlight issues to allow mitigations or actions prior to a mishap. A program to enable this is called the Airman Safety Action Program, and it entails allowing individuals to electronically submit comments to their respective safety office via computers or mobile devices. This potentially allows the entire population of an installation or weapon system to become the “eyes and ears” for potential hazards. In all cases, the safety chain becomes aware of an issue and can take the appropriate action to mitigate or eliminate the hazard identified.

JOINT COLLABORATION

Working together is a key component of our service’s safety programs. Although service-unique aspects may require a tailored approach in many areas, information sharing and collaboration are constants. Even outside shared platforms and systems, service collaboration promotes synergy and each service gains valuable perspectives from such actions.

On a day-to-day basis, our Air Force Safety Center is the key to information sharing and collaboration with the other services. Each respective safety center’s leadership and action officers often share information that may be relevant to efforts in other services. For instance, observation of a mishap occurring in another service that appears to have similarities to another mishap may result in a past investigation report being sent to another service for situational awareness. Also, emerging issues such as physiological incidents may result in cross-flow of information and observations between centers. A good example of this is the recent development of the Air Force physiological response checklist for safety investigators, which was coordinated with the Navy

Safety Center prior to publication to ensure both services were gathering the identical data points to allow future cross-service collaboration and actions.

The Air Force participates with the other services in the quarterly Joint Services Safety Council, which convenes with each service's Chief of Safety (as well as US Coast Guard) on a regular basis. This forum allows for discussion of major issues, including aviation safety, and is a catalyst for coordinated actions and information sharing. Another important aspect of this forum is its joint working groups, which include aviation safety, to allow focused issues to be analyzed and actioned in this joint forum when necessary.

Coordination with the Office of the Secretary of Defense (OSD) staff on safety matters is also an ongoing process. In 2017, the Air Force signed a Memorandum of Agreement with OSD Personnel and Readiness to regularly provide, via automated net-based transfer, non-privileged safety information from the Air Force AFSAS safety database into the OSD safety database to allow OSD oversight and awareness of Air Force safety trends. The Air Force has been rapidly moving to ensure full compliance with the intent of this agreement. We're currently providing well over 90% of the requested data and we anticipate that we'll have modifications complete to the AFSAS database to allow 100% compliance by 1Q of FY2019.

Furthermore, in support of the Defense Safety Oversight Council framework, the Air Force supports and participates in the Safety and Occupational Health Integration Committee (SOHIC) and the Environmental, Safety, and Occupational Health Deputy Assistance Secretaries forums on a recurring basis, providing Air Force safety information and expertise to assist in these deliberations. In addition, the joint working groups from the JSSC also support OSD efforts in the SOHIC and other engagements. For instance, the JSSC's Aviation Safety Working Group recently

analyzed an issue concerning FAA information dissemination that was requested by OSD Personnel and Readiness.

SUMMARY

Safety remains a top priority in the Air Force. In essence, safety focus is infused in all that we do to ensure the preservation and safety of our personnel and resources by preventing mishaps. The Air Force has made significant strides in reducing mishaps over recent decades; however, we realize the need to continually adjust and focus efforts on emerging hazards. To this end, our efforts in proactive safety, mishap investigations, analysis, and joint collaboration are key aspects to a successful safety program. While risk will be ever-present in aviation, our goal is to ensure we identify all hazards to allow the elimination or mitigation of risks to the fullest extent possible.