Summer Edition 2018

Combat Edge

Air Combat Co fety Magazine

DETECTIVE STORIES from the Feather Identification Lab

PAGE 12

What am I looking at?

In November 2016, a bird struck an F-16C from Buckley Air Force Base, Colorado. The damage required more than 50 man-hours to replace the horizontal stabilizer after it was punctured by debris from the ECM pod. How does the Air Force identify the bird? And how can this help prevent future bird strikes?

Turn to page 12 to learn more about the Feather Identification Lab.

Thank you Louis M. DePaemelaere for capturing this amazing photo!

Combat Edge

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COVER PHOTO BY LOUIS M. DEPAEMELAERE

ACCent

Different, Dangerous or Dumb?

Daniel A. Surowitz
Deputy Director of Safety

Spend enough time in the Air Force, and someone is bound to remind you not to do anything "dumb, dangerous or different." I remember hearing those words from my instructor pilot before going out for my first solo ride, and many times since -- usually before being sent on the way to do something for the first time. I have used the same phrase myself as an instructor when sending someone out the door for their first solo aerial refueling mission, and as a parent when sending someone out the door for their first solo cross-country drive to college. Those are simple words that can take the edge off of a stressful situation when someone is about to take on a task for the first time without direct supervision. Those words are also meant to convey a hint of concern and some simple advice about trust from the mentor doing the speaking. Allow me to explain …

Let's start with "different." Doing something different can be good. Doing things differently encourages innovation, keeps organizations from getting stale, and helps hone skills once one has mastered the basics, but there is the key. Until the basics are mastered, the best course of action is usually to stick with the approved tactics, techniques and procedures to learn the task. Whether it's operating equipment, flying aircraft or participating in off-duty recreation, learn the basics first and experiment later.

Then there's "dangerous." Dangerous is relative. Many of the things we do are hazardous, but with the right training and mitigation plans, they are not dangerous. A healthy respect for danger keeps non-swimmers out of the ocean, and keeps most of us from running into a burning building. That same respect also calls some to be professional divers or firefighters. Standing to perform those tasks in support of our nation is part of what makes us the world's best fighting force. With the right training, protective equipment and teamwork, people perform hazardous tasks every day and make it look easier than it should. As the commander of Air Combat Command has said, what we do is not dangerous, but it is unforgiving. Knowledge, respect and attention to the task at hand can usually protect us from dangerous.

That leaves us with "dumb." In an age of sensitivity and tolerance, we seem to shy away from calling out individual decision-making. We will walk out of a briefing or read a mishap message and say, "Boy, that was dumb," but we won't see that observation clearly stated in the report. We will track recommendations to change procedures or develop a new system to prevent a bad outcome, but often an individual's poor choice is what really led to the damage or injury. A better decision to take or not take one critical step can make the difference between a learning experience and a trip to the hospital -- or worse. It's OK to expect more from our teammates when they know where the bar is set. The "P" from Check 3, Gear, Plan, Skills usually offers the easiest and most effective opportunity to mitigate hazards in any environment. Speak up and let folks know when you think they have a really bad idea, and give them a chance to come up with a better plan.

Vacations, road trips and even the routine tasks we perform every day at work offer challenges and opportunities to practice good decision-making. Learn something different. Try to make something less dangerous. And when the opportunity presents itself, please step in and don't let your wingman do anything dumb.

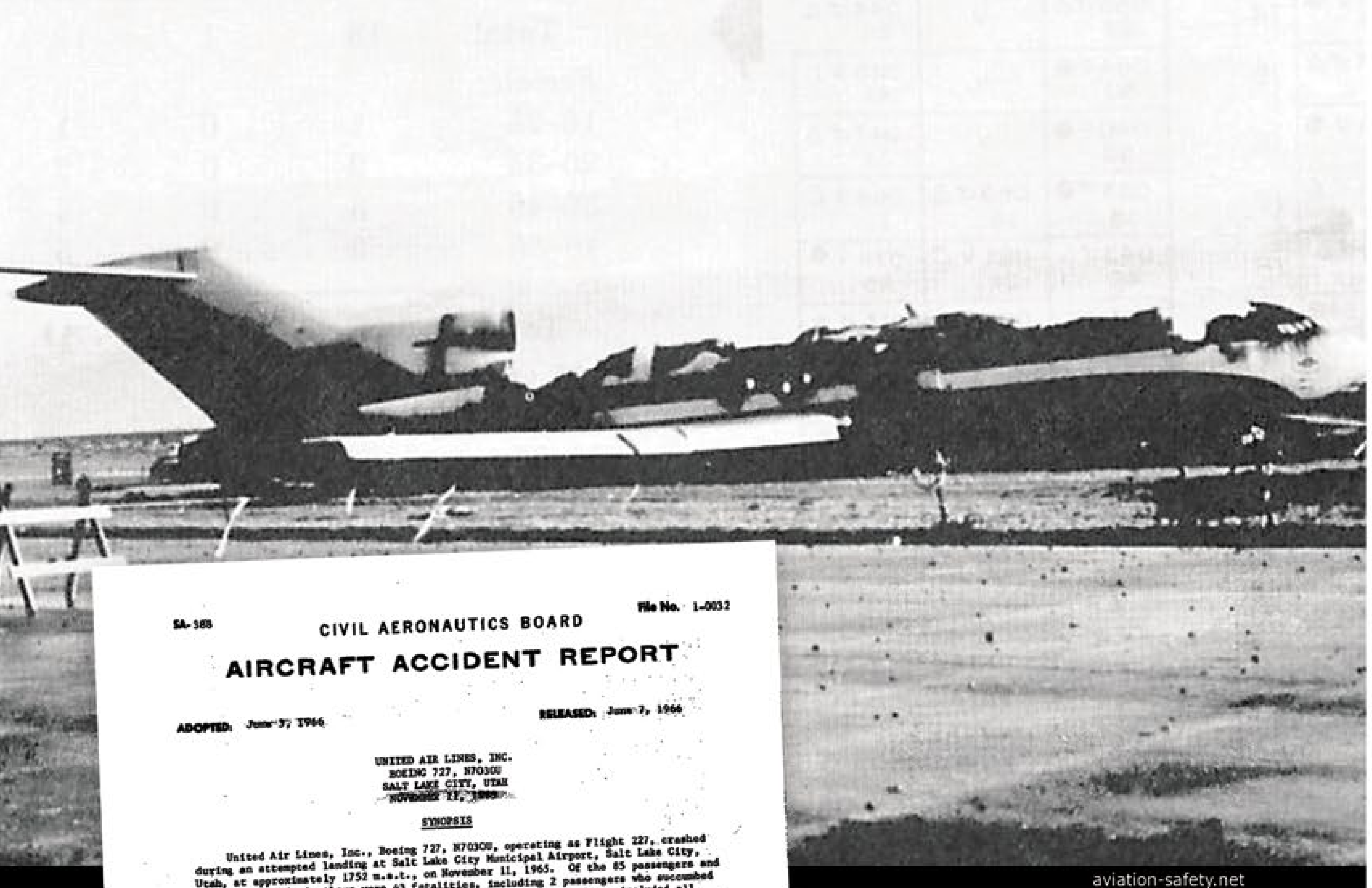
Still Alive and Well Today

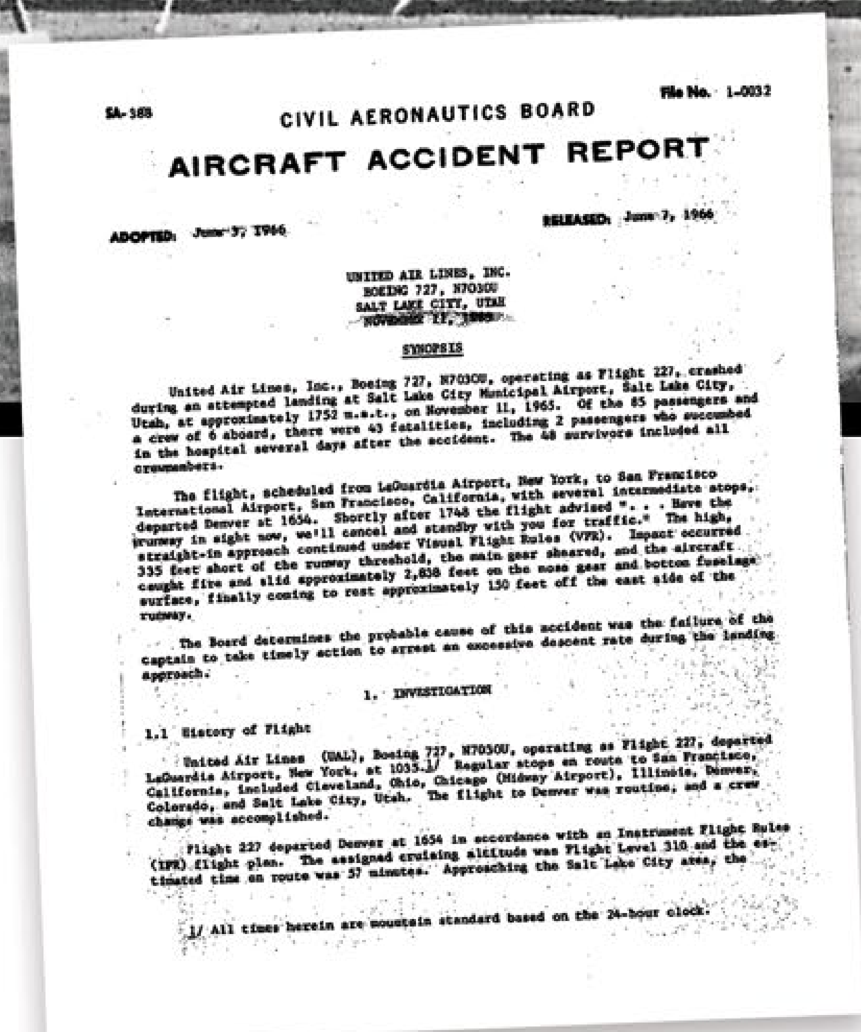
Photo by Airman 1st Class Sean Sweeney

BY COL. BRANDON W.J. DEACON

This is the second installment of a four-part series that explores non-military aviation mishaps. In the final installment, we will compare those mishaps to relatively recent Air Force aviation mishaps and discuss the unfortunate similarities among the three historic non-military and military aviation mishaps. Finally, we will evaluate risk identification and mitigation strategies that can hopefully reduce the likelihood that those mishap causes contribute to a future event. We hope to reflect on these events to learn from costly past and present aviation lessons so that we don't have to re-learn them again.

In last quarter's article, we reviewed the factors contributing to a mishap that occurred on "The Day the Music Died." That crash on Feb. 3, 1959, claimed the lives of the aircraft pilot and three famous musicians riding as passengers: Charles Hardin Holley, better known as Buddy Holly; J. P. Richardson, aka The Big Bopper; and Richard Valenzuela, who was known as Ritchie Valens. You'll remember that the key takeaways from that incident were the dangerous and deadly mixing of poor and deteriorating weather, along with the pilot's deficiencies in training, certifications, skills and experience to adequately mitigate or counter the risk. The result, of course, was the complete destruction of their Beechcraft aircraft upon impacting the ground shortly after takeoff, killing all four men on board.





SA-388 CIVIL AERONAUTICS BOARD File No. 1-0032

AIRCRAFT ACCIDENT REPORT

ADOPTED: June 7, 1966 RELEASED: June 7, 1966

UNITED AIR LINES, INC.
BOEING 727, N7030U
SALT LAKE CITY, UTAH
NOVEMBER 11, 1965

SYNOPSIS

United Air Lines, Inc., Boeing 727, N7030U, operating as Flight 227, crashed
during an attempted landing at Salt Lake City Municipal Airport, Salt Lake City,
Utah, at approximately 1752 m.s.t., on November 11, 1965. Of the 85 passengers and
a crew of 6 aboard, there were 43 fatalities, including 2 passengers who succumbed
in the hospital several days after the accident. The 48 survivors included all
crewmembers.

The flight, scheduled from LaGuardia Airport, New York, to San Francisco
International Airport, San Francisco, California, with several intermediate stops,
departed Denver at 1654. Shortly after 1748 the flight advised ". . . Have the
runway in sight now, we'll cancel and standby with you for traffic." The high,
straight-in approach continued under Visual Flight Rules (VFR). Impact occurred
335 feet short of the runway threshold, the main gear sheared, and the aircraft
caught fire and slid approximately 2,838 feet on the nose gear and bottom fuselage
surface, finally coming to rest approximately 150 feet off the east side of the
runway.

The Board determines the probable cause of this accident was the failure of the
captain to take timely action to arrest an excessive descent rate during the landing
approach.

1. INVESTIGATION

1.1 History of Flight

United Air Lines (UAL), Boeing 727, N7030U, operating as Flight 227, departed
LaGuardia Airport, New York, at 1033.1/ Regular stops en route to San Francisco,
California, included Cleveland, Ohio, Chicago (Midway Airport), Illinois, Denver,
Colorado, and Salt Lake City, Utah. The flight to Denver was routine, and a crew
change was accomplished.

Flight 227 departed Denver at 1654 in accordance with an Instrument Flight Rules
(IFR) flight plan. The assigned cruising altitude was Flight Level 310 and the es-
timated time en route was 57 minutes. Approaching the Salt Lake City area, the

1/ All times herein are mountain standard based on the 24-hour clock.

For this installment, we will explore another significant civilian aviation mishap from Nov. 11, 1965, which conveys contributing factors that were vastly different in nature from our last case study. Unlike our last mishap, which was of a relatively famous and infamous nature, perhaps you have never heard of this particular incident. Although this aircraft accident does not likely rise to the level of public interest or notoriety of the Day the Music Died, the contributing factors and lessons learned are nonetheless significant and poignant.

For this story, we go back in time over 50 years to investigate the Boeing 727 accident of United Airlines (UAL) Flight 227 that crashed during an attempted landing at Salt Lake City Municipal Airport at 5:52 p.m. local time in Utah. Unfortunately, this event was plagued with fatalities, as was indicated by the official report from the Civil Aeronautics Board:

> “Of the 85 passengers and a crew of six aboard, there were 43 fatalities, including two passengers who succumbed in the hospital several days after the accident. The 48 survivors included all crewmembers.”

In the end, the crash was the result of the aircraft impacting the ground short of the runway surface while in a high rate of descent. The landing gear separated from the aircraft as a result, and an engine separated from the airframe as the aircraft slid down the runway from momentum. Although the initial impact was determined to be a completely survivable event, the post-impact damage to the aircraft changed the probability of survival for the worse. After the landing gear separated, impact forces ruptured fuel lines that fed a fire ignited by the shower of sparks created by the skidding aircraft. The fire grew and eventually consumed a large portion of the aircraft as well as a significant number of people on board.

But, what happened that led to this aircraft landing short of the runway and the resulting destruction and loss of life that followed? What sinister and drastic chain of events could have possibly led to the demise of almost half the people on board that day? For the answers, and a short philosophical discussion of contributing factors, we will dig into the findings of the official accident report to reconstruct the chain of events that eventually led to the disastrous fire.

The mishap aircraft, a B-727-22, tail number N7030U, was determined to be operating properly prior to the crash. All three Pratt & Whitney engines on the aircraft were determined to be operating normally. Although the accident occurred in darkness, the observed weather was scattered clouds at 7,000 feet with 25 miles of visibility. The navigation aids, communications systems and airfield lighting at Salt Lake City were all operating without fault. Prior to impact, the aircraft was properly configured, and there was no evidence of difficulty with the flight controls.

The crew that day consisted of the pilot, Capt. Gale C. Kehmeier, 47; First Officer Philip E. Spicer, 39; Second Officer Ronald R. Christensen, 28; and three flight attendants, Victoria Cole, Faye Johns and Annette Folz. Except for the captain, the entire crew had no noteworthy derogatory histories in training or duty performance.

By all accounts, Captain Kehmeier was an experienced aircrew member. The accident investigation board listed his credentials in their report:

> “[he] … held airline transport pilot certificate No. 83447 with type ratings in the B-727, B-707, B-707/720, DC-6/7, DC-4, and DC-3 aircraft. He also held flight engineer certificate No. 1355508. His date of hire was July 1, 1941. He satisfactorily completed an instrument proficiency check in the B-727 on August 2, 1965. He had accumulated a total of 17,743 hours of pilot time, including 334 hours in the B-727 and 1,510 hours in the B-720. He received a first-class medical certificate May 3, 1965, with the limitation that he must wear corrective lenses while exercising the privileges of his airman certificate. The captain testified that he was wearing glasses at the time of the incident.”

United Press International

DAYLIGHT AIRVIEW FRIDAY SHOWED WRECK OF UNITED AIR LINES JET

Plane crashed upon landing in Salt Lake City, Utah

Although one might think that an aircraft captain with such a comprehensive base of experience would be unlikely to contribute to an aircraft landing short of the runway surface, the accident board uncovered that the captain's vast quantity of experience was built on a foundation of questionable quality of performance.

During the captain's transition to flying jet aircraft in the DC-8 in November 1960, he demonstrated a continuous trend of substandard aptitude. His ground simulator training scores were considered average, excepting one period that was graded lower but subsequently corrected by the instructor before continuing with training. The accident report referred to a United Airlines memo that stated the simulator instructor "advised that while the performance was graded average, it was extremely marginal and was based primarily on the simpler maneuvers." Then, "After some difficulty in acquiring the proficiency necessary to pass a practice oral exam, Captain Kehmeier finally did attempt his oral exam and failed it completely." After the failed oral exam, he was given "considerable" additional training over the next three weeks, which allowed him to then complete the oral exam and finally move on to flight training. The memo further went on to indicate concerns from his flight instructor: "When the areas of flight training involving the more complex aspects of pilot technique, judgement, etc., were encountered, Captain Kehmeier's performance deteriorated to the unsatisfactory stage. After approximately seven hours of instruction, [the instructor] was unable to correct the deficiencies." When it was requested that a manager of flight standards observer evaluate the captain's performance, he noted that "A review of Captain Kehmeier's record still indicates unsatisfactory performance in the areas of command, judgment, Standard Operating Procedures, landing technique, and smoothness and coordination. On the basis of the above, I recommend Captain Kehmeier's DC-8 transition training be terminated." In February 1961 after an unsuccessful three months in the DC-8 transition program, and despite his documented displays of poor performance with command and judgment, he was returned to the DC-6 "on which he was rated average to above average."

For reasons not revealed by the accident investigation board, Captain Kehmeier was returned to jet training in May 1962 with the Boeing 720. Although his progression was deemed satisfactory, "his type rating in the aircraft was not issued until he had performed an additional period in the simulator." During witness interviews after the accident, the FAA inspector that administered the captain's flight check was unable to recall specific details about the evaluation, although he did recall that "it was necessary to repeat several items to achieve a satisfactory grade." The FAA inspector remembered believing both that the captain was trained well and that he had the capability to passably fly the aircraft; however, "He would deviate from accepted procedures and tolerances enough to make the maneuver unsatisfactory." So, they would discuss the maneuver and associated standards, and subsequent maneuver performance was acceptably demonstrated.

Captain Kehmeier's performance in the B-720 was satisfactory through the end of December 1963. In early January 1964, he was unable to pass his instrument proficiency check because of his instrument "… approaches, go-arounds, and landings with 50 percent power. He was high on the glide slope at minimums on two approaches, slow to add power on the first go-around, and selected full flaps too early in the simulated two-engine approach, which necessitated addition of power from the simulated inoperative engines." He passed a re-check two days later. A year after that, in January 1965, he began training in the B-727, and he received his type rating in February of that year, despite the FAA inspector noting that "The overall check ride was a little below average. The main outstanding thing in my mind was that he could fly the airplane, but it was necessary several times to remind him to stay on altitude or airspeed."

The flight from Denver to Salt Lake City, flown by the first officer under the direction of the captain, was largely uneventful. On initial descent into Salt Lake, just below 11,000 feet, the crew could see the field visually and continued the approach. The aircraft was configured for "the reference speed of 123 knots, as the landing gear and 40 degrees of flaps were selected. The flight continued descending at approximately 2,000 feet per minute … with a full 'fly-down' signal on the ILS indicator. The UAL recommended rate of descent during the landing approaches is 6-800 feet per minute." The aircraft was approaching the airfield with a sink rate almost three times higher than what it should have been. When the aircraft was 6,500 feet above the airfield, the captain "stopped the first officer from adding power. He [the captain] estimated that 15-20 seconds later, at approximately 5,500 feet MSL, the first officer moved the thrust levers forward. When the engines did not respond, he moved the thrust levers to the takeoff power position, and assumed control of the aircraft. He estimated that this occurred about 1-1/4 miles from the altitude of 1,000 feet … and at least 30 seconds prior to impact." The captain did not recall any of the readings on the engine instruments, although he did recall looking at them.

The first officer's recollection of the final moments of the approach was slightly different, as the accident investigation board noted:

> "Approximately 1-1/2 to 2 minutes prior to impact he attempted to apply power but the captain advised him to wait. About 30 seconds later he moved the thrust levers half way. When he recalled that nothing was happening, he reached to apply full power but the captain was already on the controls. He estimated that full power was applied approximately 5-10 seconds, but no more than 15 seconds prior to impact. He did not observe the engine instruments, and he neither heard nor felt any engine response."

The second officer's testimony summarized that "On short final the first officer started to apply power but the captain brushed his hand away and said 'not yet.' Finally the captain applied about half throttle movement 7-8 seconds prior to impact. He did not observe the engine instruments, but he heard the engines respond normally."

To resolve the discrepancies in power application among the three cockpit crew members, the investigation board performed a thorough analysis of the aircraft systems, engines and data recorder.

"The evidence indicates that there was no significant malfunctioning of the aircraft systems or components. The separation of the landing gear and No. 1 engine resulted from impact loading in excess of their design structural strength. No icing

was encountered in the overcast, and there is no evidence of other circumstances which would unduly delay response from the three engines. Therefore, it is concluded that if power application had been initiated at the proper time, sufficient power would have been available to successfully complete the landing in the normal manner."

The board also concluded that the application of power to the engines most likely occurred only 5-10 seconds before impact, rather than the 30 seconds prior that was estimated by the captain.

It was United's policy that pilots should accomplish the final approach with reference to the instrument landing system glide slope to aid in ensuring a 6-800 feet per minute rate of descent. The company also warned aircrews that very high rates of descent at low flare altitudes would require takeoff power to maintain proper airspeed at landing, and that it was a configuration that was not recommended. This particular flight was approaching the runway well above glide slope, in a high rate of descent, and in need of significant engine power for a safe landing. The board stated that "this action was not only contrary to recommended procedures, but well beyond the parameters which are expected of a prudent pilot."

The approach to the runway continued. The aircraft touched down 335 feet prior to the prepared surface of the runway threshold with significant force. The landing gear was damaged and caused subsequent damage to other critical aircraft components, including a rupture in a fuel line. One engine departed the aircraft. And a fire, sparked by the metal aircraft skidding down the runway and fed by the fuel spilling from the ruptured fuel line, consumed a large part of the aircraft and resulted in 43 deaths. The board concluded that the probable cause for all this destruction and loss of life "was the failure of the Captain to take timely action to arrest an excessive descent rate during the landing approach."

This accident could have been avoided if the captain had only taken action sooner on the approach. End of story?

Not quite ... Although the board's conclusions are certainly well supported with documented evidence, there is, perhaps, an opportunity to explore another possible — but undocumented — contributing factor to this mishap: multiple failures to decisively restrict or eliminate Captain Kehmeier's aircrew qualifications and privileges based on repeated substandard performance. In other words, failure to proactively predict the significant risk that he represented based on his actions, and mitigate or eliminate the risk by removing him from duties of significant responsibility.

This is certainly not to imply that all minor or uncommon errors should be immediate cause for swift, significant punishment; however, consider that Captain Kehmeier's history revealed egregious trends that were neither minor nor uncommon for him. He had chronicled inability or unwillingness to obtain or maintain a standard level of performance. Could anyone have seen or predicted a pattern of behavior that would lead them to reasonably project that he would eventually be responsible for a catastrophic landing? *Should* anyone have seen it? More importantly, could someone — anyone — in a position of respect or authority have made a tough decision long before this mishap that could have possibly kept a substandard performer from occupying the captain's chair?

The investigation board admitted that "The training records of this captain indicated a pattern of below average judgment, as well as a tendency to deviate from standard operating procedures and practices." To that end, let's recap nine opportunities documented from the accident report that occurred long before the mishap. Perhaps these opportunities could have been leveraged to either change the substandard behavior of the captain, or even mitigate the captain's risk to others to the point of eliminating him as an in-flight risk completely.

1 A DC-8 ground simulator instructor graded Captain Kehmeier's performance as average, even though it was extremely marginal.

2 Captain Kehmeier had difficulty passing his practice oral exams and completely failed an actual oral exam. Three weeks of additional training were needed before he could pass.

3 When flight training involved demonstrations requiring pilot technique and judgement, his performance was unsatisfactory.

4 An instructor could not correct the captain's deficiencies after seven hours of instruction.

5 The manager of flight standards noted unsatisfactory performance in multiple areas, including command, judgement and coordination, and recommended the captain be terminated from DC-9 training.

6 The captain's Boeing 720 type rating was delayed because he needed to perform additional periods in the simulator.

7 The flight check in the Boeing 720 required several items to be repeated to achieve a satisfactory grade. The FAA inspector initially observed unsatisfactory performance, but discussed the maneuvers and allowed for additional attempts, which were satisfactory.

8 Captain Kehmeier failed an instrument proficiency check for multiple substandard discrepancies. He passed a re-check two days later.

9 During a Boeing 727 flight check, the FAA inspector noted the ride as a little below average, and the captain had to be prompted to stay on altitude and airspeed, which is basic piloting.

The manager of flight standards made a tough, and justified, decision to recommend the captain be terminated from his DC-9 training. Did he go too far? Not far enough? Consider alternative actions that could have been taken by the multiple other FAA inspectors, ground training instructors and simulator operators when they witnessed the captain's substandard performance. Could they have broken this chain of events leading to an aircraft crash? Likewise, consider that every person of authority during each of those nine events had an opportunity to evaluate the trends in Captain Kehmeier's performance, possibly predict an eventual unacceptable level of risk and make a tough decision to downgrade him to a lower grade, or even completely strip him of his pilot credentials and thereby eliminate him as a significant risk. With this fresh perspective, it is plausible to conclude that the individuals who did not decide to adequately address the captain's risky performance were therefore contributory to the mishap. Too tough or too harsh a hypothesis? The families of 43 of the flight's passengers might not think so.

Tough decisions are, by description, tough to make. Decisions have consequences; some are favorable, some are not. To quote a Rush lyric,

"If you choose not to decide, you still have made a choice."

In the business of providing combat airpower to commanders across the globe, our decisions can certainly have strategic implications. Reflecting on this mishap, the decisions that key leaders made — or didn't make — and how those decisions could have contributed to allowing a substandard pilot to crash an aircraft, you can similarly predict the possible results of your own decisions. Ask yourself: Will my decision in a situation save lives or put them in danger? Will my decision adhere to a standard or the core values, or put them in jeopardy? Will my decision be considered legal or illegal? And remember that sometimes, making the right decision, even if it is extremely tough or uncomfortable, is still the right decision.

References: http://lessonslearned.faa.gov/ll_main.cfm?TabID=1&LLID=15&LLTypeID=0

Flight Safety for the Birds

DETECTIVE STORIES

from the Feather Identification Lab

BY DANIEL A. SUROWITZ
ILLUSTRATION BY ALEX SUROWITZ

Check your local TV guide or program listing and take note of how many forensic shows are available. It's an area of fascination for millions. Something about the science and technology of identifying the victim and solving the mystery with forensics draws audiences to tune in for all manners of entertainment. Picture a scene where a driver is cruising down the road, minding his own business, when suddenly he strikes a pedestrian — right there in the middle of the road. The driver pulls over, dials 911, and waits for the authorities to arrive. When the police and EMTs arrive, the initial scene is predictably chaotic. The police take the driver's statement. "He came out of nowhere." The unfortunate victim is definitely deceased, but has no identification with him. And so our mystery begins. Who was the victim? How did he get there? What was he doing in the middle of the road? All the questions, as you know, will be answered through forensics and neatly wrapped up by the end of the show.

But what if the driver was a pilot, and the victim was a bird — carrying no identification? How do we identify the victim? How did the victim arrive at the scene of the accident? Why is that important anyway? Believe it or not, there is a fascinating world of forensics behind each bird strike mystery. A TV series detailing the behind-the-scenes tools of bird identification may have a tough time competing in the ratings department, but for anyone who has ever collected and sent snarge to the Feather Identification Lab at the Smithsonian Institution, the backstory is worth knowing about.

Our story would have to begin with a dramatic incident to set the scene. Let's go with a two-ship planning a Basic Fighter Maneuvers Continuation Training sortie. Weather is 600 foot overcast with three miles visibility with light rain. Our two-ship plans for a 20-second interval takeoff. After being cleared for takeoff, the flight lead releases brakes and accelerates down the runway. Just after rotation, our pilot sees the flash of feathers, hears multiple thuds from the canopy and fuselage, and realizes he hit something. He gets airborne, dials 911 (notifies his wingman and the supervisor of flying), and coordinates for and completes a safe and successful recovery. Our first responders recover and impound the aircraft, take the pilot's statement, and recover numerous pieces and smears from the aircraft and runway. Our trained flight safety officer, or FSO, recognizes the evidence is clearly from a bird, but what kind was it, where did it come from, and what do we do next?

Of course, our hero would turn to the recently published Air Force Instruction 91-212, Bird/Wildlife Aircraft Strike Hazard (BASH) Management Program. There, our FSO would be directed to collect all feathers, fragments and DNA samples to submit to the Smithsonian Institution Feather Identification Lab, which is where the real magic takes place. On a lower level of the Smithsonian Institution National Museum of Natural History, away from the public exhibits, we find the Feather Identification Team of Dr. Carla Dove, Marcy Heaker, Jim Whatton and Faridah Dahlan. The team uses a variety of methods to identify more than 9,000 samples each year from civil and military sources. The result of their work adds to an ever-expanding database, which benefits not only aviation safety, but biologists, airfield managers, researchers and engineers designing more bird-resistant aircraft systems.

The Feather Identification Lab routinely receives samples from the head, feet or beak carefully removed from the mishap scene, preserved and submitted for analysis. But the forte of the lab is feather analysis, which has had a significant impact on understanding bird migratory patterns and behaviors. The lab has comparison specimens from more than 10,000 species, representing 85 percent of the world's bird population. The collection includes specimens from John J. Audubon and Theodore Roosevelt and covers over 100 years of bird specimens. They range in size from 1.6 ounce hummingbirds to huge ostrich, albatross, and condors. The lab also maintains a cross reference to sound recordings and DNA samples.

Here are a couple other notes from a recent visit to the Feather Identification Lab. While most strikes occur closer to the ground, there has been an increase in high-altitude strikes from migrating birds. Topping the list for the most strikes with Air Force aircraft is the Horned Lark. Swallows are involved in the most strikes for the Navy, and Mourning Doves for civil aviation. In general, bird strike reporting has increased over time, with occasional peaks in reporting following high visibility mishaps. Increased and improved reporting has also improved our relationship with biologists overseas, having a positive effect in efforts to mitigate bird strike hazards during deployed operations. One word of advice: When submitting samples for a strike that occurred away from home base, be sure to identify where the strike actually occurred, rather than the home base — if known.

The more feathers provided with a sample, the better for identification purposes. Occasionally, there won't be enough left for a feather ID. The facility also has an impressive DNA analysis lab; however, there are some points to remember. DNA analysis takes more time; it won't be complete by the end of the show. One member of the feather ID team related a story of one DNA submission from a strike at altitude that came back matched to a white tailed deer — around Christmas, no less. A second test confirmed the same, but the third test from the small sample also matched the vulture, which had apparently been feasting on the unfortunate deer.

While all this fascinating activity was taking place in the lab, our hero, the FSO, would have been completing interviews, gathering all the pre-mission planning materials, along with the Bird Avoidance Model (BAM) information and the Aviation Hazard Advisory System (AHAS) data. If the base had a Bird Detection Radar, that information would also be reviewed to fill in what happened in the moments leading up to the critical event. At a key point in the story, the forensic results would be delivered in a less dramatic fashion, allowing our FSO to complete the report. Even with the best near real-time information, or perhaps with cockpit displays, some bird strikes will remain unavoidable. As long as we share the airspace with them, birds will be have to be part of our decision-making and risk management processes.

We frequently hear the comment "It's just a bird strike," particularly when there is not a huge cost in damage, or perhaps a lost aircraft. However, each piece of information contributes to the quality of the data used to support the BAM and AHAS models. Better data helps us track migration patterns, assess environmental conditions, improve airfield management processes and improve bird resistant engineering efforts. The behind-the-scenes work at the Feather Identification Lab, supported by the Air Force, Navy and Federal Aviation Administration, has been making critical contributions to improving awareness and implementing effective prevention strategies.

The events in this story are fictional. Any resemblance to actual events, persons or birds, living or dead, is purely coincidental. No birds were damaged or harmed in presenting this story. Find more information on the Feather Identification Lab at https://vertebrates.si.edu/birds

WHY ASAP?

BY DAVID R. MACKENZIE

Today's aircrews grew up in a "why" society. Why should I do this? Why is this important? Why should I care?

It's not surprising; they're bombarded daily by social, visual and audio media at an unprecedented level, often with conflicting information that requires a change in behavior or additional effort to comply. Pure survival skills dictate the need to question, verify and interpret everything that's thrown at them. Aircrews today need and want to know why. This article explains why having an active Airman Safety Action Program, or ASAP, within the Combat Air Forces to report actual and potential safety hazard issues and concerns is beneficial not only to the active-duty Air Force, but also to the Total Force. The success already achieved up to this point in the current program, while operating at such a low-power setting, is amazing. From February to June 2018, there were 53 reports received from 14 of the 83 CAF wings, which includes Air Combat Command, Pacific Air Forces, U.S. Air Forces in Europe, Air Force Reserve Command, National Guard Bureau and several areas of responsibility. Who knows what can be achieved when the throttle is pushed to the firewall!

Photo by Samuel King Jr.

First and foremost, an active ASAP program within the CAF provides leaders, maintainers, trainers and aircrews with an aggregate view of issues affecting safe and efficient mission execution. For example, of more than 3,200 ASAP reports submitted, 13.4 percent were related to altitude deviations. Add the number of reports related to navigation errors, and the rate jumps to 19.7 percent. A deep dive into this particular set of ASAP reports shows a fairly even mix of automation errors, communication breakdowns between crew members and air traffic control, task saturation, poor crew resource management and threat and error management skills.

Why is this important? This flight hazard analysis highlights areas to monitor for leadership, provides trainers with the "meat" to emphasize the importance of why certain techniques are used to mitigate specific threats, and enables aircrews to not only "chair fly" specific mission profiles, but also to consider how they would address the threats that ASAP submitters encountered. None of these benefits will be available if aircrews don't submit ASAP reports throughout the entire CAF.

More than just a great aggregate analysis tool, an active ASAP enriches the search tool incorporated in the Air Force Safety Automated System ASAP software to allow individuals to search for, and more likely, find numerous ASAP reports about a specific event, hazard, location or MDS.

For example, suppose your mission is scheduled for an air refueling, so you search the ASAP scoreboard database and learn that there are 211 related reports you can review. Drilling down further, specifically for the CAF fleets of E-3, F-15, F-16, F-22 and F-35, you narrow the focus to 11 specific events. As you prepare for your next pond-crossing involving multiple air refueling tanking opportunities for your contingency deployment, your further analysis finds that four of these events experienced CRM issues, spatial disorientation or night-vision device hazards. These hazards start to become even more relevant as these four events point to issues with training, equipment or procedures that you're about to employ in your fighter aircraft. Perhaps you're an HC/MC-130J or HH-60G aircrew and your mission is planned for a bed down in the United States Air Forces in Europe - Air Forces Africa theater of operations at Djibouti-Ambouli International Airport. Here, you find seven ASAP reports in the system related to activities at Djibouti-Ambouli IAP, many concerning airfield or air traffic hazards crews have faced recently. You're now better prepared to face these challenges with more information in your tool bag, which will prevent being blindsided. Finally, maybe you're a new F-35 pilot or maintainer, so you search the ASAP database for MDS-specific issues, and you find 18 ASAP reports associated with the F-35 — with 13 in just the last four months!


Photo by Senior Airman Kaylee Dubois

Even more important than these analyzing and searching rewards, the real bonus of an active ASAP program with the different CAF major commands is that issues are addressed quickly! ACC Flight Safety has dedicated resources with the mandate to review each ASAP submission within the CAF by the next working day. After redacting all information that may identify the submitter, the submission is forwarded to the appropriate agency on the staff responsible for that area of operations. ACC/SEF continues monitoring each submission, tracking it through staffing and developing a coordinated response to post on the AFSAS Scoreboard for review by the different CAF communities. Because there are times ACC/SEF needs to contact the submitter to ensure the staff understands the issue — not for punitive reasons — providing contact information is recommended. The great thing about this is that according to Air Force Instruction 91-225, Aviation Safety Programs, ASAP submissions are identity-protected even when the submitter provides contact information.


Photo by Staff Sgt. Ryan Callaghan

While some issues are tracked for trending purposes, many result in actionable changes that aircrews can see. Following are several examples.

Example 1: A great ASAP submission involved an F-16 evaluator pilot from Pacific Air Forces. He was part of a four-ship of F-16s on a low level in hilly and mountainous terrain to ingress the bombing run for a Basic Surface Attack ride. The weather was approximately SCT 030 and five nautical miles of visibility. The pilot began executing an AAA threat reaction in accordance with Air Force Tactics, Techniques and Procedures 3-1. About 10 seconds into the threat reaction, the pilot was approximately 20 degrees nose high and 1,500 feet above ground level, crossing a ridgeline when he executed an aggressive nose down "last-ditch" type maneuver over the ridgeline into the valley. The pilot failed to realize that the ridgeline in front of him would be a factor during this maneuver. The Automatic Ground Collision Avoidance System activated and initiated a recovery. The AGCAS initially rolled the aircraft to wings level and then began a 5-G pullup. The aircraft crossed a subsequent ridgeline at 380 feet above ground level and approximately 20-30 degrees nose high. The AGCAS likely saved the pilot and aircraft from impacting terrain. Because of the ASAP report, ACC/SEF now had the "why" behind this hazardous event. Had the aircraft been an F-16 Block 50/52 that was subject to Military Flight Operational Quality Assurance analysis with data from the flight captured on the Crash Survivable Flight Data Recorder, then an even more detailed analysis could have been accomplished in combination with the ASAP report.

As a result of this report and other AGCAS events, AGCAS and Pilot Activated Recovery System events are now mandatory reporting events per flight crew information file throughout the CAF. These mandatory reporting events will be included in the next revision of Air Force Manual 91-223, affecting all U.S. Air Force aircraft equipped with AGCAS or PARS. Additionally, due to the success of AGCAS, these systems are now being rapidly developed for installation on fifth-generation aircraft like the F-22 and F-35.

Example 2: During air refueling behind a KC-135, the pilot of an E-3 was backing to the astern position when the co-pilot seat-recline function failed, causing the co-pilot seat to recline three detents. The flight engineer and co-pilot were able to adjust the seat back to the desired recline position, and the pilot continued to conduct air refueling operations. During another break in air refueling, while in the astern position, the co-pilot seat-recline function failed again, causing the seat to recline.

While on another sortie during air refueling, the co-pilot's seat recline moved one indention backward. The seat was re-adjusted and appeared to function normally until it re-occurred during the approach to landing. The first situation nearly caused the aircraft to hit the tanker, but due to the experience level of the pilot flying, the mid-air collision was averted. The second occurrence could have been catastrophic if it had occurred near touchdown.

On a third occasion, while flying the approach, the co-pilot's seat dropped to the lowest level. After determining that the seat could not go lower, the approach and rest of the mission continued. Luckily, the seat failed in a way that allowed the aircraft to safely to operate from the right seat. However, if the seat was initially at a higher setting and the failure occurred at a lower altitude or while aerial refueling, the impact could have been catastrophic.

Over a three-month period, 13 ASAP reports were submitted for various seat hazards within the E-3 community. To address the E-3 seat malfunction risk, ACC/SEF promptly contacted the ACC/A5/8/9 and system program office that developed both short-term and long-term fixes.

First, to immediately mitigate the highest risk malfunction of the seat-recline function failing, the staff published Technical Order 1E-3A-1SS-147 to provide guidance on adjusting the backrest tilt of the pilot and co-pilot seats. Additionally, the staff funded a modification to completely lock-out the seat recline function (TCTO 1E-3-973). By mid-2016, all E-3 pilot and co-pilot seat-recline control cable assemblies were removed. The seats were also inspected for installation of the recline calipers and operation of the recline lock assemblies (TCTO 1E-3-977). The second part of the E-3 seat fix involved installation of a seat kit (TCTO 1E-3-976), which would permanently fix the issue, while returning full recline function to the seats. Although acquisition of the seat kits was initially delayed, all TCTO kits have been made available and E-3 seat kit installation are complete. Since these modifications, there have been no ASAP reports for E-3 seat issues.

Example 3: This example highlights that while this ASAP was initially submitted through the Mobility Air Forces, the hazard has grown into an issue for all communities. As the use of hand-held electronic devices within the aircraft becomes more widespread, Special Operations Forces and CAF assets are now reporting similar challenges and concerns.

With an increase in the number of lithium-ion battery fires on civilian airlines, an ASAP submission questioned when the staff would address this hazard. The staff agreed with the submitter's concern and jumped on getting fire-suppression bags out to the field. In the rush to distribute the equipment, the bags were deployed before the checklist and instructions were developed. A subsequent ASAP report highlighted this fault, which prompted Air Mobility Command's A3 and A4 staff to initiate the development of usage instructions, storage responsibilities, and product-ownership validation. ACC/SEF saw similar concerns and collaborated not only with ACC/A3 staff, but also with AMC counterparts for possible solutions to mitigate the potential risks and develop procedures, funding and equipment that could be locally fielded. As a result, some units within the CAF are starting to use these bags on various aircraft fleets with the expectation of more to come.

The number of ASAP reports that have highlighted unsafe practices, inefficient techniques and issues previously unknown to leadership runs in the hundreds. These reports have highlighted mission-design series-specific issues, such as:

- Heading and track change software logic hazards in the RQ-4.
  – Resulted in ACC/A5I and the 69 Reconnaissance Group researching the background issues and publishing a flight crew information file to address this issue.
- There was no liquid oxygen available for a stranded F-16C, and the aircraft's liquid oxygen converter did not have enough oxygen to take off and reach the next destination. A plan was developed to deliver a fully serviced liquid oxygen converter to the F-16C – packed in bubble wrap – via an F-16D travel pod. Neither the electrical and environmental shop, the liquid oxygen converter experts nor the quality assurance offices were briefed or consulted on this plan. A maintenance member called "knock it off" to stop the plan, and the quality assurance chief advised that this was extremely unsafe. Leadership overrode the concerns and allowed the aircraft to depart. Luckily, there were no adverse effects from this unsafe action.
  – This incident prompted leadership discussions and reinforcement for adherence to technical order guidance to ensure no repeat occurrences.

ASAP reports have also identified safety issues specific to locations, like the lack of runway condition reading knowledge by the Navy tower controllers at Lakehurst Naval Air Station; the incorrect taxi-line issue at Kandahar; and the "dips" issues in Scottish airspace.

Another benefit of ASAP is that it provides the submitter with instant access to individuals who can fix the issue. The program can also provide fellow aircrews with real-life examples of mistakes and the events that led to error, arming them with knowledge and tools to help them avoid similar errors of omission or commission.

The potential power of ASAP is incredible, and the U.S. Air Force is just now scratching the surface. The move to incorporate ASAP into the Air Force Safety Automated System now allows individuals the ability to search both the mishap and ASAP databases to accomplish a more comprehensive trend analysis.

The Air Force Safety Center also plans to release an ASAP mobile app, which will allow aircrews to draft ASAP submissions on smart devices and tablets that have electronic flight bags. This can be done without a live network connection, and aircrews can then submit the reports once connectivity is available.

The future of ASAP within the CAF is strong, and it relies not just on aircrews and maintainers to highlight safety issues and errors, but also relies on every Airman to identify hazards wherever and whenever they are discovered. The benefits mentioned here are just a small sample of why Airmen should file ASAP reports ... the safety of the future force depends on you.

Photo by Samuel King Jr.

ASAP is intended to enhance and supplement safety programs and hazard reporting; it is not a substitute for appropriate leadership involvement. ASAP is an identity-protected, self-reporting system designed to encourage the voluntary reporting of issues that increase risk to flight operations. ASAP augments existing safety reporting programs by capturing self-reported issues and events not normally disclosed by traditional hazard reporting and mishap prevention programs. ASAP involves leaders and Airmen in the aviation mishap reduction process by capturing self-reported issues and events, analyzing the resulting information for trends, educating personnel and developing and implementing risk reduction or mitigation strategies.

File an ASAP Today!

Taken from an actual ASAP submission.
This event did not result in a mishap, but provides valuable information worthy of sharing.

ASAP #: ID 6058

Date: June 2018

Description: A near mid-air collision happened between 2 F-35s on the tanker

Sequence of Events:

1) 2-ship A goes to the tanker on a FLUG ride. Once on the tanker, 2-ship B asks if their wingman can go straight to the boom to get gas in front of 2-ship A.
2) After wingman of 2-ship B gets gas, they proceed to right wing. The FLUGee of 2-ship A then proceeds to boom to refuel.
3) After refueling, the FLUGee of 2-ship A proceeds to right wing, but lost SA that the wingman of 2-Ship B was on right wing. In the period of 30 seconds, two aircraft proceed to close the distance without SA on each other. The FLUGee of 2-Ship A is misprioritizing tasks, making radio calls and doing admin instead of visually acquiring the aircraft on the right wing.
4) The IP of 2-ship B on the left wing makes an informative call to break out to the wingman of 2-ship B, thus deconflicting the 2 pilots.

Lessons learned from near mid-air collision:

1) Misprioritization of tasks almost led to a mid-air in an admin phase of flight
2) Situational Awareness was lost, and could have been regained with the help of visual lookout (goes back to task misprioritization).
3) Mutual support from another aircraft was vital in ensuring deconfliction.

Recommended corrective action:

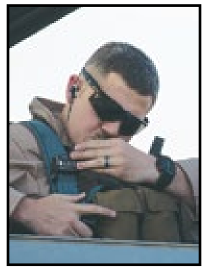
Re-using CRM lessons to maximize the tools in the cockpit.

Do you have a lesson learned to share?
https://asap.safety.af.mil

ASAP — Airman Safety Action Program ...
It's confidential and quick

Photo by Master Sgt. Donald Allen

4th Quarter FY17 AWARDS

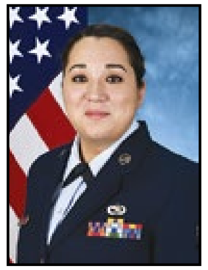


Pilot Safety
Capt. Douglas P. Mayo
549 CTS, 57 WG
Nellis AFB, NV

Flight Safety
Capt. Aaron K. Osbrink
552 ACW
Tinker AFB, OK

Aircrew Safety
Lt. Col. Jason E. Taylor
Maj. Ryan Geoffroy
334 FS, 4 FW
Seymour Johnson AFB, NC

Crew Chief Safety
Staff Sgt. Jacob J. Ricker
723 AMXS, 23 WG
Moody AFB, GA



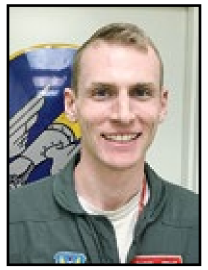
Flight Line Safety
Staff Sgt. Elizabeth A. Minnick
53 TSS, 53 WG
Tyndall AFB, FL

Safety Career Professional
Tech. Sgt. Sarah I. Lenker
552 ACW
Tinker AFB, OK

Weapons Safety
Airman 1st Class Justin J. Navarro
57 AMXS, 57 WG
Nellis AFB, NV

Unit Safety Representative
Tech. Sgt. Brandon J. Middleton,
41 RQS, 23 WG
Moody AFB, GA

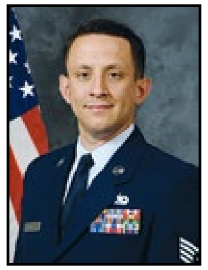
1st Quarter FY18 AWARDS



Pilot Safety
1st Lt. Stewart A. Harlow
71 FTS, 1 FW
JB Langley-Eustis, VA


Flight Safety
Capt. Jeffery Batterman
Master Sgt. Richard Carter
4 FW, Seymour Johnson AFB, NC


Aircrew Safety
Capt. Patrick Eden
Capt. Larry Ditton
334 FS, 4 FW
Seymour Johnson AFB, NC

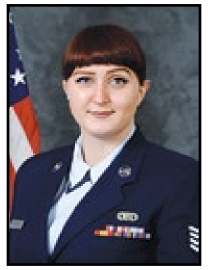


Crew Chief Safety
Staff Sgt. Kyle Yoder
9 AMXS, 9 RW
Beale AFB, CA

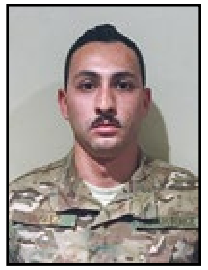
Flight Line Safety
Tech. Sgt. Nathaniel Sheahan
355 AMXS, 355 FW
Davis-Monthan AFB, AZ

Safety Career Professional
Master Sgt. Christopher Smith
461 ACW, Robins AFB, GA
455 AEW, (AFCENT)
Bagram Airfield, Afghanistan

Weapons Safety
Tech. Sgt. Scott Roode
455 AEW, (AFCENT)
Kandahar Airfield, Afghanistan



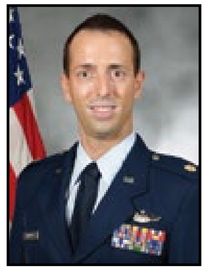
Unit Safety Representative
Staff Sgt. Victoria Meyers
9 IS, 9 RW
Beale AFB, CA



Explosives Safety
Staff Sgt. Hector Vazquez
923 AMXS, 23 WG
Davis-Monthan AFB, AZ

Unit Safety
Nellis Test and Training Range Safety Office
Nellis AFB, NV

2nd Quarter FY18 AWARDS



Pilot Safety
Capt. Chase Zickfoose
388 CTS, 55 WG
Offutt AFB, NE

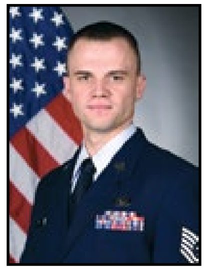
Flight Safety
Tech. Sgt Joshua Brooks
355 FW
Davis-Monthan AFB, AZ

Aircrew Safety
Capt. Matthew Guertin
Capt. Brenden Torphy
Maj. Christopher Boyer
Capt. Nathan Roberts
94 FS, 1 FW
JB Langley-Eustis, VA


Crew Chief Safety
Senior Airman Kesten Accomando
Staff Sgt. Johnathon Jennings
355 EMS, 355 FW
Davis-Monthan AFB, AZ

Flight Line Safety
Staff Sgt. Nicholas Ferrari
355 OSS, 355 FW
Davis-Monthan AFB, AZ

Safety Career Professional
Staff Sgt. Tristan Streetman
20 FW
Shaw AFB, SC



Unit Safety Representative
Staff Sgt. Christopher Beard
355 LRS, 355 FW
Davis-Monthan AFB, AZ

Unit Safety
332 AEW Safety Team
332 AEW, (AFCENT)
Muwaffaq Salti AB, Jordan

Weapons Safety
Master Sgt. Albert McAfee
455 AEW, (AFCENT)
Bagram Airfield, Afghanistan

Explosives Safety
332 EOD Team
332 ECES, 332 AEW, (AFCENT)
Muwaffaq Salti AB, Jordan

Congratulations

2017 ACC Annual Award Winners

Commander's Award for Safety
9 AF - AFCENT, Shaw AFB, SC

Wing Safety Program of the Year
55 WG, Offutt AFB, NE

Wing Chief of Safety of the Year
Lt. Col. Tomas Jaime
4 FW, Seymour Johnson AFB, NC

Flight Safety Officer of the Year
Capt. Jordan Ryskamp
23 WG, Davis-Monthan AFB, AZ

Flight Safety NCO of the Year
Tech. Sgt. Robert Walsh
355 FW, Davis-Monthan AFB, AZ

Flight Line Safety Outstanding Achievement Award
Master Sgt. Nikolaus Kosakowski
355 MXG, 355 FW, Davis-Monthan AFB, AZ

Occupational Safety Special Achievement Award
Andre Clement
9 RW, Beale AFB, CA

Occupational Unit Safety Representative of the Year Award
Staff Sgt. Nisha Boltz
820 COS, 93 AGOW, Moody AFB, GA

ACC's 2017 USAF Annual Award Nominees

Koren Kolligian, Jr., Trophy
Capt. Adam Cribb
354 FS, 355 FW, Davis-Monthan AFB, AZ

Chief of Safety Special Achievement Award
Capt. Brennan Jones
12 Airborne C&C Sqdn, 461 ACW, Robins AFB, GA

Safety Career Professional of the Year Award
James Middleton
9 RW, Beale AFB, CA

Chief of Safety Outstanding Achievement Award for Weapons Safety
Tech. Sgt. Robert Cash II
355 FW, Davis-Monthan AFB, AZ

Chief of Safety Outstanding Achievement Award for Ground Safety, Category II
9 RW, Beale AFB, CA

Chief of Safety Outstanding Achievement Award for Ground Safety, Category IV
93 AGOW, Moody AFB, GA

Chief of Safety Aircrew of Distinction Award
Jolly 64 Crew
41 RQS, 23 Wing, Moody AFB, GA

Chief of Safety Aviation Maintenance Safety Award
355 MXG, 355 FW
Davis-Monthan AFB, AZ

Chief of Safety Cyber Safety Award
9 CS, 9 RW, Beale AFB, CA

Mishap Statistics Scoreboard

FY18 Flight

As of 30 Jun 2018

	Fatal	Aircraft Destroyed	Class A Aircraft Damage
1 AF			
9 AF			
12 AF			
25 AF			
USAFWC			
ANG (ACC-gained)			
AFRC (ACC-gained)			

FY18 Occupational

As of 30 Jun 2018

	Class A Fatal	Class A Non-Fatal	Class B
AFCENT		0	0
12 AF		0	2
USAFWC		0	0
25 AF		0	1
9 AF		0	2

FY18 Weapons

As of 30 Jun 2018

	Class A	Class B
9 AF	0	0
12 AF	0	0
USAFWC	0	0

Flight Notes

ACC has been challenged with the complete loss of four warfighting assets this year: 1 MQ-9, 1 RQ-4, 1 HH-60 and 1 F-16. Regrettably, two of these mishaps resulted in fatalities. Three more CAF assets also attained Class A mishap status, including Air National Guard assets in a deployed location damaged by a significant weather event. Several of these mishaps could have been prevented by taking pause to assess the safety in each situation. Please ensure with our increasingly young force that time is taken to train properly, using the right tools and correct technical data, and have a safe strategy.

Occupational Notes

ACC suffered its first fatality in November when a member was riding his motorcycle to work and was struck by a car. We made it through Thanksgiving, Christmas and the New Year without any fatalities. Shortly after the New Year, a member was repairing his vehicle while stopped in an exit lane and was struck by a tow truck. In April, we had our second motorcycle fatality when the member drifted over the centerline and sideswiped an oncoming vehicle. In early June, a member lost control of his vehicle and struck several trees, resulting in his death. Lastly, three members in one vehicle were killed when stopped in traffic and rear-ended by a tractor trailer. Private motor vehicle accidents are still our No. 1 killer among Air Force members. Please continue to practice defensive driving, never drive while impaired, and always apply Check 3, GPS to everything you do!

Weapons Notes

During our last quarter, ACC encountered two Class D mishaps. These mishaps involved dropped missiles during loading ops. Also we encountered four Class E High Accident Potential incidents. Of the four incidents, three involved dropped munitions resulting in damage while the fourth was a small arms round discharged into a clearing barrel. The trend encountered this period is the result of improper handling and transportation of explosives. Slowing down and using our technical data during handling and loading ops could reverse this trend. These mishaps may be minor in the big picture; however, our focus and attention must catch these incidents before they become major mishaps.

Legend

Class A - Fatality; Permanent Total Disability; Property Damage $2,000,000 or more
Class B - Permanent Partial Disability; Property Damage between $500,000 and $2,000,000
Class C - Lost Workday; Property Damage between $50,000 and $500,000
(Class Description Effective October 1, 2009)

* Fatality   ** Non-rate Producing   *** Performing SOUTHCOM Mission

= Fatal   = Fatal due to misconduct

Symbols for Mishap Aircraft

OVER the Edge MAGAZINE
get back
to the basics
PAGE 6

OVER the Edge MAGAZINE

We want to hear your stories. The Combat Edge is looking for Airmen and civilians who are willing to share their personal experiences as they relate to safety. Tell us about a time – either on or off duty – where you learned a lesson or two. What went right? What went wrong? Tell us about it. You can write it, or we can help. And in turn, you can help us protect our most valuable resource **– our people.**

Send your stories or contact us at acc.thecombatedge@us.af.mil

Tell us your story.

Summer Time Sadness

BY STAFF SGT. LEIGHANN KEMERER

Summer is the season for outdoor activities such as boating, hiking and camping — just to name a few — all geared toward having as much fun as you can in the warm weather. However, your summer can be ruined by accidents, simple mistakes or lack of personal risk management.

Here's my story:

A few years ago, I went to the beach with some friends. This beach had some cliffs that people were diving off of into the ocean. Most people have general coordination skills that I apparently lacked that day. There I was, standing at the top of the cliff. Standing there looking down at the ocean, I realized I am not someone who can simply leap off the edge of a cliff into the water.

At that point, I decided to take a running start prior to jumping. As I took my last step to push off the edge of the cliff, my foot slipped and lost traction. At that very moment, I knew I messed up. I should have thought more about my decision to jump. After I got out of the water, I realized I had scraped off part of the ball of my foot. I was lucky that was the only thing that happened; however, I was in pain for the next two weeks.

As I look back at my cliff diving experience, I see that I could have done at least one thing better. I could have worn water shoes that have a better grip. If I would've worn proper shoes, I don't think I would've slipped. This would also have saved me two weeks of misery.

Here are some ways to keep yourself and others safe and happy during the summer months.

- Think about your leisure activities before doing them, and be prepared for things to not go as **planned**.
- **Protect** yourself and others as much as possible.
- If you're going to do something new, unusual or hazardous take an **experienced** friend or guide with you.
- If you enjoy experiencing the world alone, make sure someone is **aware** of where you're going and when you plan to be back.

If I had just followed those four steps, I could have saved a couple weeks of my summer.

get back to the basics

Before Hitting The Mountains

Whether mountain biking alone or with your wingmen, it's always important to remember the basics to keep cycling fun and safe. The following points might come across as really obvious; however, it's normally by ignoring or forgetting one of these simple facts that a great day's cycling can turn into a mishap.

BY SENIOR AIRMAN FREDDIE G. WILSON III

STEP 1: GEAR! Ensure that you have the proper gear for the activity and the proper protective equipment is fitted and serviceable. Mountain biking gear consists of a helmet, gloves and footwear. For safety checks on your bicycle, you can visit your base's outdoor recreation or any bicycle shop prior to riding. Once you have all the gear in order, you're ready to get rolling.

STEP 2: PLAN! When planning to go for a ride, make sure that you are riding on certified courses. While riding on any type of trail may seem fun and challenging, it is important to ride only on trails that have been inspected and are properly groomed and maintained. This will greatly reduce the chance for potential mishaps. In addition, checking the trail prior to riding will assist with familiarization, which will in turn reduce your overall risk.

STEP 3: SKILLS! Riding a bicycle is fairly easy once you learn; however, mountain biking is a completely different process. It incorporates bicycling with quick maneuvers, obstacles and jumps. It is important to know your skill level and limitations before riding! If you exceed your capabilities, you can place yourself at unnecessary risk. By always operating within your limits and graduating with experience, mountain biking can be some of the most fun you ever had!

REMEMBER: With the right Gear, Plan and Skills, you'll minimize your risks and maximize your fun. Have fun and be safe!

ARE YOU READY TO RUN . . .

Check Your GPS!

BY AIRMAN 1ST CLASS NOLAN R. BRANDT

Running may seem like a simple activity that anyone can do, but running safely is a whole different story. There are so many varieties of injuries that can result from running if you aren't properly prepared, from dehydration to pulled muscles. Before any run, you should always apply Check 3-**GPS** (**G**ear, **Pl**an and **S**kill).

At the start of your run, make sure you have the correct **G**ear and clothing according to the weather. Having the correct gear is absolutely essential when it comes to running safely. Always check your shoes before and after a run, making sure they provide the adequate amount of support to prevent injuries such as shin splints or Runner's Knee. Make sure that your clothes are loose-fitting and breathable — not cotton — to prevent chaffing. Having the correct clothing for running will help you stay cool or warm depending on the weather and prevent you from overheating or having cold muscles and pulling something. If you don't have the proper running gear, do a little research on what you should have, or running may just end up causing you other issues.

If you are going to go for a run, having a **Pl**an is an absolute must! If you're going to do speed work on a track or a long trail run, you have to know what you're doing. Having an idea of what you're doing will help you get ready for the workout, and you'll be more prepared than if you were going in blind. Having a route already in mind before you go running should be part of your plan. Make sure that you're familiar with the area you are running in. You don't want to run in an area that has a high crime rate or a trail that has potholes or loose rocks. These are all things you should be thinking about when planning a successful run.

Lastly know your limits; know how **S**killed you are at running. Your workout shouldn't be based on trying to be the fastest; it should be based on trying to make yourself a better runner. For example, when going for a run, don't take off sprinting and then collapse at the end. You should find a pace that you can keep without having to stop and walk. Once you find your pace, then you can work on pushing yourself a little bit harder with every run and slowly increase your speed. Walking during your run will only hurt you, and you won't see any improvement. This may lead to frustration. Knowing what you are capable of is the most important part of running and making yourself a better runner.

Using the Check 3-**GPS** (**G**ear, **Pl**an and **S**kill) and applying it to your workout leads to a safer run. Remember to always ensure you have the correct gear for your run, including water, shoes and the proper clothing. Plan your running route, making sure it's in a safe area. Lastly, know how skilled you are and make sure you don't overdo it, which could lead to overheating and getting sick. If you follow your Check 3-**GPS**, you'll always go into any activity safe and sound.

Photo by Master Sgt. Matt Hecht

I SURVIVED THE GOLDEN NUGGET

BY MASTER SGT. JESUS ONTIVEROS JR.

I had been stationed overseas for the past three years, and it was now time to for a permanent change of station back to the states. I was a week out from my flight stateside, and the car I had been driving for the past three years was already on the boat being transported to my next duty station. A friend of mine had a loaner vehicle that got passed around while people were in their transitioning phases. Knowing that I was without a car for at least a week, my friend let me borrow the loaner until I departed. This car was an old, beat up, poorly maintained two-door Renault Clio that was spray-painted gold, thus the name **"Golden Nugget."**

It had a manual transmission and an after-market CD player that had surprisingly good sound.

I was on my third day of driving this gem, and I noticed the engine would stutter from time to time and the tires had seen better days. It was a Friday afternoon, and I had scheduled an appointment with the local mechanic to get the spark plugs replaced and anything else it might need. That day happened to be a particularly difficult and stressful day at work for me so my mind was going a million miles an hour. I hopped into the Golden Nugget and started to make my way off base and onto the farm roads of the amazing country I was in. It also happened to be the first rains of the year, so the roads were wet. The roads that I had to take to get to the mechanic shop weren't the best, but I was somewhat familiar with the route. The two-way road was narrow and curvy with no dividing lines and no shoulders.

As I drove the Golden Nugget down the road, I approached a part where it inclined and curved to the right, at the top of this incline with a bit of a down slope in the curve. As soon as I cleared the hill, the back end of the vehicle lost traction and started to whip toward the driver's side. I tried to regain control by overcorrecting and slamming on the brakes. The Golden Nugget did not want to follow my directions and decided not to respond to any of my actions like I hoped it would. So, it continued to whip into a 180 while also sliding off onto the shoulder. Once the passenger side back tire left the shoulder and contacted the dirt, the Golden Nugget rolled over three times, coming to a stop in the middle of the road — right-side up.

During the rolling action, I felt the roof crush onto my head, compressing me into the seat. I remember telling myself not to pass out so I could exit the vehicle in case it burst into flames. Once it came to a stop, I unbuckled my seatbelt, jumped out of the broken driver's side window and saw that the Golden Nugget was in the middle of the road. In my daze, I worried about another vehicle coming over the same hill and not having enough time to see my totaled vehicle in the middle of the road, causing another accident. So I went into the vehicle, put it in neutral and pushed it off the road into the ditch. A couple minutes after I moved the smashed Golden Nugget off the road, another vehicle came over the hill, which made me feel good about my decision to move it. I was able to contact the police and some of my co-workers, who came to the accident scene. I was lucky to walk away from this accident with only minor injuries.

So what did I learn from this incident?

First, the vehicle should have been maintained better and the tires should have never gotten to the level of wear that they did.

Second, I should have been more aware of the weather, which can affect road conditions. The first rains of the year bring up the oils in the road, which can make it that much more slippery.

Third, even though I was going the speed limit, I was going too fast for conditions.

Fourth, being emotionally and mentally fatigued can contribute significantly to your decision-making ability.

Take care of yourself, maintain your vehicles and equipment, be aware of your surroundings and use proper risk management. Instead of just my vehicle being shipped back home, it could have been me being shipped back home — in a box.

Captive to the Current

BY STAFF SGT. CODY K. SHERMAN

Wow how time flies! We're now in the summer season, and the activities and sports associated with the warmer months are thriving. The Check 3 GPS campaign (Gear, Plan, Skills) is a great tool to use and apply to a broad variety of summer activities -- and nearly any other activity as well. I would like to share a short story about myself and a friend who accompanied me on a fishing trip that nearly turned fatal if not for this Check 3 GPS process.

Well here we go. The two of us had been fishing together for over a year, both on land and by boat. We were well aware of the risks associated and skills needed when dealing with any situation on or near the water – or so we thought. We had entered a popular team-style catfishing tournament in central Montana a few months in advance, giving ourselves plenty of time to prepare.

Well, the much-anticipated time had come for the big tournament, and we were excited! We conducted a full inventory of our things before hitting the road: extra clothes, safety equipment and of course, our fishing gear. We couldn't have been more ready while we conducted our Check 3 GPS process. We had the Gear needed, we had studied the land and river that we planned to fish, and from fishing with each other for over a year, the two of us felt we had the Skills to do this safely. Now, if this is where the story ended, it sounds like we went on to catch a good amount of fish and have a great time. However, this is a lessons-learned story, and that is not how the story ends.

Prior to the start of the tournament, we identified one minor observation. Because my boat was too big for this river, we borrowed a friend's aluminum boat, which had a much smaller hull and a prop-driven motor. We later realized the other teams in the competition had jet boats, which operate with no spinning prop. This is where we made our mistake, and the Swiss cheese model of risk had come to bite us. We held on to our pride and failed to ask enough questions from the locals, figuring we could "just learn as we go." What we did not know were two major factors. One, the season was dry and the water level on the river was lower than usual, and two, the river's current picked up faster than we anticipated in some areas that we couldn't see from the roadside or on a map.

Shortly after launching the boat into the river, we were heading down the stream. The first rough section we ran into was very shallow, and we didn't realize how fast we were traveling downstream, since we were going with the current. Being unable to turn the boat in that rough section, we had no choice but to ride it out. Just then, the prop struck the jagged rocks protruding from the bottom of the riverbed broke the motor mount holding the prop motor, which shut off engine. We were now dead in the water. Free-floating in a fast current over jagged rocks in the middle of a river that was more than 50 yards across, we had no control of the boat as it was spinning out of control.

If you can't imagine this feeling of helplessness, let me tell you – it's scary!

Exchanging lost looks of "What now?" we knew we had to act fast before striking a large rock in the middle of the river, which would have most certainly overturned the boat at the speed we were floating. Standing or swimming in the current was out of the question. We kept calm and hurried as we worked together, trying multiple options to engineer ourselves out of the mess we made. One of us fixed a piece of our gear up under the motor mount while the other tied a rope around it to keep it in place. Miraculously, we started the engine just in time to straighten out the craft and slowly work our way out of the rapids. Hardly being able to hold the boat straight with the broken mount, we worked our way to the shore, where we received help getting the boat out of the water and back on a trailer.

We escaped that unforeseen event with no injuries – and our lives. This was most likely due to our experience level – our Skill. Swallowing our pride and asking for help from more experienced, local boaters would have made our Plan and our Gear more effective. It may have even prevented this event from happening. The bottom line is that the Check 3 GPS system works great — when you use it, and we're thankful we made it out alive.