Spring Edition 2011

Combat Edge

AIR COMBAT COMMAND'S SAFETY MAGAZINE

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Chief of Safety, Lt Col Deric Kraxberger watches as Capt Nick Bozo (Flight Safety Officer), and Col Sid Mayeux prepare for T-38 flight

Combat Edge

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COVER PHOTO BY: LT COL LESLIE PRATT

ACCent ON SAFETY

Col Sidney F. Mayeux
Director of Safety

Across Air Combat Command, winter weather is giving way to clearer skies and warmer temperatures. We've been waiting for it. Our motorcycles were winterized and tucked away awaiting clearer and warmer roads. Our aircrews spent the winter flying when and where the snow didn't blow, maintaining flying proficiency, doing their best to wring any possible training the winter weather conditions allowed.

Spring has arrived, a sure sign that ACC Airmen are ramping up their on- and off-duty activities. With spring, the whole world comes back to life. It means better flying and recreation weather, more optimum training to clear out those stick-and-throttle cobwebs, and regaining those piloting skills. And FINALLY we can take our favorite set of wheels out on that beautiful Sunday cruise.

But it's this sudden surge in aviatin' and recreatin' that ACC Airmen, wingmen, supervisors, and commanders must watch closely. As we accelerate our flight training and off-duty PMV activities, we consistently see higher historic aviation and off-duty mishaps … not just in ACC, but across the Air Force.

Over the last 10 years, the USAF averaged 18% more flying hours in the Mar - Apr - May timeframe than in the Dec - Jan - Feb window. However, that same spring flying season yielded 26% more Class A, B, and C aviation mishaps across our service.

ACC's aviation mishap history reveals a similar Spring Spike. Over the last 5 years, ACC aviators averaged 3 Class A flight mishaps during the spring months, up from the winter (2 average). It tapers off to 2.5 in the summer, and 1.2 in the fall. Spring flying yields the highest aviation mishap rates across the USAF, not just ACC.

Clearly we're entering a time of highest overall risk in our yearly flight operations and training cycle, and we're not alone up there. Good weather for ACC means great weather for birds. As you read this, the spring migration has begun for North American migratory fowl. Roughly 1 in every 7 USAF aviation mishaps, in the springtime, involves a birdstrike.

And about that motorcycle ride? Go slow, Brother Joe. During the last 5 spring seasons, ACC Airmen averaged 3.2 Class A PMV-2 mishaps, higher than the other 3 seasons. Those averages taper downward through summer and fall as we regain our 'chops.'

The lessons apply to all ACC Airmen, in the air and on the ground. Crawl before you walk, and walk before you run. By scaling back the intensity of your sortie, you get better training from your investment in JP-8. By simplifying the distance or complexity of the day's motorcycle "poker run," you'll regain the feel of your bike more safely, do a better job of staying out ahead of the bike, and probably enjoy the day more. In both cases, you'll reduce the risk of a disastrous mishap.

I know, we've been cooped up in the caves all winter, and it's time to see the sun and light our hair on fire (yes, you heard the Safety Guy say that). Just do so smartly and carefully. Don't push too hard, too fast, too soon. Train … and play hard, but stay smart. Don't let the Spring Spike nail you to the pavement.

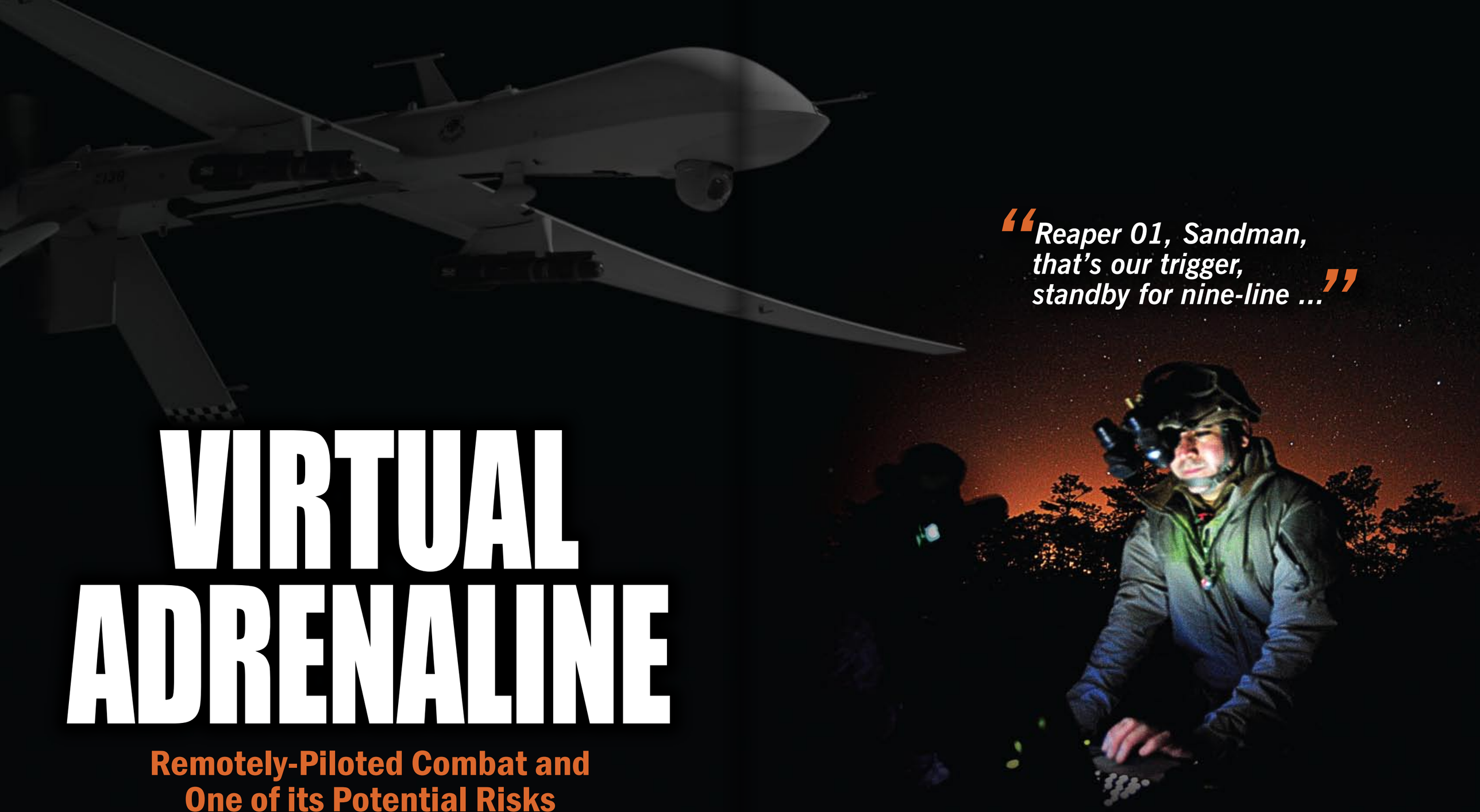
Scroll's in!

VIRTUAL ADRENALINE

Remotely-Piloted Combat and One of its Potential Risks

BY LT COL TAL "SKID" HARRIS

"Reaper 01, Sandman, that's our trigger, standby for nine-line ..."



"Reaper 01, Ready to copy nine-line."

"Reaper 01, Sandman, this will be type-2 control; 1, 2, 3, N/A ..."

Like any professional aviator, I was replaying the strike over and over in my mind, looking for ways we could have done things better or more efficiently. The odd thing was that I wasn't sitting in a squadron briefing room or in tent city with the guys; I was in my car driving home. It had been a strange day, full of disconnects I wasn't yet used to, but that would become common over time. Moreover, it's now a typical occurrence for our Total Force Airmen flying MQ-1 Predator and MQ-9 Reaper missions in Iraq and Afghanistan from CONUS bases.

The day started off normally enough; I drove the hour from home to Creech AFB, Nev. After checking email and returning a few calls, I went to the Airfield Operations Board meeting — one of my duties as the Wing Chief of Safety (COS). After the meeting, I went to the squadron to fly an Operation ENDURING FREEDOM mission in the MQ-9. I took care of the usual preflight stuff: signing off Flight Crew Information Files, reading and signing off the weekly Special Instructions, doing my Operational Risk Management (ORM), etc; and then briefed the mission with my Sensor Operator (SO) and Mission Intelligence Coordinator (MIC). With a little time to spare, I sat down in the Squadron Operations Center and watched the mission (already in progress), to gain Situational Awareness before getting in the seat.

It was immediately clear to me that this mission had the potential to "go kinetic." The crew in the seat was tracking a group of insurgents who had test-fired an Improvised Explosive Device (IED) and were now driving cross-country toward a busy market town. Discussions with the Joint Terminal Attack Controller (JTAC) clarified what would constitute a hostile act. After another brief on what to expect with the SO and the MIC, we stepped to the Ground Control Station (GCS), completed our change-over brief with the outgoing crew, and got down to business.

After about an hour, the insurgents stopped their vehicle on the outskirts of the town and started walking around. Shortly afterward, they started digging a hole along the side of the road and prepping an IED to bury in the hole. The JTAC immediately passed us the nine-line. We read back the appropriate information, ran our attack checklists, and set up for the strike. After we called "in," the JTAC cleared us hot. We ran in on the axis the JTAC specified and released a single GBU-12. The weapon struck the target, killed the insurgents, and destroyed the IED (one of our goals — we didn't want anyone to have to go in and disarm it).

Four hours later, after doing Battle Damage Assessment (BDA), changing out with the crew following us, and filling out post-mission paperwork, I attended the Foreign Object Damage meeting — another one of my duties as the COS. I'd like to say that the content of the meeting held my full attention, but my mind was still 8,500 miles away. The meeting concluded and I eventually ended up where this article started; driving home and replaying the strike in my mind. I eventually came to the conclusion that I could have made some switch actuations earlier in the sequence than I did; but overall, we did things very well — just like we were trained to do. I then started thinking about what I needed to accomplish at home; mow the lawn, paint this, fix that. ...

And that's what this article is really about — not the strike! Numerous, well-trained aircrews have executed strikes in various CAF, aircraft and I have no doubt they were equally or better skilled than we were. The subject is going back and forth between operating in a combat environment and the in-garrison life we're used to at home station on a daily basis.

This mix of combat and peacetime responsibilities is a product of Remote Split Operations (RSO). In RSO, the Launch and Recovery Element (LRE) launches the aircraft and the Mission Crew Element (MCE) takes control of it and flies the "mission" portion of the flight from a large distance away. The technology enables us to avoid the large force protection footprint required if we were to deploy everyone forward. It also allows us to take advantage of economies of scale in a safe environment that's out of harm's way. As such, RSO is great — very few complain about not deploying to theater. That said, we probably haven't thoroughly considered the implications of mixing combat life with home life.

During Operation ALLIED FORCE, USAF F-16 crews from Aviano AB and RAF GR-4 crews from RAF Bruggen flew combat missions from home station. Leadership in both cases saw the potential for issues to arise and put the crews into billeting to build a "deployed" or "at war" mindset. They didn't want to see a day-to-day home life perspective impact the wartime mission where lives were at stake (or vice-versa). The conflict lasted 78 days, and when crews came off the line, they went home.

This is a Photo Illustration

Photo by: SSgt Bennie J. Davis III

In the current Remotely Piloted Aircraft (RPA) construct, the situation is somewhat different. Predator and Reaper crews work at a deployed operations pace. The typical schedule for them is 6 days on, 2 days off. One month on day shift, the next month on swing shift, and the next month on mid shift. They repeat this cycle not for 120, 180, or 365 days, but for the foreseeable future. We have crews that have been operating in this fashion for as much as 7 years — there's no such thing as dwell for these Airmen.

Again, nobody's complaining, very few would trade the current construct for frequent deployments to the AOR. Those that want to go to the AOR volunteer for duty as LRE crews and deploy to theater. But the fact that nobody's complaining doesn't mean there's no need to get a good handle on what long-term exposure to a combat RSO environment might mean for our Airmen.

RPAs are a significant part of the current AF mission. Demand for what they bring to the fight increases every day. It's very likely that remotely-piloted AF aircraft will become a larger percentage of our total force over time. That means we'll be exposing our Airmen to this environment more and more in the future.

Back to the strike I described earlier. The SO sitting next to me, lasing the target through weapon impact and watching for squirters, had never seen anyone killed before — much less been an active player in the process. On that day, not only was he instrumental in killing three people, but he also spent the next 2 hours doing BDA in not-so-living color. After we debriefed, I looked him in the eye and made sure he was OK to rejoin "normal" life and sent him on his way. It was later, during the drive home, that I started thinking about what tools I'd like to have access to.

Most of us have been around long enough to know that the Air Force has resources we could have accessed if my SO wasn't dealing well with what we did/saw. Our Chaplain Corps is very well trained to counsel people in a variety of circumstances, to include what they might encounter in wartime. Our Flight Surgeons understand the missions we fly and can provide counseling as well as treatment, should that be required. But what I didn't see that day was a well-considered, deliberate process.

The USAF School of Aerospace Medicine has conducted surveys on this subject, but surveys aren't processes. Feedback indicates that we need an Office of Primary Responsibility to deliver and orchestrate a process to address mixing wartime operations with peacetime life. Probably something similar to the ORM checklists we fill in before flight … a checklist that points us to whatever 12-step program we need to rejoin polite society.

All of us are used to compartmentalizing, it's an essential part of aviation. When we live and operate in a combat environment, everything we do there fits in with everything else. When we redeploy, we leave what happened in theater behind and use it at the appropriate times (discussions in the weapons shop, during briefs/debriefs, etc). But when we shift back and forth on a much more frequent (daily) basis, it becomes more difficult to keep the two worlds separate. I can't say I know of circumstances where "crossing the streams" has caused major problems, but it's logical to believe the time will come.

Our Airmen in theater (rightly) don't have to worry about the soccer game tonight, or whether the grass needs cutting — they're focused on the task at hand. But when we mix those considerations with the mission, one side or the other will eventually suffer. The last thing we need is to have either of the two worlds create enough friction in the other world that it affects our performance. From a mission standpoint, it could lead to problems with execution — something beneath our professional Air Force. On the home front, it could lead to doing a poor job of caring for those we take risks to defend.

As it stands now, our RPA crews do what all aircrews do: they act as good wingmen and take care of each other. The Air Force has an asset we could take advantage of — Operational Psychologists. Perhaps our Operational Psychologists could assess the situation, the studies, and the resources available and develop a deliberate process. With the right tools in place, we'll be proactive in addressing risk, rather than reactive after the risk is realized.

Photo by: SrA Larry E. Reid, Jr.

FINDING a path to "NORMAL"

RPA Mishap Investigations

BY MR. DAN SUROWITZ

In the spring of 2001, I participated in a Class A mishap investigation for an MQ-1 Predator that crashed before completing its mission. I had some experience with unmanned aircraft, primarily in their role as aerial targets, but that was my first time serving as a member of a formal Safety Investigation Board (SIB). That mishap was also early in the evolution of Predator mishap investigations, among the first dozen or so Class A events reported. The SIB was convened, assembled, and executed in a "normal" manner, with a full complement of board members. The investigation experience generated a lot of discussion about why things were so different than manned aircraft operations. In the end, we were able to complete the investigation, produce the formal report, brief the convening authority, and return to our day jobs. Some people expressed the opinion that it was a lot of effort for an unmanned aircraft. At the time, there were no special rules for Unmanned Aerial Vehicle (UAV) or Remotely Piloted Aircraft (RPA) mishap investigations. We treated that event like any other aviation mishap. The procedures established for investigating manned aircraft mishaps provided a common expectation for the process, as well as for the products the board delivered.

Photo by: A1C Jonathan Snyder

Things have changed. In the last 10 years, the Air Force has investigated and reported on more than 100 Class A and B UAV mishaps. We have learned a lot about how to conduct investigations, and we have made adjustments. Most of those adjustments have been made in response to significant changes in the way we conduct operations. Some of those changes include a tremendous increase in flying hours, deployment to multiple areas of operation, and increased reliance on Remote Split Operations (RSO) where the platform operating in one theater is controlled by a crew in a control station half way around the world. To accommodate those changes we have convened multiple Interim Safety Boards (ISBs) for a single mishap, tailored SIB composition, extended reporting timelines, and relied on part-time Subject Matter Experts (SMEs) in lieu of full time board members. Our Air Force Instructions have not kept pace with these adjustments, requiring waivers and case-by-case approval for deviations from old guidance. Through all this turmoil, mishap rates have been declining. Still, our board members and others are asking the same questions I heard on my first investigation — "why are things so different?" We have wrestled with finding the right approach to conducting RPA mishap investigations. It may be time to review what we have learned over the last decade along with our experience with manned aviation mishap investigations, and establish a new baseline for a "normal" RPA mishap investigation.

So, what makes RPA mishaps so different? Well, we have not yet lost a pilot in an RPA mishap. That is not to overstate the obvious, but to acknowledge a significant point. Unmanned vehicles operate on missions and in environments that are dull, dangerous, and different, and we keep the pilot out of harm's way. While the loss of any aircraft — manned or unmanned — impacts combat capability, the absence of injury to personnel allows for a moment to step back and survey the damage, assess the situation, and form an investigative plan. Another complicating issue is the operational decision to destroy an aircraft, or a conscious decision not to recover the wreckage. The technical challenges of landing a crippled aircraft or operating in a contested environment have made this an increasingly relevant consideration. The inability to analyze failed components can affect the investigation by preventing the opportunity to verify hardware or system integrity. As previously mentioned, the concept of remote split operations has already affected the investigative process.

Interim Safety Board actions are often performed at multiple locations for a single mishap, since equipment, personnel, and documentation

Photo by: Lance Cheung

pertinent to the mission are distributed among multiple places. In addition to the requirement to preserve evidence, the ISB may play a larger role helping ensure all necessary equipment is turned over to the permanent SIB. Remote Split Operations may also affect the SIB composition. A single mission may involve multiple locations and personnel from different organizations. This may suggest that a "normal" SIB would be staffed by personnel from multiple MAJCOMs to include Air National Guard and Reserve participation. Another attribute of RPA mishaps is the enormous amount of data available to reconstruct the mishap. Whether from data loggers, telemetry systems, or ground control stations, there is almost always an electronic witness that helps chronicle the mishap and point the investigation toward the offending system or action. Analyzing that data sometimes requires technical expertise that is

only available within a small pool of personnel, or with access to specialized equipment or facilities. While that technical expertise can be invaluable, access to that limited resource pool also adds to the amount of time required to complete the investigation.

So what makes RPA mishaps similar? The loss of an air vehicle affects our ability to execute the mission. Whether the pilot is on board or not, each damaged or destroyed asset impacts the ability to do our job. We have not really identified new ways to crash these aircraft. We have identified human factors, operator errors, systems malfunctions, and maintenance practices to contend with just as in manned aviation. Lessons learned from manned aviation mishap investigations apply to unmanned aircraft, and vice versa. One area in particular deserves emphasis — the pilot/aircraft interface. Removing the pilot from the cockpit has given us a different set of human factors issues. Our many different types of systems allow the pilot/operator to interact with the vehicle and the operating environment in different ways, and with varying amounts of control. Lessons learned from cockpit design and automation are relevant to control station design, but the many types of missions do not make them universally applicable.

As with manned aircraft, the operational and maintenance expertise with the system is critical to the success of a mishap investigation. Attempting to complete an investigation without the right expertise leads to an inferior product, weakens credibility of the report, and increases the likelihood of misinterpretation or misunderstanding by the audience responsible for implementing recommendations. Perhaps most important, well-founded recommendations are critical to improving system performance, reliability, and training programs. Experience has shown that the most useful actionable and credible recommendations are produced by those who understand how to operate and maintain these systems, and can clearly articulate hazards and deficiencies.


Photo by: MSgt Scott Reed


Photo by: SSgt Kristi Machado


Photo by: SSgt Brian Ferguson

So what's next? We begin by acknowledging that these systems are here to stay, they are becoming more prolific, and we have the obligation to investigate and report on all mishaps, whether manned or unmanned. There is a well-established history of completing investigations with actionable recommendations that have value in preventing similar mishaps from happening again. We have not identified board member roles that are not applicable, and we have demonstrated the importance of system specific expertise in mishap investigation. In short, our existing mishap investigation process has merit for RPA mishap investigations. There are, however, areas for improvement. Different types of RPAs may warrant different levels of investigation. Aerial targets and tethered aerostats operate much differently than Predator, Reaper, and Global Hawk, and our governing instructions should account for these categories. We also need to act deliberately when forming the investigative team. ISB actions must take place immediately — perishable evidence has to be preserved. But once the dust settles, the wealth of data available after an RPA mishap allows an opportunity to gather facts, make an initial assessment, and form an investigative team with the right expertise to complete the investigation. "Normalizing" mishap investigation does not mean we have to do things as we have always done them in the past. We can review our established procedures, accommodate the differences inherent in unmanned systems, and adjust our process accordingly. Our investigation processes are well established, but they are reviewable. Building on our experience with manned aviation and accommodating the unique attributes of unmanned systems will help focus on the real hazards and the right mitigations to improve safety and reliability, and minimize losses of these critical resources.


Photo by: SrA Matt Coleman-Foster


Photo by: TSgt Efren Lopez

Towards a Culture of
RISK MANAGEMENT
PRE-FLIGHT ORM WORKSHEETS

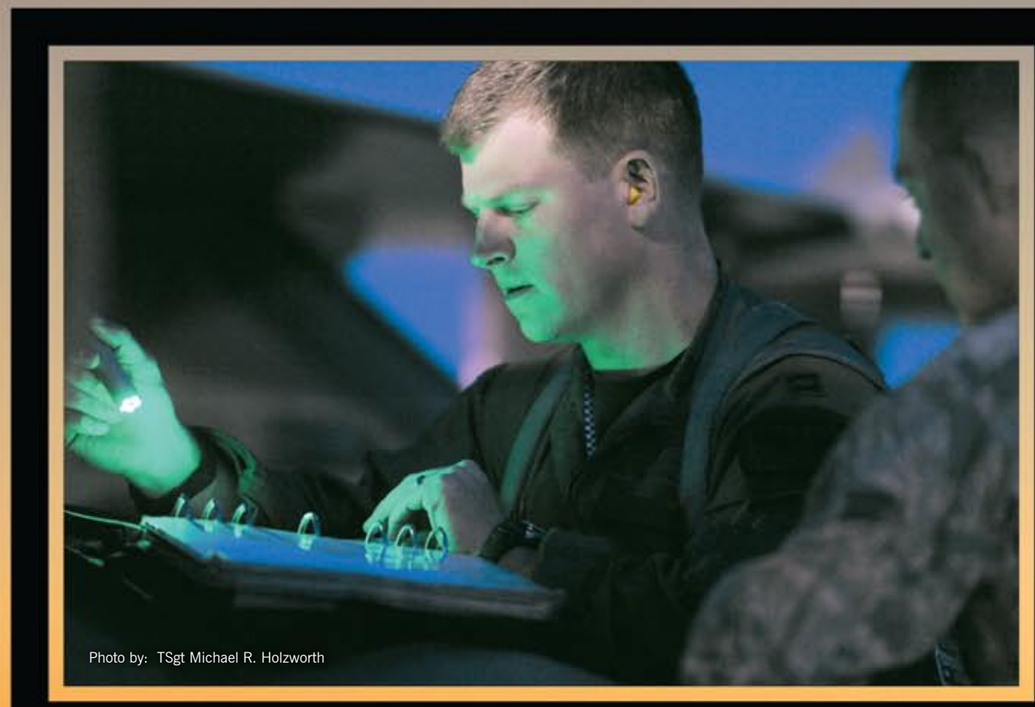


Photo by: TSgt Michael R. Holzworth

BY COL J. ALAN MARSHALL

Pre-flight planning involves a routine process of checking the weather, activating a flight plan, checking NOTAMS, computing take-off and landing data, studying departure procedures and reviewing mission tasks. Air Force Policy Directive 90-9 also requires aircrews to incorporate risk management into pre-flight planning and this requirement is usually guided by a squadron generated risk assessment worksheet. In practice, these worksheets are commonly referred to as Operational Risk Management (ORM) worksheets. Air Combat Command requires aircrews to complete an ORM worksheet for each mission and to ensure that the appropriate supervisory authority level is determined for release of the mission. Air Force policy gives the flying unit great leeway in the format and specific design of these pre-flight risk management tools. AFI 90-901 states that this risk assessment process may be "qualitative or quantitative" (p. 3). A qualitative process might direct crewmembers to rate specific risks at a low, moderate or high level. A quantitative process directs crewmembers to assess specific risks with numerical values (1, 3, 5, etc.) and the numerical values for all risk categories are then summed up to create an overall "ORM score" for the particular mission or flight. Typically, pre-determined overall ORM score thresholds dictate the level of supervision required for release of the mission. A typical ORM sheet directs that low ORM scores (below a pre-determined threshold value) can be cleared for flight by the aircrew. A moderate score might require clearance approval by squadron level leadership (operations supervisor, director of operations or squadron commander). High ORM scores may require approval from the operations group commander or even the wing commander. Although this quantitative approach has more of a scientific feel to it than a qualitative method, the process of establishing the numerical values on the ORM worksheet is more of an art than a science. A discussion of this quantitative approach to ORM worksheets raises several important questions. What does a risk value of a "1" or a "5" mean? At what overall ORM score should the operations group commander be notified? How do leaders know that the numbers are right? This article will address each of these questions as well as a philosophical approach to establishing a culture of risk management in Air Force flight operations.

Photo by: SSgt Benjamin Wilson

In creating ORM worksheets, leaders choose value ranges for potential risks based primarily on their experience, their comfort level, and the relative risk of each mission task. If a particular mission task, like a "departure from the local area" is of relatively low risk (such as a day, single ship, standard departure in clear weather), then the activity might garner a 1 or 2 value on a scale from 1 to 5. A relatively moderate risk maneuver (such as a day, formation departure, in marginal weather), might garner a 3 on the same scale, and a high-risk maneuver (such as a night, formation departure in poor weather) might call for a 4 or a 5. These numbers have no specific meaning by themselves but rather serve to rank risks relative to the range of risks that might reasonably be encountered while accomplishing the organization's mission. In building the ORM worksheet, the designer must account for as many possible mission tasks as practical and must organize the tasks in some logical way. One technique for organizing risk categories is to use the 5-M model from AF Pamphlet 90-902: Man (health and stress, proficiency, etc), Management (crew rest, rules of engagement, etc.), Machine (aircraft status, configuration), Medium (weather, day/night, etc.), and Mission (tasks). Once tasks and task categories are listed, the worksheet designer must then estimate the appropriate range for risk values for each task. This is achieved by considering the appropriate relative weight for each task with respect to the overall mission risk assessment. Once all of the potential mission tasks are listed (along with possible value ranges), the value ranges for each item are added up to provide a possible range for the overall ORM score. The ORM worksheet designer must then determine the level of overall risk that the aircrew can approve for flight, as well as the numerical threshold values for overall ORM scores that will require approval by higher levels of supervision (squadron commander, operations group commander, etc.).

What does a risk value of a "1" or a "5" mean? To answer that question the phrase "its relative" comes to mind. The specific value of an identified risk is relative to both the possible risks associated with the activity as well as the possible risks associated with the overall mission. In the "departure from the local area" example, a low risk departure should not be assigned a disproportionately high-risk value compared to other events in the mission such as a more difficult training task planned after the departure. To do so would be to under account for the risks associated with the more difficult training event. However, if any particular task is assigned a risk value lower than appropriate, then the overall risk of the mission will not be properly identified. For this reason, a good ORM sheet provides the aircrew a way to identify any additional risks not predicted by the ORM sheet designer. In this way, the numerical value assigned to any task is relative to the risks of other tasks and the overall risk of the planned mission.

At what overall ORM score should the operations group commander be notified?

To determine the appropriate numerical value of the overall ORM threshold requiring approval from higher level supervision requires vast operational experience and good communication between leadership and safety personnel at all levels. The level of risk that requires increased supervision also involves the comfort level of each successive commander. Ultimately, the operations group commander must be comfortable with the level of risk that the squadron commander and the supervisor of flying are approved to accept. The squadron commander must be comfortable with the level of risk that the director of operations, operations supervisor and aircrew members are approved to accept. All leaders must have a feel for the relative risk levels of each type of mission, the frequency that high risk missions occur (and thus the frequency that the squadron commander and group commander should be notified), and the overall risk level that the flying unit is experiencing on a day-to-day basis. With an understanding of relative risk levels, the operations group commander might expect to be notified weekly of at least one high risk mission that needs group commander approval for release. During a particularly challenging period (such as an operational surge) the operations group commander might expect such notification on a daily basis. At a lower level of risk, the squadron commander or operations officer might expect the same frequency of notification of increased approval requirement at their level. Again, the number of times that leaders should expect the risk acceptance be elevated to their level of supervision should be based on leader comfort levels with relative risks as indicated by overall ORM scores.

How do we know the numbers are right?

This is where philosophy comes in. One technique for assessing whether or not the numbers are right is to log and track ORM scores for all missions as well as the number of times that risk acceptance decisions are elevated to each successive supervisory level. A periodic review of the ORM score trends can highlight high risk missions and give leaders important clues to whether or not the numbers are right. If the operations group commander is rarely or never notified of high-risk missions, then perhaps the numerical threshold for such elevation is too high. A lowering of the numerical threshold may be in order followed by further tracking of the number of times the operations group commander is notified. If after lowering the threshold, the elevation of risk acceptance to the group commander still rarely occurs, the threshold can be further lowered to identify if the number is still too high, or if aircrews are adjusting risks evaluations to avoid elevating release decisions to higher levels. Either situation provides important information for the leader to act on. If relative ORM score numbers are wrong, then the ORM worksheet is of marginal use and the numerical thresholds should be adjusted. If aircrews are reluctant to perform higher risk tasks because they do not want to lose control of risk management decisions, then operations may not be optimized (balanced risks verses rewards). **Finally, if aircrews avoid identifying high-risk tasks in order to avoid elevating risk management decisions, then a serious attitudinal problem exists and the flying unit may not have developed a strong culture of risk management.** Flight safety meetings might be a good venue for leaders to address any of these issues as well as a good opportunity to stress that ORM worksheets aren't just another paperwork hassle but rather are a potentially powerful tool for managing risk at the appropriate level.

In conclusion, this discussion has highlighted that the design of a good pre-flight ORM worksheet is more of an art than a science. The specific values on the ORM worksheet are not as important as the relative values with respect to other mission task risks as well as the overall mission risks. Although the specific risk values are relative, they are not arbitrary. The design of the ORM worksheet is based on sound judgment that relies on vast operational experience and ever changing levels of comfort with risks for leaders at all levels of supervision. ORM threshold values for elevation of risk acceptance authority represent the comfort levels for each successive level of supervision. If the operations group commander wants to retain the risk acceptance authority for all ORM scores over "20" the operations group commander is saying that they are comfortable with squadron level acceptance of risks associated with overall scores of 20 or less. If the squadron commander wants to retain the risk acceptance authority for all ORM scores over "15" the squadron commander is saying that they are comfortable with lower levels of risk acceptance authority for overall scores of 15 or less. One technique for ensuring that the numbers are "right" is to record and track overall ORM scores so that flight safety officers and all applicable leaders can review ORM scores and adjust ORM threshold values on a periodic basis. Finally, a discussion of ORM processes and score thresholds with the aircrew community may be helpful during quarterly flight safety meetings to ensure a culture of risk management has been established.

Photo by: SSgt Christopher Boitz

DECEMBER - JANUARY AWARDS OF DISTINCTION

Aircrew Safety

1LT ERIK M. EVANS AND A1C DANIEL R. LOPEZ, 46 ERS, 332 AEW, JOINT BASE BALAD, IRAQ. 1Lt Evans and A1C Lopez recovered a crippled MQ-1B Predator RPA. As the aircraft approached 400' AGL, A1C Lopez noticed an abnormally high Exhaust Gas Temperature on the Heads Down Display before it reached the warning range. Lt Evans coordinated for an airborne laser bore sight, and retracted the gear, while A1C Lopez alerted the pilot. Seconds later, warnings blared as the aircraft indicated high EGT, Cylinder Head Temperature, turbo oil temperature, oil temperature and Angle of Attack stall. *(Dec 10)*

CAPT JUSTIN F. PAVONI, CAPT MATTHEW R. OLDE, 335 FS, 4 FW, SEYMOUR JOHNSON AFB NC. On takeoff at 5 degrees nose high, 220 knots, and 300 feet AGL, the crew of CIDER 51 noticed a strong yaw motion to the right. Capt Pavoni coordinated with Seymour Approach to conduct a controllability check and dump fuel for an expedited landing. Further investigation revealed the left rudder was inoperative and stuck fully deflected to the right. Capt Olde coordinated with the 4 FW SOF to find a suitable chase ship for mutual support. Following completion of the checklists, CIDER 51 conducted a single frequency approach. *(Jan 11)*

Crew Chief Safety

SSGT WADE E. MCFARLANDE, 451 EAMXS, 451 AEW, KANDAHAR AF, AFGHANISTAN. While inspecting the cockpit of an A-10C on a post-flight inspection, SSgt McFarlande noticed the #2 engine RPM gauge post light's cover missing. He notified the flight line expediter and production super and initiated a search for the missing item. Armed with only a flashlight and mirror, he located the post light cover in the aft portion of the cockpit under the seat FOD skirt. His methodical actions and "never give up" attitude enabled the aircraft to make its next scheduled sortie safely while preventing a lengthy impoundment procedure. *(Dec 10)*

SSGT THOMAS T. LOFTON, 451 EAMXS, KANDAHAR AF, AFGHANISTAN. While performing a routine preflight, SSgt Lofton was ground transferring fuel on his assigned HC-130P. He noted a 4x4 foot panel departing the left wing of an IL-76 landing. He ceased his fuel transfer and powered up the aircraft radio and alerted Camp Bastion's tower controllers of the imminent hazard. The tower successfully called off the C-17 that was on short final and a KC-130J on approach, allowing recovery of the panel from the runway center line and preventing a possible catastrophe. He saved two aircraft valued at $283M and prevented further damage to the Russian $30M IL-76. *(Jan 11)*

Flight Line Safety

MSGT RICHARD A. PILTZ, 451 EAMXS, 451 AEW, KANDAHAR AF, AFGHANISTAN. MSgt Piltz's passion for safety was the driving factor behind the innovative post-casualty-evacuation biohazard aircraft sterilization techniques he developed. He implemented the new procedures, acquired the necessary PPE, and proper cleaning solvents that dramatically increased personnel safety by eliminating all traces of blood-borne pathogens. This new process was highlighted as a "Best Practice" and personally requested by the ACC/A4M HH-60G aircraft Weapon System Team as the new fleet-wide standard operating proceedures. *(Dec 10)*

CAPT BISHANE WHITMORE, 37 BS, 28 BW, ELLSWORTH AFB SD. While performing SOF duty, Capt Whitmore received a radio call from the crew of Tiger 02 (T02) informing him they had only partial electrical power after a momentary loss of complete electrical power during the sortie. T02 declared an emergency as they were operating using only stand-by instruments and had lost primary navigation capabilities. Capt Whitmore reviewed the T.O. guidance and coordinated with T02's flight lead (T01) to provide a single communication frequency. His actions, agency coordination and crew management ensured safe recovery of a $283M aircraft. *(Jan 11)*

Ground Safety

SSGT CHRISTOPHER R. COREY, 355 LRS, 355 FW, DAVIS-MONTHAN AFB AZ. While filling a liquid oxygen (LOX) cart from a pressurized, 6,000-gallon tank, the servicing hose broke and disconnected from the cart. The force from the hose separating from the cart blew SSgt Corey's face shield and helmet off, causing him to be splashed with LOX. He flawlessly completed the 12-step emergency shutdown checklist in less than 15 seconds, stopping the flow of LOX. His decisive actions and "courage under pressure" during this chaotic moment prevented traumatic injuries to himself and a fellow Airman and saved the AF $3,300. *(Dec 10)*

Ground Safety

SSGT JESSICA V. LAUWERS, 355 CMS, 355 FW, DAVIS-MONTHAN AFB AZ. SSgt Lauwers was key to the 355 CMS reportable mishaps being lowered by 16 incidents; an impressive reduction of 70% from 2009. She also ensured that 53 personnel received Supervisor Safety Training bringing the unit to 100% compliance. Her dedication to excellence led her to identify 12 new motorcycle riders in the unit for whom she initiated training and assigned mentors. Additionally, she noted an error in reporting new riders and trained the flight chiefs and supervisors on proper reporting procedures which ensured all riders where tracked and mentored. *(Jan 11)*

Pilot Safety

CAPT AARON M. PALAN, 75 EFS, KANDAHAR AF, AFGHANISTAN. Capt Palan was providing armed over watch, searching multiple ambush sites using his understanding of enemy Tactics, Techniques, and Procedures. As he tracked the friendly position, his flight was abruptly ordered out of the area for a High Mobility Artillery Rocket System fires mission. It was determined an internal miscommunication triggered the error. His attention to detail and persistence were solely responsible for breaking the chain of deadly events. Without his vigilance for the safety of friendlies, coalition troops would not be alive today. *(Dec 10)*

CAPT AARON B. CAVAZOS, 75 EFS, KANDAHAR AF, AFGHANISTAN. Capt Cavazos was rolled to a troops-in-contact situation (a 2-ship of A-10Cs). During the roll-in for his second 30mm staffing run, he observed an illuminated master caution light just prior to weapons employment. With fire and engine seizure, he maintained coordinated flight with rudder inputs and executed boldface procedures. When he began his safe escape maneuver, he detected a number one engine over-temp with associated hot light. After jettisoning his remaining ordnance, he successfully recovered the A-10C via a straight-in, single engine landing. *(Jan 11)*

Weapons Safety

SSGT FREDRICK A. LEE, 451 EAMXS, 451 AEW, KANDAHAR AF, AFGHANISTAN. SSgt Lee was in charge of downloading 1,150 rounds of 30mm High Explosive Incendiary (HEI) ammunitions for phase preparation. Approximately 75 rounds in to the download, the Ammunition Loading Adapter (ALA) and gun system came to a sudden stop. Inspection revealed a 30mm HEI ammunition round had jammed on the bottom of the ALA. He declared a ground emergency and evacuated the area of all non-essential personnel. EOD determined the damaged round presented a hazard and would have to be disposed of by use of controlled explosives. His actions prevented detonation of explosives and safeguarded the lives of over 400 personnel and 18 aircraft. *(Dec 10)*

MSGT KEVIN D. METZGER, 380 AEW, AL DHAFRA AB, UAE. The extraordinary efforts of MSgt Metzger significantly increased the safety of over 2,000 base personnel and thousands of host nation civilians and military personnel. His expert technical knowledge and ingenuity enabled him to acquire and combine satellite imagery, geo-base mapping and plotting tools, with explosive sitting software to build and present a comprehensive D-08 map of the Host Nation Munitions Storage Area. For the first time, the Host Nation now has a map that clearly illustrates the facilities and danger zones for each munitions bunker. *(Jan 11)*

Unit Safety

355 EODF, 355 CES, 355 FW, DAVIS-MONTHAN AFB AZ. The 355th Explosives Ordnance Disposal Flight responded to an explosive emergency at the Fort Huachuca Munitions Storage Area to neutralize crystallized nitroglycerin-based dynamite. They assessed all eight sticks of dynamite and determined they were safe for limited movement. The unstable explosives were transported by a police convoy to a nearby open field for emergency destruction. After all mandatory notifications were made, the shot was detonated. The team went back down range and ensured all explosives had been consumed. *(Dec 10)*

451 ECES, 451 AEW, KANDAHAF AF, AFGHANISTAN. The 451 ECES safely constructed over 678K SF of ops and mx area for a 12-ship A-10 move from Panther to Zulu ramp. They provided daily safety briefs for 1.2K man-hrs and a $1.5M beddown which resulted in zero mishaps and eliminated AFCENT's #1 weapon risk assessment. They grounded 5 generators, an ejection seat mx area, and the fuel cell hangar, ultimately meeting all national electric code and TO specs. The sq also oversaw 21 construction projects valued at $7M which had a combined total of over 25K man-hours at all sites with zero worker incidents. *(Jan 11)*

2010 ACC ANNUAL SAFETY AWARDS

Congratulations

COMMANDER'S AWARD FOR SAFETY
12th Air Force
Davis-Monthan AFB AZ

WING SAFETY PROGRAM OF THE YEAR
57th Wing
Nellis AFB NV

WING CHIEF OF SAFETY OF THE YEAR
Lt Col Christopher J. Didier
4 FW, Seymour Johnson AFB NC

FLIGHT SAFETY OFFICER OF THE YEAR
Capt Eric D. Gorney
55 FS
Shaw AFB SC

FLIGHT SAFETY NCO OF THE YEAR
TSgt Jason C. Klukas
28 BW
Ellsworth AFB SD

CREW CHIEF SAFETY OUTSTANDING ACHIEVEMENT AWARD
SSgt Daniel O. Gordon
28 AMXS
Ellsworth AFB SD

FLIGHT LINE SAFETY OUTSTANDING ACHIEVEMENT AWARD
SSgt Jacob R. Ballou
83 FWS
Tyndall AFB FL

WEAPONS SAFETY OUTSTANDING ACHIEVEMENT AWARD
TSgt William Puterbaugh
332 AEW
Joint Base Balad, Iraq

LOGISTICS SAFETY OUTSTANDING ACHIEVEMENT AWARD
TSgt Kevin J. Cantrell
721 AEAS
Camp Taji, Iraq

GROUND SAFETY OUTSTANDING ACHIEVEMENT AWARD
TSgt Robert L. Brown
552 ACW
Tinker AFB OK

GROUND SAFETY SPECIAL ACHIEVEMENT AWARD
SSgt Rickey L. Barberree
1 FW
Langley AFB VA

TRAFFIC SAFETY SPECIAL ACHIEVEMENT AWARD
99th Air Base Wing
Nellis AFB NV

FY11 Flight

As of January 31, 2011

	Fatal	Aircraft Destroyed	Aircraft Damaged
1 AF			
9 AF			
12 AF		** **	
USAFWC			
ANG (ACC-gained)			
AFRC (ACC-gained			

FY11 Ground

As of January 31, 2011

	Fatal	Class A	Class B
9 AF		1	0
12 AF		3	1
DRU's		0	1

FY11 Weapons

As of January 31, 2011

	Class A	Class B
9 AF	0	0
12 AF	0	0
AWFC	0	0

Flight Notes

In the last month, Air Combat Command experienced two Class A mishaps of Remotely Piloted Aircraft. On 3 Jan 11, an MQ-1B suffered an electrical system failure, lost link, crashed and was destroyed. On 14 Jan 11, an MQ-1B suffered an engine malfunction, crashed and was destroyed. Both of these mishaps are still currently under investigation. We are about to embark on the spring flying season. Be vigilant as past trend analysis shows us that this period in the aviation community is where we are most exposed to risk … known in Safety as the "Spring Spike." Back to basics, attention to detail, aircrew judgment and flight discipline are as important now as ever.

Ground Notes

At the end of Jan 11, ACC has sustained four Class A fatal mishaps. Two were PMV4 mishaps, one was a motorcycle mishap and one was a private aircraft crash. The motorcycle mishap had speed, alcohol, and inexperience as contributing factors. Being a good wingman to your fellow Airman just may save a life. Always be on the lookout to correct hazardous activities.

Weapons Notes

The ACC weapons community is doing an outstanding job in the mishap prevention arena. However, since the last issue we have experienced three Class E events. The only thing these mishaps had in common was a lack of attention to detail and following tech data. All three mishaps were preventable and could have been avoided. If we could eliminate these types of mishaps, we would be mishap free. So when you're out on the job remind your buddy it takes less time to do it by the book rather than answering 100 times what happened. Let's make the next issue mishap free.

Legend

Class A - 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)

** Non-rate Producing * Fatality

= Fatal = Fatal due to misconduct

Symbols for Mishap Aircraft

Over the Edge

A FIGHTER PILOT approach to MOTORCYCLE RIDING

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Over the Edge

CONTENTS

A FIGHTER PILOT approach to MOTORCYCLE RIDING

COMMENTARY BY COL MARK MOUW

"A man's got to know his limitations," said Clint Eastwood's "Dirty Harry" character in the 1973 movie, "Magnum Force."

Those words I'm sure were in the back of Maverick's mind in "Top Gun" as he paused on his Kawasaki GPZ 900 Ninja by the runway at Miramar to watch the Tomcats takeoff. He should have taken a moment to reflect, given how often he put his aircraft out of control throughout that movie.

While flying a fighter and riding a motorcycle may have little in common, except both being a "hoot," the deliberate approach required in aviation, to do what needs to be done without bending metal, is also a smart way to approach a motorcycle ride before letting out the clutch. This commentary is written by a fighter pilot and a motorcycle enthusiast to blend the best of both worlds. We want all motorcycle riders to have a "hoot" for years to come!

Training. A fighter pilot goes through extensive training to learn the basic skills of flying an airplane, but more importantly, undergoes continuation training to develop new skills while honing existing skills. Recurrent training builds habit patterns that can be relied on when things get hairy.

Motorcyclists can benefit from this same approach. Our traffic safety rules already require us to get some basic motorcycle training, but really, how effective is an initial course and perhaps a refresher course in developing a lifetime of skills? Those courses give you some basics, but you're on your own to practice periodically, to sharpen your reflexes and habit patterns.

Take time to hone your riding skills, especially after a layoff, to rebuild those good habit patterns. Find a parking lot where you have some room to practice handling your motorcycle. Fighter pilots never practice in the main airways; they go to special airspace where the dangers of the maneuvers can be managed. With that said, the street is no place to practice your skills. Many excellent programs are available to develop advanced riding skills.

Planning. A great sortie always starts with a great plan. Sitting down with your wingmen to decide what the job in front of you will require is a key step to understanding what it will take to get from point A to point B.

Not all motorcycle rides necessarily involve a great deal of planning, but you should take a few moments to consider where you're going and how you intend to get there. Doing so should make the ride more enjoyable. When selecting your route of travel, consider how bad weather or traffic congestion might affect driving conditions for you and other motorists.

Weather also affects the human machine. "Dress for egress" is a common saying among pilots, who may start out warm and comfy, then end up wet and cold in the middle of nowhere, with nothing except their wits for protection. If you've been getting fat and lazy all winter, your first ride of spring shouldn't be an all-day run through the twisties, hoping the highway patrol doesn't put a laser on you.

The Right Gear. Suiting up is a very personal affair. Getting harnessed just right, choosing the color of the skull cap under your helmet and other accessories are important considerations for the pilot. You gotta look and feel right. More importantly, the equipment has to work. Unlike a fighter pilot, most motorcyclists can't afford a highly skilled life-support technician, so you're on your own to wear the right gear, all the time. Road rash isn't funny, even when it's on someone else. A steer gave his life so you can look good in leather, so wear it! If your girlfriend is a diehard PETA member, even textile is better than being naked.

The most powerful muscle you have, or maybe the second-most one, is your brain, which is easy to squash like a melon. The rules say to wear a helmet. If you chose not to wear one, please keep a copy of your living will in your wallet so your family can unplug the life-support machine.

Preflight. The walk-around with the crew chief is the traditional informal ceremony where the pilot is officially lent the aircraft. As a rider, you are your own crew chief; if the machine is unreliable, it's your own fault. Take time to make sure all is in order: tires are inflated properly, fluid levels are good and all lights are serviceable.

Even better than being able to accelerate, is being able to stop. Inspect your brakes so that something else doesn't have to bring you to a sudden stop. Clean machines run better and look better, and at least you know there's still oil in the engine.

Visual Lookout. How you use your eyes is as important as knowing what can be seen. Focus techniques and scan patterns are important tools of the fighter pilot. They are taught to scan from near to far, to ensure the "kill zone" is clear, and then to look at threats outside the kill zone. When scanning from 3,000 feet to 2 miles, using things along the ground helps with focus. Why? Because depth perception and measuring distance is important to protect and react to things inside the "kill zone."

For the motorcycle jock, that "kill zone" is based on the ability to maneuver out of harm's way. A motorcycle traveling at 60 miles per hour approaching an oncoming car also traveling at 60 mph achieves a closing rate of 176 feet per second. The rider's kill zone is now 528 feet — more than a football field and a half! He has 3 seconds to react. If you're doing 120 mph on a sport bike and that oncoming car is going 60 mph ... well, you get the picture, and it ain't pretty.

What If? Fighter pilots consider breakdowns in the plan as part of the plan, calling them "what ifs." What if a coordinated strike becomes uncoordinated, someone doesn't show up, or the timing is off? What if our missile employment isn't as lethal as we hoped? What if we fail to destroy the target on the first pass? Those "what ifs" force a risk-management action plan in the calm of the briefing room, and help avoid real-time actions becoming too ad-hoc, reactionary or ineffective.

The motorcycle rider should have plans, as well. What if the group I'm riding with exceeds my comfort level, either through speed or questionable actions? What if the weatherman was wrong, and the predicted sunny day is instead drizzly, and a damp layer of grease and oil coats the road? What if my favorite roads haven't been maintained lately, and gravel or sand covers the apex of my turn?

Fortunately for the motorcyclist, there is one simple solution to help you survive the unexpected: slow down. Slower speeds allow for greater reaction time should an unexpected event occur. If a collision appears unavoidable, understand proper braking techniques, leave yourself an out, and as a last line of defense, always wear a full ensemble of personal protective gear.

Lesson Learned. After the flight is over, honest and pointed feedback draws out what went right and what went wrong, so we don't make the same mistakes again. If you're lucky and have a wingman to ride with, you'll get some feedback on things you might need to work on. If you care about your buddies, and they need some constructive feedback, you'll provide it. Simple things, such as cornering techniques, worn or unserviceable motorcycle parts, or wearing riding gear that just isn't cool anymore are just a few examples. If you ride with friends who think doing wheelies and stoppies on public roads is OK, then you have your "being a good wingman" work cut out for you. You might try discussing problems you see with another rider who has credibility and might team up with you in correcting a problem.

One Last Thing. The public and military opinion of riders is about the same as the cute club bartender's opinion of fighter pilot stories — not great! Cleaning up the sport and keeping an eye on each other will go a long way toward changing attitudes.

Mr. Dan Maham, former Deputy Division Chief for Air Force Ground Safety, and Mr. Bud Redmond, former Air Force Deputy Chief of Safety and Air Force Safety Center Executive Director, contributed to this commentary.

THE EVOLUTION OF THAT GUY

WITNESS THAT GUY REVERSING CENTURIES OF HUMAN PROGRESS ALL IN ONE NIGHT

BRAIN MAXIMUS

Mental capabilities are sharp and bodily functions are working like a well-oiled machine.

SLOBERUS SWEATMUCHUS

Drooling like a bulldog and sweating uncontrollably.

DRUNKUS OBNOXIOUS

Women are avoiding That Guy and making faces usually associated with smelling a dead skunk.

MOTORSKILLS NOTWORKMUCHUS

After urinating all over the floor and himself, he mistakenly drinks from a beer used as an ashtray.

PROJECTUS VOMITUS

Without authorization, his stomach aborts the mission and projectile vomits as bystanders scatter.

VICTIM VULNERABLUS

Passes out on the floor, gets an eyebrow shaved off and his face "decorated" with permanent marker.