

UNITED STATES AIR FORCE

May 2000

FLYING *Safety*

M A G A Z I N E

There I Was...



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CANYON CALISTHENICS

Courtesy ASRS Callback #243, Sep 99
NASA's Aviation Safety Reporting System

This incident, recounted by the pilot of a high-performance single-engine aircraft, made white-knuckle flyers out of several veteran pilots. It occurred just after a routine passenger pick-up at an airport in the West whose elevation is almost 4000 ft AGL.

The incident began at (an) airport on (the) lake. I was part of a group of five similar airplanes there to pick up a group of river rafters...The load I was given was five men, two of them quite large, and quite a lot of baggage. There were no scales in the plane, so there was no way to know exactly what the load was. However, it was clear that it came very close to max weight. I refused some of the bags and put them aboard another plane. I loaded up the passengers and proceeded to depart. The takeoff was normal, and although I could feel the weight of the plane, it did climb out normally.

The weather was hot with high winds and turbulence, as is usual for this location. There were also updrafts and downdrafts. On climb-out, I flew into one of these downdrafts and the plane began to sink. In this downdraft, I could not fly out of the canyon. I knew that eventually the downdraft would abate and I could climb out, but my passengers were beginning to panic. Two of them were pilots themselves. The passengers sitting behind me took the initiative without my orders to open the pilot-side door and throw out all the bags into the river below, a load of perhaps 150 pounds. I did not resist this move, as to do so may have increased their panic. Eventually the downdraft abated and the plane climbed out of the canyon and up to a safe altitude, then landed safely.

In retrospect, I believe there are a number of ways the incident could have been avoided. I could have been more conservative on the load and refused more bags...I was over-confident about the capabilities of the plane. Also, unconsciously, I was relying on the judgment of two of the other pilots present...Both of these pilots had much more experience at this location than I did. I could also have...allowed for the possibility of downdrafts.

It's possible that the open aircraft door and resultant drag worsened the downdraft situation. Our reporter might have prevented the passenger panic and subsequent baggage barrage by briefing on the local flight conditions prior to departure. ➔

GLOC: A LESSON RE-LEARNED



USAF Photo by SSgt Andrew N. Dunaway, II

“One-point-seven, one-point-six, one-point-five... Brag, FIGHT’S ON!” One of the greatest peacetime radio calls a fighter pilot will ever hear or say.

It was a gorgeous day in the Republic of Korea (ROK) and I had just received that exact radio call from Brag 02, my wingman. I was the defensive fighter on what I figured would be our last set for the day. I immediately rolled and put my lift vector directly in my wingman’s face. I decided to see some out-of-plane offensive maneuvering, so I pulled through a split-S to find him driving to where my turn circle had been just seconds before. We made a right-to-right pass, and he was level-to-slightly-descending as he roared by my right wing 4500 feet away.

After watching him rotate towards me, I knew he was going to drive around my six o’clock position and end up just off my left side at seven to eight o’clock. With just enough energy to make it over the top, I pulled the jet into a barrel roll to the left to maneuver in behind him. I took my eyes off him to start the maneuver, planning to reacquire him as I reached the inverted portion of my barrel roll. Sure enough, I picked him up low and left of my wingtip AIM-9 Sidewinder as I pulled through the vertical.

“Wonder how he’ll react to this,” I thought as I pulled him to my Heads-Up-Display (HUD). It was then I realized he *wasn’t* reacting—something was wrong.

Continuation Training BFM, it’s Friday, and the weather is actually clear and a million (unheard of in the ROK). Oh, did I mention it was a double turn? My wingman and I were scheduled to blast off, fly a sortie of 2v2 Air Combat Maneuvering (ACM) with another flight, hit the flows for some gas, and then off again for some 1v1 BFM. I hadn’t flown pure BFM in a few months and with an impending assignment back to the Fighter Training Unit (FTU) at Luke AFB to teach new F-16 pilots, I was looking forward to scraping the rust off my BFM skills. The other flight lead briefed the specifics for the ACM sortie and then my wingman and I got together and ran through a quick brief on how we were going to execute our second sortie. The plan was for me to get three sets as the offensive fighter with a limited thrust bandit, and then give my wingman the remaining sets as the offensive fighter with a more advanced adversary. I briefed my “motherhood” with the following emphasis

on G-Awareness:

“Anti-G Straining Maneuver—Standard—expect a 90/180 for air-to-air purposes.” Per AFI 11-114, we needed to get at least one 90° turn and one 180° turn under high G to prepare ourselves mentally and physically for the impending G-load during BFM. We usually defaulted to two 90° turns for our G-awareness prior to the tactical portion of our standard air-to-ground sorties due to our LANTIRN mission, so I emphasized the fact that a 90/180 would be needed instead.

After briefing, we put on our flight gear and stepped on time with the other flight. It is squadron policy to wear the Combat Edge vest as well as the survival vest on all sorties. I was munching on a Power Bar and trying to finish a liter of water as I got off the pilot van at my aircraft. I knew how hot it was outside, and with a double turn running over the lunch hour I was anxious to get some energy in my gut and fill up on water so as not to get dehydrated. The short walk-around was extremely hot with the full complement of Life Support Gear; however, the extra water I drank during the ride to the jet was helping me stay cool.

Start, taxi, takeoff and flight to the area for the first mission were uneventful. The other two-ship flight leader had the lead of both formations and directed two 180° G-awareness turns. After we were set up, we accomplished five 2v2 short-range ACM engagements with relatively little time spent at G higher than 6.5 due to the quick terminates. Both wingmen were performing well as supporting fighters, so the engagements did not last long. After a “bingo” call from my wingman, we departed the airspace and flew an uneventful formation landing. A top-off in the flows, and we were off again to get in our 1v1 BFM time. We had to cruise to an area that was a bit farther away this time, so I was preparing myself to start the fights as expeditiously as possible to maximize training.

Area entry and the G-awareness maneuver were uneventful and as briefed. After both calling ready, we began the art that is BFM. The first three sets were uneventful except for my flagrant abuse of standard BFM principles—“Fly to the elbow, not the wrist,” I shouted in my mask as we rolled and tumbled through the sky. During his three engagements as the bandit, I limited him to a 90° turn in afterburner before being thrust-limited the rest of the fight. This resulted in him maintaining a relatively low

“Wonder how he’ll react to this,” I thought as I pulled him to my Heads-Up-Display (HUD). It was then I realized he wasn’t reacting—something was wrong.

continued on next page

As he started to enter the turn circle, he got the tunnel vision effect from not being on top of his G-strain...

constant G over the duration of several fights. My wingman hadn't pulled excessively high G, but he was getting worn down. I had spent my time on offense long enough, so I told him the next set would be his as we reset the formation after the third terminate call. We both climbed to the initial BFM starting parameters for a 9000-foot perch setup:

Altitude—15,000 +/- 500 ft
Formation—Line abreast, 3000 ft plus the perch (12,000 ft for this engagement)
Airspeed—425 kts +/- 25 kts at "Fight's on"

I directed him to turn towards me as I subsequently turned away from him. With the Radar Warning Receiver chirping in my ears, I turned back into him, picked him up visually, and listened for him to count down the ranges and call "Fight's on!"

"One-point-seven, one-point-six, one-point-five... Brag, FIGHT'S ON!"

It was then that I realized he wasn't reacting. He should have been planting his lift vector in my face and closing the range between our aircraft. Instead, he was accelerating away from me in a slightly descending flight path. He was at 11,000 feet and I was above him at 13,000. I immediately called for a radio check, but didn't give him any time to answer, because I already knew—he had GLOC'd, and was just a passenger in a fighter that was accelerating downhill at about 10 degrees nose low. I called for a check again and began using his flying callsign, "Brag 2, radio check." With my slow speed over the top, I was rapidly being left behind due to his acceleration. I screamed into the microphone for him to answer, and then switched to his squadron nickname as I changed the emphasis from responding verbally to just pulling up—" (Nickname), pull up." I was unsure how high he was above the water due to the clear day and low wave height. He got almost 1.5 miles in front of me, still going downhill, when I saw the contrails coming off his wing roots—indicative of G on the aircraft at high speed.

At this point he responded that he was pulling up and we knocked off the engagement. I began giving him vectors to base, directed him to go on 100% oxygen, and rejoined on his wing. Once we both calmed down a bit, we declared an emergency and I dropped him off from a straight-in before going around for my own uneventful landing.

Upon review of his tapes, we discovered

he had GLOC'd after making two good decisions and one poor one. As he started to enter the turn circle, he got the tunnel vision effect from not being on top of his G-strain, so he released some G to get on top of it. As he started pulling again, he repeated the same sequence of events after getting tunnel vision a second time. At this point, he realized how much of an advantage he was giving me and decided to pull hard to get back into the fight. This last pull overshot his current G-strain and he GLOC'd. He was out for a total of 17 seconds, and when he came to and pulled, he bottomed out at 5500 feet above the ocean while going 630 KCAS! If he had been just a few more degrees nose low, he may have hit the water before those 17 seconds expired.

The effects of G and the need for an effective G-strain are things we brief before every sortie. It's that important in 9 G-or-more-capable fighters. Education and training begins at pilot training, extends into Introduction to Fighter Fundamentals (IFF), and on into FTU. By the time a pilot is operational, countless hours have been spent learning how to fly and fight under G. So, how did my wingman GLOC? There are multiple variables that affect one's G tolerance. Some examples are improperly fitted life support equipment, dehydration, lack of high-G sorties in a night squadron, and fatigue after 1.5 high-G sorties.

The lesson re-learned from this GLOC incident is to recognize when your abilities to operate under G are being taxed to their limit. After two attempts at pulling high G and having to come off your fight game plan due to problems with G-tolerance, reassess your ability to fight at that moment. Call for a "knock-it-off" and reset the engagement or try a less G-intensive setup. Also, recheck your life support gear for proper function.

The key word in this incident is *training*. Use the *training* you have received to operate under G effectively. *Train* to recognize warning signs to your G tolerance on any given day. And, finally, realize we are engaged in *training* each day we fly—not combat. Since it is *training*, we can afford to bring it home and fly again another day. Check six. ✈

WHEN 5 + 15 = 35

CAPT CHRIS PIRKL, USAF
VAQ-134

The sortie was uninteresting until we returned to the pattern. It was a beautiful VFR day, the sun was shining and the winds, which are frequently strong at Cannon, were light. Both runways were open and we began to knock out a few simulated emergency approaches when the unexpected happened—an F-111F blew a tire on landing, strewing rubber debris through the intersection of the airfield's two runways, temporarily closing them both.

Nothing to worry about. We still had 4000 pounds of fuel, about 800 above required for our closest divert base, Reese AFB. We contacted the SOF (Supervisor of Flying—he's a pilot or navigator in the tower who acts as a liaison with ATC during emergencies), and told him our fuel state. He told us that he expected to have a runway open in about 15 minutes. We decided not to divert yet, as we expected to still have 3200 pounds when the runway was to reopen. We stayed in the radar pattern, waiting to hear an update on the field status, burning gas.

We contacted the SOF again at the ETA he gave us for field reopening. Still no good news. Debris removal was taking a little longer than expected—it would be another five minutes. In our jet, we decided that we'd be better off hanging out in the pattern at Cannon for a few extra minutes than diverting. So we waited. We contacted the SOF again after the prescribed five minutes—still not open. We advised the SOF that we were now below Reese divert fuel. We continued to hold with radar approach as the final remnants of the blown tire were cleaned up.

At this point we were committed to Cannon no matter how long debris cleanup took. The five minute delay turned into 20 before the field was finally open—a full 35 minutes after the tire was blown. At this point we were at 1700 pounds and at 20 DME outbound with approach control. We finally turned inbound for a normal landing

and touched down with around 1400 pounds—somewhere around 15 minutes of usable fuel.

We never should have stayed at Cannon with a promise that the field would be opening soon. When we hit our 3200 pound divert fuel the runways were still closed. End of story. That should have been all the information required to make the correct decision.

No one ever wants to take a jet away from the "home drome." Fueling problems, start carts and crew duty day restrictions are just a few of the problems one can expect. But these are all insignificant reasons compared to the possibility of "giving one back to the taxpayers" because of fuel starvation. It's a simple lesson, one that has probably been learned the hard way many more times than necessary—WHEN YOU HIT YOUR DIVERT FUEL, DIVERT! ✈

(Capt Pirkel is a former EF-111 WSO now serving as an ECMO in VAQ-134, a US Navy Expeditionary EA-6B squadron.)

Debris removal was taking a little longer than expected—it would be another five minutes.

USAF Photo by SSgt Andrew N. Dunaway, II

"THE CHAIN"



Photo by SPC. CORY MONTGOMERY, US ARMY

Confident I had hit the target, I was surprised by the resulting call from the GFAC, who had noticeable concern in his voice.

Anonymous

The Mission

The last night mission of the "season" was briefed as a fight-tank-fight Close Air Support (CAS) mission working with ground and airborne forward air controllers (GFACs, AFACs). We planned ripple 3, high-altitude dive bomb and high-angle strafe (HAS). The tools available were night vision goggles, LUU-1/2 flares, and the air commander's pointer (ACP). In addition to one aircraft being loaded with LUU-1/2s, they had six BDU-33s and 100 rounds of 30mm.

The Time and Place

We launched six A-10s with a 1900L take-off time for my mission. The target area was an Army range that offered the traditional tight airspace with multiple users. The range itself had multiple operating points within a one-mile area and, as I found out later, more than one was occupied.

The Weather

We had a full moon, clear skies and visi-

bility in excess of ten miles providing high illumination for the goggles. Due to takeoff time, sunset and moon position, visibility became a factor when facing east or west due to "sky glow" and goggle gain-down caused by the moon position (sunset was at 1828L, the moon was 20 degrees above the horizon at a 094 azimuth). Later in the mission, the best scene detail was looking from east to west due to the moon position.

The Scenario

A low threat level allowed us to work medium altitude. We used a north and south sector as well as altitude deconfliction between the AFAC and fighters. The GFAC passed the target, threat info and restrictions to the AFAC who arrived first and then updated us as we checked in. This occurred at the same time that I, as number two in a trail formation, padlocked onto the AFAC, mistaking him for my lead. Moments later, after I recognized the difference in altitude between who I thought was lead, and where I knew he should be (all players were using normal lighting configurations), I called

“two’s blind.” While trying to acquire lead, I acknowledged the “contact” target area and friendly position.

In hindsight, I did this complacently because I had flown numerous missions in the same target area and was comfortable with the references. Although familiar with the layout, I neither requested nor received verbal distinction from any other players to differentiate between a well-lit observation position (OP) occupied by Army troops and the covertly lit OP being used by our GFAC. These two points were approximately 500 meters apart.

Because he took the spare aircraft, the AFAC did not have the briefed LUU-1 or -2 flares. Not all players completed the prerequisite vision test prior to employing with the ACP, so it was not used. The bombing portion of the mission was uneventful, the AFAC marked with BDUs and the GFAC gave corrections. After expending BDUs we transitioned to HAS attacks, restricted to a 065-degree run-in. We employed out of a left-hand wheel, offset to the north, with the AFAC sector to the south.

The first strafe target was in the vicinity of the bombing target and the pass was uneventful. The AFAC marked the target with BDUs and the GFACs “sparkled” with their ACP. We then moved to a second strafe target, 250 meters to the southwest of the previous target and east of a dirtball road. Lead came off dry on his first pass. From my position I talked his eyes onto what I thought was the target. After he acknowledged, I was in position to roll in. I padlocked on the target off my left, rolled in

with a call “two’s in, target in sight, friendlies in sight, wings level,” followed by a “cleared hot” from the GFAC.

I had the 065-degree run-in heading and a sparkle in front of me. My picture was backed up with river position, as all targets were east of the river. I saw the lights off my right and thought they were from the GFACs position. I believed I had positive target identification. As the gun fired, I was temporarily blinded. I pulled the pipper through the target and saw a few sparks. Confident I had hit the target, I was surprised by the resulting call from the GFAC, who had noticeable concern in his voice. My bullets actually hit about 400 meters to the south of the target—approximately 100 meters north of the GFAC! The “knock-it-off” was accompanied by a large question mark over my canopy. The GFAC briefed I hit part of a small bridge and the dirtball road that used the bridge, with the remainder of the bullets walking.

Immediate Reactions

I landed and debriefed with my flight lead and the AFAC. Such comments as “What were you thinking?” and “Didn’t you see this or that?” were flying around the room—and rightly so! I believed I might have caught an intermediate sparkle from the IR pointer that was short of the target when I transitioned from left canopy to a high-intensity HUD for goggle usage. Maybe the square shape of the bridge misled me as well? All discussion was how to correctly ID targets. The proximity of the GFAC was debriefed as a close range shot. I kept asking

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Such comments as “What were you thinking?” and “Didn’t you see this or that?” were flying around the room—and rightly so!



USAF Photo by SSgt Jeffrey Allen

“When have I ever shot that close to the friendlies, day or night? What happened this time?”

myself, “When have I ever shot that close to the friendlies, day or night? What happened this time?”

Upon Further Investigation

During the investigation, I still believed I just missed the target to the south. So why the distance concern when they were clearly in my view at the one or two o'clock position? Simple trigonometry told me they shouldn't have been a factor. I called the safety office into the picture and talked with the weapons and tactics shop. After discussing the incident with all players, I questioned my judgment and why the hair on the back of my neck didn't sound the usual alarm. We then called the GFACs to get everyone's input. I talked at length with the NCOIC that night and this is what I learned.

1. The intended target was indeed just east of the dirtball road and south of the original strafe target.
2. Five to eight Army vehicles, with headlights pointed into the impact area, occupied the OP to the south. This was the position I identified as the GFAC location.
3. The OP being used by the GFAC was about 500 meters to the north and covertly lit.
4. Originally the GFAC had three IR pointers, however two dead batteries left one available with no capability to “converge” the beams on a target.
5. Bullet impact was indeed 100 meters from the friendly position.

The discussion led me to conclude I had shot the wrong target (bad) with misidentification of friendly locations (potentially disastrous).

The Chain

- AFAC took a spare aircraft and did not have the briefed flares.
- ACP was not used because the vision test requirement was not met by one crewmember.
- My blind call disrupted the flow of events.
- Illumination was high.
- I had been to this range numerous times and was comfortable to the point of being complacent.
- I assumed overt lights marked the friendly location.
- GFAC could only identify the target with one IR pointer.
- HUD intensity hindered my ability to see the GFAC's laser energy continue along the ground. ➔

Safety Center Comments

*Maj Kurt J. Saladana, CAF
HQ AFSC A-10 Action Officer*

This is the type of article that gets everyone's attention because it really happened and shows just how easily things can go wrong. There probably isn't a military aviator alive who hasn't been flying along fat, dumb and happy, and suddenly, to use the politically correct version of an old metaphor, have everything go canine testicles.

The question is how do we use our anonymous pilot's experiences to prevent a future mishap? Well, he or she, by almost taking out a number of soldiers, learned a lesson by intensity, probably the most effective technique there is. The involved person will probably be over-cautious identifying targets for the next few missions, and perhaps forever.

To do the job properly and maximize chances of survival, it's up to attack aircraft pilots to identify and get weapons on target on the first pass. Unfortunately, mistakes happen. In this instance we were lucky, but there have been and there will be friendlies killed in training and in hostilities.

How do we eliminate this type of mishap? It's probably not possible. How do we reduce the risk as much as possible and still remain effective? We train, we adapt, we improve technologically, we talk and we learn. The most immediate actions we can take are talking and learning. This article does part of the talking—now the rest of us need to do more.

What could the players have done differently to prevent target misidentification? What would you have done? Is there a range procedure that needs to be changed? Are small, tight ranges such as the one involved safe or practical, and do they provide adequate training?

If you have suggestions to make operations safer, this is one of the forums to forward them to. If you want to submit an article anonymously or otherwise, please do. If you want to comment on an article or make recommendations, we welcome your inputs. Anybody can learn, but unless someone is willing to take the time to teach, many of us are oblivious to our ignorance.

This is your magazine, please use it as a tool.

"THIS ISN'T HAPPENING"



USAF Photo

ANONYMOUS

Back in the early '80s, I was assigned to a base with F-4s. As those who have worked the Phantom know, the F-4 is a very maintenance-intensive airplane.

Once, right after we lost one of our jets, we worked 12-hour shifts for a period of about 45 days, including Saturdays and Sundays. Toward the end of this period, I was working the night shift, from 1800 to 0600.

One evening, we were told to put an aircraft in the Radar Calibration hangar. I was one of the wing walkers. While doing this, we used a Coleman to move the aircraft to the ramp in front of the hangar. When the tow driver attempted to back the jet into the hangar, he had problems keeping the jet straight—I think it was probably because he was fatigued. Because of this, the decision was made to turn the tug around and push the jet into the hangar from the front of the Coleman.

When we disconnected the Coleman, the driver pulled away to turn around. However, the jet ALSO began to pull away because we had forgotten to chock it on the incline leading into the hangar. The brake rider just sat there, without thinking to use the brakes. When we yelled at him to pull the T-handle and hit the brakes, he just sat there and said, "I must be dreaming. This isn't happening."

Finally, I got the idea to run to the Coleman and get a chock to throw in front of one of the MLG tires. When I did, the airplane rolled up on top of the chock. Fortunately, the other wing walker had the same idea, and his chock was just in time. The jet stopped and we continued on. We never related this story to anyone.

By the way, we went back to normal shifts soon after this incident on a Saturday morning when we lost the second jet in a time period of about six weeks. I suppose the indicators had been there—we just didn't see them. ➔

The brake rider just sat there, without thinking to use the brakes.

A DARK AND SCARY NIGHT



USAF Photo

CAPT BOB SOWERS, USAF
VAQ-134

“Could be turbulent,” the pilot noted. I didn’t worry. Pilots are stick actuators and, in a proper world, radio talkers. What do they know?”

It was during the Cold War days, when the Berlin Wall wasn’t for sale in gift shops and the average East German girl weighed 240 dressed in only her chest hair. You young pups can read about it in your history books. I had graduated from the F-4 to bomb dropping in the F-111E. We called it “Whispering Death,” although the peaceniks camped in filthy splendor off the end of Upper Heyford’s runway called it something else. The local residents didn’t seem to think it whispered very much either, which is why we rarely flew at nights. This made night squares hard to fill. When the Wing decided, in their infinite wisdom, that we could only make one bomb run per range at night, it made night bomb squares even harder to fill. But Wang, my pilot, and I had a plan to “lead by example” and fill all our squares in one night.

Takeoff went smooth, as did the flight over to the Isle of Man. The Terrain-Following Radar (TFR—it’s what we used pre-LANTIRN days) descent went fine. The aircraft pulled out of the dive at 1700 feet, leveled off at 1000, and we swung around the north tip of the Isle for Jurby Range. I had previously hand-cranked the offset dial to show the proper range (in feet) and bearing (in 1/100s of degrees, or as best as I could see in the little window). This aided finding the target—a raft floating off the coast. We used to worry about finding targets in the pre-GPS days. Now all we worry

about is if the CIA has a current map. But I digress. A few radio calls (by the pilot, as the Lord and the USAF meant it to be), a precision-dropped radar bomb, a hit, a promise of a bottle of whiskey to the range control officer at Christmas—and we climbed out for our next night square.

We made another TFR descent over water as we prepared to enter the HRA—the Highlands Restricted Area in north Scotland. The only anomaly noted was as we leveled off at 1000 feet. The winds showed 110 knots from a direction perpendicular to the ridge lines. I tried to remember what the weather guy said at instrument school, but I’ve been daydreaming during meetings for a long time. “Could be turbulent,” the pilot noted. I didn’t worry. Pilots are stick actuators and, in a proper world, radio talkers. What do they know? We turned the corner and headed east over the first of those perpendicular ranges. Moments after crossing at 1000 feet and 540 knots, the jet began “a-buckin’ and a-snootin’.” For those who don’t speak Arkansas-ese, this means we were getting the snot beat out of us. “What the *&@# are we doing?” Wang asked. “Night squares,” I calmly replied. The shaking stopped as we started climbing over the next ridge. Moments later, the 80,000 pound F-111 went spastic again. It was kind of hard to see the radar, E-scope and instruments. “What the *&@# are we doing?” Wang asked. “Night squares,” I said calmly. Well, there might have been a little stress. Night/IMC low levels weren’t my favorite, particularly when

we were being shaken like a martini. Still, squares were squares. It smoothed out as we crossed the next ridge, but not for long. I think Wang said, “What the *%!& are we doing?” but it was hard to tell because my noggin (we don’t generally say the H word in ACC or USAFE) kept smacking against the canopy. “Maybe we should abort,” Wang suggested. Or maybe he said, “We’re aborting NOW!” It was kind of hard to tell. We had done at least 50NM of low-level, so I concurred. It was still hard to read the instruments, which explained why we had 80 degrees of bank when we hit smooth air. Of course, this is why we practice unusual attitude recoveries.

We over-flew the rest of the HRA and coordinated with London Mil for our drop-in at Tain Range. We did an abbreviated TFR descent, leveled off and turned to a rather short final. Of course, most finals look short on a 30NM scope. Oops. I quickly checked the offset. Oddly enough, the Jurby offset didn’t work at Tain. Hmmm. It was going to take several minutes to hand crank the correct offset in. Of course, that is why we do range study. Now no “armed” indications. My switches looked good. Tain still looked small on 30 mile scope. I clicked it down while shouting “Arm it, arm it!” Wang threw the Master Arm about the same time I reached 5 mile scope—which is to say, at the same time the bomb came off. “34 feet at 3,” the ranger called. Of course, that’s why we say it’s better to be lucky than good. I told Wang to follow my steering more closely the next time. He didn’t know we had been in 30 mile scope, and I saw no reason to tell him.

We climbed up and proceeded to our last night square—Wainfleet Range. The Wing had coordinated a new hold for use for night bombing. We arrived a little early and began our hold. Suddenly we noticed lights very close to us in the hold. A few moments later it happened again. “Umm, London Mil, Wang 1—is anyone else waiting to get on to Wainfleet Range?” “Roger, you’re one of 6 ‘Varks holding—and kindly tell your wing their hold point is located in rather busy airspace.” Wang and I looked at each other for a moment. “London Mil, Wang 1, requesting vectors Heyford.” Time to call it a night.

That Friday I held a flight meeting. Wang and I reviewed what happened and why. I pointed out it was my responsibility as flight commander to see they were scheduled enough times at night to get their squares filled safely. If (as happened) the

Wing canceled night flying early, it was my job to take the heat. It was NOT their job to cram a butt-load of squares into a single night sortie.

So what lessons from this fun-filled night still apply?

1. Priorities. Squares are a good thing to fill, but four IMC TFR descents, three night/IMC radar bombs and one night/IMC low-level may have been too much for one sortie. Add in winds over 100 knots and new range patterns, and it probably was too much. Add in it was Wang’s first IMC TFR flight in the UK, and it was definitely too much. Filling squares isn’t as important as coming home to momma. The modern military spends a lot of time and hours patrolling the world. Training is hard to come by. But that’s the job of generals. Our job is to train safely.

2. Turbulence. It isn’t always a minor thing. Later that evening, another F-111 entered the HRA. They aborted when they could no longer see the instruments. When things smoothed out, they had 135 degrees of bank, 20 degrees nose low going back down through 5000 feet. They recovered, but some words of advice from us to London Mil might have prevented a possible tragedy. “Being lucky rather than good” isn’t the way to get old in aviation. Weather that can toss around an F-111’s 80,000 pounds of manliness can also do number on Prowlers—or anyone else.

3. Pacing. We spent too much time thinking about what went wrong/right on the previous event, and not enough time preparing for the next one. You cannot change the past, but what you do in the present can change the future. The HRA wasn’t going to be smooth regardless, but our bombing passes would have gone better if we had spent the medium altitude time preparing for the next event instead of rehashing the previous one. If something goes wrong, either put it behind you or...

4. Know when to quit. We had all the lessons we needed after aborting the HRA. When you’ve been rattled, either literally or figuratively, you don’t need to jump immediately into another demanding event. If it was bad enough to interfere with your preparation for the next event—quit and fly another day. You’ve learned enough for one flight. ➔

(Capt Sowers is a former F-111 WSO and is now serving as an ECMO with VAQ-134, a Navy Expeditionary EA-6B Squadron.)

When things smoothed out, they had 135 degrees of bank, 20 degrees nose low going back down through 5000 feet.

SAGA OF THE LOOSE KNOB



In less than 30 seconds we found out, the hard way, that “what the matter was” was oxygen deprivation.

TSGT RONALD MAY
439 AW
Westover ARB MA

We two crew chiefs had started our duty day on the flightline at 0700 and worked a “straight eight.” We were also the designated flying crew chiefs scheduled to accompany one of our C-5s off-station.

The crew briefing was at 1545, and it covered plans for a 1730 ERCC (engine-running crew change) and immediate departure for the off-station field. The ERCC went relatively well, at least as C-5 launches go. Once airborne, we decided to take a nap because we knew that when we landed we would have to hit the ground running to get the airplane bedded down and refueled, drive 30 minutes to the hotel, and get some sleep for an 0-dark-thirty departure the next day. In addition, I was looking forward to going out to supper with my sister, who lives not too far from our destination.

About two hours into the flight, the flight engineer woke us to ask if we had a set of Allen wrenches in our tool kit. He said a knob was loose on the engineer’s panel. We said we did, but it was down in the cargo compartment. I remember thinking the airplane seemed colder than usual, but chalked

it up to having just woke up.

So, down the flight station ladder we went to get the tool. As we came back up through the flight station door, I tripped and fell. I remember thinking, “I’ve been up and down these stairs a thousand times and have never fallen. What is the matter with me?” In less than 30 seconds we found out, the hard way, that “what the matter was” was oxygen deprivation. I picked myself up and handed the tool to the flight engineer, then felt myself falling again, and heard, in the distance, someone say, “GET A MASK ON HIM.” My next recollection was sitting in the bunkroom with an oxygen mask on my face, wondering what the hell had just happened, and noticing that the aircraft was in a nosedive out of our original 33,000 feet.

The other technician had this to say about how he perceived the events: “When we got back up to the flight deck I remember thinking that the flight engineer seat looked very far away. I tried to reach for it to support myself because I felt ‘funny.’ Next thing I recall was waking up sprawled across the observer seat next to the flight engineer with an O2 mask on my face.”

Later, the engineer told us that we had been trying to grab at masks but we were



USAF Photo by TSgt Billy Johnston

too oxygen deprived to have the coordination to actually grasp them.

The rest of the flight and landing were uneventful and quiet, with everyone wondering how two experienced technicians ended up unconscious on the flight deck. In actuality, instead of just a loose knob on the engineer's panel, the manual pressure controller had failed internally and the knob was just spinning all the way around. This caused—undetected by the other technician or me, due to tiredness and zeal to comply with the request of the engineer—a rapid decompression of the aircraft, presumably while we were on our way back up the stairs.

When we landed, the aircraft was met by the flight surgeon. He immediately ordered both of us to the base hospital for a few hours of tests and observation. He said we came very close to spending the next eight hours in a compression chamber. He subsequently grounded us for 24 hours, and the rest of the crew was grounded for 12 hours, because they had got on oxygen quicker than the two of us. That meant we were unable to make our scheduled departure the next day, and therefore did not complete the assigned mission. And, as you can guess, I

didn't get to have supper with my sister that night.

So exactly what did go wrong for us to fail to complete a mission? The actual causes are numerous, but here are a few:

1. Flying after working a full day without taking the time to rest and get some food.
2. Failing to recognize the effects of an improperly pressurized aircraft.
3. Failing to recognize the early signs of hypoxia.
4. The engineer failing to warn us of the actual problem with the aircraft.
5. Going into the cargo compartment without an O2 bottle.

Thankfully, no great harm came to anyone from being without oxygen, but the potential for disaster was definitely there. You have to ask yourself, "Could this happen to me? And how can we prevent similar occurrences?"

1. We need to do a better job of training our flying crew chiefs (they aren't on flying status) to recognize the effects of oxygen deprivation.

2. We need to keep everyone on the crew, maintenance folks included, informed about the status of the aircraft. ➔

I remember thinking that the flight engineer seat looked very far away. I tried to reach for it to support myself because I felt 'funny.'

THE ELEVENTH COMMANDMENT



The Vietnamese were employing what could only be described as a fully aroused defense.

DONALD C. WINDRATH
Col, USAF (Ret)

I am reluctant to tell this story of stupidity because I'm certain some of my fellow River Rats will recognize it. Certainly I had had my share of screw-ups during my 30 years flying fighters. Like the time I nearly landed gear-up because I punched off the gear warning horn in the pitch so my student could hear what I was trying to tell him. And there were many other similar foul-ups, but none so frightening as this.

I was flying Thuds (F-105) out of Korat RTAFB Thailand. I had just finished an early mission up in Route Pack Six and walked into the debriefing room. It was deadly still. Pilots were poring over maps and no one was talking.

"What's the deal?" I asked.

"Downtown—the Hanoi Railroad Bridge," was the terse response.

"Have fun," I said and headed for the bar. After a couple of martinis, I got a call that I'm on the mission. Despite protests that I hadn't been drinking iced tea, I was ordered back to the flightline. We were loaded with a 3,000-pound "grinder" on each wing and a 650 centerline tank. During preflight, I set the armament up on "Sequence Single," which meant that I would have to press the pickle button twice to get rid of the bombs. Mind you, I had never done this before, but my thoughts were to string the bombs down the bridge and be doubly effective.

Out of consideration to my seniority (ahem), and being last to arrive, I was assigned the "Purple Heart" 19 slot in the 20-plane strike force—second to last. That gave AAA a nice opportunity to boresight on the first flights with the expectation of hitting the last, as had happened more than once before. As we approached the bridge, I



USAF Photo

could see that the center span was down (Takhli and Ubon had first dibs). The Vietnamese were employing what could only be described as a fully aroused defense. The flights below us were eating a lot of lead at 13,000-15,000, so I signaled my wingman to stroke the burner, and we climbed to 20,000. We were pretty comfortable up there with all the flak concentrating on those below.

As the bridge disappeared under the nose, we just bunted over into a 70-degree dive, in full afterburner and stabilized at 550K with the speed brakes out, and I lined up with the north buttress. The plan was to pickle at 9,000 and press to 7,000, if necessary retract the speed brakes, and head east out of Dodge City without hesitation. Not quite lined up at 9,000, I pressed to 7,000, pickled, and pulled left.

What happened next I can only describe as a feeling of sheer helplessness and de-

spair, combined with a severe case of anal anxiety—also known as BIG-TIME PUCKER. The right bomb didn't come off. My Thud did an uncommanded 360-degree roll and then pitched up. The airspeed dropped to 250K as I pushed the jettison button and skinned off the 650 centerline, pylons, and the hung bomb. I knew that my only chance to survive was to get down as close to the ground as possible. So I dove down and, at 25 feet or lower, raced up the Red River opposite the planned egress. My mouth was full of cotton. I was scared to death and jinking like a butterfly with its tail on fire.

Somehow I got through the gauntlet of AAA without a scratch. I screamed through Wa Loc Airfield below the tower, climbed over the hills, and miraculously plugged into the tanker without ripping out the boom, even though my heart was still at Mach 1.

I was the first to land at Korat, and when asked where the rest of the strike force was, I replied that they must have got lost in traffic (trying to be cool—yeah—still trying not to mess my flight suit). My squadron commander and I later reviewed the film to try to determine what went wrong. One bomb hit the north buttress. The other with the pylon attached flew 4 miles up the Red River. We just assumed the bomb had hung up and didn't release, which did happen occasionally, and I forgot the incident.

I finished my 100 missions unscathed and went home. When the POWs returned in '73, several told me that they had seen my "act" over Hanoi. Fifteen years later, while rehashing that day in my mind, what *really* happened finally came to light. Over the years, as an instructor pilot, I stressed the importance of developing consistent and reliable habit patterns. This time I didn't follow my own advice, which nearly resulted in an extended stay at the Hanoi Hilton or buying the farm in a high-speed ejection.

By now you've probably figured it out. When I armed up in "Sequence Single," the pickle button had to be pressed twice to dump both bombs. Following my habit pattern from the past, I just pickled once, so only one bomb came off. The rest is history. I was lucky.

So the eleventh commandment is to stick to what you've been doing successfully in the past, and don't change your routine unless you've got it set in concrete and have thoroughly thought out the consequences of forgetfulness when things get terse. End of lesson. ➔

My mouth was full of cotton. I was scared to death and jinking like a butterfly with its tail on fire.



THE YA-HA MANEUVER

*Let's see—
are we
positive or
negative
G? Damn,
can't tell...*

ANONYMOUS
Aerospace Safety, Dec 80

The range training officer had just advised me that I had killed the last of four adversary aircraft my element had engaged on a dissimilar air combat tactics mission on an air combat maneuvering instrumentation (ACMI) range. No shots had been fired by the opposition, and I was feeling rather good about how things had gone for me and my Eagle jet.

Partly out of sheer exuberance and partly for the benefit of my A-4 "partner" who had acted as a six-checker while I worked the F-15's radar and weapons systems heavily, I figured one victory roll for each of the four kills I'd been credited with by the ACMI computer would be in order.

So, here goes...stick forward slightly to 1 G, or a touch less, out of the mild climb I was in, then stick smartly to the right, being careful not to go to max deflection (a Dash One no-no in the Eagle if rolling more than 360°). One, two, (going almost too fast to

count)...say, the nose is starting to move off its point, three...my God—I'd better knock this off...four...stick is centered laterally but the bird won't quit rolling!...Let's try just a touch of opposite aileron...No good, perhaps increase the roll rate...You dummy, you must have induced an auto-roll...Let's see—are we positive or negative G? Damn, can't tell...Would estimate about 1/2 positive G 'cause I'm light in the seat but not hanging in the straps...Okay, positive—here goes anti-roll rudder.... Jeez! That was obviously the wrong way. The roll rate is at least as fast as, even seems faster (...must have done 8 or 9 rolls by now and the nose is starting to drop below the horizon), but now I'm definitely *negative* G—the shoulder straps are cutting deep and the lap belt hurts. I guess that's *good* news. No doubt in my mind *now* which rudder to use...here goes.

Pro-roll rudder...It's still rolling. I believe it's rolling faster, but I *know* I've got the correct rudder in...Hope it works, would sure ruin my day if it doesn't...Okay! It's slowing down its roll rate—looks like three rolls after



USAF Photo by SSgt Andrew N. Dunaway, II

getting all the pro-roll rudder I could achieve...Oops! What was that? As the Eagle stopped its rolling it did a negative 2½ G and a positive 7.3-G ya-ha maneuver with several smaller cycles of the same porpoise—all with the stick held centered. Thank God it's over.

After looking my beast over to ensure all was well, I decided I'd probably not do that again. I distinctly recall thinking how foolish I'd feel if I had rolled that way after splashing my fourth or fifth Flogger only to leap out because I couldn't recover from a condition I had induced.

I've since talked with a senior MACAIR test pilot and a USAF "golden arm" who has flown Eagles since the early days at Edwards. Both stated they'd never been in that particular flight regime, though the MACAIR pilot stated that he was aware of a great dislike by the Eagle for any high, sustained roll rates at negative, or even *low* angles of attack (the Dash One says so, too).

Flight conditions were approximately 400 KCAS, FL 230, approx .5 G, rapid roll rates.

Roll-yaw coupling was apparent by the third roll. Approximate time of "maneuver" was 6 seconds. Best guess on total number of rolls was 12 to 14, altitude loss was 3,500 feet, and airspeed decreased approximately 50 knots. All three control augmentation systems (CAS) axes dropped off during the recovery. Internal wing fuel was within 50 pounds of balanced. I had 5,000 pounds of fuel remaining and a centerline tank.

Further study of the flight manual's Flight Characteristics section convinced me I really hadn't had an "auto-roll" as defined there (it always is a result of *high* AOA) but, rather, had experienced a particularly nifty example of roll and yaw coupling due to high roll rate, high airspeed, and very low angle of attack. I learned that waiting until coupling becomes evident may well be too late.

I hope the telling of this experience may keep some other aggressively exuberant Eagle driver from being an unwitting and unwilling passenger for one devil of a ride. ➔

Roll-yaw coupling was apparent by the third roll. Approximate time of "maneuver" was 6 seconds... altitude loss was 3,500 feet...



DON'T SHOOT THE MESSENGER

It wasn't long before a whole gaggle of maintainers was gathered around our jet trying to assess the impact the hole had on the airworthiness of the aircraft

ANONYMOUS

There I was, preparing for my first overseas deployment as an aircraft commander. We were scheduled to be TDY for 45 days as a minimum. I was saddened knowing I would be leaving my family behind, but I was anxious to show my commander I could perform the responsibilities of my new position. I had flown with my crew for a few months prior to this, and I had great confidence in their abilities. I enjoyed the rapport we had with each other. "This should be a successful trip," I mused to myself. We had spent many hours talking to crews that had recently completed a similar deployment and more hours poring over the FLIP. We wanted everything to go well.

As part of our "leaning forward in the shoulder straps" attitude, we coordinated with maintenance to load some of our gear on our aircraft the day prior to our departure. We heaved the numerous bags from the tarmac into the open cargo door. We arranged them inside the aircraft and tied them down with a cargo strap. Finally, we closed the cargo door and prepared to leave. As we did, we caught a glimpse of a strange light source that seemed to shine inside the now darkened cargo compartment. It immediately struck us as being out of the ordinary, and we began a search to see if we could determine its source. It seemed to be coming from the cargo door, but we couldn't be certain if we weren't all just experiencing

a temporary blind spot on the retina from staring up at the bright sun while tossing our bags up. We were satisfied that everything was well, and headed back to the squadron building.

We arrived the next day for a morning departure. We were scheduled to stop in at an East Coast base for the first night in order to participate in a possible Coronet or cell flight to Europe. We completed all of the necessaries and arrived at the aircraft with the last of our bags.

At the aircraft, we decided to have one more look in the cargo compartment to see if we could find our mysterious light. This time we had the advantage of having a crew chief and his assistant there to hear our strange tale. It wasn't long before the chief discovered the light was coming from a small hole in the skin of the cargo door. The hole had apparently been made by a slip of a tool when someone was working on the latching mechanism of the door. It was behind part of the latch handles, and that was why we had been unable to find it.

It wasn't long before a whole gaggle of maintainers was gathered around our jet trying to assess the impact the hole had on the airworthiness of the aircraft and what needed to be done. It was determined the bird was unflyable until the hole was repaired, and so back we went to the squadron to find out what our next step would be. We hadn't even gotten off the ground, and already we were trying to work



USAF Photo by MSgt Perry J. Heimer

a contingency plan to accomplish the mission.

Back at the squadron, we waited for the repair forecast and looked for alternatives. Soon the DO came with the news. The hole would need to be patched in an operation that could take an entire day to allow the adhesive on the new patch to cure. It was obvious we wouldn't be leaving on time. The possibility of cannibalizing a cargo door from another aircraft was looked at as well as the gains and losses of switching aircraft entirely. The DO was noticeably annoyed by the unexpected turn of events. Through no fault of ours, we had started his day off with a load of extra work.

Some phone calls and discussion later, it was determined that if we arrived early the next morning at our first stop, we could still meet crew rest and fly the planned deployment. The aircraft could be patched and cured in 12 hours, so we were sent back into crew rest with a report back 12 hours later. The DO gave us this final update on the situation and then, before he left, he paused and turned towards me.

"Don't ever do that again!" were his parting words to me as we prepared to re-enter crew rest.

The comment seemed innocent enough. Reworking the deployment had cost him some valuable time and effort. I could see he wasn't anxious to endure that again, but since I had never intended to burden him with unnecessary work, I had to ask myself,

"Don't ever do what again?" What was it that I did that he didn't want me to do? The next time I found a maintenance problem with an aircraft, did he want me to keep my mouth shut?

The comment fermented in my brain over several days, but not because I didn't know its correct interpretation. I knew our unit was not a "mission first, safety last" operation. The local commanders lived a consistent creed of safety and risk reduction. This was just an ill-aimed comment uttered in a moment of frustration, but it had the potential of undermining the local safety culture. The frustration seemed pointed at me personally, and yet I felt that I was part of the solution.

I was fortunate to have had many opportunities to work with the DO and knew his words were not intended to be aimed at me, but merely a chance for him to vent after facing the day's problems. However, the unexpected situation was as frustrating to me as it was to everyone else concerned. It was apparent his words left an impression on me or I wouldn't be writing this story.

To me, it is a warning that a single comment uttered in frustration has the potential to undermine a safety mindset that has taken years to create.

In more personal terms, don't shoot the messenger—just help him fix his aircraft. If I wasn't a safe pilot, I wouldn't have asked someone to plug up the hole. ➔

I had to ask myself, "Don't ever do what again?" ... The next time I found a maintenance problem with an aircraft, did he want me to keep my mouth shut?

"WANNA SHAKE?"



At this time I believed I was going to either jump out, or die, or maybe both.

ANONYMOUS

There I was, No. 2 of a two-ship air-to-ground sortie during a UTA. I had two bags of gas, but due to a late takeoff and a quick turn—typical of a UTA—we had to fly a short mission.

On the way home, we found out that weather was 600 feet overcast and 5 miles. Flight lead broke the flight up for separate PAR approaches. I was No. 2 for the approach and was trying to burn down some gas by lighting the 'burner and making high-G turns with the boards out. I was, by the way, clear of clouds at this time.

My assigned altitude was 3,000 feet, and I was doing about 350 KIAS. I went idle and boards in preparation to put the gear down when GCA gave me a left-hand turn to final and a descent to 1,600 feet.

Immediately after starting the turn and descent, I went popeye. I wasn't sure about the new course for Runway 22. (This was right after the inbound courses for the

TACAN approaches had changed.) So I looked down at the approach book to confirm the course and dialed it in. Then I reached for the gear handle and looked up at the HUD. Immediately my gyros tumbled, I didn't know which way was what, and I couldn't control my eyeballs well enough to read the instruments.

Now, I know what you're thinking. You're saying, "I've had the leans before," or "I've refueled inverted before." Well, this just ain't the same. I was totally out of control of my eyeballs, I couldn't focus on my instruments, and I was completely unable to determine my attitude.

This is not a comfortable position to be in. Fighter pilots like to be in control, and I was out of control. I perceived that I was in a very nose-low attitude, and I immediately and simultaneously applied full aft stick and selected full afterburner. Then I moved my hand directly from the throttle to the ejection handle and preloaded about 25 of the 40 pounds required to activate it. At this



USAF Photo by SSgt Andrew N. Dunaway, II

time I believed I was going to either jump out, or die, or maybe both.

The first recognizable attitude I saw was 30 degrees nose down and 1,600 feet. I can't tell you what the airspeed was because I was still very disoriented. As far as I knew, I could have been on the back side of a 'burner loop at that time. I focused on the altimeter and made up my mind to pull the extra 15 pounds on the handle if I saw 800 feet on the clock. My biggest thought (read: fear) at this time was that I was going to break out of the weather at 600 feet pointed straight down.

Well, I saw 800 on the clock, but by then I was beginning to recage, and I could tell I was only about 10 degrees nose down. So I stayed with the jet as it promptly entered a nose-high unusual attitude. I didn't mind this too much because the altimeter was climbing, and I had a clue about my attitude.

I let the jet climb for a while and then executed an instrument nose-high recovery.

Then I flew around in the weather for 5 minutes trying to get ATC to understand what happened.

After I broke out of the weather, I was completely cured of my spatial disorientation. I went around for another PAR and landed uneventfully. When I got out of the jet, I was, no joke, shaking. I'm almost ashamed to admit it, but in my entire flying career (civilian and Desert Storm included), I had never been that scared.

After I got into the ops building, the guys who have never been in that predicament looked at me funny, and the guys who had been there congratulated me on surviving. A lot of pilots never live to tell this story.

Now, what did I do to get in this condition? Well, in talking with the human factors people at the Safety Center, I found out I did everything right—that is, if I wanted to get spatial disorientation. The turn, the deceleration, the descent, tilting my head, all caused my gyros to tumble. I think the HUD had a little to do with it also because I didn't really tumble until I looked at the HUD. Maybe my subconscious mind interpreted/misinterpreted the HUD attitude faster than my conscious mind, and when the attitude didn't match up with what the subconscious thought it should be, my somatosensory system went Tango Uniform.

So what did I do right? Well, let's look at each action.

- Full aft stick. It worked this time because I was right-side up. I could have just as easily been inverted, but when you don't know, the natural reaction is to pull.

- Full AB. I was below 300 KIAS, and I believe selecting the AB was a good idea.

- Grabbing the ejection handle. This is the one thing I feel best about. Later, it felt good to know I grabbed the handle by reaction. I can't recall thinking about reaching for it—I just did it. On the bad side, I told myself I was going to leave the jet at 800 feet, but I didn't. You can see how "just a little longer" can kill you. I was just lucky I had correctly interpreted my instruments that time.

Now I fly round dials a lot more, and I limit extreme changes in any parameters while flying in the weather. We don't like to talk about luck in the safety world, but in this case, I was lucky I saved myself and the jet. Be careful, and don't let the same thing happen to you. It just might not be your lucky day.

Come on, y'all. If I can tell this story, you can tell yours! ➔

...the guys who have never been in that predicament looked at me funny, and the guys who had been there congratulated me on surviving. A lot of pilots never live to tell this story.

ON WINGS OF ANGELS

ANONYMOUS

That's when I told the controller I wasn't IFR qualified and I had only 10 minutes of fuel left. Boy! Was she shocked!

I'm not your typical VFR pilot. I like to joyride and see the sights, and I like to fly mostly at night. I started out taking lessons with the intention of becoming a CFII (certified flight instruments instructor). My problem is I am always preoccupied, and I don't take the time to study properly for my instructional flights. In fact, I'm quite good in the Cessna 150. I can fly it anywhere, anytime. Now that you know me, I'll get to my story.

This past winter, I decided to go flying one night. It was a beautifully challenging night. The weather at my airport was almost WOXOF*, but the fog was only 1,000 feet thick. That, to me, was no big deal since I've flown the departure from my airport many times and I know the local area like the back of my hand.

So, I found a friend who wanted to be my passenger, and we headed off to the airport. After the preflight, we climbed in and taxied out to the runway. I was excited by the opportunity to show my friend my exceptional skills. By the way, I didn't file a flight plan. Why should I? It was 0200, and no one was around anyway, including the weather forecaster.

As we took the runway, I'm not sure if my passenger was concerned or not. In my most professional pilot voice, I assured him I could see the lines on the runway for take-off. And after taking off into fog, he was very relieved when we broke out at 1,000 feet. Oh, did I forget to mention I'd had only a couple of instrument sorties? No big deal, though.

We had a great time flying over the countryside, even though everywhere we looked all we could see was fog. That was disappointing—I wanted to see the lights of all the cities. Anyway, after almost 2 hours, we were back at the airfield.

I couldn't understand why the fog hadn't lifted, even though for the past week it hadn't lifted until midmorning. For the first time, I was going to have to call on all my 100 hours of flight time to land my Cessna 150 without seeing the ground. So, I finally called an approach controller to ask for vectors to another airport where I could land.

When we arrived, that airport was WOXOF and so were all the rest in a 100NM ra-

dius. My fuel was too low to find VFR conditions. No problem, though. I just asked for IFR vectors to the nearest IFR airport. The problem was, all the airports were, at best, 100 OVC and $1/16$ of a mile in fog. That's when I told the controller I wasn't IFR qualified and I had only 10 minutes of fuel left. Boy! Was she shocked! I don't know what disturbed her more, the lack of IFR qualification or the lack of fuel.

Anyway, she said she couldn't help me, so I was sent to another controller to give me a surveillance approach. This was exciting to me and the passenger. It would be just like that U.S. Army commercial where the controller guides the helicopter down through the storm to the runway. Even though we were getting low on fuel, I reassured my friend that there was no problem—I was as good as that Yeager fella.

Well, the controller did his thing and brought me right over the runway. The problem was, the approach required 400 and $3/4$, and we had only 100 OVC with $1/16$ of a mile and fog. But my eagle eyes looked down through the fog, and I saw the runway lights. The problem was, I was still at 500 feet AGL.

I told the controller I was going around, and bring me back, please. He couldn't believe I went around after all that work. That was the last time he talked to me. Oh, I forgot to tell you there was still 2 miles of runway in front of me. I just wasn't used to long runways, so I thought I'd take another run at it. The last thing I remember was the engine quitting. So much for the gas!

I'll close now by introducing you to my mishap investigator. You see, he's really telling you my story since he found my passenger and me in the wreckage.

I wish I had paid more attention to my instructor and all those lectures about proper mission and weather planning. And I'm sorry that my investigator had to see me that way. I hope he never has this experience again.

Yes, this is a true story! ✈

* W = Indefinite cloud ceiling
O = Vertical visibility in hundreds of feet
X = Total sky obscured
0 = Visibility zero due to...
F = Fog



USAF Photo by SSgt Andrew N. Dunaway, II

"NO, COMFORT ISN'T ALWAYS A GOOD THING."

ANONYMOUS

You know the scenario...

The field's closing in 10 minutes and won't open again for 2 days. The jet has got to be back tonight—or else! You've been hopping around the west coast, solo, got a late start on the day because the previous night just wouldn't end, and so on. In other words, you've worked yourself into a hole, and you're frantically struggling to dig yourself out.

After a rough logistical morning, things begin flowing very smoothly. They finally showed up with the start cart. They do, in fact, have your IFR clearance in the system. And the crew chief finally found his earplugs.

Having flown through the Before-Start Checklist (It's okay to fly through it—you've accomplished the check at least 1,500 times over the last 5 years. That's what habit patterns are for, right?), you light the fires and make the takeoff with 1 minute to spare. Of course, you meant to do that.

About 300 miles down range, over pretty much nothing but desert, you get that *I know I forgot something* feeling. Kind of like realizing you forgot to close the garage door before you left the state for 2 weeks of leave. You look around, check the switches, check the knobs, check the gauges, and yes, the 781 is nicely stowed. Oh, well, ops normal.

After another 200 miles, you shift in the seat like you always do after sitting for over an hour and notice you're not as *uncomfortable* as you usually are. That's good. **No, that's bad.**

When you glance down to check the sta-

tus of your survival equipment, you discover with a bit of shock (and swear you can hear the background sound effects from the shower scene in *Psycho*) that the crotch straps to your trusty parachute are dangling loose behind the stick where you left them yesterday afternoon when you unstrapped.

After completing the Before-Start Checklist at 37,000 feet, you've got a few minutes to reflect. The first thing that comes to mind is the Safety Investigation Board's report as it might be written.

The mishap aircraft was heroically steered away from populated areas while Captain Whoosh expertly tried every technique known to man to solve the multiple systems failure. With no hope left to recover the crippled machine, Captain Whoosh ejected from the ill-fated and doomed aircraft. The ejection system functioned flawlessly. However, dang if we can figure out how Captain Whoosh simply swooshed right out of his chute. Bet that was some opening shock!

Mishaps occur as the culmination of a chain of events. Always look for those events or links in the chain before they connect and lead straight to a mishap.

Complacency is a killer. It preys on the less-attentive and typically the more experienced. Look for the following warning signs:

- Boredom
- Lack of interest
- Easy distraction
- Repetitive action
- Seemingly unimportant tasks
- External influences having an effect on tasks

Stop complacency before it stops you. ➔

You...notice you're not as uncomfortable as you usually are. That's good. No, that's bad.



OPS TOPICS PRESENTS...

"There I Was..."

...A Passenger On The GLOC Express

What's the difference between a pilot and a passenger? Under the right conditions, nothing but a G-induced nap.

The IP briefed the mission as a High-Aspect Basic Fighter Maneuvers (HABFM) flight. For the mishap pilot (MP), this would be his 18th sortie in the F-15C.

Brief, engine start, taxi, takeoff and flight to the MOA were unremarkable. Once in the MOA, the IP and his MP wingman warmed up with two G-awareness turns. Satisfied that they were prepared, the IP directed a turn away to set up for the first event, a HABFM butterfly engagement.

At 4.5NM separation, the IP called for turn-in. The MP turned in and, at an altitude of about 19,000 ft, began a descending right-hand turn at 100 degrees bank and eight degrees nose-low, pulling a little more than six Gs. Initially, the IP thought the MP was going for low turning room. But after he saw the Eagle continue a slow roll through 120 degrees with pitch increasing to 45 degrees nose-low, and a couple of "Two, confirm visual" calls went unanswered, he knew something was very wrong.

To the IP's relief, he saw the MP initiate recovery at 13,000 ft, then level off at 7500 ft. When he asked the MP for his status, the MP advised that he'd "lost situational awareness." After regrouping and indicating that he was ready for Round Two, the MP changed his mind and stated he wanted to knock-it-off for the day.

On RTB, the IP inquired why the MP had experienced low G-tolerance and whether or not he had blacked out

during the sortie. Apparently puzzled himself, the MP conducted an inspection of his life support connections and quickly realized *why* his G-tolerance wasn't up to its usual high standards...It was a very quiet flight back to the home drome.

You've never forgotten how your instructors in UPT stressed checklist discipline (*ad infinitum*), and it's a safe bet that you yourself emphasize checklist procedures in your flight briefs. That's because you know that following checklists is fundamental to safe flight. Checklists help keep you out of trouble by reminding you to do important things before you fly, like ensuring your ejection seat is armed and your flight controls work properly and your life support equipment is properly connected...just to name a few.

A little more nap time, and this Class C would have resulted in a smoking hole and a casualty assistance visit to the MP's next of kin. Don't take an unscheduled nap—or perhaps become a casualty—just because following the checklist is too (fill in your excuse here). We have enough lessons written in blood already. Whether you're a rookie or a veteran, follow those checklists. Fly Safe.

...Jus' Taxiing Out For Takeoff

The C-9 was on a routine medevac mission to an allied nation airfield. Parking space was at a premium, so the Nightingale, which routinely parked on the left side of the joint-use ramp, was forced to park on the less-roomy

right side of the ramp, between two fighters and a medium-sized transport aircraft. Also, because the parking ramp was uncharacteristically crowded, the C-9 was marshalled straight in and would need to make a 180-degree turn to exit parking.

By the time refueling and pax/patient upload were complete, the two fighter aircraft, parked to the Nightingale's left side, had departed. This allowed ample room for the C-9 to make a left turn and exit the joint-use parking area.

The C-9 started engines and, following the marshaller's direction, proceeded to taxi, making a turn to the left. In the process of doing the "about face" necessary to exit the joint-use ramp, jet blast from the C-9's engines hit the medium-sized transport parked to its right (now in back).

An observer on the ramp saw the transport's flight control surfaces oscillating violently, but was unable to alert the taxiing C-9 crew to reduce power. Examination after the fact revealed grounding damage to the transport's empennage flight controls, but it wasn't until the C-9 crew returned to the home field, that they learned of the damage they had caused.

Moral of the story? If you find yourself in a similar predicament with tight parking, don't forget how damaging your jet blast (or prop wash) can be to neighboring aircraft, structures, and parked vehicles. If there's any doubt whether or not you can taxi without causing damage, then get a tow.

...Getting My Hair Mussed In A Convertible F-15

The flight was a Transition Initial Solo sortie for the mishap pilot (MP). Mission brief, takeoff, departure and flight to the MOA were uneventful. But while in the MOA and completing a G-awareness exercise, the F-15D's canopy sort of...well, it departed.

An emergency was declared, and the MP turned for home, dumped fuel and landed without further incident. Maintenance impounded the jet immediately and took a good, hard look at the aircraft's canopy locking system.

The F-15C/D canopy locking system is of the full manual lock variety. The canopy control handle has four distinct detents: "Open," "Hold," "Close," and "Lock." When the control handle is placed to "Close," the canopy lowers to the sill and the canopy actuator pushes it forward to meet the windscreen. Five hooks on each side hold the canopy in the down position. Once the canopy is fully closed, moving the control handle to the "Lock" position causes hooks on the sill side of the aircraft to engage two rollers (one per side) on the canopy, locking it in place and extinguishing the "Canopy Unlocked" light.

Maintainers checked out the canopy locking system from top-to-bottom. The "Canopy Unlocked" lights (both cockpits) functioned as they were supposed to. Aero Repair's inspection and rig check of the canopy locking system IAW applicable tech data revealed zero defects. The aircraft's canopy locking mechanisms

showed no evidence of damage. And thorough examination of the recovered departed canopy found all hooks and locking rollers secure and undamaged. Cost of restoring this convertible F-15 back to original, factory hardtop condition was more than \$113,000.

One of the 1F-15A-1CL-1, "Before Takeoff" checklist steps reads "Canopy—Closed and Locked." To prevent getting your hair mussed because of an unplanned canopy departure, always follow the checklist. Follow it as if your life depended on it.



USAF Photo by SSgt Paul Holcomb

...Practicing Barrier Engagements in An F-16

Crash Recovery and the base Fire Department wanted to conduct some joint training, so a dedicated F-16 was plugged into the schedule. Its part in the aircraft recovery exercise? Engage the BAK-13 barrier so Crash Recovery and the Fire Department could coordinate, practice and improve their aircraft recovery response procedures.

The F-16 was configured with full internal fuel, two external tanks, a SUU-20 with six BDUs, a captive AIM-9 and an AMD pod. The Falcon was scheduled to make two barrier engagements.

The first engagement was uneventful. The Fire Department did its thing, then the Crash Recovery team did its thing, towing the mishap aircraft (MA) clear of the runway. Once given the "All clear," the pilot climbed back in for a re-start and one more barrier engagement.

This time, the MA's tailhook skipped the BAK-13, so the pilot raised the tailhook, back-taxed down the active and turned around for one more try. The third barrier engagement attempt was successful, with the F-16 snagging the barrier at 100 kts. The Fire Department and Crash Recovery practiced their procedures once again and then terminated the exercise.

Once the Crash Recovery team towed the MA back to parking, a seven inch cut was found in the right ventral fin. Why? There's a shear pin that stabilizes the tailhook and keeps it aligned with the longitudinal axis of the aircraft, and it had, well, sheared. In accordance with T.O. 1F-16C-6-11, once the tailhook engages a barrier, the shear pin must be replaced. Without it, there's nothing to keep the tailhook centered and it can swing off-axis and strike unprotected parts of the aircraft structure. Mishap cost was nearly \$17,000. ✈



Maintenance

Maintenance Matters Presents...

Have You Followed Your Tech Data Today?

The Falcon Genuflects, Chapter One

Maintainers R&R'd an F-16 brake control valve. It needed an op check so, as called for in the 1F-16CG-2-32JG-40-1, a power unit, hydraulic mule and brake test set were hooked up to the aircraft. Three individuals—a supervisor and two assistants—were tasked to conduct the checkout.

One portion of the op check directs that the landing gear handle be placed in the “Up” position. When the gear handle is placed to “Up,” a properly working system causes hydraulic pressure to be applied to the brakes that stops the wheels from spinning before they're retracted into the wheel well. Note: Before taking the landing gear handle out of the “Down” position, one of the Job Guide steps states “Ensure all landing gear safety lock pins are installed.”

The op check progressed satisfactorily until—as you may have suspected would happen—the main landing gear retracted and collapsed. The F-16 settled on the centerline pylon-installed ECM pod and ventral fins. Even though the nose landing gear unlocked, it did remain extended. The team terminated electrical and hydraulic power, declared a ground emergency and evacuated the area.

It cost nearly \$895,000 to set everything right after this Class B mishap. But it could have been a lot more expensive if one of the folks

doing the op check had been under the aircraft. *Or if one (or more) of the six live MK-82s loaded on stations 3 and 7 had somehow detonated.*

Reminder: Tech data is your friend. Follow it. Avoid damage—or destruction—of equipment. Prevent injury—or death—of yourself and your coworkers.

The Falcon Genuflects, Chapter Two

This F-16 was written up for “Takeoff/Land Configuration light came on during final approach to landing.” A couple of Electro-Environmental troops troubleshot the jet, found a bad right-hand trailing edge flap limit switch, and removed, replaced and rigged it in accordance with tech data. All it needed now was a trailing edge flap limit switch confidence check.

With power and a hydraulic mule at the aircraft, two Avionics-types were dispatched to do the confidence checkout, assisted by another maintainer who would run the mule.

As with another F-16 mishap (see preceding “Maintenance Matters” item), part of this checkout called for the landing gear handle to be moved to the “Up” position *after* ensuring gear pins were installed.

Using only verbal and visual signals to communicate, the Avionics maintainers proceeded with the op check. And when they got to the part that directed the gear handle to be placed in the “Up” position? The

gear started retracting. The maintainer on the mule saw the aircraft settling and immediately killed hydraulic power—although it was already too late—and notified the MOC.

Aircraft damage consisted of scuffed paint on an AIM-9 fin, a crushed centerline tank, buckled left and right main gear doors and crushed left and right ventral fins. Cost for repairs was about \$35,000.

It bears repeating: Tech data is your friend. Use it and you'll prevent injury and avoid equipment damage.

“Splash One RC-135” (Almost)

Why is it so important to keep aircraft pitot-static systems moisture-free? Simply stated, because that water can freeze during climbout and give erroneous airspeed (pitot) and altitude (static) information to the aircrew and flight systems.

At best, unreliable airspeed/altitude info is a major annoyance and cause to abort a mission. At worst, bad airspeed/altitude info can precipitate an aircraft falling out of the sky. In fact, that very thing happened to a commercial airliner near the Dominican Republic just a few years ago, causing the deaths of nearly 200 people. Faulty airspeed/altitude info very nearly earned this RC-135 aircrew a one-way trip to the hereafter, too...

Prior to flight, a ground maintenance run was accomplished on the RC-135 and, per SOP, pitot covers were off for the duration. Moderate-to-heavy blowing rain occurred

ce Matters



USAF Photo by SSGT MICHAEL E. BUYTAS JR.

throughout the run. And it was a lengthy maintenance run. According to the mishap message, the pitot-static system wasn't checked for moisture after the run, nor was any detected during the preflight inspection.

The aircrew arrived and did their Dash-1, started engines, taxied, and took off. The RC-135 leveled off at FL280. Once the autopilot was coupled, the copilot selected a desired airspeed of 305 kts in the FSAS and engaged auto-throttles to maintain that airspeed.

Within three minutes, one of the

tactical coordinators on board reported he felt vibrations in the aircraft. At about the same time, the pilot and copilot felt the aircraft starting to buffet. When they saw their yokes were full aft and the AOA indicators were reading approximately 1.0—an angle-of-attack in a -135 where lift effectively disappears—they immediately initiated stall recovery procedures. They recovered the aircraft only to have it stall once again while trying to figure out what the problem was.

They saw that the airspeed readings on both mach/air-speed indicators had frozen. In addition, the copilot's altimeter indicated the RC-135 was ascending, but his VVI indicated they were alternately climbing and descending. The crew declared an emergency.

A KC-10 in the area joined and flew chase ship and relayed reliable airspeed and altitude info. Descending through 14,000 ft, the copilot's instruments started to function normally again, and the RC-135 recovered safely at its home station.

A World Of Difference

(Courtesy TSgt Alan K. Pray, NCOIC AGE Support, 374 MXS, Yokota AB, Japan)

When a day-shifter rotates to a night shift, at least for the first week or so, life on the flightline is very

different. It's like being transported to a different world. During the day, maintenance and operations personnel can't be missed. Nor can aircraft, fire extinguishers, CTKs, vehicles and AGE, even to inattentive personnel. Not so at night.

Whether you're brand new to the flightline, new to a night shift, or perhaps just someone who only visits the flightline infrequently, remember that visibility and awareness are your keys to safety. Night-shifters: Wear those reflective belts/vests at all times, and make sure your co-workers wear them, too. Nothing can ruin your day (or night!) like being run over.

Also, ensure all equipment is properly reflectorized. AFOSH standards and technical orders direct the use of reflectorized belts/vests and tape, so obey and enforce these rules. Be aware that if you remove a maintenance stand's rail and reinstall it backwards, the reflective tape may not be visible and will present a hazard at night on the flightline. If an item is missing reflectorized tape, write it up, notify the proper people, and follow up to ensure the discrepancy is taken care of.

Here's the Bottom Line: Non-reflectorized personnel and equipment are, for all practical purposes, invisible at night. Look out for yourself and your buddies by taking a few moments to reflect back on the basics of nighttime flightline safety. It's especially important in today's fast-paced environment that we do everything possible to protect the Air Force's most valuable asset—YOU! ✈

Maintainers: Got A Story?

We need your inputs! August's Flying Safety will be devoted to "Maintenance and Maintainers." If you have a good personal experience story that would be of interest and benefit to other maintainers, send it to us at bakerm@kafb.saia.af.mil. Any photos you have to support the narrative would be great, and we promise to return them in good order.

USAF Class A Mishaps

FY00 Flight Mishaps (Oct 99 - Mar 00)

**9 Class A Mishaps
5 Fatalities
6 Aircraft Destroyed**

FY99 Flight Mishaps (Oct 98 - Mar 99)

**19 Class A Mishaps
7 Fatalities
15 Aircraft Destroyed**

- 3 Oct ♣ While conducting a SAR mission, a UH-1N went down.
- 17 Nov ♣ Two F-16Cs flying a night vision goggle upgrade sortie collided during a VID intercept. One pilot ejected and was recovered uninjured. The other pilot returned safely to base.
- 22 Nov An OA-10A departed the departure end of the runway. The pilot ejected successfully.
- 6 Dec * An RQ-4A Global Hawk UAV was extensively damaged while taxiing after landing.
- 10 Dec A C-130E touched down short of the active runway, then diverted to another airfield and belly-landed. Three personnel were fatally injured.
- 15 Dec An HH-60G rolled over at an LZ following a hard landing.
- 20 Jan ♣ An A-10 crashed during RTB. The pilot was fatally injured.
- 16 Feb ♣ An F-16CG on a routine training mission experienced an engine malfunction. The pilot ejected.
- 16 Feb ♣ An F-16DG flying a night vision goggle upgrade sortie crashed. Both crewmembers ejected
- 28 Feb * A maintainer sustained fatal injuries after falling from the lower crew entry ladder on a C-5.
- 15 Mar * A KC-10 was damaged during towing operations.
- 19 Mar ♣ An F-16C crashed while performing at an airshow. The pilot was fatally injured.

- ❑ A Class A mishap is defined as one where there is loss of life, injury resulting in permanent total disability, destruction of an AF aircraft, and/or property damage/loss exceeding \$1 million.
- ❑ These Class A mishap descriptions have been sanitized to protect privilege.
- ❑ Unless otherwise stated, all crewmembers successfully ejected/egressed from their aircraft.
- ❑ "♣" denotes a destroyed aircraft.
- ❑ "*★" denotes a Class A mishap that is of the "non-rate producer" variety. Per AFI 91-204 criteria, only those mishaps categorized as "Flight Mishaps" are used in determining overall Flight Mishap Rates. Non-rate producers include the Class A "Flight-Related," "Flight-Unmanned Vehicle," and "Ground" mishaps that are shown here for information purposes.
- ❑ Flight, ground, and weapons safety statistics are updated daily and may be viewed at the following web address by ".gov" and ".mil" users: <http://www-afsc.saia.af.mil/AFSC/RDBMS/Flight/stats/index.html>
- ❑ Current as of 29 Mar 00. ✈



LT GEN GORDON A. BLAKE
AIRCRAFT SAVE AWARD
3RD QUARTER, CY99

SMSGT JAMEY M. WILLIAMS
HQ AFFSA/XAOF

SrA Robert A. Southwick (Tower, Local Controller), 97th Operations Support Squadron, Altus AFB, Oklahoma.

While working as local controller in Altus tower, Airman Southwick cleared a flight of two C-17s for an intersection departure. With only 5000 feet remaining, he observed massive amounts of brownish-white smoking coming from the right side of one of the aircraft. He immediately informed the aircraft of the situation, and just seconds before rotation, the pilot elected to abort takeoff. The aircraft taxied back to parking and had maintenance inspect the aircraft. Maintenance found nothing wrong with the aircraft, so the aircraft taxied back to the runway. During the second attempt to take off, smoke started billowing from the aircraft. Again, Airman Southwick promptly informed the pilot of the situation and, again, the pilot decided to abort. After further inspection of the aircraft, it was discovered the fuel cap on top of the right wing, aft of the number three engine, was not installed. Wing safety officials stated, "If Tribe 42 had departed with fuel being drawn into the engine exhaust, it is possible we could have lost a \$200 million aircraft and the lives of the three crewmembers."

MSgt David S. Spangler (Tower, Local Controller), 92nd Operations Support Squadron, Fairchild AFB, Washington.

As local controller in Fairchild tower, Sergeant Spangler observed an abnormality of the refueling boom on a KC-135. He informed the pilot and the pilot executed a missed approach. The pilot stated that Sergeant Spangler's action "saved the Air Force a \$250,000 boom, and prevented injury to the aircrew and ground personnel from this potentially very dangerous situation."

MSgt Sidney Gills, Jr. (Tower, Local Controller), 80th Operations Support Squadron, Sheppard AFB, Texas.

When Sergeant Gills encountered three lost Mexican Air Force aircraft approaching Sheppard AFB opposite direction, he directed a T-38 to climb immediately. The Mexican aircraft were less than one mile from the T-38 and converging. Because of his attention to detail in the local flying environment, Sergeant Gills prevented a potential midair collision and possibly saved four lives, the USAF \$12 million, and the Mexican Air Force \$702,000. ✈

Attention Air Mobility Forces Operators and Transporters!

- Are you participating in Air Mobility Rodeo 2000 ("R2K") at Pope AFB, NC?
- Are you an Operator or Aerial Porter?
- Do you have decent writing/communicative skills?
- Are you willing to write about R2K from your point-of-view with heavy emphasis on SAFETY?

If so, then *Flying Safety* magazine (FSM) wants YOU! We've got the R2K aircraft maintenance aspect covered, but would like to share R2K perspective from the Operator and Aerial Porter point-of-view, too. Take a look at "Air Mobility Rodeo '98: A Maintenance Perspective," from the Sep 98 issue of FSM for a feel of what we're looking for. It's available on-line at:

www-afsc.saia.af.mil/magazine/htdocs/sepmag98/menu.htm

Why focus on the Maintainer, Aerial Porter and Operator? Because FSM is aimed primarily at those who fix and fly aircraft. Your insights can help others do their job—and perform the Air Force mission—smarter and more safely. Your R2K article should describe the competition from the Operator's (or Aerial Porter's) perspective, tell how competition skills have application in the "real-world" environment and, of course, relate how safety awareness (ORM, if you prefer) is fundamental to competition and real-world operations. Remember that the target audience is your fellow air refueler/airlift Operator (or Aerial Porter). Write with an eye toward providing knowledge that your fellow Operators (or Aerial Porters) can use. Simple!

We're looking for a max of two Operations-type personnel (one air refueler and one airlifter) and one Aerial Port-type person to write about R2K. If you're interested, please E-Mail us at either roodj@kafb.saia.af.mil (Managing Editor, Mr. Rood), or bakerm@kafb.saia.af.mil (Maintenance/Technical Editor, Chief Baker). We'd like to learn a little about your background and share a few writing tips to help make your writing experience painless and your R2K story effective. The ball is in your court!