

UNITED STATES AIR FORCE
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FLYING SAFETY MAGAZINE

Instructorship



DANGER
THIS AIRCRAFT CONTAINS

RESCUE





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Cover and Rear Cover:
USAF Photos by TSgt Lance Cheung
Photo Illustration by Dan Harman





INSTRUCTORSHIP

"It is possible to fly without motors, but not without knowledge and skill."

--Wilbur Wright

The knowledge and skill to fly are imparted by the instructors. Your job of shaping the next generation of Air Force aviators is a vital one. Here are a few excerpts from the articles in this issue on instructors and "instructorship."

"Letting yourself get a fraction of a second behind the student can be catastrophic." (p.18)

"It is our duty to give them every available bit of knowledge and experience we can prior to their arrival at an operational squadron." (p. 4)

"The student...count[ed] on me to make sure I did my job." (p. 14)

"[The instructor] was good because he knew each of our limits.... He never let us get into an unsafe and unrecoverable situation, but he let us make mistakes and learn from them." (p. 8)

"When [the student] came to the brief with a lot of confidence, I let his personality lull me into a false sense of security." (p. 22)

"Students will follow what we say and do.... As instructors, we must instill a sense of personal ORM so they take smart risks and avoid our mistakes as well as their own." (p. 10)

One of our contributors asks instructors a pertinent question, and sums up the reason for this issue: "What kind of difference will you make?" (p. 12)

GENERAL T. MICHAEL MOSELEY
Chief of Staff, USAF

MAJ GEN LEE MCFANN
Chief of Safety, USAF

GWENDOLYN DOOLEY
Chief, Media, Education and Force
Development Division
DSN 246-4082

JERRY ROOD
Managing Editor
DSN 246-0950

PATRICIA RIDEOUT
Editorial Assistant
DSN 246-1983

DAN HARMAN
Electronic Design Director
DSN 246-0932

DEPARTMENT OF THE AIR FORCE — THE CHIEF OF SAFETY, USAF

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E-Mail — jerry.rood@kirtland.af.mil
Address Changes —
patricia.rideout@kirtland.af.mil

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“BEEN THERE...DONE THAT”

USAF Photo/Photo Illustration by Dan Harman

MAJ SCOTT A. HOFFMAN
357 FS, Chief of Safety
Davis-Monthan AFB AZ

The dictionary defines *experience* this way:

Experience: *noun* 1. practical contact with and observation of facts or events. 2. knowledge or skill acquired over time. 3. an event or occurrence which leaves an impression on one.

verb 1. encounter or undergo (an event or occurrence). 2. feel (an emotion).

One of the many challenges in aviation is, often-times, experience is only gained from an event which we would not want to go through again. In an ironic twist, experience is gained not only from correct decisions, but from the bad ones as well. For example, an emergency in the aircraft which we handle in a timely manner garners us experience. Valuable experience is also gained from a poor decision which was made without taking a proper risk assessment, a decision which could have resulted in dire consequences. Experience gained is sometimes followed by the phrase, “I will never do that again!”

Experience is also an indescribable familiarity with your aircraft and the ability to know when something is not quite right.

There we were, another hazy day in the ROK with minimal airspace. My student and I were flying to the small confines of Koon-ni Range for a Basic Fighter Maneuver (BFM) Mission Qualification Training sortie. The student was an experienced A-10 pilot who recently finished getting re-qualified in the mighty Hog after coming back from his tour in AETC.

After the fourth defensive BFM engagement for the student, while climbing to the briefed altitudes for the next perch setup, the following conversation transpired:

Wingman (WM): “Death Flight, Knock-it-off”

IP: “Death 1, Knock-it-off”

WM: “Death 2, Knock-it-off”

IP: “What’s the problem, 2?”

WM: “All my engine gauges read normal, but something sounds wrong. It sounds like there is a rattling coming from the No. 1 engine.”

We promptly accomplished a switches-safe call, and I rejoined for a battle damage check. Nothing appeared out of the ordinary. However, the unset-

ting noise continued. After a thorough review of all the gauges, we could not find anything wrong with the jet, except for the recurring rattling noise. Not knowing what the problem was and having no abnormal indications, there was no checklist to run. We decided to immediately return to Osan AB for a chased straight-in. We went through the whole drill of coordinating with the SOF and contacting our Top-3, who concurred with our decision. Landing and rollout were normal. We were thinking that the noise must be something inconsequential, when the arrival of the de-arm crew quickly changed that mindset. They informed my wingman that he needed to shut the aircraft down as "parts of the engine were falling to the ground." That rattling noise was the faint sound of an engine in the initial stages of trying to destroy itself. Only the well-tuned ears and the significant A-10 flying experience of my wingman prevented this from being a potentially catastrophic engine failure. His experience of the sight, sound and feel of the A-10 is what caused him to know something was wrong with the jet, despite having no other indications.

I am currently an A-10 Formal Training Unit (FTU) Instructor Pilot. The students we fly with have no A-10 flying experience, and most likely will not be able to hear or feel when something is wrong with the jet. They are so focused on trying to be in the right formation position, getting to the correct bombing wire and ensuring proper weapons employment. We do not have a two-seat version of the A-10 to look over their shoulder and let them know when something in the aircraft is not as it should be. We must rely on the ability of the student to verbalize what might be wrong, and also pull from our experience to help interpret what might be happening inside their jet. This is true not only for emergencies in the jet, but how they employ their weapons and how they make decisions in the aircraft as well.

With the pace of the FTU syllabus, experience for an FTU student is gained on every sortie. However, experience is something that cannot be increased quickly enough. How do we, as single-seat attack pilots, develop this necessary and potentially life-saving experience as soon as possible into our young students and wingmen?

1. Emergency Procedures (EP) discussion: In the "motherhood" portion of the brief, do more than just review the checklist for the designated EP of the day. Talk in-depth about what the student will hear, see and feel in the jet when the particular emergency happens. "There I was..." stories are always beneficial to inform them of others who may have had the particular emergency and discuss how they handled it. Discuss how the flight will use CRM to handle any emergency which may arise, and how risk management will be used to decide on a course of action. Discuss thoroughly

what their role in the EP will be; whether it is reading checklists, flying chase, or contacting the SOF. Make sure they do not have any questions regarding what is expected of them in an emergency.

2. Ensure the student knows their aircraft systems. As single-seat pilots, it is imperative they know the aircraft systems and operational limits, because no one else is in the cockpit with them to notice when a system is not operating properly. Ask numerous ops limits during the brief. Never accept an answer that is "close enough." They do not have to know how to build the aircraft, but they must know more than just the basics.

3. Encourage discussion among the students. Create an atmosphere where the students can freely discuss among themselves their own "There I was" stories. In our squadron, we have a board in the weapons vault where students can write their own "Lessons Learned" on any topic; from weapons delivery, to local procedures, to any other mistakes or errors. This is an easy and effective method for the experience of one student to be everyone's "Lesson Learned."

4. Encourage discussion between students and instructors. As instructors, we are the ones with the experiences and knowledge. If you are not approachable as an instructor, you have failed the students. Your impact on the student goes well beyond the upgrade sortie. The techniques you teach, how you handle the flight, and your ability to transfer this knowledge to the student will be the foundation for their entire flying career. Many of the students that you fly with today may be in harm's way in the near future. It is our duty to give them every available bit of knowledge and experience we can prior to their arrival at an operational squadron.

5. Discuss techniques and experiences between instructors. Though we are instructors, there is always something more to learn. Whether it is new or different techniques of instruction or sharing how another IP handled a given situation, we owe it to our students to increase our knowledge base as well.

Experience is something we all wish we had more of. It is also something we, as instructors and experienced flight leads, need to pass on to our students and wingmen. The Air Force uses Red Flag to help us experience combat sorties without actually being shot at. As experienced instructors and flight leads, we need to provide our students and young wingmen with as much experience as possible as soon as possible.

There is a quote from Vernon Sanders Law that states: "Experience is a hard teacher because she gives the test first, the lesson afterwards." The more lessons we can pass on to each other while on the ground at 1G, the more "tests" we will successfully pass in the air. ✈️



USAF Photos

CAPT RONALD CRABTREE
522 FS
Cannon AFB NM

I am the fortunate survivor of a midair collision. Sounds serious, but when you get to the end of my story you'll probably think, "I was robbed! *That* can't be a *midair collision*. If there's no fireball, it just doesn't count." What can I say? Now that I'm a safety officer, I've got a reputation to uphold.

So, I'll stay away from talking about MACA. I will tell my story, but I hope that what you will glean from it is some personal reflection on just how much rope you are willing to give a student or upgrade pilot. For instructors and future instructors alike, consider your limits in this situation or others like it. With enough imagination, you will be able to apply my lessons learned to any MDS/MWS.

This event happened about four years ago, but I feel like it was yesterday. Most of you probably remember those days of flying T-37 formation during SUPT—just about every aviator who currently has more than two years of rated aviation experience got to fly the Mighty Tweet. There's nothing quite like those first couple of rides in the formation phase, "flying" with a death grip on the stick and throttle, and your instructor whispering—or yelling—"Wiggle your fingers and toes, relax, move it in... I have the aircraft... You have the aircraft... Wiggle your fingers and toes... Good... I have the aircraft... You have the aircraft..."

So, anyway, there I was, a pretty new instructor, a FAIP, with approximately 150-200 hours of instructor time. From beginning to end, I prided myself as an instructor who acted calm (as much as possible), while letting students learn as much as they could with maximum stick time and recovering from their own mistakes. I love flying, and it never seemed to bother me, as long as I was flying with a student, to sit back and enjoy the ride. *Liar!* I'm sure I've lost credibility with about 98 percent of you now. Seriously, I felt very comfortable with the Tweet, and was confident that I could recover it from whatever situation the student got me in—in fact, I looked forward to it. Perhaps this was the recipe for the mishap.

I was on my second or third sortie of the day. My buddy, another FAIP, was in the same boat. Both of our students were on the sortie prior to their formation checkride (we called it "to-check," a.k.a. "pre-check," "rec ride," "practice-check"). I was the formation commander because of my formidable aviation experience—I had been an instructor one whole month longer than my friend.

The students are required to demonstrate proficiency in both the lead and wingman positions during their formation sortie. Typically, one student will lead the formation out to the area and the other one will lead it back, with a swap in the middle of the area work. My student and I led out. Takeoff, departure, and area work were uneventful, except, like the rest of the students with which

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I had flown, the student was concentrating so hard on being a good platform that he rarely took a look outside the window. Hey, looking outside is over-rated anyway, right? In that stage of formation, my typical comment for students was always the same—CLEAR! Some listened, some didn't. In this case, it was like pulling teeth trying to get the guy to move his noodle around to at least convince me he was clearing and monitoring.

Be that as it may, we finished up the first half of the profile uneventfully and swapped leads. This is where it got really fun. My student liked to fly *close*. It was like the proverbial moth to a flame—he was the moth, and the only other airplane in the sky was the flame. Obviously, he couldn't keep leaning in without striking the other airplane, but that's the way I saw it as I felt myself leaning away from the leader in the attempt to feel a little safer. It's like letting your little brother drive the car and pushing on the imaginary brakes on the passenger side. For Tweet fingertip, the perfect position gives you three feet of lateral wingtip clearance. I'd say this guy was flying with a little wingtip overlap (which is highly subjective, with the side-by-side configuration of the Tweet). My limit for when I would speak up about this was if it looked like there was any wingtip overlap, or we had a vector that would take us inside that limit. So, I reminded the student twice. The third time—that was it, I took the jet.

Allow me a quick side note. The way I see it, besides experience and the hazardous duty pay, there is one specific thing that makes a pilot's job different when he/she is performing as an instructor—state of mind. (See Table 1.)

Pilot's Primary Tasks v. Instructor Pilot's Primary Tasks

Upgrade Pilot

1. Control the airplane now (in a Tweet student's case, this is the goal)
2. Think ahead—prepare for the next maneuver (in a Tweet student's case, this step is gravy)

Instructor Pilot

1. Think about controlling the airplane now
2. Think ahead—prepare for the next maneuver
3. Respond to the UP's current inputs, particularly if different from IP's idea
4. Anticipate the consequences of the UP's inputs

Table 1



I think there are benefits from an instructor aligning the student with their own vision of the future—by telling them what to do. I heard some instructors' ideas of "alignment" were banging on the dash and screaming. To each their own, I suppose, but I think a really good instructor allows the student to realize the effects of their decisions and does their best to view those effects objectively. Are they outside the parameters, or are they just different from your technique?

Sending this student to a checkride, I was doing my best to view the results objectively. Since I took the airplane, I was much closer than before to giving the student a chance to do the sortie again. But I let it go too far. We were on the top half of a lazy-eight leaf, in approximately 90 degrees of left bank, on the inside of the turn. When I took the airplane, the only direction I perceived as safe was down—that is, a negative-G pushover to avoid the leader. My atypical breakout did not take us far from the other aircraft, and shortly thereafter the other pilot initiated a Knock-It-Off and rolled out wings level. He reported that the control stick snapped out of his student's hand and suggested that we may have hit him. I was incredulous. I couldn't deny what had happened in his aircraft. But certainly, from my perspective, we were close but we couldn't have struck each other. Nonetheless, we coordinated for separate chase aircraft and on the recovery the battle damage check was uneventful for both of us. Neither of the chase aircraft pilots saw anything abnormal on our aircraft. Landing and taxi-back were also uneventful. My Squadron Commander met me; he said he was thankful we were okay. Me too, I suppose—I still wasn't sure that my buddy and his student weren't just a little hypoxic.

Turns out I did hit my wingman. It was my fault! I let the student go too far. I let him go so far that I didn't even properly perceive the situation. But the damage to our aircraft told the true story. When I pushed over, the outboard leading edge of my right wing struck the left outboard trailing edge of the horizontal stabilizer of the other aircraft. That's why the technologically advanced T-37 fly-by-wire flight control system caused the stick to snap out of the student's hand. The result? We swapped paint. Their aircraft had four inches of bent elevator and some white paint, and ours had four inches of exposed fiberglass and blue paint. At \$400 worth of damage, the mishap was a Class E. I, and the three others involved, were the fortunate survivors of this midair.

I have a lot of takeaways from my buffoonery. As an instructor, the one thing I was most thankful for was that I found out exactly how far was too far to let a student go. By four inches (at least). You may not be so fortunate. 🐣



Instructor And Safety Monitor

CAPT DANTE BADIA
334 FS
Seymour Johnson AFB NC

As a student in Undergraduate Pilot Training (UPT), there are many times that you scare yourself. What you don't realize is that your instructor has been nervous or scared twice as much as you. I can remember a flight as a student in the mighty T-37 where I was more task-saturated than normal. I was flying an approach in a heavy crosswind for a full-stop landing. My instructor was quite relaxed, while I was afraid, not of hooking the flight but of being able to land without crashing. Fighting the wind and the jet, I was able to finally land and breathe a sigh of relief. What I couldn't understand is how my instructor could remain so calm with a student flying an approach in conditions that

were close to limits. There were times during the approach that I was actually hoping he would take control of the jet and land it for me. After flying other flights with him and talking with my other classmates, I realized that he was a very good instructor pilot, and we all learned a lot from him.

Why did we learn a lot from him, and why was he such a good instructor? Yes, he was a great pilot, and yes, he knew a lot. But that isn't why we all thought he was good. He was good because he knew each of our limits. He knew when to take the jet from us and when to let us keep flying. He never let us get into an unsafe and unrecoverable situation, but he let us make mistakes and learn from them.

I can remember many instructors who had a very small comfort level. Just as you are coming over the overrun and beginning to transition the jet from landing in a three-point attitude to a two-



USAF Photos
Photo Illustration by Dan Harman

point attitude, the instructor tells you to go around or takes the jet from you. There is nothing more aggravating for a student than when an instructor doesn't give you the opportunity to fix what you are doing, be it an approach or a formation rejoin. I can understand if the instructor thought it was unsafe, but some instructors were a little too safety-conscious. As a young student pilot, I knew that when the day came for me to be an instructor pilot, I would remember the traits of what we all thought was a good instructor. An instructor who not only flew a great jet and knew his stuff, but an instructor who gave the students many opportunities to learn from their mistakes.

Fast forward a few years, and now I find myself at the other end of the instruction. As an instructor pilot in the F-15E Formal Training Unit (FTU), I find myself striving to be a good instructor. Between

additional duties and grade sheets, I still try to study whenever I can so I can properly instruct the students. But just as I previously mentioned, I define a good instructor as one who gives students opportunities to learn and allows them to fix their mistakes.

Striving to be the best instructor, I now find myself faced with situations where I have to know when to step in for safety concerns. Now, I am the one who is nervous that a student is going to do something to get my wings taken away or, worse yet, get us both killed. I now know how hard it is to decide at what point I need to intervene for safety, or just sit on my hands and let the student learn for himself.

Anyone who has been an instructor will know that there are some students who you need to pay more attention to than others. When you fly with these students, you have your hands on the controls, ready to take the aircraft at a moment's notice. The students who can put you in a bad situation without you realizing it are not the bad students, but the above-average students. Most instructors let their guard down and become more relaxed with the above-average students. Some even get the mentality that they are flying on a CT mission. This is an unsafe mentality when flying with any student. No matter how proficient the student, he is still very inexperienced and needs the instructor to not only instruct, but also be a safety monitor.

Being an instructor is also being a safety monitor, as I found out flying in the backseat with a young student pilot. It was one of my first instructor rides in the backseat to the local bombing range. I tried to do all the same things that a Weapons Systems Officer (WSO) would do in the backseat, while instructing the student pilot at the same time. I soon realized that I had to pay attention to what the student was doing with the jet at 500 feet and 540 groundspeed, and less time trying to do the WSO duties. I needed to be an instructor, but I mainly needed to be a safety monitor. I still gave the student plenty of opportunities to learn and fix his own errors, but I also kept us safe and away from the ground.

Even when you aren't in the same jet with the student, you still need to monitor the student. The student could be doing a very aggressive rejoin with his flight vector going straight towards your jet, or he could be doing a threat reaction at low-altitude with an unsafe nose-low attitude. Sometimes you have to prevent the student from killing you, and sometimes you have to prevent the student from killing himself.

Looking back, I admire my T-37 instructor even more now. He knew when it was time to intervene for safety, and he knew when to let me make errors and learn from my mistakes. I am finding out this is one of the hardest parts of being an instructor. I hope I can someday be just like him. ✈️



YOU OK TO FLY?

MAJ MICHELE BOYKO
7 BW
Dyess AFB TX

Let's caveat this story with the alibi "I was just a student"...and it was a long time ago. That evening's duty officer was trying to iron out last minute wrinkles in tomorrow's flight schedule. I was walking out of the ready room that evening around 1830, and overheard the duty officer talking to a student who was a class or two ahead of me. This student had been doing well, according to the rumor mill. The conversation went something like this:

Duty Officer: "Hey, we're going to put you on a flight tomorrow morning; show time is 0600. You're OK with that, right?"

Student: "No, Sir, I'm not. I won't have crew rest."

Duty Officer: "Oh, you're going to pull that Air Force 'Crew Rest' card, huh?"

Student: "Sir, you know I've got to come in much earlier than that, just to prep the board."

Duty Officer: "Well, that's just weak."

After that day, this particular student was given

a pretty hard time for the remainder of his training. He had not graduated by the time I left, and this exchange left a pretty big impression on me.

Understand that most students would usually spend about five to seven hours preparing for each flight, including charts, flight plan and review of those special topics that would likely come up in the brief. It also took about half-an-hour to an hour to prepare the briefing board prior to the brief. At that time, the program we went through was highly disjointed, so you were never quite sure if your next flight was aerobatics or instrument, low-level or formation, and each flight had its own set of "knowledge requirements." It was therefore difficult to prepare well ahead.

A few weeks after this event: I'd finished ground school and now had been scheduled to fly for three days straight, with a couple of flights each day. Not really a big deal, except that nights were spent preparing for the next day's rides. The first two days went rather smoothly with no incident. Aerobatics and pattern work are easier to stay awake for.

Day Three with no sleep since before ride one.



A couple of instrument flights scheduled for today with the standard point-to-point, holding, approaches, etc. The curiosity began about one minute after checking in with an intermediate approach control.

X Approach: "Zap 123...did you need anything?"

What an odd thing for a controller to ask. I looked around the cockpit, as if the answer would be out in the clouds somewhere. I looked at the flight plan on my knee; nothing urgent there.

Me: "X Approach...nope." Not exactly proper comm., but it *was* brief.

My instructor seemed a bit agitated at the time, and we landed about 45 minutes later. The debrief began, "I tried to stop you, but it was too late. You just didn't know that the name of the approach control was not the same as the name of the airport we were going to practice approaches at..."

Practice approaches en route? We were going to practice approaches en route? I nodded without saying a word and casually glanced at my flight plan as the instructor continued the short debrief. Sure enough, there they were. We'd briefed the whole flight just a couple of hours prior. In my

near-delirious state, trying desperately to stay conscious, physically prying my eyelids back, I'd completely forgotten whole portions of the flight, and couldn't even recognize what the flight plan said in flight. At that moment, I changed my mind about the whole crew rest thing. It just wasn't worth endangering my instructor or myself. Everybody probably has a story about when they learned to call for a time-out. It's much easier to learn for someone else's screwball adventure than having your own, though.

2004: Now, I'm the instructor. Two months ago, on the bus, my student mentioned something about being tired.

Me: "You OK to fly?"

Student: "Yeah, I'm fine. Would it really matter if I wasn't?"

Yeah, it would. You can imagine the ensuing discussion. But this is concerning the fact that he had to learn that attitude somewhere.

As flight instructors, it is vital that we teach our students when to call "knock-it-off." Now I'm not advocating we raise the next batch of aviators as whiney weaklings who go DNIF at the first sneeze, but teaching some early measure of judgment is essential to not only a safe training environment, but safe flying all around. And it's not something that is lectured at roll call and forgotten, but must be modeled and explained one-on-one.

Here's where you can start. First, when you get a new student, give your own example of how you or someone you know learned your/their limits. Explain what you did right, and what could have been done safer. Explain some of your own personal limits, and provide a story of when you've called "knock-it-off."

Second, listen to your student. Not only to what they say, but their actions as well. This is a lot tougher than just expounding your wisdom on the poor slob, regardless of his ability to absorb. Ask questions if you don't get a clear answer. You may need to tell your student to go to the flight doc, or you may just need to work the flight schedule. Most times, you probably won't need to do anything more than just ask and provide advice.

The final point to make this more convincing is this: A survey of Air Force mishaps from FY72-00 showed 1.4 percent of Class A mishaps involve fatigue as a major or causal factor. Fatigue is gaining more attention as we discover that lack of sleep has a similar effect to drunkenness on reaction times and judgment.

Students will follow what we say and do. Demonstrating judgment by being ready to fly, or raising the flag when we're not, provides much clearer teaching. The goal is to build their good judgment early. As instructors, we must instill a sense of personal ORM so they take smart risks and avoid our mistakes as well as their own. ☺

Lessons Learned From The Jumpseat

MAJ RON YOUNG
339 FTS
Robins AFB GA

In the past several years, numerous incidents within the airlift community have highlighted the criticality of the performance of the jumpseater/observer/IP. Either they made the day, or boned it. Either a mishap was averted, or another link in the chain was added. Here is just one of many such experiences.

There I was...a new IP at the schoolhouse, scheduled for an airdrop instructor upgrade ride. This was my chance to observe student performance, to learn local procedures and techniques, and, hopefully, to get some hands-on proficiency (on a non-interference basis, of course). I had been an airdrop lead for several years, and a basic instructor for quite some time, so I had this wired. And yes, I'd had my share of challenging missions, emergencies, and airdrop malfunctions in the past, so I knew I could handle whatever came up, even if the student did turn to Jell-O. Besides, another instructor would be in the seat for this sortie. I was just "along for the ride." That complacency set the stage for a near-disaster.

Since we were IMC for the encounter, I can't say we officially (within 500 feet) had a near-midair collision. But suffice it to say, the pucker factor was unbelievably high in the cockpit. Only through unbelievable airmanship of our wingman and firm direction from lead was a mishap averted. Once the situation was resolved, we all sat in disbelief about what had just occurred, and how close we had come. How could experienced aviators get into such a pickle?

The plan was to conduct Ride 1 for pilots and navigators going through initial airdrop qualification. By rule, the pilots were aircraft commanders, and had the prerequisite six months of experience as airdrop copilots. Practically, that meant they had little or no relevant formation skills. Navigators had just completed the airland portion of the course, and still had trouble finding the jet.

Mission planning was routine, but the weather was not. It quickly became evident we could not execute the "Ride 1-VFR" sortie as planned. The syllabus allowed for a "Ride 2-SKE (station keeping equipment)" profile if necessary, if prolonged weather would delay course progression. We opted for the SKE/IMC profile, and thoroughly briefed the mission, knowing the students might be overloaded.

Instructors flew the IMC departure and rejoin, and allowed the students to fly portions en route. The IMC run-in to the drop zone was busy as usual, with pilots and navigators busily discussing and simultaneously executing the required procedures. Approaching drop altitude, we could see the ground beneath us, and were actually VMC

for the drop. Everyone breathed a sigh of relief, knowing we could visually back up our position and the release point (one picture is worth 1000 cross checks!). The planned escape consisted of level acceleration, and then a climbing left turn to escape heading. That's when the proverbial *#@! hit the fan.

Remember how nice it felt to be visual for the drop? Well, immediately after starting the escape climb, the formation went back into the weather. Shouldn't have been any surprise, but couldn't have been worse timing. All three aircraft were accelerating, turning and climbing. Approaching 160 knots, the compasses were

ous last-ditch airmanship, that we were spared.

I should have seen this coming. Such a simple error shouldn't have gone unnoticed by the second pilot or myself. Unfortunately, I learned the biggest lesson of my flying career that day. I wasn't ready to break the chain. I wasn't ready, because I wasn't in the jumpseat.

I had observed the entire route from the jumpseat, but once visual for the drop, I allowed the instructor navigator to take the seat. Makes perfect sense—he's trying to evaluate the INS/zone marker mix and ensure our heavy equipment platforms land on the drop zone. Unfortunately, a navigator doesn't have a clue how to fly an escape turn, and my relaxed position in the aft portion of the cockpit did no one any good.

Had we swapped paint that day, the safety board would surely have identified the input (or lack thereof) from the jumpseat as a link in the mishap chain. Take advantage of these "lessons already learned:"

- Instinct and experience (i.e., "this is easy") can be flat-out wrong.

- It's impossible to make decisions or provide inputs with absent or conflicting information. You have to pay attention, 100 percent of the time!

- If you're the best qualified "extra," take your place in the jumpseat.

- Mentally question everything the pilots do, and anticipate what they are about to do.

- Keep an eye out for the big picture. That additional foot between you and the glareshield can mean a world of situational difference.

- Be an effective safety observer, not dead weight. Monitor aircraft configuration, checklist completion, and other assigned duties. Clear outside/via TCAS. Monitor ATC communications.

- Do whatever heads-down tasks you can to help the pilots. Tune radios, load data, handle the CCC radio calls. CAUTION 1: Coordinate who does what *and* who verifies. CAUTION 2: Follow established procedures/techniques when setting altitude alerters, autopilot modes, etc.

- Monitor aircraft performance. *Verify* the TOLD with an *independent* source of weather and weight/balance information. What is the minimum climb gradient required (VVI) on departure? What minimum pitch/maximum VVI are you willing to accept on approach?

- Crosscheck instrument indications—ADIs, airspeeds, etc.

- In an emergency, handle duties assigned by the pilot. Keep the big picture on aircraft location vs. terrain, weather, bingo fuel, etc.

- Know your surroundings. Keep an eye out for *radar altitude!*

- Once safely on the ground, verify wingtip clearance, monitor taxi instructions and readbacks, have airfield diagram ready.

Complacency kills, no matter what seat you're in. Be vigilant. What kind of difference will you make? →



USAF Photo
Photo Illustration by Dan Harman

turning quickly as we maneuvered around the 90-degree turn. It was then that a single error nearly completed the chain.

Approaching rollout, the No. 2 aircraft overshot escape heading, but quickly made a correction. Nothing gross, maybe 10 to 20 degrees, but the S-turn was just enough to start an imperceptible drift back within the element. The next thing I heard was the proximity warning tone going off, meaning that we had less than 1,000 feet separation from another aircraft (non-visual/in the weather!). That got my attention real quick, but by the time I looked at the SKE display, no usable information was present, and the tone had silenced. The pilot flying had instinctively pulled the throttles back, since the "prox" usually goes off in an overrun. In fact, the airspeed reduction was only making things worse. Without a display of our position, we were now seriously under-running the aircraft behind us. I stared in disbelief as a large number of "ghost" targets (other aircraft that aren't really there) appeared on the display. The lore had it that was the last thing you saw before a collision.

It seemed like time stood still. In reality, only seconds later Lead barked, "Two, push it up" and simultaneously Three called, "Breaking out left." I caught a glimpse of the No. 3 aircraft passing directly beneath us and clearing to the left. It was only by the grace of God, and through some seri-

Another Stupid FAIP

CAPT MORGAN ANDREWS
27 FW
Cannon AFB NM

Every pilot who has been around awhile has one or two "there I was" stories. I'm not any different. One event very early in my flying career sticks in my mind, and hopefully by telling it, someone will learn a lesson from it.

So, there I was. I had finished pilot instructor training for the mighty T-37 Tweet and was the brand-new, first assignment instructor pilot (FAIP) at Columbus AFB. With MQT behind me, I was enjoying my first few student sorties. Maybe "enjoying" wasn't the right word. "Surviving" seemed more appropriate. After I had a few sorties under my belt, the flight down the hall needed help for its upcoming student cross-countries. Of course, I volunteered to impart my vast knowledge to a student whose shoes I had been in a year before.

The weekend came, and we departed Columbus on our way to Keesler AFB, MS. We planned on doing approach work at Meridian, stopping for some gas, and continuing on to Keesler to wait for dark. After dark, we planned a local sortie with approaches at Mobile, AL, then return to Keesler to enjoy the casi-

nos. The flight to Keesler was uneventful, though we did pass through some heavy precipitation due to thunderstorms in the vicinity. With Center's help we were able to avoid the thunderstorm. After landing at Keesler, we checked the weather, and it was forecast to clear up and dissipate by our night sortie. We finished debriefing the sortie we had just flown and began to prepare for our night sortie. I made sure to check the usual NOTAMs, weather, IFR supplement, etc. I then chose the approaches I wanted the student to fly. For the uninformed, Mobile has two airports that are close to one another, Mobile Regional and Mobile Downtown. They are close enough that Mobile Approach works both airports on the same frequency. After reviewing our options, I picked out approaches for the student to fly at Regional and Downtown.

Now you must be wondering if I, a brand-new FAIP, was there alone with my student. Nooooooo, of course not. I was more or less following around an older reserve IP with a lot of experience. This is important because he helped





USAF Photos
Photo Illustration by Dan Harman

save my pink rear-end later on.

Planning's all done, student feels good about the sortie, I feel good about the sortie, no stones left unturned. Well, almost all the planning's done. I had looked in the IFR supplement at Mobile Regional, but forgot to look at Downtown. No big deal; I knew that Tweets flew there all the time, and looking at Mobile Regional was only an exercise for the student, so no need to look up Downtown. Mistake Number One.

Night fell, and off we went to get some good work in. The older IP was in Cutlass 21 with his student, and had taken off a little earlier on his way to Mobile Regional. They planned on flying all their approaches at Regional. My student and I took off as Cutlass 51 and headed over to Regional also.

A feeling of excitement and nervousness ran through me because of the night work (I had very little experience at night, period, let alone with a student). I tried to pay extra special attention to detail to make sure I didn't screw up. We arrived at Regional and flew our first approach with no problems. Luckily, I was flying with a strong student, and I began to feel comfortable with how things were going. After the approach, we requested climbout for the VOR approach at Downtown. "No problem," said Mobile Approach we were vectored over to the IAF at Downtown.

Now, this particular approach was challenging because it involved a procedure turn, but the FAF was also the IAF. So, we had to hit the FAF and go outbound, then turn inbound, *à la* procedure turn, all the while descending down to the MDA. If it sounds confusing, it is. Look it up sometime and you'll see what I mean. As we passed the FAF outbound, Approach told us, "Cutlass 51, you're cleared to change to advisory." That's weird, I thought. I could tell the student didn't know what he meant, so I told him to go to Tower frequency,

figuring that the controller had meant "Contact tower." Besides, we didn't have much time to devote to clarifying because we were trying to get this approach right. Mistake Number Two.

Somewhere on final, my focus was concentrated in the cockpit, looking at the instruments and making sure the student was flying the approach right (Mistake Number Three). We were not able to raise Tower on our UHF-radio-only-equipped Tweet. As I pondered this, I suddenly heard a Guard call, "Cutlass 51, this is Cutlass 21 on Guard. Do not land, go around. Tower is closed." Suddenly, the hairs on the back of my neck started to raise up. By regulation, we are not supposed to fly approaches to uncontrolled fields. A lot of it has to do with us only having a UHF radio and not being able to hear the other VHF advisory calls.

So, here I was at night, a clueless FAIP with a clueless student, flying an approach to an uncontrolled field in a fairly busy general aviation area. Not good. Instantly my cranium snapped out of the cockpit and onto the runway. Remember, we were on final by this time, approaching our descent point. Lo and behold, there was a set of landing lights traveling down the runway that had just taken off opposite direction heading right at us. I quickly grabbed the stick from my student and offset us to the left (what was that rule about head-on traffic offsetting each other to the right?) just in time to watch the Cessna pass us off to the right, clearly highlighted by the city lights. By this time I was less than confident about the situation and immediately contacted Approach and sheepishly asked for vectors back to Keesler, where we landed uneventfully. After landing, I had a long talk with Cutlass 21 about the lessons learned. What were they?

First, the IFR supplement is there for a reason! If I had looked at Mobile Downtown, I would have seen that Tower hours of operation had them closing well before our arrival. Yeah, Tweets flew there all the time, but it was in the daytime only.

Second, don't assume anything! If you are unsure about a clearance or something Approach or Tower tells you, clarify! It's better to sound a little foolish on the radio than put yourself in a dangerous situation.

Finally, look outside! It was a clear VMC night, and my first priority was to clear for our aircraft and make sure we didn't hit anything. Had I not gotten the Guard call, who knows how long it would have been before I finally looked at the runway. The student did his job and concentrated on his approach, counting on me to make sure I did my job.

A lot of times we gloss over the things we are supposed to check and lose track of our priorities. Sometimes it takes something like my night sortie to really hit home the point as to why they are all important. Hopefully, others will think about my experience and learn, and not just chalk it up to another stupid FAIP doing stupid FAIP things. ✈️



Instructors Must Have High

Higher 21

er Standards





Screaming Like A Little Girl

MAJ JAMES L. HOOPER
97 AMW
Altus AFB OK

When you first learn about safety you always hear the term “The Safety Chain” or the chain of events that lead up to a mishap. I discovered that when you actually have a very close call you begin to understand the analogy and are forced to think about all those links in the chain and wish you could go back and break just one to prevent that brush with death from ever happening.

I was an Instructor Pilot (IP) at the C-17 schoolhouse for about six months when “Bob,” an old buddy of mine from my last assignment, showed up for IP school. The scheduler hooked me up so I could fly with Bob on his first instructional sortie that would focus on low-level flying, pattern work and assault landings. This sortie was a little different since we were tasked with taking a crew down to the depot to pick up an aircraft. This meant we needed extra gas to account for the two-plus-hour roundtrip to the depot.

The morning brief and preflight was all uneventful; in fact, we were a little ahead of schedule for our timed arrival at the depot for the deadhead crew drop-off. So, to use the time constructively, we took off early to knock out some of our VFR pattern work and maybe one assault full-stop landing for the student, my buddy Bob. We analyzed our landing gross weight, which was going to be just 12,000 pounds less than our maximum allowable gross weight for assault landings. Our gross weight definitely put us in the “heavyweight”

assault landing range. This is not really a problem—heavyweight assault landings are a currency item for C-17 pilots—but it can be, and most of the time is, accomplished in the simulator. At the schoolhouse we actually have local guidance that discourages, but does not prohibit, students from attempting heavyweight assaults. Besides, this was my buddy Bob. We had flown together before; he’s a great pilot. What could go wrong?

Once airborne, I did the first “go-around after touchdown” (GOAT) landing to the assault strip, acting in the student role. This is common practice with IP students, to give them a chance to instruct and critique the other pilot’s attempt. After Bob gave me some excellent instruction on my attempt, he took the jet to do a full-stop demonstration. Normally, I would give the student a couple of warm-up GOATs before a full-stop, but this was my buddy Bob; I trusted his ability (which I haven’t seen in a year). Besides, what could go wrong?

His approach to landing was fine. At 50 feet AGL, the point at which you add power to “flare” the C-17, Bob did not anticipate our heavier weight, and the power push was a little slow and not quite enough. We hit the zone hard and actually bounced. I remember trying to say the words, “Go around!” but what stopped me was the sound of the thrust reverser interlocks clicking at the throttle quadrant, so Bob had obviously decided we were not going around. (I would learn later that an IP in another jet,



When I landed and got back to the squadron, the supervisor of flying (SOF) was waiting there to talk to me about what happened. He explained to me how things looked to him from the tower, and what all was going on in the tower.

As a bonus, it turned out there was a new class of six to eight lieutenants starting day one of air traffic control school, and they just happened to be getting a quick tour of the tower operations. Well, since I was the only jet in the pattern and about to attempt one of the C-17's famous assault landings, all eyes in the tower were on me for the big demonstration. After our dramatic and questionable full-stop attempt, all hell broke loose in the tower. They had the crash phone on and began rolling the trucks for what they (and I) assumed was going to be a full-stop in the grass. After things quieted down and my aircraft's safety was assured, the SOF said the touring LTs left the tower a few shades paler.

USAF Photo by TSgt James E. Lotz

holding short of our runway, had actually called "Go around!" for us on the ground frequency.) So, at this point I realized we were committed to the landing. However, we were not stopping! I told Bob, "Copilot, get on the brakes!" Bob said, "I am, I am!" The initial shock of what was happening wore off, and I remembered my pilot-not-flying (PNF) duties. I checked the spoilers and, to my horror, no spoilers. The bounce must have disarmed them (apparently the jet thought we should be going around, too). I instinctively rearmed the spoilers. I looked back up to see the end of the runway was still approaching at a very uncomfortable rate. I'm embarrassed to say I screamed, "Bob, get on the f@%\$ing brakes!" Bob promised that he was, but at this point I realized that I was on the brakes too, with my butt halfway up the back of the seat. The spoilers finally started doing their job, and I could see us decelerating. During these five to six seconds of terror, I assumed we would be finishing our sortie early that day as we got towed out of the grass. But, thankfully, the jet finally stopped with the nose wheel on Brick One just prior to the overrun.

I finally took the jet and taxied us clear. We just sat there on the taxiway for a good 15 minutes catching our breath, inspecting the gear, and discussing what the hell happened. The jet was fine, and after a crew vote we pressed on and finished the sortie uneventfully.

As a young schoolhouse IP, I learned more during that experience than all of my upgrade buddy rides:

1. Students are always trying to kill you. Letting yourself get a fraction of a second behind the student can be catastrophic.

2. Flying with old friends in an instructor/student situation is a bad idea. It can make things a little too casual, and both of you might let your guard down a little. You are not doing your buddies any favors by cutting corners.

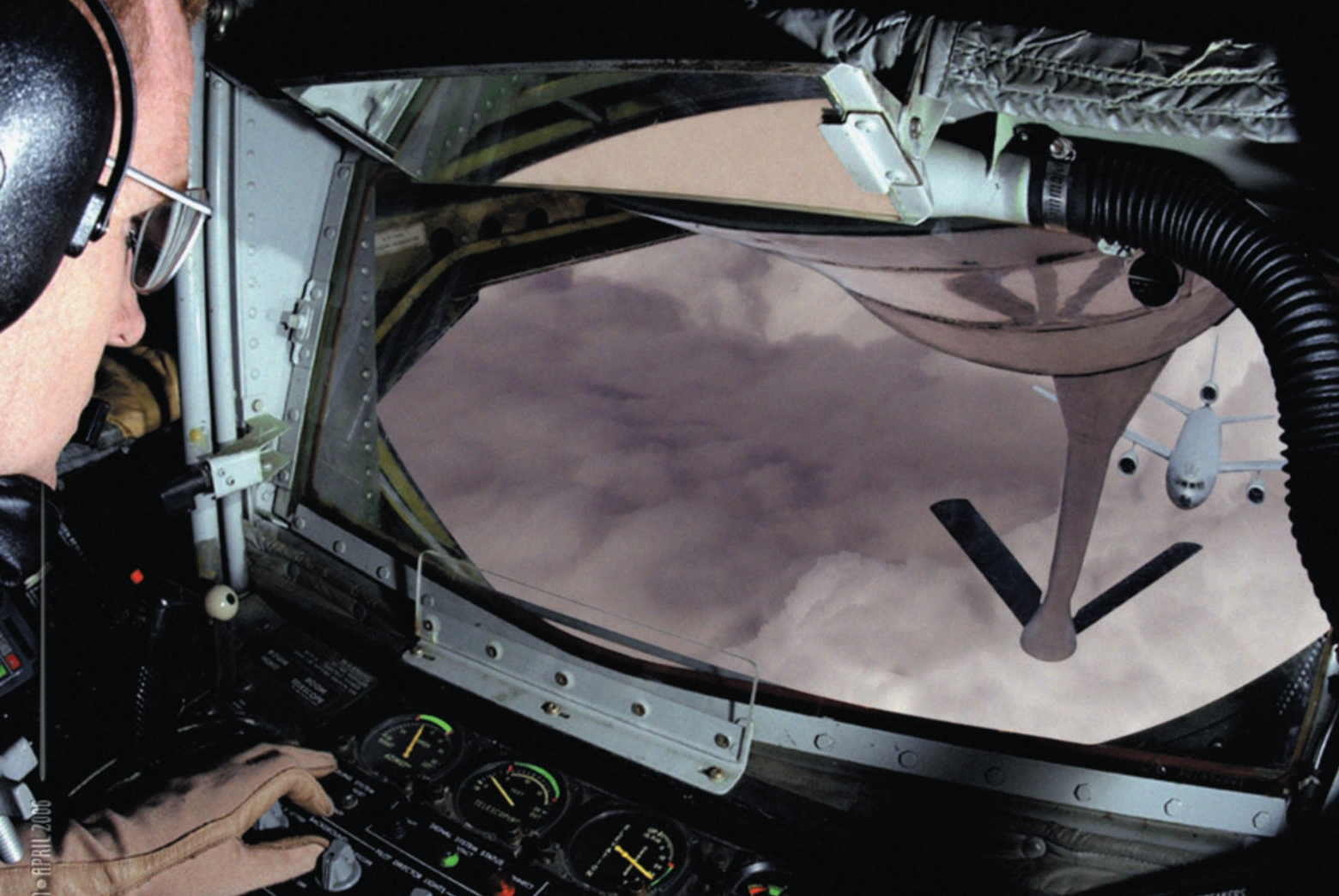
3. Proficiency and currency are totally different. I obviously was behind the jet due to my lack of heavyweight assault proficiency. During heavyweight approaches, things are moving much quicker. With a 20-30 percent higher ground speed, your reaction time has got to be that much faster, too.

4. Local guidance, even if it does not say "Will" or "Shall," is there for a reason.

5. Proper pre-briefing is critical! Thank goodness during the ground brief the day prior we discussed the spoiler system and what to do if they don't function automatically on an assault landing. Plus, on the day of the flight, Bob gave a good assault-landing brief, and covered what the PNF duties were during an assault landing. I'm convinced that hearing the brief helped reinforce that little nugget in my cranium which allowed me to react quickly and instinctively to rearm the spoilers, which kept us on the paved surface.

6. No matter how tough or cool of an aviator you think you are, odds are you will shout expletives and scream like a little girl when in a harrowing situation. ✈️

ESM - APRIL 2005



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Turbulence On The AR Track

CAPT ADAM FLOOD
45 AS
Keesler AFB MS

USAF Photos
Photo Illustration by Dan Harman

As experienced as I thought I was, this mission was going to teach me a valuable lesson about knowing your own limits, and the limitations of those you fly with.

It was spring of 2002, and my crew and I were preparing to depart Incirlik, Turkey. Our mission was to redeploy the Terre Haute Air National Guard F-16s from OPERATION ENDURING FREEDOM back home. I was a KC-10 instructor pilot, and for this mission the other two pilots were on their "D Level," or mission qualification ride. I was an experienced instructor, almost five years in the jet, and I had a senior engineer and boom operator, so we were in good shape.

The crew, except for the two students, had just returned from the initial post-9/11 deployments. Most of us had been gone about 90 days, so we were very proficient, very mission-orientated...and very tired. This was supposed to be my three weeks

or so of downtime before I went back out, but the pipeline doesn't stop. We needed more crews out there, so we needed to keep training them.

The mission was set up as a three-ship with two KC-135s, six F-16s and about 60 of their support personnel plus equipment; a standard fighter drag. The plan was to have the 135s do the first few air refuelings, and then we would fill up our tanks just as we coasted out and take the fighters the rest of the way. The mission parameters were to take the F-16s and their support personnel all the way to Indiana—and that's what we were going to do. After all, these guys and gals had been gone a long time, and we all know what a great feeling it is to be going home.

The briefings and departure were all uneventful, and we were all excited to be on our way home. There was light-hearted chatter on the interplane frequency; all was going as planned. The weather

was great over the Med; however, that was not forecast to be true at our coast-out point—our air refueling point. This was not a problem; in fact, I was actually looking forward to the chance to have a heavyweight air refueling in the weather. I had students, and this would be a great opportunity to show them how we make our money, and to let them take a shot at a real-world air refueling.

As we approached the east coast of southern Spain, the weather began to deteriorate, as forecast. I was in the left seat, and my student was in the right. We completed our position change to put one of the KC-135s as lead. We were No. 2, and the remaining 135 was No. 3. The fighters were formed up on lead in fingertip formation, in anticipation of the deteriorating visibility. The rest of the formation was in the standard “60 and 2” (two miles separation on the 60-degree line off of lead) tanker awaiting air refueling position. I was charged and ready to impart years of experience and wisdom upon my copilot. As I mentioned, this was a perfect, one-in-a-million training opportunity.

We dropped back to one mile in trail and 1,000 feet below lead to begin our AR. We completed our receiver checklists as we closed to about one-half mile in trail. The weather was very quickly deteriorating now. We had entered a cloud deck and were starting to pick up some icing and light to occasionally moderate turbulence. I began to consider the idea that this might be a little more challenging than I had initially anticipated.

As we closed to about a quarter-mile, the visibility really went down. I reminded my student that we needed to get in there. I didn’t want to lose sight of the tanker and have to fall back. We needed to have one mile of inflight visibility to close on the tanker. Since it was marginal at a quarter-mile, I knew there was no way we would be able to close back in if we had to back out.

“Get in there,” I said. “Fly up the line...you got it.” The turbulence was getting close to moderate now as we approached the pre-contact position. But we were there and pretty stable... “Nice job.” Unfortunately, that didn’t last for long. Looking back on that mission, I should have taken the jet and accomplished the AR myself, given the rapidly deteriorating weather conditions and the very limited amount of time we had to get our gas before we needed to go oceanic. The 135s didn’t plan on coasting out with us, so we needed to get our gas and break up the formation. However, I was confident in my instructor abilities, and I was determined to provide my student with a unique opportunity to complete a real-world AR in less-than-optimum conditions.

Then it happened. The autopilot on the 135 had had enough of the turbulence, and enough of us bouncing around behind it. Over it went, and we saw nothing but a windscreen full of 135. “Sh--,

I got it!” I said, as I shoved the nose down and ripped the throttles back. I’m sure I also called a breakaway in there somewhere. We separated and fell back to about a half-mile. I quickly put the power back in to start our closure again, because I knew we would never be able to rejoin if we got any further back, because of the visibility.

Now we were really pressed for time. We should have been on the boom taking our last thousand pounds or so, but we were back here messing around. I put us back into the pre-contact position, amazingly enough still determined to get this pilot a contact and let him get the gas. The engineer and the boom operator had had about enough of this instructional time, and I’m sure our passengers in the back were not enjoying the ride, either.

The engineer said, “Hey, Captain, don’t you think that’s enough? Why don’t you just get this done?” Good advice, as always.

“Let’s just give ‘em one more shot at it...I can get the gas if this doesn’t work,” I replied.


So, we continued, and after a few more fairly wild gyrations I finally took the jet. This was about the worst weather I had ever air refueled in, and our track time was quickly running out. I managed to get on the boom and start taking some gas. This was not easy, and I began to question whether or not we were going to get our full onload. I fell off the boom twice, using up valuable time and raising my frustration level. We reached the end of the track, and I was only able to get about half our required onload. We broke up the formation, got our clearance, and proceeded on our way. We did some recalculations on our fuel and talked it over with the fighters. We would have to land short, stay the night, and get them home a day late.

So, after all that, I failed at my mission. The student didn’t get to do the AR, I wasn’t going to get these guys home on time, and most importantly, I put us all in an unsafe situation. So what did I take away from all of this?

Know your limits and the limits of others. That day was no time to let a student attempt an AR. The conditions were marginal, even for an instructor.

Prioritize. As instructors, I think we all want to provide the best training for our students. However, I learned that we must keep that desire in check. Our mission that day was to get that fighter squadron home, and home safely. Given those conditions, I should have accomplished the AR to ensure we got the gas we needed. In fact, it probably would have been a more effective teaching opportunity to allow the student to observe this challenging scenario, rather than push him into it.

Finally, know when to “knock-it-off.” I should not have let the student continue when the task was obviously well beyond his capabilities.

The engineer had it right...it was enough. Think, learn, and live to fly another day. 

I Don't Want To Fly With The Jerk!



CAPT COLBY KUHNS
99 RS
Beale AFB CA

Back when I flew the C-141, there was a saying amongst crews: "If you haven't figured out who the jerk is by Day Three, it's probably you!" If the rest of the crew took your picture and put it on a sticker that is posted in Base Ops all around the world, that's a good sign it's you, too. This might seem trivial, because at least your mother loves you, but personalities on a crew or in a formation can play a big part in how you handle a mission. And though you may or may not have issues with other crewmembers' personalities, it may be their effect on your personality that poses the biggest threat to the mission.

In a perfect world, we would prepare and fly the exact same way no matter who was on our crew or wing. Our blood pressure wouldn't rise flying with the wing commander, and the hair on the back of our necks wouldn't stand flying with the new guy. We wouldn't push to fly with the guy who has beautiful sisters, or dread flying with the guy who never shuts up. But it happens, and it's human nature. The key is not in dealing with their person-

ality, but in controlling yours. Realize that you are nervous, enamored, annoyed, or whatever the case may be, and don't let that be the driving force behind critical decisions. Here are some examples, mostly of what not to do, that I've seen or done in my career so far.

As a new and young aircraft commander (AC) in the C-141, I was flying the first hop of a three-week trip in the Pacific. The crew consisted of two other pilots, two engineers, and two loadmasters. In the C-141 there was always a love/hate relationship between the pilots and engineers, and putting a young LT AC with engineers who had been flying since the invention of dirt was bound to spice up that relationship. Don't get me wrong, these were all good guys, and we got along great. But they enjoyed nothing more than pushing my buttons. So, as we are flying into Travis with max crosswinds, and one of them recommended a lower flap setting, all I could think of was, "You worry about the panel; I'll fly," and all I said was, "We're good as is." If it had been a different engineer, I probably



USAF Photos
Photo Illustration by Dan Harman

would have treated his advice differently. As it was, we landed fine, but the lower flap setting was a great call and I was a dumbass for letting my ego override it.

As an instructor in the T-37, I saw on several occasions how different student personalities affected my personality. Excited students were fun, arrogant students annoyed me, etc. On one occasion, when I was still relatively new and had a brand-new student on his second ride, this lesson was brought home again. I didn't talk to his dollar ride IP, and all those write-ups are generic, so I had no idea how good this student's skills were. He had a good amount of civilian flight time, so I was hopeful this ride wouldn't be too challenging. When he came to the brief with a lot of confidence, I let his personality lull me into a false sense of security. The flight went fine, which is to say we lived, but his skills were sub-par even for Ride Two. It didn't take long to realize how bad he was, but because I let a personality trait influence me, I exposed both of us to a few seconds of unnecessary risk.

All of my examples turned out fine in the end, like I suspect most of your challenging moments do. Unfortunately, our corporate experience has several notable exceptions. In 2004 there was a T-6 crash where two instructor pilots went crosscountry for a weekend. On their first sortie, they flew to their destination, but along the way on two occasions they descended over homes owned by family members. Their altitude at times was much lower than allowed, and they performed aileron rolls and high-G maneuvers. When they arrived at their destination, they performed several aggressive patterns before full-stopping. That night they drank until late and then went to the hotel. After a quick breakfast the next morning, they went straight to the airplane without filing or even stopping in Base Ops. The crash happened shortly after takeoff. Why?

Why they crashed isn't the point of this article, it's why they acted the way they did before the crash. Were they irresponsible, arrogant, cocky, or any other adjective that would fit the circumstances? Of all the people we interviewed, not one person used words anything close to those. In fact, it was more the opposite. Individually, and throughout their careers, they had been excellent pilots and instructors. Several people mentioned that both these guys were role models to students and young instructors.

So, what triggered this bad behavior from good guys? A key factor had to have been how their personalities interacted with each other. They had never flown together, but they were old friends. They were confident in each other's abilities. Together, they felt comfortable doing things with the aircraft that they wouldn't have tried with others. They probably fed off friendly competition to push the limits of the aircraft. And when they went out drinking, they were with another old friend whose personality, combined with theirs, may have led them to disregard time. OK, exactly how their combined personalities led to these actions is very speculative, but something snapped when they were together, and unfortunately they didn't live to learn from it.

As I was writing this, I thought of several more instances. They ranged from extremely subtle to relatively blatant. Most of them were only recognized in hindsight, but looking back has helped me realize that I still let personalities influence my flying. It's human nature. But if we recognize it, we can control it. It doesn't matter if you like the guy you are flying with, as long as you don't let his personality affect your decision. Good guys can be wrong, bad guys can be right. Realizing that ahead of time will hopefully eliminate one possible hazard to a safe flight.

Take that into consideration next time you realize who the jerk on your crew is...hopefully within three days. ✈



“The Field is Closed”

MAJ TROY GAMM
HQ AFFTC/SEF
Edwards AFB CA

USAF Photos
Photo Illustration by Dan Harman

“Willy 21, the field is closed, state your intentions.”

At just about any Undergraduate Pilot Training (UPT) base on any given day, some student is given that situation to handle. Some 18 years ago, I was one of those UPT students, but the situation wasn't in a comfortable flight room.

The weekend started out as a standard two-ship formation cross-country in the last month of Pilot Training. The first couple of legs were uneventful, and we spent Friday evening in Colorado Springs. Saturday was going to be an easy one-hop to NAS Dallas, where we would meet up with my family. We got up and had a leisurely breakfast. Just a couple of weeks earlier, I had learned at assignment night that I would spend my first assignment as a T-38 First Assignment Instructor Pilot (FAIP). I was very comfortable in the jet and felt that the training I had received had prepared me well for just about any situation. The student in the other jet was a Turkish student who was going back to his country in a few weeks to fly fighters.

I called my folks and told them about what time we would be at the field. It was my turn to lead the formation, and I looked forward to arriving in Dallas and letting my family see me fly for the first time.

The en route portion was fairly normal. About 100 miles outside of Dallas, I cleared No. 2 off to get the weather. He came back on the radio and said the field was 1,000 feet overcast. So much for the formation arrival up initial. When we contacted arrival, we split up into two single-ships so we could each log an approach. The radios were busy with a group of F-14s and F-4s coming back from a training mission. Approach notified us we would be number five behind the fighters. That should have been a warning sign, since we had burned a little more fuel than we had planned. I don't remember exactly how much we had when we showed up, but I would guess somewhere around 900 pounds. It was going to be close, but things always worked out. It shouldn't be a problem unless something else should happen.

We picked up vectors that would take us north of the field. Just about that time we heard one of the F-4s declare an emergency with a hydraulics problem. With one runway, we should have left and diverted to Carswell AFB, about 40 miles away. We asked for permission to change frequencies for a minute to contact tower about how much of a delay they thought the F-4 would create. They told us that this was common and that by the time we were number one on approach, we should be OK. When we switched back to arrival, they acknowledged us and then told us to continue our current heading.

The next thing I remember is thinking it had been a while since we heard from arrival. We queried them, and heard nothing; again we queried, and again nothing. Knowing we were heading towards Dallas/Fort Worth International Airport, I told my instructor we needed to talk to someone. About that time I heard, "Willy 21, if you can hear me, switch to my frequency," over Guard. We switched to his frequency and were given a vector back toward the field. We were about 20 miles north of the field, and were told we were number two for the approach. I remember feeling good that I hadn't heard anything about the F-4. Soon, we would be on the ground and showing my family the jets.

We were down to less than 800 pounds of fuel. It was going to be really close, but we were pointed at the field on an extended final and everything looked good. My instructor "suggested" that we configure at the final approach fix to save a little gas. Fine with me. So far, he hadn't indicated that he was concerned about anything. We were subsequently cleared for the approach and told to contact the tower. At about six miles from the field, we configured and called, "Willy 21, final approach fix, gear down."

The radio call that came next was not a welcome sound. "Willy 21, the field is closed, state your intentions." The F-4 had, in fact, landed and engaged the arresting cable. The next thing I heard was, "I have the aircraft." I looked at the fuel gauges; we had less than 500 pounds. For whatever reason, my memories of the next 10 minutes are pretty clear. My instructor declared "emergency fuel" and requested vectors direct to Carswell. We were given a vector and asked how much fuel we had on board. My instructor came back with, "About 10 minutes worth." I heard our former wingman declare an emergency as well, and he was given the same vector we were. I remember thinking that I didn't care too much about seeing my family at the field anymore. I just wanted to pass the ride.

The next few minutes consisted of my instructor asking me what was around Carswell, specifically what was north of the field, since we would be landing to the south. I told him that there was a lake just north. I had remembered

this because an F-4 had crashed in the lake while I was in ROTC a couple of years prior to our current situation.

Somewhere on final at Carswell, we had less than 300 pounds of fuel left, and my instructor told me not to secure everything and not to delay ejection if I saw the engines flame out. We ended up touching down and shutting the engines down as we rolled off the runway. The fuel gauges showed about 75 pounds each. Willy 22 did the same thing and ended up stopping right beside us, just off the runway.

We each got a tow to the transient ramp, and about an hour later we were in the O Club when my parents walked in. I introduced them to my classmate and our instructors. I remember we didn't really talk too much about the incident. It was almost like it hadn't happened. We never 'fessed up to the weekend supervisor. I am not sure what the IPs did about the fuel receipts, as they would have shown how much fuel was put on our aircraft and therefore how much fuel we had—or didn't have—when we landed. We talked about what time to meet in the morning for our sorties, and then went our separate ways for the evening. We never talked about it again, not even in the debrief at the end of the weekend. I ended up graduating and spending the next few years as a T-38 IP until Williams AFB closed.

Why am I bringing this up now? My experience has a few lessons that I think are important. I suspect there are still things that go on during weekend cross-countries that never make it back to the base. These are missed opportunities that others could learn from. What makes the aviation world safer is hearing from those who have had experiences that we can all learn from.

In my case, there are several. The first is fairly obvious. Don't let emotions cloud good judgment. I wanted my family to be able to see me fly in the jet I would be flying for the next few years. How many Class A mishaps or potential mishaps have happened while families of the Mishap Pilots are watching? As it turned out, my family was able to see me fly into Carswell several times over the next couple of years. We should have asked for vectors to Carswell at the first hint of a problem given our fuel state. That would have been when we heard the F-4 declare an emergency.

Second, we should have 'fessed up right away when we landed. Sure, the IPs would have had some answering to do, but what did not saying anything teach my classmate and me? That when things don't go as planned, that as long as things don't get bent or broken, it is easiest to just keep quiet. Easy, maybe, but not right.

The story would have been a good one at the next safety meeting. How many other hidden "stories" are out there, not helping anyone? ✪



Going Beyond The

MAJ J.T. TAYLOR
USAF Advanced Instrument School
Randolph AFB TX

We spend a lot of time having meetings, wingman days and safety briefings in an effort to save lives and protect resources. Perhaps the most important aspect, though, when it comes to flying safety, is knowing the rules in the first place. There's one set of rules that we, as military aviators, probably don't know very much about. I'm talking about Title 14 of the Code of Federal Regulations...a.k.a. the Federal Aviation Regulations (FARs). Your actions in an Air Force aircraft (and out) can put you in jeopardy if you don't have a working knowledge of these rules.

In the understatement of the century, the FARs are cumbersome and complex. With five different volumes and over 1,000 pages, they are nearly overwhelming. (By the way, for those of you who have that copy of the "FAR/ AIM" sitting on your desk, it only contains portions of the first three volumes of the entire FARs.) That's why we, as Air Force aviators, have publications like AFI 11-202, Vol. 3, *General Flight Rules*, AFMAN 11-217, *Instrument Flight Procedures*, *General Planning*, and the *Flight Information Handbook*—to help wade through all the legal jargon and keep you between the lines. Even commercial pilots flying for an airline have operating specifications to adhere to that essentially do the same for them as our AFI 11-202, Vol. 3 and AFMAN 11-217 do for us. It's just too much to try and understand.

But does all this mean I can just ignore the FARs? I'm a *military* aviator after all. I'll worry about that FAR stuff when I get out of the Air Force and apply for my airline job. Not so fast. AFI 11-202, Vol. 3, paragraph 1.2.1.3., states that the pilot in command will ensure compliance with: "The FARs when operating within the United States including the airspace overlying the waters out to 12 miles from the US coast, unless the Federal Aviation Administration (FAA) has excluded military operations." So...how many of you were issued a copy of the FARs during pilot training? Were they even mentioned during Nav training? You're standing in base ops and need to reference them right now—how do you find them? And just where do I find those FARs that the FAA has excluded the military from adhering to?

First—the easy part. The FARs (in their entirety) can be found on the Internet at www.faa.gov. Just click on the Regulations and Policies link at the top of the screen. Here you'll find not just the FARs, but Advisory Circulars, Practical Test Standards and a whole world of important documents. It's the only easy place available to find every FAR in one location. As I said before, that FAR/ AIM book you have lying around does not contain every part of the FARs—there's just too much to put in one volume.

While we're on that FAA web page, let's take care of some admin for those of you who have an FAA



AFIs

USAF Photo
Photo Illustration by Dan Harman


license. Go to the Licenses & Certificates link. Here you can update your mailing address (as required by the FARs within 30 days), remove your SSAN from your certificate and get a crisp, new credit card-type certificate for free. That's all nice, but what's this have to do with safety? Occasionally, the FAA sends out important rule changes via Advisory Circulars. Without a current address on file, you won't get these. If you own an aircraft, do they know where you live so they can send you Airworthiness Directives?

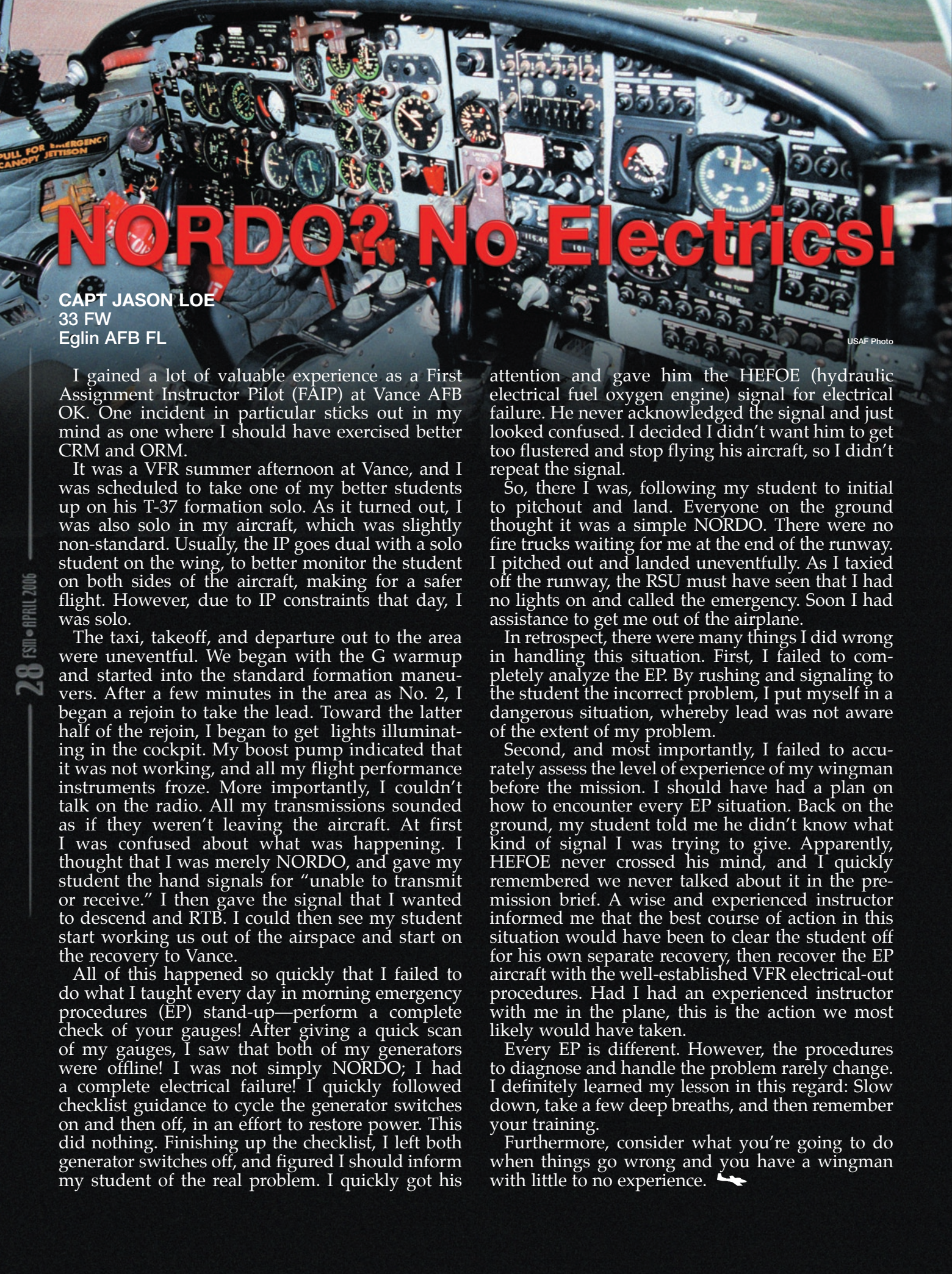
Most of our Air Force flying regulations are written to provide guidance and direction on how to operate an aircraft on the ground or in the air, but did you know you can violate a FAR without ever climbing into an aircraft? The way you conduct yourself when not flying is as important to the FAA as it is to the Air Force. There are paragraphs in FAR Part 61 that address situations you might find yourself in while driving or doing other non-flying-related activities that can cause your pilot certificate to have action taken against it. It only makes sense that the FAA has reason to be concerned about people who cannot conduct themselves properly on the ground—it becomes a safety issue in the air!

Let's look at another scenario. It's Sunday and your friend, who owns a light, civilian aircraft, wants to take you up for a flight. You aren't current

in that type aircraft and you don't have a current civilian medical certificate. Once airborne, though, he allows you to fly. Seems innocent enough. Heck, you do so well he lets you land and taxi it back to the FBO. As you step from the aircraft, an FAA inspector walks up and ramp checks you. He clearly saw you manipulating the flight controls while taxiing and asks you for your pilot and medical certificates, logbooks, etc. Are you in trouble? You bet! Even if your friend is a Certified Flight Instructor (CFI), you've violated several FARs. If you don't know which ones those are...you have some reading to do. Ignorance is not bliss—sometimes it's a breach of air discipline.

I could go on for pages, but I hope you get the point. So, what can you do? First, read the FARs (don't worry, not all of them). I'd suggest you start with Part 91 (General Operating and Flight Rules), but then look at the titles of the other individual parts—you'll find dozens of FARs that pertain directly to you as an aircrew member. Second, know your rights. Remember what AFI 11-202, Vol. 3 says about deviations: Report the incident to your supervisor and commander within 24 hours and make a detailed written report. If necessary, a military investigation will ensue, and the Air Force will take the appropriate action. Your name need never fall into the FAA's hands (in fact, AFI 11-202, Vol. 3 says that: "The names of the crew will not be released to non-USAF agencies without the permission of the Air Force Representative to the FAA coordinating the investigation"). Having said all of that, if you get the dreaded, "Call me at 1-800-UR N TBLE when you land," from a controller...make the call. Be polite, don't argue. Apologize, acknowledge your mistake (if there was one) and calmly discuss the situation. The controller is more than likely really only interested in making the skies safer by making sure the problem doesn't happen again. If it gets ugly, let the controller know where your aircraft is based and what squadron you belong to, and then call your boss. Lastly, I highly recommend you make use of the Aviation Safety Reporting System (ASRS) at <http://asrs.arc.nasa.gov/>. Simply put, this web site is a vehicle for you to self-report honest mistakes made while flying that could result in a violation. By participating in the program, you protect yourself from administrative action by the FAA if they decide to investigate you, and (more importantly) you help enhance air safety for the rest of us by pointing out a situation that we would all like to avoid.

In summary, pick up a copy of the FARs and become familiar with them. Know your rights while performing military flight duties. Stay abreast of FAA rulemaking and policy changes via the web, the FAR/AIM and aviation-related web pages and/or organizations. The flying world is rapidly becoming more complex—you do need to fly informed...and safe! 



NORDO? No Electrics!

CAPT JASON LOE
33 FW
Eglin AFB FL

USAF Photo

I gained a lot of valuable experience as a First Assignment Instructor Pilot (FAIP) at Vance AFB OK. One incident in particular sticks out in my mind as one where I should have exercised better CRM and ORM.

It was a VFR summer afternoon at Vance, and I was scheduled to take one of my better students up on his T-37 formation solo. As it turned out, I was also solo in my aircraft, which was slightly non-standard. Usually, the IP goes dual with a solo student on the wing, to better monitor the student on both sides of the aircraft, making for a safer flight. However, due to IP constraints that day, I was solo.

The taxi, takeoff, and departure out to the area were uneventful. We began with the G warmup and started into the standard formation maneuvers. After a few minutes in the area as No. 2, I began a rejoin to take the lead. Toward the latter half of the rejoin, I began to get lights illuminating in the cockpit. My boost pump indicated that it was not working, and all my flight performance instruments froze. More importantly, I couldn't talk on the radio. All my transmissions sounded as if they weren't leaving the aircraft. At first I was confused about what was happening. I thought that I was merely NORDO, and gave my student the hand signals for "unable to transmit or receive." I then gave the signal that I wanted to descend and RTB. I could then see my student start working us out of the airspace and start on the recovery to Vance.

All of this happened so quickly that I failed to do what I taught every day in morning emergency procedures (EP) stand-up—perform a complete check of your gauges! After giving a quick scan of my gauges, I saw that both of my generators were offline! I was not simply NORDO; I had a complete electrical failure! I quickly followed checklist guidance to cycle the generator switches on and then off, in an effort to restore power. This did nothing. Finishing up the checklist, I left both generator switches off, and figured I should inform my student of the real problem. I quickly got his


attention and gave him the HEFOE (hydraulic electrical fuel oxygen engine) signal for electrical failure. He never acknowledged the signal and just looked confused. I decided I didn't want him to get too flustered and stop flying his aircraft, so I didn't repeat the signal.

So, there I was, following my student to initial to pitchout and land. Everyone on the ground thought it was a simple NORDO. There were no fire trucks waiting for me at the end of the runway. I pitched out and landed uneventfully. As I taxied off the runway, the RSU must have seen that I had no lights on and called the emergency. Soon I had assistance to get me out of the airplane.

In retrospect, there were many things I did wrong in handling this situation. First, I failed to completely analyze the EP. By rushing and signaling to the student the incorrect problem, I put myself in a dangerous situation, whereby lead was not aware of the extent of my problem.

Second, and most importantly, I failed to accurately assess the level of experience of my wingman before the mission. I should have had a plan on how to encounter every EP situation. Back on the ground, my student told me he didn't know what kind of signal I was trying to give. Apparently, HEFOE never crossed his mind, and I quickly remembered we never talked about it in the pre-mission brief. A wise and experienced instructor informed me that the best course of action in this situation would have been to clear the student off for his own separate recovery, then recover the EP aircraft with the well-established VFR electrical-out procedures. Had I had an experienced instructor with me in the plane, this is the action we most likely would have taken.

Every EP is different. However, the procedures to diagnose and handle the problem rarely change. I definitely learned my lesson in this regard: Slow down, take a few deep breaths, and then remember your training.

Furthermore, consider what you're going to do when things go wrong and you have a wingman with little to no experience. 



Listening and Hearing... They're Not the Same Thing

ANONYMOUS

USAF Photo

I have experienced it everywhere, from everyday life to being on a crew airframe—something important is said and acknowledged, but not really processed. I think of it as “selective hearing.” Sometimes, someone can tell me something—and I will even acknowledge it—and later they will refer to it, and I will have no recollection of the conversation. This only happens every once in a while, but it happens. I am not a very forgetful person...but does it happen because my mind filters out what it thinks is not important, or because I’m thinking about something else at the time? Who knows?

One day as a copilot flying a low-level on a C-130, I witnessed this same thing happen to the entire crew. We were No. 3 in a three-ship formation when, about 15 minutes into the sortie, the loadmaster called the pilot and said he smelled some fumes in the cargo compartment. The AC acknowledged, “Roger, load.” The AC kept flying and trying to maintain position, the nav kept navigating, and I kept backing up the nav and running the radios. Nothing else was said at the time about the fumes in the cargo compartment.

About five minutes later the loadmaster said the fumes were pretty bad; bad enough to make his eyes start to water. The pilot acknowledged and told the engineer to try to get some air flowing through the airplane to help clear out the fumes. At this time, none of us on the flight deck could smell anything unusual; we all concurred that we did not smell any fumes. Then the loadmaster called over the intercom, “Loadmaster’s going on oxygen!” The pilot then immediately directed the crew to don oxygen. It was like a light bulb clicked on in his head.

So, why did it take so long to realize there was a serious problem with the airplane? Every one of us on the flight deck heard what the loadmaster said,

but it took him going on oxygen to get any real attention out of us. Was it accommodation? Yeah, the Herk has some funny smells sometimes. Was it “get the mission done” mentality? Yeah, that particular AC was attached to the squadron and only got to fly a few times a month for currency. Still, all of us heard what the loadmaster said, but it didn’t register until he was executing an emergency procedure on his own. We then broke ourselves out of the formation, declared an emergency and returned to base to land and egress the aircraft. Maintenance later found that a fuel line was leaking into the bleed air system, causing the fumes to get inside the cargo compartment.

I am now a T-37 Instructor Pilot, and I see this “selective hearing” happening to my students. Although they probably hear a lot of things while flying, they usually don’t listen unless they hear their call sign or something that is specifically directed toward them. Sometimes they will acknowledge my instruction, “Yes, Sir,” but keep doing the wrong thing. This tells me they really didn’t process what I just said.

Listening and hearing are different. Hearing is just the physical process, while listening is hearing and actually processing what has been communicated.

So, what do I do to teach them to listen (because I don’t want them to make the same mistake that we made)? Well, for radio calls, I teach them to think, “What does that mean to me?” whenever they hear any radio call. For other things, I tell them to think and process the information before taking any action. I know this technique may not eliminate the “selective hearing” problem, because not everything is heard the first time, nor is everything interpreted the correct way. But, hopefully, it will give them a tool to help them in their flying career. ✈️

ORM

OPERATIONAL RISK MANAGEMENT

IS IT WORTH THE RISK?

MSGT J. DOUGLAS QUIROGA, USAFR
Carswell ANGB TX

Ask yourself: Do I normally make decisions without first thinking about the pros and cons involved? And if I do think about these, how deep is my analysis? Ask these questions to any one and the answers will invariably be positives. Really? No one likes to be considered a fool. Everybody likes to be thought of as being smart. Well, the word "analysis" itself smacks of smartness, doesn't it? So, yes, we all do analyze and think and consider "things" before we embark on a course of action. We are all "smart."

Now, let's be realistic. Most people don't follow an organized pattern of thoughts to arrive at the decisions they make. This is especially true when the subject may not be to our liking because we suspect that risk, great or small, may be hidden within. If you have been postponing a decision, waiting for a better day, or a better state of mind, or a better something, it could be that you have been avoiding the subject because subconsciously you don't like the risk it involves.

Be at ease. There is a simple, well-proven method of dealing with the pros and cons to help you arrive at a decision on what to do when risk is involved. Whether you are at work or at home, this process will allow you to organize your thoughts in an efficient manner in order to understand the benefits (pros) or risks (cons) involved when making decisions that involve risk. It's called "Operational Risk Management," or simply ORM. The benefit directly obtained from ORM utilization is the preservation of assets, both human and materiel, through elimination or minimization of risk.

Ah! You've had enough of that during your military career and you want to leave work at the workplace where that "thing" belongs, right? Not really. ORM is a great tool that can be applied anywhere risk is involved. If you think about it, risk

is everywhere. It lurks behind seemingly innocent situations, waiting for you to ignore it. The results of unmitigated risk can appear "out of nowhere" when you least expect them. These results can be catastrophic. Take the time to thoroughly learn the technique and take it home with you. Train your mind to follow ORM's logical sequence and apply its principles anytime you need to make a decision when risk is involved. You don't have to worry about learning the hard math of statistics and probabilities. You don't have to take college courses in logic. You don't need to learn complicated operational data analysis techniques. All you have to do is follow ORM's six easy steps and you're done. No math, no formulas, no pain. Here they are:

1. *Identify the Hazard* (what creates the risk)
2. *Assess the Risk* (how soon, how and where could it break, fail, or blow up and cause an adverse condition)
3. *Analyze Risk Control Measures* (what can you do to entirely avoid or minimize the risk?)
4. *Make Control Decisions* (decide what your solution(s) are)
5. *Implement Risk Controls* (put your solutions into effect)
6. *Supervise and Review* (observe the results and tweak as necessary)

The Air Force goes to great lengths to ensure a military awareness of ORM. Learn it thoroughly and take it home with you. Risk doesn't stop at the workplace. The use of ORM can help you identify and eliminate risk at home as well as at work. If risk cannot be eliminated altogether, the use of ORM will minimize it to an acceptable level. If ORM results indicate that risk cannot be eliminated or minimized under the assumed circumstances, then you will have to consider a different approach or an alternate course of action. Who knows? One day it may even save your life and the lives of those you love or care for. Be smart. Be safe. Be ORM proactive. ☛



**FY06 Flight Mishaps
(Oct 05-Apr 06)**

**12 Class A Mishaps
0 Fatality
7 Aircraft Destroyed**

**FY05 Flight Mishaps
(Oct 04-Apr 05)**

**20 Class A Mishaps
10 Fatalities
8 Aircraft Destroyed**

- 09 Oct** An F-16C departed the runway on landing rollout; pilot egressed safely.
- 20 Oct** ✦ An F-22A ingested an NLG safing pin into the #2 engine; no intent for flight.
- 21 Oct** ✦ An MQ-9L landed short of runway; gear collapsed.
- 24 Oct** ✦ An Aerostat was destroyed during a hurricane.
- 28 Oct** An F-16C departed the runway on landing rollout; pilot egressed safely.
- 02 Nov** A C-5A had a #2 MLG bogie fire after landing.
- 17 Nov** A C-17 had a #4 engine compressor stall and fire.
- 28 Nov** An F-16C departed the runway on landing rollout; pilot egressed safely.
- 06 Dec** An A-10A had a landing gear collapse on takeoff.
- 13 Dec** ✨ A T-38 had a bird strike; aircraft crashed, pilots ejected safely.
- 17 Jan** ✨ An F-15C crashed into the ocean; pilot ejected OK.
- 14 Mar** ✨ An F-16C experienced buffeting and uncommanded pitch/roll; pilot ejected safely.
- 30 Mar** ✨ An F-16C crashed; pilot ejected safely.
- 03 Apr** ✨ After an emergency RTB, a C-5B landed short of runway, aircraft destroyed.
- 05 Apr** ✨ An F-15C crashed into the ocean; pilot rescued with multiple injuries.
- 11 Apr** ✨ An F-16C crashed after takeoff; pilot ejected with minor injuries.

Editor's note: The 6 Feb B-2 mishap was downgraded to a Class B.

- 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.
- Reflects only USAF military fatalities.
- "✨" 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 and ground safety statistics are updated frequently and may be viewed at the following web address: <http://afsafety.af.mil/AFSC/RDBMS/Flight/stats/statspage.html>.
- **Current as of 19 Apr 06.** ✨

"I define a good instructor as one who gives students opportunities to learn and allows them to fix their mistakes."

see page 8

