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Hangar Flying

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contents

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Anything That Can Go Wrong, Will

Amazing what you can learn on the internet. While putting this issue together, I surfed around for some information on "Murphy's Law" and was surprised to find that its origin has a connection with the Air Force. Back in the '40s, a Captain Murphy, who worked at Edwards AFB on rocket sled experiments, made a statement of the sort above in a moment of frustration, and another man turned it into an adage for us all.

Or at least that's what it said online. You can look it up yourself.

The point here in *Flying Safety* is that our Irish friend gets scapegoated for a lot of things. Judge for yourself whether these "hangar flying" stories could have been avoided.

"Weak students aren't evil on purpose. They're unintentionally evil due to the lack of experience and situational awareness."

"With the departure end moving closer and closer, the pilot thought he wouldn't not able to stop the jet because of ice on the runway. Since there was a terrain drop-off at the end of the runway, the pilot ejected just prior to leaving the paved surface."

"...[M]y jet *twitched*.... I had no idea what had happened, except that the jet was not doing what I expected it to do and I was VERY close to another aircraft."

"The pilot quickly flipped over to his situation display and found Mazda 6, now leading, co-altitude, one mile to the right side of a KC-10 with 100 knots of closure, just about to overtake the large aircraft."

"On final approach and out of gas was no time to calculate landing distance on the newly reported solid sheet of ice. I'd have never believed it would take 8,000 feet to stop a 4,500 pound airplane."

"Now I was scared and diving vertically out of the bottom of the low block because I had lost sight and had no idea what this five-month student pilot was going to do."

"Tumbleweeds were rapidly crossing the runway in a right quartering tailwind direction, and our acceleration appeared to slow."

Another Name For Common Sense

USAF Photo by MSgt Dave Nolan

LT COL GREG AULD
99th Airlift Squadron
Andrews AFB MD

Well, there I was… Not too long ago I found myself in a familiar setting. Fellow pilots and I had a few free minutes of time, so quite naturally, the story telling began. Sure, most of the tales were boastful (the 10 Percent Rule was in effect) as aviators from different walks of life compared jets, shared heroics, and lampooned numerous instances of real and imagined buffoonery. But peel the onion back, and I realized that this group, like countless others over the past century of aviation, was sharing stories as an important way to pass along the hard lessons learned. Hangar Flying, as it is generally known, is an extremely effective way, due mostly to its informality, for "those who have" to prevent others from joining their ranks.

But among this group, as often is the case, I was disappointed by what appeared to be the sheer mediocrity of my flying career. "Where do these guys come up with these stories?" I wondered, or more to the point, "Why don't I have any life or death experiences to relate?" As I approach the end of my military flying career, I find it oddly unsettling that I'm unable to conjure up the whopper of a tale that quiets the room. Others, it seems, so frequently find themselves in situations that only Steve Canyon could escape. I'm faced with the unexciting truth: My flying, at first blush, has been...well, uneventful. Let's see: I haven't ejected from an aircraft, brought home less of an airframe than I left with, nor recovered a terminally crippled jet to the home patch in the dead of night. Nope, no ice-sheet landings on the polar caps, no retardant drops over a hot forest fire, no enemy engagements over the AOR. No brown-out landings, low-level box canyon entries, or hung jumpers either. In short, it seems I've enjoyed a blissfully uneventful (knock on wood) career so far.

Oh, sure, there have been the "usual" emergencies one would expect as the hours accumulate in the flight log. Engine shutdowns were somewhat routine (after all, I do have a fair bit of time in the C-130), as were hydraulic failures, and assorted electrical problems. One day, a bleed air leak at Da Nang caught everyone's attention. An over-water engine failure at the equal-time point (imagine, at *exactly* the ETP) and the subsequent divert to an unplanned country made the crew work pretty hard for a while. And like all of us, I've had my share of maintenance frustrations, but considering I'm almost always *younger* than the airframe I've signed for, I'll give the wrench benders ample credit for keeping these aging antiques in the air.

As the safety folks can well attest, people, not airplanes, are most often the subjects of Hangar Flying. And, as befitting my aviation career atop the bell curve, the "incidents" that I've scratched in the margins of my logbook are an almost perfect reflection of these well-known statistics. Indeed, for every time I've recorded a comment of some aircraft malfunction, my notes betray far more often the times that a less-than-perfectly functioning pilot (me) or crew (us) put mechanically sound airplanes in potential harm's way.

Consider the times when completely benign events can quickly careen beyond acceptable limits. Every young UPT instructor can testify to letting a student "go too far"—we were all repeatedly cautioned about it, even taught how to be on guard for it. But inevitably (and, of course, unpredictably), complacency would grab us. More than one formation debrief was carried beyond the student's grade book and into the Hangar with my fellow IPs. Fast forward to another airplane, and I still silently thank a vocal flight engineer who had seen enough of my copilot's imperfect night circling approach. That night, the aviation gods spoke loudly to us, creating yet another story for the Hangar. How appropriate it was, recently, that I could perhaps repay this

particular debt. As a new-to-the-unit pilot, I was able to nudge a very seasoned crew from a similar low-altitude illusion on an eerily calm night instrument approach. (Funny, I always wondered why the Hangar was so often filled with stories about the dangers of night instrument work.)

Weather avoidance—or lack thereof—appears most often in my logs. Like the time I abused the aggregate common sense of my crew and continued a mission too close to an oncoming typhoon. Or the far too many times I've struggled with ice accumulation on the wings and stab of a jet with absolutely no ice protection (and, as fellow Tweet drivers will attest, a laughably late indication of ice detection). Ice on the runway has also been the subject of the Hangar. Despite the earnest protests of base operations one winter night, several of us "we-knew-better" pilots strapped on our jets and launched to the Rockies (we had some skiing to do, after all) to land on reported "patchy ice on runway." On final approach and out of gas was no time to calculate landing distance on the newly reported solid sheet of ice. I'd have never believed it would take 8,000 feet to stop a 4,500 pound airplane. Don't even ask about my fellow pilots, who couldn't get their frozen flaps to extend. They can tell that story themselves.

Absent in my notes—probably due to their ridiculous frequency—are the countless close calls with thunderstorms. Surely, some blame could feebly be cast on the necessity of frequent Midwest summer flying without benefit of on-board radar, but a more candid examination would indict my (then) false confidence that I could "handle" whatever Mother Nature could offer. A full accounting of my weather-related recklessness must include the harrowing night when my entire flight of warriors-to-be just *had* to fly westward on a gaggle cross-country to celebrate the completion of yet another UPT class. Every T-37 pilot knows that getting to El Paso from just about anywhere in Texas is a fuel-challenged sortie. That night, the already short legs of our mighty Tweets were further reduced by strong westerly winds. Factor in reported icing in the lower flight levels, and we had (but evidently chose not to acknowledge) the ingredients for 14 foolish young men to literally throw caution to the wind. Once Murphy inserted rapidly building thunderstorms in the El Paso area, our seven jets were committed to a closed destination with no viable divert options. After a lightning strike blew out the airfield lighting, our only guidance to the field was the calm voice of approach control and the flashing fire truck lights responding to seven individual calls of emergency fuel. To date, this is the only time I've run the pre-ejection checklist—my right-seater seriously contemplated landing on the interstate. Needless to say, 14 pilots with a renewed respect for thunderstorms (not to mention air traffic control) kissed the ground, called it a night, and headed off to the Hangar to recount a hundred dumb decisions that led us into a near-tragedy.

By now, the moral of my story should be obvious. Rarely are our aviation stories the "there, but for the grace of God, go I" variety; most often their true wisdom lies in the fact that they are patently avoidable. Using what old-timers would call "common sense" (what today the AF labels "risk management"), the vast majority of my logbook notes didn't *have* to happen at all. Note, every single one of them happened in a non-combat environment—there was little (if any) higher headquarters pressure to complete the sortie, and the decisions to press the mission fell squarely on me and my crew. Assessing the risks beforehand is just half the battle. While I'm not convinced a pre-departure checklist would have prevented any of them (well, OK, maybe the El Paso story might not have passed Ops Officer muster), I'm certain that a more rigorous risk assessment before takeoff would have been helpful.

Even more important, however, is recognizing that assessing and controlling risks *during* flight is far more critical. In each case I've mentioned, real-time adjustments to known and very predicable risks could have achieved a better mission outcome. Attentiveness to night instrument dangers coupled with a clear division of crew duties could have saved our crews' collective embarrassment (twice). More rigorous supervision over formation students would have reduced the pucker-factor in the cockpit at the expense of, what, not letting the student demonstrate a poorly performed maneuver—hardly a reward worthy of the risk. And certainly, a greater respect for weather and a candid assessment of our lack of experience would have avoided a great many unnecessary "there I was…" events during my first tour as a green FAIP.

So, I began this article awkwardly melancholy that I hadn't experienced a topper of a war story to share with my fellow pilots. In other words, what had I really ever done to contribute to my fellow Hangar Flyers? Well, upon reflection, I now realize that a career of only minor logbook notations is a success. While an anthology of little stories takes a little longer to tell, collectively they convey an important lesson. Risks are inherent in our business; managing and mitigating them is the *essence* of our profession—it is what we are paid to do. And, this little trip down memory lane has been useful. If nothing else it serves as a living lab in which I'll make future risk assessment decisions against (unfortunately) known outcomes. So, now you have the essence of my big story—it is the assortment of little events that collectively convey that managing risks is what we are all about. My story isn't sexy and takes too long to share at the bar, but still tells a powerful lesson. The next time we get together, jump in and tell your story—I can't wait to hear it.

Some Things I've Learned 'Til Now

USAF Photo by TSgt Robert W. Valenca
Photo Illustration by Dan Harman

LT COL BRADY GLICK
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I've been fortunate to be able to fly the A-10 for a long time. I started out on active duty, then spent time in the Air National Guard, and now fly full-time for the Air Force Reserves. I'm not yet ancient, but I am old enough to have witnessed some major changes in the way we view the world and the way we fly airplanes in the fighter/attack community.

I've been around long enough to see some devastating mishaps, and I've lost squadron mates, close friends, and many other professional acquaintances. Some didn't make it past their first few years in the cockpit—others were seasoned veterans with thousands of hours under their belts. For me, one of the most humbling things that can happen is to see someone that you admire, someone you know is a top-notch pilot, die in an aircraft accident.

You need to be introspective in this business. If you fail to examine yourself, each time someone else has a mishap, you fail to honor their sacrifice. In that vein, I've written a list of things that I've found to be truisms for staying alive while doing the job. They are derived from my personal experiences, but can be applied to most types of Air Force aircraft.

1. It's Usually the Second or Third Bad Decision that Kills You

On flying missions, even when you've made a bad decision, there's usually still a chance to rectify the situation. Sometimes you just make a bad call. Your first bad decision might pertain to weather, fuel, mission complexity, or physiological factors. Don't *keep* doing it. Get yourself back on a viable course of action. Flying is a constant string of decisions that affects your outcome. There is a lot of pressure to get the mission done. Sometimes the pressure is real and sometimes it's perceived. Regardless…it can cloud your judgment.

2. Being a Little Bit Scared is a Good Thing

I don't care who you are…this job is dangerous. Chuck Yeager once made a statement in a television interview that struck me as profound. I can't remember it exactly, but it went roughly, "Every time I strap on an airplane, I say to myself, 'Be careful, Yeager; this sucker could bite you today.'" If Chuck Yeager is a little bit scared, it's probably okay for me to be. Call it what you want—maybe it's a self preservation instinct, or those little hairs on the back of your neck—but you have to have an internal fear mechanism to make it in the long run.

3. Even Within the Rules, There's Plenty of Rope to Hang Yourself

There's no other type of flying that comes close to what we do in the military. Think about it: What other company is going to let you take out their planes and dogfight within 500 feet of each other, or fly a low-level at 300 feet AGL, or roll in and drop a string of bombs with a 60-degree dive angle? You don't have to break the rules to have fun. When you step out the door, the Air Force gives you about a hundred feet of rope to wrap around your neck, if you choose to. There's a lot of trust inherent in that. I've broken rules, but as I've gotten older, and hopefully wiser, I'm able to see how stupid and gratuitous that is. It's an insult to yourself and the Air Force. And, if you end up killing yourself while breaking the rules, they'll make an example of you in safety meetings for a long time. If that's not motivation to follow the rules, I don't know what is.

4. There is a Lot You Don't Know

The problem is…you don't *currently* know how much you don't know. Take this simple test. If you a have several thousand hours, think back to when you had 500. If you have 500 hours, think back to when you were in UPT. At each level, you were probably pretty confident and sure of your knowledge. Guess what, folks…it never ends. I like to attend forums where there are aircrews from other communities. For no other reason, I'm reminded of how much is going on in military flying that I don't know about. It's humbling. If you fly fighters, talk to an AFSOC helicopter pilot, or a C-17 pilot who's just back from one of the "Stans," or even a FAIP who puts his life on the line with some young punk who's trying to kill him every day. You'll find out real quick that nobody has "cornered the market" on risk and danger.

5. It's Best to Keep Your Plan Simple

Don't make things harder than they need to be. This business is hard enough without incorporating the "double-rat's-ass" plan for no reason. In my anecdotal experience, a tactical plan's chance of success is inversely proportional to its complexity. Concentrate on basics and be really, really good at them. If you are a fighter pilot, those things are probably deconfliction, target acquisition, weapons delivery, and mutual support. Those basics apply to just about every type of tactical mission, whether it's air-to-air or air-to-mud. Make those the tenets of your objectives for every training or combat flight. If you are good at the basics, you'll be able to more easily adapt to complex situations.

6. You Need to Visualize Yourself in Emergency Situations

We can all cite examples of pilots who have "screwed up" in emergency situations. It's easy to point a finger. How does a seasoned veteran forget to jettison his stores after being hit by a missile, or forget to put his speed brakes in with a failed engine and stall the plane, or make a landing 100 knots too fast and go off the end of the runway? Guess what… emergencies are stressful. There's time dilation and the possibility of having the proverbial "seat cushion" where the sun don't shine. Go through your boldface frequently. Don't just say the words; translate the words into the physical actions you'd actually make in the plane. Move your hands to the switches as you say the words. If you reinforce the words with the actions, it will help prepare you to act in stressful situations.

6. Good Communication is Imperative

It doesn't matter whether you are mission-briefing, talking to ATC, or calling out a threat reaction…you have to be able to communicate well. You may be the smartest guy in the room, but if nobody else can figure out what the hell you are talking about, you can't be totally effective in this business. Our job is very technical. It's important to use the proper terminology and protocol. As an instructor, if my wingman has a problem with his HUD, armament control panel, or navigation system, I can't help him unless he can successfully communicate his problem to me and I can successfully communicate a solution.

Communication not only has to be correct, it has to be timely. CRM is here, and it's important. We need to take care of each other inflight and on the ground. In one of my prior squadrons, an A-10 flight lead flew into the ground while holding at low altitude. He hit the ground at an extremely low angle of impact. He was highly experienced, had flown three different kinds of fighters, and was also a major airline pilot. He essentially mis-prioritized his attention in the cockpit while attack-planning and gently descended right into the ground. He had two wingmen with him in tactical formation. Neither one said a word. One of them, a very young pilot, actually admitted to watching Lead descend the whole time—all the way to impact. Afterward, he said it looked wrong, but he didn't say anything, because he figured the guy knew what he was doing. Now he has to live with that.

7. Don't Get Too Married to Your Plan

Murphy is out there on every mission. If you are like me, it seems like the harder you work on your plan and briefing, the more chance that it will change. Plan properly, but don't become emotionally invested in your plan. It can lead you to make bad decisions. For a particular mission, you may have created the greatest low altitude attack geometry ever known to man, but if the weather doesn't cooperate, you may need to shelve it and go to Plan B. It's tempting to push weather or fuel in order to meet your objectives. One of the things that make our job so gratifying is that you can never totally predict what is going to happen. Flying is more like a chess game than filling out a tax form. Stay flexible, keep thinking, and don't get too married to your plan.

8. Admit When You Don't Know Something

There are so many new systems, weapons, regulation changes, acronyms, tactics, and techniques that it's becoming increasingly hard to stay on top of all the things you need to know to do the job. It's staggering when you think of all the layers of knowledge you are responsible for in the Air Force. You have to know your plane, then the sub-systems of the plane (navigation computer, countermeasures systems, displays), the mission planning software, the electronic briefing room, the simulator, and the new scheduling software. Add to that the volumes of regulations, the demands of your non-flying duties, death by PowerPoint, and the bombardment of e-mails from around the base. It's amazing to me we can do our jobs at all.

The fact is…there is tons of stuff I don't know. Even in the flying arena, all I have to do is sit through a briefing by a motivated young weapons officer and I'm lucky if I understand half of the material. It's no sin to not know something. Ask questions, and admit when you are clueless.

The same thing applies inflight. You've got lots of resources to draw on when you don't know something. There are your wingmen, your SOF, ATC, Metro, FSS, and the RCO, to name a few. If you don't know something, there may be somebody else you can talk to who does.

9. Don't Be Too Proud to Change Your Mind

There are things that I *knew* to be true in the past that I can no longer call true. Your perspective can and probably should change with experience. It's easy to become myopic and parochial. Every clothing outfit you've ever worn and every hairstyle you've ever sported, you must have thought was a good idea at the time. All I have to do is pull out pictures from the '80s to see that I don't possess perfect judgment and wisdom at all times. I think the ORM constructs we use now can help to put things in perspective in real time. I'm not as passionate about the need to train at 100 feet AGL or knife-fight BFM in a flat scissors as I used to be. You need to constantly challenge your beliefs and compare them to current realities.

10. When You Train…Make the Most of It

The government is only going to give you so much JP8 to burn in your career. How well you decide to use it is amazingly within your purview. How you train will largely determine if you are destined to be average or will actually be good. It's easy to get into the rut of doing the same events or exercises every time you fly. In my community, it's tempting to "mail it in" when you are going to the same weapons delivery ranges every week. Don't fall into this trap. Push yourself to be really good in the airplane. Be proficient in all the weapons and deliveries, formations and tactics, and fundamental skills. Challenge yourself with difficult target acquisition, go to different airspace, and get realistic training.

Don't make your training missions so complex that you never get really good at the core competencies. It's analogous to practicing for a sport. A football team doesn't go out and scrimmage every day. Although scrimmaging—a full dress rehearsal for game day—is important, most of the time you need to be doing drills, like blocking, tackling, throwing, and catching. It takes a lot of repetition to be good at something. Practice difficult maneuvers and deliveries over and over until you get them right. You'll be able to do them better and *safer* during a complex scenario and be better prepared for game day.

11. It Can Happen To You

Sounds cheesy I know, but it's true. This is an unforgiving business. Take an active role in your own safety. Supervision is important, but when you are strapping on that jet, mommy and daddy aren't going along with you. Look in the mirror and make sure you like what you see. Be proactive in your squadron or wing. Pull a buddy aside and tell him if they are screwing up. Learn from other people's mistakes, don't get complacent, and listen to that little voice in your head.

You don't want to be the guy who could have saved a squadron mate and didn't…and you certainly don't want to be an example in squadron safety meetings for the next 20 years.

Lt Col Brady Glick is a command pilot and combat veteran with more than 4000 hours in the A-10. He is a graduate of the Air Force Weapons School, Advance Instrument School, and Flight Safety Officer Course.

USAF Photo by SSgt Ricky A. Bloom

When Murphy Knocks

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USAF Photo
Photo Illustration by Dan Harman

Accidents happen. We're all aware of Murphy's Law, and we've all probably seen Murphy sitting on our wing at one point or another. The important part is to catch him before he acts or does something to cause a mishap. It's difficult to imagine all the ways that accidents can happen, so it's important to review past accidents in order to prevent repeating them; "Blue Four News" is a good way to learn of such accidents. You should be able to read many of these summaries in your squadron, but I'd like to illustrate with a mishap I saw at a previous base.

The accident happened to a fellow wingman at my first assignment. It was the beginning of winter in Europe, and the weather was really starting to become a factor. It was a standard overcast day, but the temperature had been dropping and ice on the runway was possible with the wind chill factor. Several aircraft had already landed, but there had not yet been any reports of ice on the runway. As this pilot made his final approach, everything seemed to be normal. He had a successful landing on the center of the runway, opened the speed brakes to full, and started tapping the brakes when he was below 100 knots. Initially, the braking felt normal, but as he neared the departure end of the runway the jet felt like it was not slowing down enough. The pilot applied more brake pressure, but the jet continued to roll down the runway at the same speed. With the departure end moving closer and closer, the pilot thought he was not able to stop the jet because of ice on the runway. Since there was a terrain drop-off at the end of the runway, the pilot ejected just prior to leaving the paved surface. He had a good chute and approximately one swing before hitting the ground. The aircraft rolled off the end of the runway, across a drainage ditch that stripped its nose gear off, and came to a stop with its nose buried in the earth.

What happened? We later learned that the fire department had to shut off the engines upon arrival at the crash site, and the responding fireman said the throttles did not appear to be in the idle position. On his final approach, the pilot "bumped up" the throttles but he forgot to place them back to idle after touching down. With the wet runway and the concern for icing, he pretty much talked himself into believing the situation was out of his control. Ever since then I can tell you I always give one last pull on the throttle to make sure I didn't forget about it.

I write about this incident to show that accidents can happen to anyone, at any time. The pilot failed to execute a normal landing and subsequent emergency analysis. It doesn't matter if you're new to the job or if you've had 15 years' experience without any accidents. Murphy can reach up and smack you in the face at work or at home without any notice.

It's important for all of us to take a step back every now and then to see how we do things. Are you cutting corners to finish a job a little faster? When trying to resolve a problem, are you acting spontaneously or being reasonable in your actions? I know it's not always possible to plan for every incident, but proper training and good habit patterns will increase your odds of handling a situation the proper way.

There I was...On Skid

MAJ WES CHOATE
71 FTW
Vance AFB OK

So, there I was…. a hard-charging 'Tweet' IP briefing up with a struggling student. The student was early in the Contact phase of training and was having trouble analyzing the winds and basic aircraft control. You know basic Tweet contact stuff.

During the previous weeks the prevailing Vance winds were averaging out to a ten to fifteen knot head wind. We thoroughly discussed how to analyze the winds both in the cockpit and prior to stepping to give our fledgling pilot a shot at applying perch point analysis and when to pull his power on final.

On this particular day, the winds were 90 degrees off runway heading at five knots. We briefed prior to stepping to the jet that the pattern would need to be slightly wider, however the power reduction would need to happen sooner due to the having almost no headwind component. My young charge acknowledged comprehension of this fact—a fact that would be forgotten as the mission unfolded.

We stepped to the venerable Tweet to apply the theories of wind analysis and monkey skills. Takeoff and departure was relatively uneventful. Once we got to the auxiliary field, things started falling apart. I told him we would adjust the profile, drop the spin portion, and hit the low block on the way back in order to maximize training between "demo-do" type maneuvers in the pattern.

The area work was uneventful, and then it was time to reinforce the monkey skills and analysis back at the home field. Our young charge was still struggling with forming good habit patterns as we flew out our gas in the pattern.

"OK," I said, "Let's make this next one a single-engine approach for the full- stop."

"Yes, sir!" our struggling aviator retorted.

Our young aviator again struggled with his simulated single-engine procedure. Again, we rolled off the perch late. Again, we had difficulty maintaining aimpoint and airspeed. Again we struggled to find the runway without setting off any alarms with the United States Geological equipment. Again, we landed 1,500 feet long on a 5,000-foot runway. However, this was our full stop. A single-engine approach does require a ten knot faster approach speed and half flaps to limit drag.

Our aspiring aviator finally found terra firma. He stated: "Sir, I'm going to bring the speed brake up."

Not a big deal; however, around 3,000 feet remaining it's usually a good idea to check the brakes and start slowing down (remember, no headwind). I checked our airspeed; we were approximately at 85 knots with 2,500 feet remaining to the end of the runway. I turned, stared at him, and asked: "So, do you know how fast we should be going at around the two board? (i.e., the 2,000-foot remaining marker)." After a *very* pregnant pause I performed the modified "shake to take maneuver" and performed the ancient Tweet IP "snatch and grab maneuver," uttering the words Tweet students have dreaded hearing for decades from their IPs: "*I* have the aircraft!"

I performed maximum effort braking and muttered a prayer, hoping to get slowed down enough to make the turn-off, and *not* bend the jet and cause even more paperwork than the 803 write-up that I was *not* looking forward to doing.

I remembered from the T-37 Dash-1 that the Tweet could make high-speed turns without fear of flipping the jet. We were getting ready to validate that data and/or take "Mr. Toad's Wild Ride" to Operations Check the four-wheel capability of the T-37.

As we were making the turn-off I heard the right main lock up. I let off the right brake and engaged a combination of nose wheel steering and brakes, trying to make the turn-off. Then I heard it...KA-THUNK. Fearing that I had blown the tire, I advised ground control of the possible blown tire and I requested a tug. I then switched frequencies back to the Runway Supervisory Unit (RSU) and advised them of the situation so they could start their coordination with base operations for a Foreign Object Debris (FOD) check.

Several humiliating minutes later our tug showed up. My student and I hopped out of the jet and helped install the landing gear pins and the tug bar. We did an initial inspection of the right main tire and determined that we were one cord from blowing the tire. However, as Murphy's Law proves: the

I performed the ancient Tweet IP "snatch and grab maneuver," uttering the words Tweet students have dreaded hearing for decades from their IPs: "I have the aircraft!"

day you need to get the "tug tow of shame" will be the day you signed out the jet at the far end of the tarmac and parking area.

We had a pretty healthy thump as the flat spot on the right main tire kept coming around and contacting the ground. It was pretty much like walking around with your right shoe off.

USAF Photos / Photo Illustration by Dan Harman

LESSONS LEARNED:

1. Don't let things get too out of hand before "jumping in." Yes, you must cut the apron strings as they progress, in order to move away from the voice-activated autopilot. However, don't let someone exceed your individual limits or comfort level before "making the saving play." Keep a dynamic ORM going.

2. Full-stopping on a simulated single-engine approach could be tricky for a weak student who lands long. Although it's a technique and not a procedure, it's normally a good idea to build the habit pattern of checking the brakes at the 3,000-foot remaining point and leaving the speed brake extended until getting ready to turn off the active runway.

3. Weak students aren't evil on purpose. They're unintentionally evil due to the lack of experience and situational awareness. Usually they only get one full-stop at the end. My fledgling aviator was not used to the lack of headwind component, which would aid in slowing down. He also was not expecting the compounding dynamic of doing the full stop out of the single-engine approach, which requires a ten knot faster approach speed and only 1/2 flaps.

4. Play it safe. Take the most conservative and appropriate response in a dynamic situation. Although the right main tire didn't blow, it was a good precautionary call to do a FOD check anyway.

Murphy's Checkride

CAPT TREMAYNE N. TEASLEY
92 ARW
Fairchild AFB WA

USAF Photo
Photo Illustration by Dan Harman

This incident took place on a KC-135 evaluation sortie at Fairchild AFB, WA, involving my aircraft commander and me (the copilot), both receiving checkrides. The check pilot was also receiving an evaluation from a second check pilot (the evaluator), for a total of three checkrides. The final crewmember was a single, experienced boom operator.

On the day of the incident, the crew showed 4+00 hours prior to takeoff. This was 45 minutes earlier than standard crew show, to ensure that the check pilot had the opportunity to review all of the evaluation criteria, as well as to give the crew additional time to attend to any possible mission changes. Of course, Murphy's Law of Checkrides was in full effect, and mission changes were abundant. Within minutes of arrival at base ops, we were notified that our scheduled receiver had cancelled. Due to mission priority, we were able to assume the receiver from another sortie. However, this would include significant changes in mission planning and coordination.

Another very unorthodox change was the addition of an operational tasking at the beginning of our checkride line. The Operations Group (OG) commander had approved our mission to include dropping off crew chiefs at McChord AFB who would perform maintenance on a stranded jet. Additional concerns also included considerable thunderstorm activity throughout the state of Washington. This would present a problem in determining a suitable transition base, as well as full-stop capability. Multiple checkrides, mission changes, mission adds, weather uncertainties, and night transition were all Operational Risk Management (ORM) considerations and stressors.

Fortunately, passenger load, preflight, and engine start all occurred without major incident. The first part of the mission included the maintenance crew drop-off. This situation was particularly stressful due to the short takeoff, cruise, and landing all taking place in under 40 minutes in the short trip from Spokane to Tacoma, WA. Upon entering the Seattle terminal area, we were vectored around considerable intermittent thunderstorm activity, which would undoubtedly be a problem on departure as well. Coming into McChord airspace, we were forced to devote considerable attention to ATC radio chatter, intermittent radio reception, and difficulty in coordination with base ops for assistance with the crew chiefs. The landing into McChord occurred without incident.

Unfortunately, due to conditioning, the pilot inadvertently shut down the two inboard engines, as he would normally have done at home station in preparation for a full stop. Since we were simply deplaning crew chiefs down the crew entry chute, it was not necessary for us to shut down any engines at all. The pilot immediately regretted this decision, not only because it created another situation to be scrutinized by the check pilots, but also because there is neither a checklist nor a procedure to restart engines once they have been shut down during a full-stop taxi-back. But the crew handled it flawlessly. We restarted the engines, but continued to battle issues. The positioning of our parking spot prevented us from completing a phone patch to home station for a positive receiver check, or for an update on home station weather. After considerable time was spent trying to increase our situational awareness, we were unable to wait any longer and elected to take off with the information we had.

As expected, thunderstorms in the vicinity presented a problem with takeoff and climbout.

After ensuring that we adhered to lightning and thunderstorm criteria for takeoff and mitigating adverse wind conditions, we requested clearance. However, on climbout ATC elected to keep us below 10,000 MSL due to thunderstorm cells and considerable terminal air traffic. This increased pilot workload, as it required us to postpone checklist completion. We were also forced to increase our external scan and monitor TCAS and the weather radar for possible threats. Navigation proved difficult at this time as we tracked closer to the Air Refueling Control Point (ARCP) over Montana, which was less than 55 minutes away. Thunderstorm avoidance, traffic avoidance, navigation, and multiple simultaneous checklists were all ORM considerations.

Due to the very short travel time between various phases of flight, the general stress and workload on each crewmember increased throughout the flight and caused a breakdown of Crew Resource Management (CRM). Communication became strained and the crew often started and finished checklist items late. Many navigational backup procedures were also neglected, as priority was given to more pressing issues. The air refueling took place without significant incident, although it was full of training, including autopilot-off refueling at night with a heavy receiver.

To allow the crew to decompress, catch up with the jet, and assess inclement weather concerns, the AC elected to stay in the air refueling track after the air refueling because of the close proximity of the track to Fairchild. We were also concerned about possible inclement weather in the area. Once we felt confident that we could continue the mission and weather would not be a factor, we headed back to Fairchild to begin transition. As we neared the airfield, it was relayed to us that we would have to perform another full-stop taxi-back in order to pick up another pilot who was in need of transition to complete a checkride that he had not finished due to weather. Once again, more changes caused us to adjust our planned profile and further increased our stress level.

Coordination was made and the full-stop taxi-back was performed uneventfully. The additional pilot (a senior instructor pilot) finished his checkride profile expeditiously. To try to make things as smooth as possible for ATC coordination, we did several seat swaps between the pilot, co-pilot, and instructor pilots to reduce wasted time between the VFR and IFR pattern work. After my last VFR touch-and-go, it was coordinated with Spokane Approach to receive vectors for an opposite direction circle. This would require a very quick seat swap with the AC because he needed a right seat full-stop landing.

After I left the right seat, I strapped myself into the jump seat between the pilot and copilot positions. The AC immediately began briefing his intentions for the circle approach and crew responsibilities for the full stop. During his brief, the AC verbalized the Category E minimums for a non-precision localizer. The minimums for this localizer were also placed in the radio altimeter and altitude alerter to notify the pilot and crew when minimums had been reached. In execution of this approach, the pilot actually commenced the descent to localizer minimums when the much higher circling minimums were the intended and correct procedures to follow. This oversight was not caught by the AC, the IP, myself, the added pilot (an experienced Lt Col and IP), nor the boom operator. This mistake was finally brought to the attention of the crew by the evaluator, who was situated in the cargo compartment on headset.

The primary reason that this event was of such significance and made such a large impact on my development as a pilot is that I realized the impact of ORM creep. Due to the current demands placed on our military, deployment rates are steadily rising, beyond the already astounding levels. This situation greatly increases the vital presence of ORM and tests its relevance more than ever. Because so many of our missions are operational in nature, crews develop a very "lean forward" mindset when it comes to completing the task at hand. This can be good in most cases, and ensures a very high mission completion rate. However, crews and individuals can become overconfident in their ability to complete the mission at any cost and in any circumstances. Crews become reluctant to call "knock it off" or admit when they have reached the limit of their capabilities.

This is where ORM creep takes its toll. At the beginning of a mission, a certain ORM score or level of risk may be acceptable and well within the capabilities of the crew and its individual members. Yet, as time continues, from mission planning in base ops to just prior to engine shutdown, changes in the mission and unplanned circumstances can greatly increase the general stress level and severely tax the mental and physical capabilities of the crew. The effects of these changes within yourself, your crew, your crew's performance, and the crew's ability to interact with each other all must be closely monitored.

In my case, the potential for disaster increased exponentially as more and more mission changes took place. On an already tense and full sortie, additional authorized changes, and unavoidable environmental circumstances put the crew at risk, and taxed the limits of each person individually. Even minor issues within the cockpit took on an increased significance and degraded the performance of everyone involved. Ultimately, this led to a potentially fatal error that numerous experienced and very capable crewmembers missed.

Prepare For The Unexpected

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USAF Photo MSgt Shaun Withers

If you ever ask a single-seat fighter pilot about ocean-crossing missions, you will probably hear a gamut of opinions. Many pilots enjoy the flight because there is very little pressure, and time to just enjoy flying. Other pilots hate the trip because it is boring. Most would agree that, ultimately, it is at least a little uncomfortable to sit in the seat of your fighter while flying on the wing of a tanker for nine or more hours straight. Nearly all pilots would agree that some corollary of Murphy's Law dictates that if you are going to have an inflight emergency during the trip, it will happen as far as possible from the nearest piece of concrete, and it will be anything but simple. This is why we nearly always had a SOF-qualified individual on the tanker.

A few years ago, I was doing just such an ocean crossing in my F-15C, returning to Kadena AB, Japan from NAS Keflavik, Iceland. My wingman and I were on the second of three legs, a relatively short hop from Mountain Home AFB ID to Hickam AFB HI. The trip was a "mere" five hours, a no-brainer really. The KC-135 took off on time out of Fairchild AFB and we rejoined over Oregon as scheduled. With boom checks complete, we pressed out over the Pacific Ocean. Everything continued to go fine through our first refueling and to our second and final refueling.

For those of you who have never refueled in an F-15, I must mention that the least comfortable moment in the refueling sequence, as in most planes, is that time right before you reach the contact position and get connected to receive fuel. In the F-15, it is particularly uncomfortable, though, since the end of the boom is only about three to five feet to the left of your canopy, about level with your helmet. And that is when you can no longer look at the end of the boom and must continue to fly off the rest of the tanker.

I was in exactly that position for the last refueling when, for lack of a better description, my jet *twitched*. There was definitely some left bank (toward the boom), as well as other things going on. I had no idea what had happened, except that the jet was not doing what I expected it to do and I was VERY close to another aircraft. Instinct took over and I rapidly reduced power and pushed forward on my flight controls to get away from the other aircraft. In other words, I executed a breakaway, not that I thought of it in those terms at the time. Once I was safely away from the tanker, I elected to return to a safe wing position to analyze my problem. At this point, there were several radio calls from my wingman and the boom operator, wondering what was going on. I told them both to stand by while I figured out what was happening.

My Master Caution light was on, and I punched it off while I checked my Caution/Warning Panel. What I saw there spooked me initially. Two-thirds of the lights were on. As I tried for a few seconds to absorb all the lights, most of them went out. I knew what some of the lights were that had been on, but not all. After the light show was over, what I had left were the classic signs of a right generator failure, plus my Control Augmentation System (CAS) was offline. I checked my engines and hydraulics. They were fine, so now I knew that it was a simple generator failure, right? Wrong.

I reset the generator, per the Dash-1 checklist. It came back online normally. Then I tried to reset my CAS, but it wouldn't reset. That was definitely NOT

normal. At this time, I checked other systems. My radar was sweeping, but the display was wrong. My Heads-Up Display was strange as well. I realized that my Central Computer (CC) had failed, causing these systems to go into their backup modes. I attempted to reset my CC, also with no luck. For a non-combat sortie, that isn't a big deal. At this point, my wingman queried me again, specifically mentioning that he was on the boom frequency. I responded that I had a generator failure with some other weird indications. The boom operator said he would get the SOF on frequency. I tried to talk to my wingman on the other radio, but got no response. I went back to the boom frequency and asked him to try me on the other radio. He told me he had, but I had not responded. I asked my wingman where the nearest Eagle base was. He said he had already checked and we were exactly halfway between Portland IAP and Hickam AFB, both of which have F-15 Guard units. We decided that continuing to Hickam, as scheduled, was best.

The SOF came on the radio at that point and we worked out what all my problems were, with his help, since he didn't have to fly a plane while reading the checklist. We boiled the problem down to this: a simple generator failure that had somehow disabled my CC, No. 2 radio and my CAS. It was about this time that I noticed my right generator was now intermittent. The light would come on, but before I could even try to reset the generator, the light would go out. This particular contingency is not covered in the checklist, so we all agreed the best response was to turn off the affected generator. So now, in addition to my other problems, I only had one main and the emergency generator working. None of these are major problems, really, so it seemed we were good to go. The air refueling was a little more difficult than normal without the CAS, but it went fine. We continued on toward Hawaii.

As we approached Hawaii, I discovered that my only functional radio wasn't as good to go as I thought. My wingman was able to talk to Honolulu Approach, but I couldn't hear the controllers. This being the case, I passed the lead to my wingman and we separated from the tanker for our approach. Since my radio range was limited, I elected to set my radio to the discrete frequency I shared with my wingman. This gave him the opportunity to talk to me and relay clearances without abusing ATC's frequency. Everything seemed to be going fine now as we proceeded in. The weather was about 2000 feet broken with unrestricted visibility, so my wingman asked for vectors to initial.

It was at this point that I discovered Murphy and his Law weren't done with me yet. As is standard for weather penetration with a NORDO aircraft, my wingman put me in close formation. I thought to myself, "With all these problems, today would be a *really* bad day to have to go Lost Wingman." Therefore, I made sure to be in perfect fingertip formation as we entered the clouds. Unfortunately, Mr. Murphy had heard me. We went into the thickest cloud I have ever seen in my life. One second, my wingman was there, the next he wasn't. With only three feet of wingtip separation, he was *gone*. Instinct took over again, and I executed my Lost Wingman procedures. My radio call was a little non-standard: "Dude, I lost you." My wingman immediately started coordinating a separate clearance, but before ATC could respond, we popped out of the cloud about 3,000 feet apart. I called the visual and we rejoined. Shortly afterward, we landed and taxied to the transient ramp uneventfully.

Our maintenance troops, who were on the tanker, did a thorough work-up of the jet. They determined that the right generator had surged, sending an over-voltage through the system that the right Generator Control Unit (GCU) should have caught, but didn't. Eventually, the GCU cut out, but the damage had already been done. Normally, the GCU will not reset after an over-voltage, but it did and then started flashing at me for an unknown reason. I asked them what would have happened if I had left the generator on for the remaining 90+ minutes of flight. The answer I got was a lot of shoulder shrugs and speculation. Everyone agreed it could have caused further problems up to and including the GCU shorting out and/or catching fire. As for the other problems, the CC, CAS and No. 2 radio had all popped circuit breakers and protected themselves. The No. 1 radio had electrical damage and was replaced along with the GCU. Everything else was undamaged.

We had a few lessons learned from this event. First, always be prepared for the unexpected. You never know when something is going to go wrong, and, if Mr. Murphy has his way, it will happen at the worst possible time. Second, remember what you learned in pilot training. Two particular things from pilot training helped me that day. First, how to deal with an EP: Maintain aircraft control, analyze the situation, take appropriate actions. My first instinct was to get away from the boom (maintain aircraft control). I waited until I was away from the boom before I checked my light panel and analyzed, then I worked with two other Eagle drivers to determine what to do, and did it.

Second, remember the ever dreaded Lost Wingman procedures. We rarely talk about them on day sorties, but Lost Wingman can happen day or night. Know those procedures cold and apply them when you need to without hesitation.

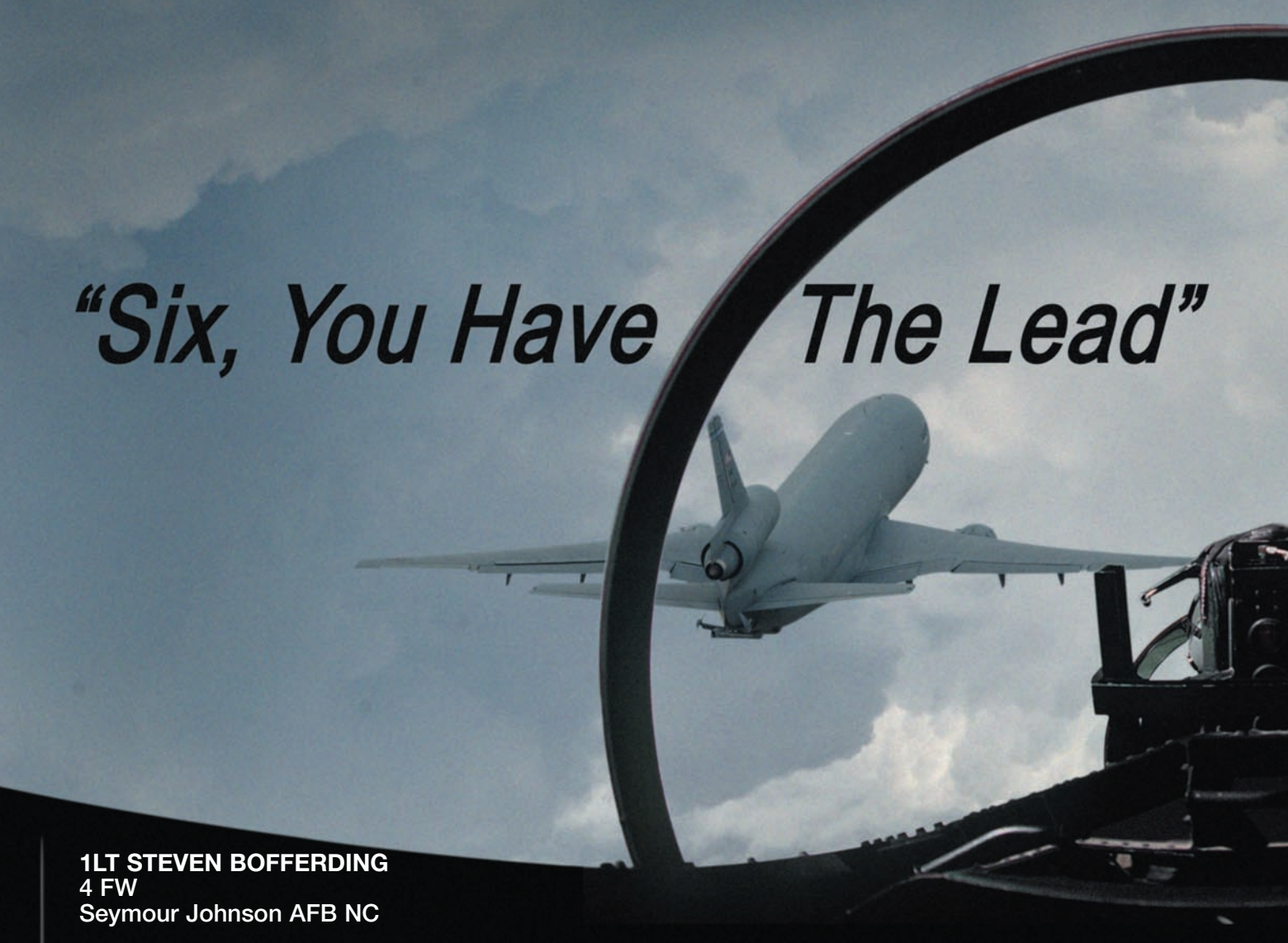
The final lesson learned is that even though our aircraft are aging, they can still find new ways to fail, and those failures may not be covered by the checklist. Apply basic airmanship and systems knowledge to come up with the best possible solution to the problem.


Speed is life
Altitude is li

FE INSURANCE.

USAF Photo
Photo Illustration by Dan Harman

"Six, You Have The Lead"



1LT STEVEN BOFFERDING
4 FW
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We had to get six F-15E Strike Eagles over the Atlantic in support of a United Arab Emirates Gulf Warfare Center exercise. It was 0400 on the day of departure when we took the runway for departure. It was a normal morning in North Carolina, with cloudy skies and a light breeze. Our first stop was at Moron AB in Spain. Mazda 5 and 6 were at the tail-end of the string.

Once the gear was in the well, the pilot started having some issues with his radar. It was no help to the mission with random search patterns, no sweeping, and no locking capabilities. Mazda 5 tried turning the radar off and on numerous times, and it would appear the radar had finally corrected itself, but when they went to lock No. 4, the lock container would jump to the left side of the radar. In search, the radar worked just fine, so the pilot left it there and used search tracks to keep position for the rest of the flight. With the good weather it wouldn't be an issue, and Moron was just a few hours away.

During the brief two days later for the final leg to Al Dhafra, Mazda 5 informed the flight lead that they had some radar issues on the first leg which could possibly cause some problems for the flight. Options were discussed for a safe flight, and it was decided that No. 6 would take the lead for the last element if the radar decided not to work.

Two hours into the flight, Mazda 5 and 6 were hanging out in a wide, two-mile tactical position, not paying much attention to the weather up ahead. As they moved in on the tanker before entering the weather, they realized it might be too late. As the crew started losing the tanker in the weather, they used the radar to lock him up, and it was successful. Mazda 5 was established in two-mile trail, approximately 500 feet below the tanker. The wingman, Mazda 6, was in fingertip on the right side. To maintain awareness of his attitude in the weather, the pilot called up an attitude director indicator (ADI) on his multi-color display. This display, where he usually keeps his situation display, was now being used to keep his attitude display. After one minute, he noticed in the front seat that the radar lock container was deflected to the far left side of the scope, and the radar was indicating the tanker was flying at 1,000 knots.

No. 5 quickly asked his wingman if they had a radar lock to the tanker and they replied, "Affirmative, good lock."

"Six, you have the lead on the right," was the element lead's response.

Over the radio he shouted, "…passing the tanker?" The pilot quickly flipped over to his situation display and found Mazda 6, now leading, co-altitude, one mile to the right side of a KC-10 with 100 knots of closure, just about to overtake the large aircraft.

USAF Photos
Photo Illustration by Dan Harman

No. 6 passed a positive response which sounded more like "Si…has……..lead……ight." Now that they were in the weather, the radios were not going to be as clear as anyone would have liked.

Mazda 5 was on the wing of No. 6, fat, dumb and happy. The pilot was concentrating on flying good weather formation position and combating spatial disorientation. He still had an ADI up in the front cockpit and the Weapons Systems Officer (WSO) called one up in the back as well. Just as Mazda 5 was getting comfortable with their position, the back-seater started shouting something over the intercom, but with the static from the weather, it was hard to make out what he was saying. He yelled for about thirty seconds until the static died down, and over the radio he shouted, "…passing the tanker?" The pilot quickly flipped over to his situation display and found Mazda 6, now leading, co-altitude, one mile to the right side of a KC-10 with 100 knots of closure, just about to overtake the large aircraft. Mazda 5 told Mazda 6 to rejoin on him. They took the lead from 6 over the radio and established themselves in a "radar trail" position using the situation display.

Eventually we broke out of the weather and rejoined on the tanker's wing. They soon realized what had happened. The wingman was "trying to kill the element lead," and both aircraft crews were lulled into a false sense of security. Both pilots are former instructor pilots with over 2,000 combined hours of flying, and the WSOs were experienced back-seaters. Even though Mazda 6 was fresh out of the basic course, Lead felt comfortable with him leading the formation in the weather. Instead of leaning on our wingman, Mazda 5 said they should have referred to Lesson No. 1 and used all of their available resources to maintain position behind the tanker. The lead pilot could have informed his WSO that he wasn't paying attention to the situation display and had him keep a good eye on their formation. The flight lead, Mazda 5, was responsible for the element's formation, even if they were on the wing of No. 6.

Is it legal to fly in trail without a radar? Mazda 5 and 6 didn't know at the time. If he were to find himself in the same situation again, would he give his wingman the lead? "No." The pilot's crewmate and sensors are there to keep total situational awareness and keep the element safe and in formation. The F-15E Strike Eagle is a safe aircraft which is full of useful information and new technology to keep pilots and WSOs from running into their wingman, the ground, and especially KC-10s.

Common Sense Be Damned

Air Force Is Playing Navy This Weekend

LT COL WOODY WOODROW
154 OSF/CC
Hickam AFB HI

We were all ready to launch. The plan was to fly four T-37s from Sheppard AFB up to the Air Force Academy for the weekend to visit our sponsor cadet squadron and catch the Air Force vs. Navy football game. I had a T-38 IP in my right seat, and my flight lead had the same.

I was just out of PIT, still a butter-bar. My flight lead was an "experienced" 1Lt from check section. The follow-on two-ship consisted of the squadron CC and a couple other FAIPs. The plan was to refuel in Amarillo, and with any luck we'd be in Colorado Springs by early afternoon.

The weather was uncommon for West Texas. There was cloud cover over the entire southwestern U.S.; Amarillo was forecast at 1000-2. I'd just finished a year of UPT at Sheppard and had seen a lot more "hood" time than actual IFR. I don't recall if we discussed a formation approach in the preflight brief. We could always brief it in the air. The air was crisp; college football and a TDY weekend lay ahead.

After a formation takeoff and climbout through several layers of cloud, we broke out on top to a stunning day. We were kicked out to route, and I let my T-38 buddy have the stick, to see what he remembered from his UPT days. What a glorious day. I remember thinking, "I can't believe I get paid to do this."

As we approached Amarillo, we got some bad news from the controller. Our preflight forecast of 1000-2 had deteriorated to something below minimums. Did we want to hold? I think this was my first introduction to the "pinch." You know that feeling: Something is not right here, and I'm not sure I have my "collective stuff" in a sack.

As anyone who has spent any time in the mighty Tweet knows, there are those who have had fuel emergencies, and those who will. After a short discussion on weather trends, and was it going to get better in the next two minutes (because that is about all the "extra" fuel we had), Lead made the decision to divert to our alternate, Reese AFB. Two was in.

This time, we wisely chose to update our weather prior to arriving overhead. Reese reported 500-3, but the general trend was the same as Amarillo, going down. The "pinch" was now my constant companion. I calculated, calculated again, and then recalculated the fuel en route. Emergency fuel in the Tweet is 200 pounds, and my math kept revealing that I'd be lucky to squeak it onto the runway with the needle pointing anywhere north of that. Better make the first approach the *only* approach.

In an uncharacteristic moment of clarity, Lead coordinated with Center to inform the trailing T-37 formation of the situation and our decision to divert. One hundred fuel calculations later, we arrived in the Reese terminal area. The weather was now estimated at 300-1, below my AETC category minimums as a new IP. Lead queried

USAF Photo by SSgt Andy Dunaway

whether I wanted my own vectors, or intended to fly the approach on his wing. I remember having the distinct thought that I didn't want the old man chewing me out for flying an approach below my category weather minimums, so I opted for the formation approach. Brilliant!

Now, why formation weather minimums never popped into my head I don't know, because the conditions were below those as well. We reviewed the IAP, dialed in the frequency and course, and reviewed the DH. I tucked in on Lead's left wing as we descended into the soup. I'm not sure why he put me on the left wing, but fingertip was a little more difficult flying cross-cockpit. I immediately became disoriented.

My right-seater hadn't flown the T-37 since UPT, nor did he want to start now. The best he could do was call out attitudes to me, and pray that I could hang on until we broke out of the weather. "Thirty degrees right bank, tracking across the course, thirty degrees left bank, overcorrecting left." It was maddening. Lead was flying the ILS like a snowboarder in a half-pipe, and I had no choice but to hang on. There would be no going around. "300 above DH…200 above DH…100 above DH," and I could make out the sweet ugly brown of West Texas in the winter. "DRAG! DRAG! DRAG!" shouted Lead over the radio.

I distinctly remember shifting one eye from Lead to my right-seater, as if looking at him through my visor would help our communication. "What does *that* mean?" I asked in an urgent, fearful, oh-no-what's-coming-next kind of voice. I never got a reply. Lead snapped into 45 degrees of left bank and pulled right across my nose. The tail light on a Tweet is red and fairly small. His, however, filled my entire windscreen, not unlike the red screen you occasionally get when things go terribly wrong in the simulator. Idle, speed brake, push over. It was pure instinct.

Let's pause at this point to review the situation. We are somewhere in West Texas, near Reese AFB, in an emergency fuel state. Our altitude is passing through 150 feet AGL and we're in a slight descent, airspeed 100 knots and decreasing, the throttles are at idle, *and I still haven't spotted a usable landing surface*.

Remember that pinch I referred to earlier? Now it was more like a 2500 psi pressurized adrenaline IV, with a side of searing stomach acid and a helping of cold sweat. I slammed the throttles forward, retracted the speedbrake, and adjusted the descent to maintain flying airspeed. Then, we waited. Anyone who's ever flown the Tweet knows what I mean. Fifteen excruciatingly slow seconds from idle to MIL.

A quick glance in Lead's direction and I saw I was abeam the landing threshold, about a quarter-mile right. As soon as I felt the thrust raising the nose, I banked steeply to the left and aimed halfway down the runway. Aimpoint, airspeed. Nothing to it. Hallelujah, terra firma. Taxiing in, my fuel gauge read 160 pounds. I think my Datsun held more.

I often think back about that day, and all the things that went wrong. What did I learn?

1. Diverting is no big deal. Have a plan, brief the plan, then make the decision in a timely manner and stick with it. What's the absolute worst thing that could happen? You get behind schedule. Like I said, big deal.

2. Flying is serious business. Even on simple missions, things can go terribly wrong. Always remember Murphy. As my instructor at Safety school often repeated: No one goes to work planning on dying that day.

3. Something Ronald Reagan once said: "Trust but verify." We are all professionals. We are all human. We all make mistakes. I put way too much confidence in a young pilot who just happened to have a few more flying hours than me. Why didn't I question his decisions? Why didn't I make some helpful input? In the heavy world, this is often referred to as the passenger syndrome. I've flown crew aircraft for the last 14 years, and it never fails to amaze me how often the youngest, most inexperienced crew member is the one with the "crew save." SPEAK UP.

Oh yeah, Air Force beat Navy, and we were all there to see it.

A Quiet Sunday

MAJ TERRY HOFFART
Canadian Air Force
HQ AFSC/SEFF

It was a quiet summer afternoon as we were preparing to depart Mountain Home AFB, Idaho. This was to be our second leg of a two-hop T-33 return flight to Home Base after a quick gas-and-go at Mountain Home. The aircraft had been performing well, and the weather had been good on the first hop, so we had no reason to expect anything different on the second leg.

We were looking forward to just another pleasant Sunday afternoon flight. To further set the scene, we had a T-33 aircraft with a travel pod and a full fuel load. To those unfamiliar with the T-33 aircraft, the majority of its fuel load is carried on two large wingtip tanks. The front-seater was an inexperienced T-bird driver with less than 50 hours in the aircraft, while the back-seater (me) was highly experienced with more than 1,000 T-bird hours.

Since it was a Sunday, there was no weather forecaster on duty at Mountain Home; however, telephone weather briefings were available for aircrew. We filled the telephone briefing square, with the only significant weather being a group of isolated thunderstorms approximately 35 miles to the north of the field.

As we walked out to our airplane, however, we noticed a large dust cloud to the west of the field that appeared to be moving in our direction. Afternoon thundershowers and associated dust storms are not at all uncommon in summer in the Mountain Home area, and the normal result is the nuisance of a muddy canopy.

As the transient alert crew was preparing to start the aircraft, one of them warned that we'd better expedite if we wanted to beat the rapidly approaching dust storm. We agreed with their assessment and quickly started the engine and called for taxi clearance. Ground control cleared us to taxi and asked if we would accept an intersection takeoff. Since the first 2,000 feet of the active runway was under construction, anything other than an intersection takeoff would require back-taxi along the active. There was 7,500 feet remaining at the intersection, and experience operating on 5,000-foot runways seemed to indicate that 7,500 feet was plenty. Just to be sure, I took a quick look at the checklist charts and confirmed that an intersection takeoff would give us about 2,000 feet to spare, even with a 20-knot tailwind.

The approaching dust storm was still off to the west of the field, and the windsock was absolutely limp. When we took all of this into consideration, an intersection takeoff looked like a reasonable option, so we accepted it.

We taxied behind a Lockheed Electra and held short while he took the active for takeoff. As the Electra was climbing out shortly after liftoff, I noticed that he lost altitude and then recovered. The Electra was on a VHF frequency so we didn't hear his conversation with Tower, but Tower did relay to us that the Electra had encountered a windshear after takeoff that decreased his airspeed by about 10 knots, which accounted for his abrupt

USAF Photo by SrA Diane S. Robinson

loss of altitude. As we took the active, we noted that the wind was still calm at the intersection, but the dust storm was now very close.

Before we started our takeoff roll, we talked about the possible impact of a 10-knot decreased performance windshear after takeoff and decided we would keep the aircraft on the ground until 10 knots faster than normal takeoff speed. That way, we'd still have flying speed if the airspeed suddenly decreased by up to 10 knots. So far, it still looked like just another quiet Sunday afternoon cross-country!

The initial takeoff roll was normal, and we had about 90 knots with over 3,000 feet of runway remaining. About this time, however, it ceased to be just another quiet Sunday afternoon flight. Tumbleweeds were rapidly crossing the runway in a right quartering tailwind direction, and our acceleration appeared to slow. The airspeed indicator reached about 95 knots and just didn't seem to want to move anymore. As the 1,000-foot remaining marker went by, all plans to delay rotation until 10 knots faster than normal were abandoned. When the nose seemed slow to rotate, the front seater aggressively rotated the aircraft in an attempt to get airborne prior to the end of the runway.

As the aircraft became airborne, I immediately recognized aircraft buffet and decreasing airspeed and jettisoned the tip tanks without any hesitation. This prompt action is probably the only thing that could have kept the airplane flying at this time. It was still an agonizingly long time before the airspeed finally started to increase in level flight at "uncomfortably" low altitude, and the aircraft flew out of the ensuing fireball caused by the ruptured fuel tanks.

We immediately recovered at Mountain Home, and after ensuring all appropriate actions were taken with respect to flight safety matters and aircraft serviceability, completed our not-so-routine trip back to home base in three hops and without tip tanks.

There are several things that could be considered as lessons learned from our experience. First, using all available runway probably would have been helpful, especially after we determined that we wanted to take off 10 knots faster than normal. There is no guarantee that the outcome would have been any different, but it is the old adage about runway behind you.

Next, decreased performance wind shear can be a significant factor in any airplane. It's hard to predict, but there were definite clues such as the prominent dust cloud, the Electra report, and the predicted thunderstorms. The shears can be extremely localized as evidenced by the calm winds at the intersection and the gale at the departure end of the runway, so don't ignore the clues just because winds are reported calm.

Finally, be ready to jettison stores immediately if the situation calls for it. My quick action in this case almost certainly saved us and our aircraft. If the tanks had not been jettisoned, the aircraft would likely not have been in the air long enough for even an immediate ejection.

Photo Illustration by Dan Harman

MAJ JEFF WALDMAN
129 RQW
Moffett FAF CA

As I write this, it has been 20 years to the day since my first solo flight at Hondo. Realizing that fact has been a little hard to take, and it's made me feel pretty old. Guess I am getting to be a bit of a fossil. Since that first solo, I've taught in Tweets and Herks, flown for a couple of different airlines, and seen some bizarre corners of the world during some bizarre times. And what a long strange trip it's been.

Today, my regular job is flying Rescue Herks for the Guard in California, and at the moment I'm going through the Flight Safety Officer course. In this class you get to analyze the mistakes of other pilots. Doing this makes you reflect on the bonehead things you've done and ponder what makes you different from the guys in those accident reports. Frankly, the biggest difference I see between those guys and myself has to do mostly with luck. After all, I've been involved in and done plenty of bonehead maneuvers in my time.

So when asked to write an article for *Flying Safety* one might think I'd have plenty of material. Well, truth is, as I reflect on two decades of experience, nothing in my story bag really rivals half of the stuff I read in *Flying Safety*. It occurs to me, though, that not having one big story is a good thing. Successfully avoiding the truly hairy tale may be evidence of a successful career…or lots of luck…or it could be a function of good judgment. But before I go pat myself on the back, it's best to remember that good judgment usually comes from years of surviving bad judgment.

Like the time I pushed one of my Tweet students to do something before he was ready. In the pre-brief for his first formation solo he made a point to say that he did not want to do wing extended trail on this ride. The newly christened 1Lt (me) thought that was a bit wimpy, so to build his confidence I went out of my way to lead him through an extended trail set. Besides, I was confident that I could handle anything he might do. Wrong move. On the first over-the-top maneuver the guy quickly fell out of position, went "blind" and shouted that he was breaking out. Now I was scared and diving vertically out of the bottom of the low block because I had lost sight and had no idea what this five-month student pilot was going to do. That one was all on me, and years later both the student in my jet and the guy I pushed have found occasion to kid me about it. For what it's worth, I learned a lesson that day—overconfidence kills.

Then there was the time I pushed gas to make it to an AFB near my home town. My folks were going to meet me there and watch my arrival. So I arrived with a lot less fuel than I'd like (fumes), went into the break, and when I slapped the gear down all I got was one main accompanied by a trickle of red hydraulic fluid winding its way up the canopy. No big deal. Just alternate extend the gear and land no-flap. Right? Wrong. It just so happens that this ride was part of a cross-country checkout for a guy brand-new to the squadron. Much to my surprise this guy was a bit weak on systems, so I had to show him how to alternate extend the gear as we quickly ran the checklist. Well, either I showed him incorrectly or something else was screwed up, because he shot the blow-down bottle and all we had was one main and the nose gear down in the green. Great! Now I had zero time to mess around (we were at the perch and gas was critical), and I had to get creative. So I low-approached the tower, asking them to confirm our configuration while I porpoised and fishtailed my Tweet in an attempt to shake the other main down. It worked, but my mom and dad got a thrill when they saw the fire trucks rolling with me erratically flying on a second pass over show center with two of three gear hanging. Three lessons learned that day:

1. Don't push gas.
2. Watch the new guy closely.
3. You're asking for it anytime the setup involves your family as spectators.

Then there was the time as a new Herk co-pilot that I went on an airdrop exercise to South America. On the way home our plan got all FUBAR and we wound up needing to stop in Lima, Peru. This wasn't in the original plan so we were off to Lima, unable to get the Jeppesen approaches for the place. No big deal, because Lima is in the DOD approach book and Uncle Sam always takes care of its own, right? Wrong. We never noticed that the only approach DOD bothered to TERPS and publish was a VOR. So on descent we found Murphy's Law to be in full effect because an unexpected marine layer had rolled in, covering Lima along with our best divert option. That and the busy controller who was trying to get us to do the "Charlie arrival" to an ILS and we had no clue what any of this entailed. To boot, the one DOD approach that we had was for the wrong runway—it was below mins anyhow. Ouch.

So we started holding in order to assess our divert options, to figure how to avoid diplomatic hot water (the Peruvians had shot up a USAF Herk some years before), and to try to explain our dilemma to the English-challenged ATC controller. And that's when some fellow gringos showed up on frequency, allowing us to get creative… *"Hey American, if you have a sec we just had an unfortunate coffee spilling incident over here with our only copy of the ILS. Uh, would you mind reading off the inbound course, ILS frequency, and decision height for this sucker …. Thanks."* Well, that worked, but it was close to ILS mins, and flying the approach without complete knowledge of what was out there was really dumb. Lesson learned: Now I'm pretty anal about having all the approaches I might need before leaving the country. That and I'm less inclined to be creative in IMC.

And then there was the time with the regional airline (I was a junior FO) that we inexplicably got a "Config" warning light while in cruise. This wound up being a real puzzler, and with no relevant checklists to run we contacted the company technical experts for advice. They convinced us that we needed to verify our gear position when we did configure. Ultimately, we wound up delaying traffic at LAX so we could low-approach and have the Lufthansa 747 and Northwest 757 waiting in the hammerhead give our gear a look-see. Everything looked good to everyone so I executed the go-around, thinking it was time for a simple closed pattern to a full stop.

Unfortunately for this situation, the company's culture and procedures were all about making *everything* canned. There was a long list of incredibly specific "profiles" involving detailed action sequences and required callouts for everything you did. So when I started my mellow go-around and requested right closed from tower, the Captain reflexively jumped in with, "What the hell are you doing? Get on profile!" Then he jammed the power to max EPR and slapped the gear up to make his point and get me to go around in accordance with the company "profile." I wasn't quick enough to grab the Captain's arm but my jaw must have hit the floor as I stared at the gear handle. I don't remember what I said but it probably went something like, *"Uh, dude, we just spent a half hour getting God and everyone involved in confirming that we had three down and locked. So why the hell did you just do that? Down gear is happy gear."*

It all worked out in the end with a repeat flyby to busy LAX. Hopefully, my young Captain learned that blindly following the book can sometimes get you in trouble. Wish I could teach the company that overly specific routines are no substitute for good judgment. The big lesson for me was that when facing an unusual situation in a crew airplane, one really needs to brief *everything* through to its conclusion.

And there it is. Two decades of flying and that's some of the best I've got. I can't say that I'm disappointed, though. In my present job—Search and Rescue—I occasionally get called out to scenes that would have made great stories had the guys involved lived to tell the tale. So what if most of my flying stories are somewhat dull. I am pretty sure I'd like to keep it that way.

Hydraulics

CAPT CHRIS POWER
319 ARW
Grand Forks AFB ND

"Brakes?"
"Yeah."
"Brakes?!"
"Yeah."
"BRAKES!!!"

It was my first Aeromedical Evacuation (AE) mission, and every day was a learning experience. The C-9 was on its way to the boneyard, and the KC-135, among others, was taking up the slack. Our week-long schedule took us from Grand Forks to Travis, Hickam, Kadena, and back, swapping patients and medical technicians at each of our stops. I'd never been to Hawaii or Japan, but both the aircraft commander and boom operator knew where all the best bars were.

During our return trip, between Hickam and Travis, we noticed the left hydraulic reservoir quantity was less than two gallons (the normal reservoir quantity is approximately four gallons). Suspecting a leak, we referenced the Dash 1 and depressurized the left hydraulic system. Since we had no other abnormal indications, this was sufficient to stop the suspected possible fluid leak.

KC-135 Hydraulics 101: Two separate systems, left and right, provide pressure for all of the hydraulically-operated components. The left system powers the landing gear and gear doors, pilot's brakes and antiskid, inboard spoilers, and two of our four air refueling pumps. The right system powers everything else, including the flaps and boom. Some components can be powered by the opposite system using a crossover valve; of the left system components, only the landing gear may be crossed over. However, using the crossover valve with a leaking crossover component can deplete both systems.

Luckily for us, none of the left system components are necessary during normal cruise flight. We had plenty of time to decide on a plan of action before we reached the coast. After consulting with the three crew chiefs onboard, we decided to divert from Travis to Beale, offering us a longer runway and KC-135 support facilities. Approaching U.S. airspace, we coordinated our new routing and prepared to land without normal left hydraulic system pressure.

Our first task was to extend the gear safely. We had several options: briefly repressurize the left system, cross over to the right system, or manually lower the gear. Repressurizing the left system risked leaking the remaining hydraulic fluid on that side. Crossing over to the right side risked leaking all the right side fluid (if the gear was the source of the leak). We agreed that the most conservative choice would be to manually lower the gear.

While we have means to extend and lock all the wheels, there is no way to manually raise the gear doors. The increase in drag is considered insignificant for landing, but in the event of a two-engine go-around, we would have a reduced climb gradient. Voting once again for Most Conservative, we decided to momentarily repressurize to raise the gear doors.

USAF Photo by MSgt Lance Cheung

The next consideration was the pilot's reserve brakes. Without left hydraulic system pressure, the pilot still has three full brake applications with good reserve brake pressure. A quick gauge check confirmed sufficient pressure.

The antiskid system, available only on the pilot's brakes, is also affected; it is still operable, but must be disconnected. Normally powered by the left system, antiskid can cycle as many as three times per second when in use. When the left system is depressurized, antiskid draws power from the reserve brake system. Cycling three times every second, the antiskid can quickly render the pilot's brakes useless. We countered this by pulling both antiskid circuit breakers. To ensure our computed landing data reflected inoperable antiskid, we used a lower RCR value.

As mentioned above, the inboard spoilers were also powered by the left side and inoperative for landing. We still had full use of the outboard spoilers, but calculated our landing distance assuming zero spoilers.

The checklist also directed us to depressurize the airplane, which at altitude meant providing oxygen for all souls on board. To avoid complicating the situation, we postponed this step until reaching a lower altitude.

The checklist also addresses dumping fuel, if necessary. Since we were already below our maximum landing gross weight and had a sufficient go-around climb gradient, we did not dump any fuel.

We flew a normal approach at Beale and touched down uneventfully. The pilot only needed one brake application to slow the aircraft to taxi speed, though I was prepared to apply copilot brakes if needed. We taxied past all the U-2s to the tanker ramp. While the marshaler led us in, the pilot used more reserve brake pressure to slow the jet. As we drew closer to the marshaler, he inexplicably sidestepped to my side and continued leading us in. I assumed the pilot could no longer see him, so when he said, "Brakes" cross-cockpit, I thought he was asking me if the marshaler was giving us the stop signal, which he was. I replied, "Yeah," also cross-cockpit. He said, "Brakes" again, but more anxiously, and I assumed he hadn't heard me the first time. I said, "Yeah," but louder this time. Then he shouted, "BRAKES!!!" and I realized he wasn't asking, but telling me to apply my brakes. The reserve brake pressure was depleted.

We shut down engines and deplaned with all the patients, passengers, and med techs. The crew chiefs were unable to find a leak, but added more hydraulic fluid to the left system, repressurized it, and checked for quantity decrease. The quantity remained within limits and we refiled to Travis. Mission accomplished.

If I learned anything that day, it was that one abnormal condition can have numerous consequences. Whereas some emergencies warrant a quick reaction, our situation demanded we take our time and think things through. Our consideration of all the unusual factors ensured the safety of the patients, passengers, and crew.

USAF Photo by MSgt Al Gerloff

"No Worries... Everything Is Fine Or Is It?"

CAPT KEVIN S. WILLIAMS
47 FTW/SEF
Laughlin AFB TX

I never thought I would be the one giving a "There I Was" story. I had been flying the KC-10 for almost five years and progressed through the ranks to be an Instructor Aircraft Commander. After my involvement in "The Fight" during Operations Enduring Freedom and Iraqi Freedom, I thought that the hard stuff was most likely over as I reached the end of my first assignment. Little did I to know that the "good deal" the squadron gave me for my "Fini Trip" would be the most challenging and frustrating of my young career.

The mission was straightforward enough: Haul some cargo to Hickam AFB, Hawaii, some more cargo to Perth, Australia, and then pick up six Marine F-18s and return them home to Iwakuni MCAS, Japan, from a long deployment. I had a fairly experienced crew and was looking forward to finally getting to both Hawaii and Australia. Except for a minor maintenance problem in Hawaii, the mission went smoothly as we landed in Perth. From there, things began to unravel and I started earning my extra AC pay.

First, the F-18s had several maintenance problems and we were delayed for four days straight. While this sounds awesome on paper, we pushed as if we were a "go" every day. This included the hour-long trip to the field with all of our baggage, uploading the necessary fuel for the mission through substandard hoses, flight planning, coordinating with the Tanker Airlift Control Center and fighter liaison, pre-flighting the aircraft, and then getting the call that the mission was a scrap. Then we needed to get our baggage off the aircraft, re-coordinate with all parties involved, download the fuel (the KC-10 is known to leak if left on the ramp with large fuel loads), call the embassy to arrange for lodging and transportation, and then take the hour-long ride back to yet another hotel. But after four days on the ground, that was all about to end.

On our fifth day at Perth, we were finally ready to be on our way. The fighters had called in the green and our preflight activities were complete. Upon coming out to the aircraft, I noticed an Australian P-3 Orion parked approximately 800 feet to the right of my aircraft. I also noticed that the P-3 was only chocked in front of the right main gear and behind the left main gear. This put the Orion in a position to be affected by our jet blast upon my first 90-degree turn-out from parking. We were not confident that the P-3's chocking configuration would hold the Orion in place during our turn. The KC-10 engine technical data shows that the distance at which our engines generate 35 mph winds behind the aircraft is roughly 100 times the N1 setting. We rarely use much more than 45% N1 on taxi-out, so I figured the 35 mph jet blast would be around 450 feet or so back from my aircraft, which left the Orion outside of the "kill zone." The reason 35 mph winds are charted is that this is the wind speed that has been shown to push over the beloved "bread trucks" that maintenance often drives. With this in mind, my crew chiefs and I still felt that the P-3 should be moved or at least pointed into our predictive exhaust flow and be double-chocked.

To add a bit more to the story, the left turn which I was to make out of parking was also going to have a minor encounter with a three-inch lip on the tarmac, where the asphalt met the reinforced concrete. Oh, did I mention the approximately seven-degree slope up to get to the main taxiway? While I normally used no more than 45% N1 on the No. 1 and 3 engines to taxi out heavy weight, the conditions made me think I might need a bit more. I thought talking with the local ground personnel would be a good idea. The response: "No worries, mate… everything is fine!"

Armed with the "confidence" of the local ground crew and feeling that we had done our part to avoid any mishap, we closed up, started engines and were ready for taxi. The fine gents who presided over our engine start, however, promptly took off when it was time to taxi, so we did the best we could without any marshallers. Having left the ramp behind, we were well on our way to the second of my learning points.

As pre-briefed with our fighter liaison, we checked in with tower and explained that we were waiting for our six-ship of F-18s all to be airborne before we took off. The KC-10 max landing gross weight is 425K pounds and if we were to take off and the fighters were to cancel, we would have to either fly for eight hours to burn off the fuel, and

effectively slip the entire package two days due to crew rest issues, or dump the 100K pounds of fuel somewhere and land. Let's see...delay the package two days? Not good. Dumping enough money in gas to send the crews' kids to college? Still unacceptable. Therefore, we had established that the liaison would call the Perth tower when all F-18s were airborne and then we would take off. Sounds simple enough, doesn't it? Well, the long awaited clearance from tower was received and we re-confirmed that all six of our chicks were airborne. The reply was affirmative, so went out to do the NKAWTG thing that we love.

Shortly after takeoff, we were contacted by the lead F-18, who seemed downright surprised that we were airborne. Apparently the tower folks had received the tape that the lead aircraft was airborne, which in "the system" shows all six fighters airborne. No harm, no foul, until we learned that the last four had aborted, and that Lead and his wingman were RTB. That left us in the exact predicament we didn't want to be in. To make a long story short, the mission was too important to slip an additional two days, so we were instructed to dump fuel and return to Perth. We called all the right folks and got the proper permissions to dump our 100K or so of gas out over the ocean and landed back at Perth.

Now: Remember the P-3?

As we taxied into a very small ramp structure that was far removed from where we had been parked, I looked out the window and saw some fine folks in "Blues." I had been doing this job long enough to know that the folks in business suits didn't come out to your aircraft unless you were coming home from the fight, or had messed up. The first one was eliminated, so I knew something must have happened. I was met by the Australian base Chief of Safety once the doors were opened, and was informed that my aircraft had indeed produced sufficient exhaust wind to push that tiny P-3 which spun into one of its engine stands, thereby puncturing an un-pressurized portion of the fuselage. Here is where my "There I Was" words of wisdom come in.

First, the Australian Air Force safety division operates much like ours. The investigations made by safety are non-punitive in nature and look only to find the information needed to prevent future mishaps. This, of course, was a minor relief but not 100% calming in my situation. Turns out the P-3 had been chocked according to Aussie technical orders, and I had done what I was expected to do, so my nerves subsided a bit.

Of course, there was still the matter of letting folks back home know about the incident and that (oh, by the way) I had just dumped a lot of fuel over the Great Barrier Reef. I filled out the safety reports, faxed them back to my home unit, filled out the proper forms for the fuel dump, and all was right in the world again—or at least the required actions were completed. I must say, I still think on that day and get a mild lump in my throat as I think of what could have been if I had omitted even one little sanity check. Sometimes CYA is all about taking the necessary precautions to avert a situation and then if things still go wrong, you have your previous actions to stand on. While nothing more was said on the subject and I am confident I did a good job handling the two aforementioned situations, there is still plenty to learn from my experience.

1. Safety is safety, no matter where you are. As long as the investigating authority has given you a "promise of confidentiality", cooperate with the convening authorities and let them know everything you did or did not do prior to and during the *mishap*. Not only is honesty the best way to fix the problem, but it is also the only way the "promise of confidentiality" will remain with you. Bottom line, it is a lose/lose situation if you are not fully honest with any safety investigating official.
2. While my crew and I did everything we thought we could do to alert the locals of the potential for a *mishap*, we did not do everything. First, while telling them what to do might have achieved some results, we could have explained that we would not taxi with the P-3 in its current position. This may have been all that was needed to avert this incident. I know our tech data said everything should be fine but the safer the better.
3. If the ground crew that helped start our engines had remained and marshaled us, we could have been told to stop taxi at the first sign of trouble from the P-3. Instead, we had no vision behind us and continued on our way. While we always have marshallers stateside and on our bases, you may not always get the same support from host nations. Talk with the ground folks prior to getting in your aircraft and let them know what you would like and require for safe operation of your aircraft.
4. Last, while I thought the fighter liaison and I had a simple enough plan, sometimes the KISS principle is too simple and we should have established a code word or the like to ensure that the tower was not accidentally giving us erroneous information. Something simple like, "Per Major So-and-So, you are cleared for takeoff." If we had established this line of communication earlier, we would have never departed the airfield.

The lessons learned sound simple because they are. Most of these "There I Was" stories are not that complex. If only a couple things had been done slightly different, the outcome would have been greatly changed. My situation was like most with safety issues, entirely avoidable. As it was, I got to put my new found learning to the test the very next day, this time with greater success.

CRM VS. THE PUCKER

ANONYMOUS

USAF Photo

Fresh out of instructor pilot upgrade training, I was scheduled as the instructor on a pilot proficiency sortie. It was cool, being the instructor of record for the first time out of training. I found it amazing that I was getting paid well to go out and accomplish training strictly for honing approach, landing and air refueling skills.

The sortie was mission planned the day prior, to include fuel planning and transition base selection. When the navigator and I discussed fuel loads he suggested the standard proficiency sortie load, while I thought 5,000 less would be better so we could minimize low approaches and maximize touch-and-goes. Otherwise, mission planning was uneventful. We took off on time and accomplished touch-and-goes earlier than usual because of the lighter fuel load. Fifteen minutes prior to leaving the pattern to air refuel, we had the navigator check the tanker's status. The tanker needed to slip the refueling time 45 minutes later than planned. This would not be a problem, but would get us to the tanker just above bingo fuel.

I'd been on sorties before where we slipped to meet up with the tanker and considered it no big deal. It would just increase our pucker factor slightly. So we accomplished more transition training until it was time to depart for the tanker. As we headed out to hook up, the weather had deteriorated along the track, requiring us to weasel our way around to find the tanker. Now it would have been nice to have that extra 5,000 pounds of fuel. The weather didn't get any better the farther we drove out, so after a quick discussion we coordinated with the tanker to do random air refueling back toward our base before we hit bingo fuel. We hooked up with the tanker, got our fuel, accomplished our training and proceeded back to base to finish up more transition before we did our full stop.

When I look back at this flight, there were many things I would do differently, despite meeting all of our training objectives. The first thing would be to take the standard fuel load. Doing the one additional touch-and-go did not outweigh the benefit of extra slop time for tanker slippage. Although 5,000 pounds would not change much, it would have given us more time to navigate around weather.

Planning for the weather was another consideration. Have a backup plan ready to go even if weather is supposed to be great. Through great crew resource management (CRM) and coordination with the tanker crew and air traffic control, we were able to accomplish our air refueling training.

Very close attention to the fuel status was carried out by myself, the flight engineer and the navigator. The navigator continuously updated weather and checked airfield status in case we had to divert. The extra pilots on board came up with a plan to do random air refueling, which enabled us to turn back to base and eliminate the pucker factor for fuel. ATC gave us and the tanker a block of air space to conduct random air refueling. Bottom line: Always use all the resources you have available. This frees up your mind to concentrate on the task at hand and to provide the best plan.

This flight definitely exhibited the adage "Train like you fight." Everyone working together and contributing made the flight a success and gave us the best thing anyone could get, "real world experience." At the end of the day we felt a huge accomplishment and will be even sharper when it comes time to execute in time of war.

Lastly, I also had an appreciation of the exhaustion an instructor feels at the end of a six-hour pilot proficiency sortie when you are the one who signs for the jet, instead of being the individual who is just there to accomplish continuation training.

Most everyone in the Air Force has the mindset to get the job done and fly the mission. However, if you cannot get all your training events done because of unforeseen events, stop and try it again another day.

My lessons from this sortie are: Set limits that give you extra options, practice good CRM, coordinate with all the agencies you're dealing with, and finally, call it a day when you have reached your preset limits.

FY06 Flight Mishaps
(Oct 05-July 06)

15 Class A Mishaps
0 Fatality
7 Aircraft Destroyed

FY05 Flight Mishaps
(Oct 04-July 05)

30 Class A Mishaps
12 Fatalities
11 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.
30 Mar	✈	A T-38C landed short of runway.
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.
21 Apr		An F-16C sustained engine damage from bird strike on takeoff; RTB OK.
08 May		A B-1B landed gear-up.

Editor's note: The 23 May mishap was downgraded to 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 15 Aug06**.

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An Australian AF F-111 lands wheels-up after losing a wheel on takeoff.