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EXPECT IT

WHEN YOU LEAST EXPECT IT!!

We had just completed an Air Mobile Exercise to upgrade one of the pilots from co-pilot to aircraft captain (AC). The flying had been flawless, the weather was beautiful, and it was a great day for flying. And, it was Friday afternoon! After refuelling, I performed the take-off from the left seat, with my co-pilot in the right, the flight engineer (FE) at the right cargo door, and an on-the-job training (OJT) pilot in the jump seat, between the two pilots. Just after the take-off, the OJT pilot asked if he could program the Omega on-board computer. I told him to go ahead. A short while later, he started experiencing some difficulties with it, and the co-pilot started to help him. The co-pilot had no luck either, so the FE decided to leave his position to go help with the Omega.

So, here I was, flying a Twin Huey at fifteen feet, with everybody else in the aircraft looking inside, down at the console. I was just about to say, "Hey guys, we don't need the stupid Omega, so start to look out!" when, "WHAM," the right windshield was shattered. I immediately figured that it must be wires. I identified a landing spot approximately 1/4 mile ahead, and landed the aircraft. Inspecting the aircraft after shut down, we could see that the wires had hit the right windshield, went up to the wire strike protection system (WSPS), and were cut. We could also tell where the wires had hit the right side of the fuselage as well as the blades.

In hindsight, there were certainly a lot of events that led to this accident; crew resource management, complacency, inattention…to name but a few. As well, those wires had no identification features such as orange balls, etc. It was interesting to note that other aircrew came afterwards and said that they had just missed those wires on several occasions, but had done nothing about it.

Lessons learned? A lot. Flying needs your constant attention. Manage your crew. See a hazardous situation? Report it. Don't forget — the worst things always happen when you least expect it. ◆

Captain Daoust

DEMON XX

It sounds amusing, but it highlights a very real need for effective communication between ATC and the flight deck. The story goes something like this….

There we were, on a pilot training mission, tasked with transporting a couple of passengers from Comox to Navy Air Station Whidbey Island — no problem, right? Just as we passed over Victoria and prepared for descent into Whidbey, the low oil pressure light on the #4 engine illuminated. We looked up at the oil pressure gauges just in time to see the quantity and pressure fall to zero — so much for an easy transit.

An emergency was declared with Vancouver Centre and they immediately offered us Vancouver International or Victoria airport — imagine, either one, and us without a slot time! After assessing the variables, the Aircraft Commander decided Comox would be the most appropriate destination, and, with no further ado, Vancouver Centre cleared us there direct. About this time we started to feel pretty important; after all, ATC was offering us the world and all that was wrong was that we had lost one of our four engines. The weather in Comox was about 500' scattered, 700' overcast with good visibility and we weren't worried — just like the simulator, nothing to it.

Vancouver Centre handed us over to the Comox Terminal Controller about 40 nm east of the aerodrome where we asked if they'd received our status from Vancouver. When the controller said "yes" we were ready to complete a textbook recovery. We proceeded to discus the events of the day, the state of the nation and other esoteric topics that required our attention. The transition and descent into Comox went without anything significant happening; we were still IMC when we hit mid-field downwind, but the controllers were looking after us just fine.

It was about the 11-mile downwind point when a discussion started to go around the cockpit as to when we'd receive our base leg turn. At 12 miles we were starting to think about giving them a nudge when we were given our sequence. "Demon XX, you're #2 behind Dash-8 traffic 8 miles final" said the controller in a calm, reassuring voice.

"Huh? Number 2? Doesn't he know we've declared an emergency…? Doesn't he know we need to be handled with kid gloves?" Comments began to fly around the cockpit. We landed the aircraft and made a beeline for the nearest telephone. Obviously this controller needed a quick lesson in controlling, and who better to give it to him than a pilot. Well, after a brief discussion with him, I'd learned a thing or two.

One of the most powerful tools Cockpit Resource Management has given us is a more thorough understanding of the importance of communication. Something we forgot is that ATC is a member of the team that is responsible for the "safe, orderly, and expeditious flow of traffic" through the skies. They may be removed from the aircraft, but they play as integral a role as any member of the crew. What ATC forgot was that an emergency requires a higher level of attention to detail than your everyday traffic movement, because the aircrew may be distracted by other things going on in the aircraft. The communication between the aircraft and Comox ATC was limited to our initial contact on handover when we said: "Did Vancouver tell you we declared an emergency?"

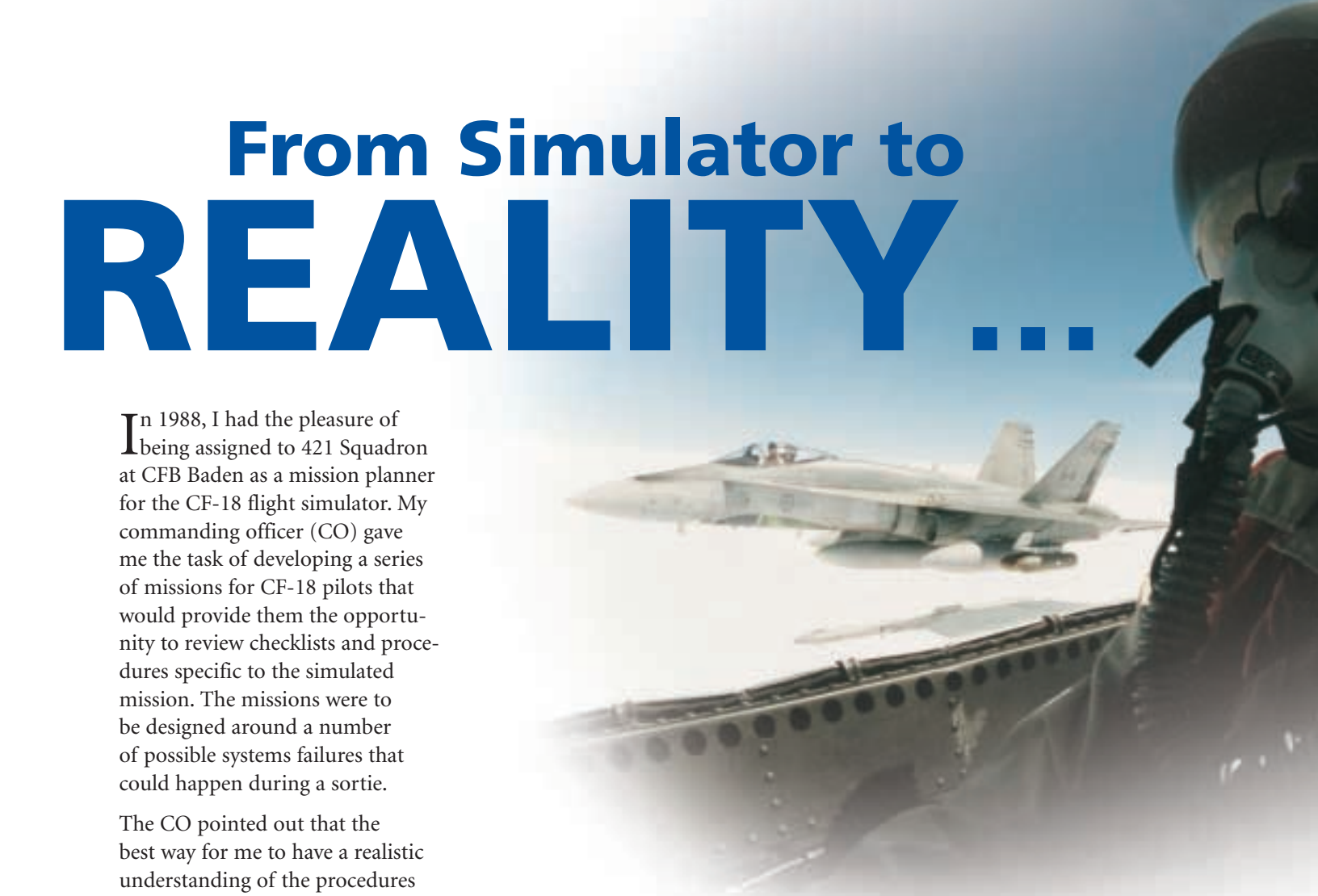
You can make a number of assumptions on both sides of the fence from a statement like that…Pilot Thinking — "Ah, good, he knows how serious our situation is, and we'll get the priority handling we need to get this airplane on the ground as soon as possible." ATC Thinking — "Another Aurora with an engine out. They haven't asked for priority handling, so it can't be too serious an emergency. We'll get him on the ground in a reasonable amount of time without causing undo delay to other traffic." Is either of these assumptions wrong? Yes…and No.

We couldn't function without assumptions — they are reasonable attempts to fill in gaps in our understanding of a situation, but they should be reserved for instances where further clarification isn't an option. In this case, there was plenty of time available to both aircrew and ATC, neither availed themselves of the opportunity. While we had passed on the required information to Vancouver Centre when the emergency was initially declared, we had not done this with Comox Terminal on handover. We found out after replaying the terminal tapes that Vancouver had told the terminal controller of the nature or our emergency and that we'd requested priority handling, but that it hadn't been passed to the controller working the arrival station. Should he have made further inquiries of us to help clarify the emergency in his mind — probably, especially if he was going to make assumptions as to the urgency of our situation — the pilot is the only one in a position to assess that. Should the pilots have taken a more proactive role in monitoring what the controller was doing with them? Probably, because when it comes right down to it, the pilot is responsible for everything that happens to his aircraft and timely query could have averted this whole incident.

Press Your Transmit Switch.

The importance of effective two-way communication cannot be given enough priority. It's not an easy topic — we try to structure flight and the rules associated with it as much as possible, but personal technique, human error and environmental factors will be things that we will never control. They can only be overcome through effective communication — a skill which requires continuous and vigilant effort to master. The decision to sequence a civilian carrier ahead of our aircraft was based on the controllers supposition that he would not be unduly extending our flight time — a decision he probably wouldn't have made if he'd asked us if we could extend our downwind to be sequenced second. Likewise, if we'd been more closely monitoring our situation we might have queried why we were being extended without having received sequencing. The last time a Maritime Patrol Aircraft was lost was in the late 1970's during a three-engine emergency. With the last accident such a distant memory, and flying such a reliable, redundant aircraft, it is easy to allow the spectre of complacency to influence our actions. ◆

From Simulator to REALITY...



In 1988, I had the pleasure of being assigned to 421 Squadron at CFB Baden as a mission planner for the CF-18 flight simulator. My commanding officer (CO) gave me the task of developing a series of missions for CF-18 pilots that would provide them the opportunity to review checklists and procedures specific to the simulated mission. The missions were to be designed around a number of possible systems failures that could happen during a sortie.

The CO pointed out that the best way for me to have a realistic understanding of the procedures was for me to experience them myself — first in the simulator and secondly (and more importantly) by doing some actual cockpit time. One morning, after logging over thirty simulator hours and learning as much as I possibly could about the aircraft's systems, another Captain (let's call him Bob) approached me from my squadron. He smiled and said, "It's a beautiful day… are you ready?" Bob explained that we were going to be doing an Air Combat Maneuver (ACM) mission with a two-ship versus a single-ship (2 V 1) scenario, and we were going to be the single-ship aircraft. This was my fourth backseat ride but my first ACM mission, and I was looking forward to some cranking and banking.

Of course my response was an immediate "yes" and Bob filled me in on the details. He told me that my role was to lock up the other aircraft with the radar as well as be the second pair of eyes. At 1000 hours, we proceeded to the runway for take-off. By 1015, we were airborne and at 20,000 feet. As Bob completed his systems check and confirmed that I was ready, we waited for the other two CF-18's to arrive. They joined us a few minutes later and the mission was on. Trying to be the second pair of eyes as well as locking up targets while pulling between three to five times the weight of gravity (3–5 G's) was incredibly difficult. Under the G-force, your head and arms become three to five times heavier, thus making movement of any kind quite difficult. Even though the job of being the "backseater" was extremely hard and sometimes frustrating, the experience was unforgettable.

We were actually holding our own against the other two jets until there was an unnatural shudder throughout the entire aircraft. Immediately, Bob asked me if I had inadvertently handled the throttle control in the rear and my response was negative. As Bob was checking all the systems, he called over the radio "knock it off, knock it off" and informed the others that we were experiencing a runaway throttle with the right engine. After attempting to correct the problem without success, the engine had to be shut down and we had to return to base immediately.

As soon as the aircraft was turned back towards Baden, Bob began to brief me on ejection procedures just in case the conditions worsened. It was then that the seriousness of the situation came to light and made me extremely happy that I had reviewed in **great detail** what actions were required in the event of an ejection. A short time later, while under escort of the other CF-18's, we were on final approach and the aircraft landed without further problems. This experience reinforced the importance of being prepared. It also taught me that any type of mission can take a turn for the worse and if I am ready for anything, I will have the confidence to deal with the situation with a calm set of eyes. ◆

Captain Phillips

DISTRACTION

— Is Your Mind on Your Job?

Many years ago, I was posted to a unit and was working within the Aircraft Servicing Section. On one particular sunny morning, there were several before-flight ("B") checks to be carried out on the flight line. I was assigned an aircraft by the Servicing Desk NCO and proceeded out to conduct my inspection. I was considered one of the more experienced technicians and, quite often, my expertise was called upon to answer questions or to verify a problem discovered on the aircraft. This morning would be no different.

I was in the final stages of completing the "B" check with only the right-hand engine compartment to finish, when one of the technicians asked me to look at something on his aircraft. I explained that I would be there in a minute, once I had completed my inspection. However, he was very worried that his aircraft would not be ready to launch on time, so, sensing the urgency in his voice, I decided to come down off my aircraft and look at his problem. I then returned to complete my inspection. As I knew that I was pretty much finished, less the final closeout, I took a quick look around and then closed the engine door and proceeded into the line shack to sign out the inspection.

Later on, I was called into my supervisor's office to explain to him why the engine oil cap was found not installed on the right-hand engine of the aircraft I had "B" checked earlier in the morning. The pilot had discovered it while carrying out his pre-flight inspection.

Well, you could have knocked me over with a feather! I considered myself a perfectionist. How did I fail to install the oil cap after checking the oil level? Then it came to me — that was the exact time that I left my aircraft to investigate the problem for my fellow worker. I must have forgotten to put the cap back on. Clearly, I was not focused on the task at hand. Had the pilot not found the cap off and had the aircraft gone flying, who knows what might have happened!

I learned a valuable lesson from that. Now, I always keep my mind on the task at hand and I always recheck the work area thoroughly prior to closing out. So…is your mind on your job? ◆

MWO Neal

FALL BACK ON YOUR

TRAINING

While employed as a forecaster/briefer at sea, I had an experience that reinforced my faith in our training system. One morning, we left very early to sail to the area south of Halifax. By early evening, we had stopped as we neared what would be our operational area for the next few days. The forecast was good and no significant weather was expected to move into our area during our deployment period.

The Helicopter Air Detachment (Hel Air Det) on board had a scheduled launch and I briefed the aircrew on the expected weather conditions for their flight. My forecast was for the existing favourable weather conditions to persist in our operating area. At launch time, the ship's weather observation was reporting some patchy low cloud and good visibility with a light wind that had shifted southerly during the day. Not long after the Sea Kings had departed, the ship entered an area of fog, where we saw the visibility rapidly decrease to near zero. As the ship continued on a southwesterly course, I consulted with the Officer of the Watch to determine the latitude and longitude where the ship had entered the fog and to confirm the ship's planned track for the next couple of hours. I had to start thinking about the ship's weather for the scheduled Sea King recovery at the end of its mission, in just over an hour.

After gathering this data, it was back to the weather office to plot those positions on the latest Sea Surface Temperature (SST) analysis chart. The significance of this chart to aviation is that fog tends to form in the same areas where the cooler waters are found. This advection type fog is formed in this marine region when surface winds draw warm moist air from over the Gulf Stream waters northward, towards the cool waters associated with the Labrador Current.

I had no sooner completed plotting the ship's position and track on the chart and taking a weather observation, when the ship's piping system sounded "emergency flying stations." I quickly reported to the operations room, with my trusty weather charts in hand, where the ship's air control officer (SACO) was briefing the operations staff that the pilot had declared an emergency. The Sea King was experiencing mechanical troubles and would be headed back to the ship for a recovery. I went up to the bridge to brief the Commanding Officer (CO) and the senior Air Officer on the expected weather conditions for the recovery. The ship was still in an area of fog, with visibilities fluctuating between zero and 1/4 of a mile. We had to find better weather conditions in a hurry! The options were quickly narrowed down to heading back northeast to the last area where the ship had good visibility, (an option that was now over thirty minutes away), or continuing on our present course, heading towards warmer waters which appeared just ahead on the SST chart. The chart indicated that the ship had just entered the southern tip of a tongue of cold water, with warmer water to our south, southwest, and northeast.

As I put my thoughts together, I remembered a comment made by an instructor during the marine portion of my forecasting course about the reliability of the SST charts for the prediction of fog. Armed with this knowledge, I recommended that the ship stay on its present course, heading towards the depicted warmer water area. I had figured that the ship should transit into this area fairly quickly. With the concurrence of the command staff, the ship maintained its course. The SACO then contacted the Sea King, which was operating out ahead of the ship, to confirm weather conditions at the proposed rendezvous point. As it turned out, the ship steamed out of the fog bank to good conditions within minutes. The ship turned into the wind just as the helicopter came into sight and the recovery went without incident.

I learned several lessons that day. Firstly, when in doubt, remember to fall back on the training that you have received. Secondly, remember that "this airport" changes latitude and longitude along with the ship. Therefore, as a ship's forecaster, one must be very conscious of not only the waters the ship is currently operating in but also, of the environment to where it is heading. ◆

Has Anyone Seen my GLASSES?

There are old pilots and there are bold pilots…but there are no old, bold pilots. It's a good aphorism to remember. Pass me my cane…and I'll tell you how it worked for me.

Having witnessed a number of "missing man" formations for fellow pilots and having also enjoyed the "I learned about flying" stories at TGIF during my initial pilot training, I cleverly determined that I stood a good chance of collecting my pension if I flew Her Majesty's aerodynes in a conservative fashion. Having feet of clay, I have, nevertheless, slipped on more than one occasion in that regard, but two distinct instances come to mind where the process of flying conservatively has permitted me to gracefully age into the rank of Master Captain Pilot!

My first "near gotcha experience" involved a routine three plus two formation take-off from Yorkton, Manitoba. Flying the redoubtable Musketeer, we had completed our airshow the previous day and were to proceed that morning back to

Portage. We had managed to secure a stay of absence from the Commandant for one extra day to remain overnight in the exotic locale of Yorkton, but we definitely had to be back at the Canadian Forces Flying Training School (3CFFTS) later that day.

After an uneventful start-up and completion of our usual run-up checks, we proceeded to the runway, applied power against brakes and commenced our take-off roll. However, my engine just didn't seem to be responding quite right and, although I was maintaining formation, it seemed a bit sluggish. I announced that I was aborting. The lead quickly thereafter called an abort for the whole formation as well, and we all taxied back to the ramp. There were lots of reasons (and pressures) for the team lead to continue back to Portage, but he chose not to leave and instead waited for my technical crewman and I to finish some rudimentary trouble-shooting on our misbehaving engine. Commencing a number of high-power engine runs, the engine began to run noticeably rougher and began to seriously deteriorate in performance. By this time, some of the other waiting planes were also experiencing rough running engines. The long and short of the story is that some clever fault analysis by our crewmen determined that we had been refuelled with contaminated aviation gas (avgas.) Although I was the first aircraft to abort, my aircraft was not the worst of the water-contaminated planes. If not for my "conservative old man's" call to abort (based only on a "this doesn't feel right" sensation) and an *equally* very conservative call by the team leader to hold the team on the ground; there would have been five Musketeers crash landing into the forests and fields surrounding Yorkton.

My second close call involved an "indoctrination" low level navigation trip in the T-33 for a new, electronically enhanced navigator (EWO) on 414 Squadron in North Bay. It was a beautiful fall day; we had great weather, beautiful scenery and the cool fall temperatures gave the lungs of that old T-Bird a bit of performance — what could be finer than flying Mr. Lockheed's trusty Silver Steed? Now, perhaps I should remark that some of our pilots would have really put the aircraft through its paces, pulling 4–5 times the weight of gravity (G's) in the turns, aggressively correcting to track or altitude and perhaps even taking special glee in breaking in a new EWO. However, most of the older guys (age greater than the age of the aircraft) tended to be smooth and deliberate in their flying, treating the old plane (and their older bodies) with a bit more dignity. For myself, pulling a lot of G, flying low level and getting sick — well, that was just dumb. Who wants to work harder, sweat more, and have to smell vomit for an hour?

I briefed the new EWO that I was **not** going to "yank and bank" my way around this trip. I told him to "relax, put your feet up and see if you can get me home without the bad guys shooting us down." I also mentioned that I wanted to use small, but smooth, corrections to track and altitude. The mission was scenic and comfortable; the EWO was clever and timely in calling the required corrections and, too soon, we reached our target — a small island in the middle of Lake Nippissing. As I commenced a 2G pull-up from 500 feet, the engine, to my dismay, quickly lost power! As I ran through the checklist to try to regain power, I discovered that I could barely maintain level flight. An ejection twenty miles off-shore in frigid Lake Nippissing, with no dedicated Search and Rescue (SAR) resources at North Bay, would have been ugly!

Again, the long and short of the story is that I limped back to the base, had my engine flame out on final and then was told that I was on fire as I touched down! The emergency egress was unremarkable; they secured the fire and the navigator bought me a beer — isn't life wonderful? Well Orville, here's the rest of the story…

The partial power resulted from a disconnect between the manual high-pressure cock and the cable which connected it to the fuel valve at the engine. As the aircraft experienced G forces above 1G, the fuel valve and cable were moved unrestrained by the cockpit lever into a semi-closed position, thereby reducing the fuel flow to the engine. It couldn't be reopened in flight and, in fact, would be closed tighter by more G. If I had been aggressive in my flying earlier in the mission, I would have probably flamed out the engine at low level somewhere in the middle of the Canadian Shield — probably over a very cold lake, and probably **no one** would have hear my "Mayday."

Flying smoothly *and* conservatively, listening to those little voices that say "whoa" instead of "giddy-up" isn't such a bad thing. After all, after two decades, I'm still doing what I love to do…flying conservatively! Now…has anyone seen my glasses? ◆

Captain LaPalm

FREQUENCY SEPARATION

As I looked up from my airspeed indicator, I saw the top of a tow plane crossing my flight path, with a 200-foot towrope trailing behind it. That's how what was supposed to be a routine test flight became a flight that tested me!

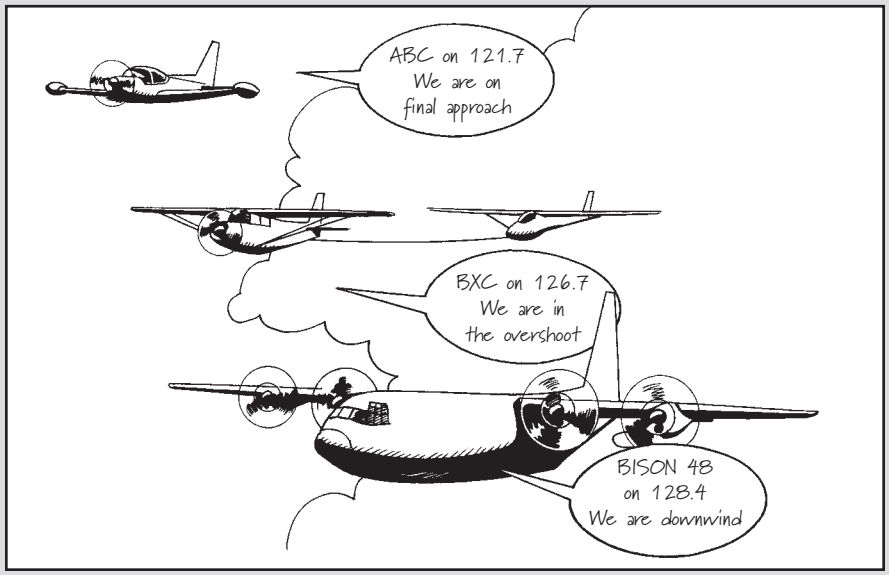
It was near the end of a flying day and the weather could not have been better. The aircraft that I was to fly had just been completely overhauled and it needed a test flight before it could be released to service. On the west side of the field was extensive glider training doing left-hand circuits. On the east side of the field was the normal circuit pattern consisting of a few local aircraft doing right-hand circuits. An air traffic advisory, which only operated during gliding operations, was monitoring three separate frequencies: ground, gliding, and normal communication frequency for the airport.

I departed the airport using normal communications and I proceeded to a safe area north of the field for the test flight. After completing all of the upper air work, I returned to the airfield to do a few circuits. I entered the circuit on the east side of the field, called the down-wind, and stated that I would be doing an overshoot once I reached the button of the runway. At this time of day the gliding operation was shutting down, and they were starting their hangar runs on the separate gliding frequency. This involves gliders crossing the active runway on their base leg and turning final on the east side of the active runway, allowing the gliders to land closer to the hangar. As I completed a right turn onto final, I noticed that there was a tow plane completing a left turn onto final for the grass strip west of the field. This aircraft was on gliding frequency. On the grass strip waiting to cross the active runway, and now on normal field frequency, was another tow plane — tow plane #2. Tow plane #1, who was on final, called tow plane #2 and asked him to get out of the way. Because tow plane #2 was not on gliding frequency, it did not hear the request. Seeing that there was no response from the tow plane in the landing area, the pilot of the aircraft on final elected to overshoot.

At that particular moment, a glider was now crossing the departure path of the overshooting tow plane. With nowhere to go, and not knowing that I was behind him on final and at the same altitude, the pilot turned right. I was just starting my overshoot and, after verifying my airspeed, I looked out and saw the tow plane turning in front of me. I immediately did a full-power, low-level right turn to avoid the aircraft. I called my intentions and elected to do a tight 360-degree turn and return for landing. On final once again, I looked out to find the traffic when I noticed the tow plane completing its turn to final about 50 feet above and slightly behind me. The tow pilot had switched frequencies after I called my intentions, and still was not aware or informed of my position or what had happened. I did a low-level overshoot and re-entered the circuit. I still was not aware that gliders were crossing the active runway and I wonder to this day, if that tow plane had not turned in front of me, if I would have hit that glider.

That day there were plenty of communication devices and resources available. Still, there was a major communication breakdown, which almost resulted in a mid-air collision. I hear formation flying can be exciting and fun but, until I receive proper training and practice, I hope that in the future I do not see an aircraft that close again. ◆

Captain Gielas



The Power of a BAD ATTITUDE

AN OPERATIONAL RANT

Thomas Edison, in an effort to discredit his competition, the Westinghouse Co. (it had developed alternating current when he was selling direct current), would hold public demonstrations showcasing the dangers of AC. He once publicly electrocuted an elephant to illustrate his point. Needless to say, and to the mortification of elephants everywhere, AC went on to become the worldwide current of choice. It occurs to me that AC is very much like the "hazardous personality profiles" referred to in Pilot Decision-Making (PDM) courses. PDM maintains that we all share these hazardous attitudes. Because we all share these bad attitudes, I would consider it self-evident that the attitudes themselves are a product of the evolutionary process, and therefore needed for our continued survival.

Evolutionarily speaking, there must be some occasions when a bad attitude is needed. For example, how do you survive working for a company, or a customer, with a poor safety culture? Can the bad attitude of co-workers be dealt with by using a more positive form of bad attitudes? Instead of trying to contain and subdue bad attitudes by giving PDM courses, I say we look at the possibility of rechanneling these so-called bad attitudes toward the cause of flight safety and continued survival. Here are the alleged bad attitudes that fuel poor decision-making:

- Macho
- Anti-Authoritative
- Invulnerable
- Impulsive
- Resignation

I remember one PDM course where, as several pilots sat looking at the inventory of bad attitudes, a somewhat crusty Transport Canada inspector said: "Except for resignation, that's pretty much what you're looking for when you hire a pilot."

Afterwards, I remember thinking that he was wrong. Without resignation, most pilots could not cope with payday. But as a result of his statement, I began to realize that there are no bad attitudes. There are only badly used attitudes. I'm going to postulate a new hypothesis that I'll call "Bad Macho-Good Macho."

Bad Macho — Good Macho:

Machismo requires that you prove your superiority. Proving your superiority is not in itself such a bad thing, when done for the right reasons. Misguided machismo, however, will cause you to make bad choices in order to beat the competition — and your competition is anyone else who would dare hold a pilot's licence. In order to be recognized as the "best of the best," misguided machismo will cause pilots to over-torque power trains, hover around in the fog at gross weights, keep flying helicopters that should be grounded, and lie about how long it really took to move a slung load. (This is the only business I know of where people lie to make less money.)

The ultimate result of "bad" macho is that these people actually take pride in how much they can "get away with." The truly insidious thing about macho-man attitude is how contagious it is. Introducing as little as one macho man to the flight line can set off a maelstrom of alpha male behaviour that normally results in hotter hot-ends, bent and broken skid gear, belly hooks ripped from the aircraft, and power trains that make more metal than Alcan. When it reaches these levels, we're way past cute anecdotes. We need a hero.

I'm talking John Wayne here. We need a guy who will stand tall against the bandito horde that's riding wildly down the company's main street. You can be that man. The company lunchroom will be the first showdown. When macho man publicly brags about how heavy the load was, publicly remind him that the extra money required to fix bent helicopters usually comes out of the salary budget. When macho man launches into the fog, don't follow him like some teething little puppy dog. In fact, take the time to publicly attack his decision and even go as far as completing an incident report on him. You get the idea. This company is your town, and these morons have got to go. It's as easy as that.

On Authority:

During a PDM course, you will learn that anti-authoritative behaviour is described as a "don't tell me" attitude. Personally, I think that anti-authoritative behaviour in our business is just a cover. Many years ago, a semi-drunk acquaintance of mine provided me with a fine example of true anti-authoritative behaviour. He took a hammer to the roof lights of six police cruisers in the parking lot of the local police station. Naturally, he was arrested; through due process he was rehabilitated and returned to society.

I do not approve of what he did; but unlike the helicopter pilots who revel in anti-authoritative behaviour, this guy did not exhibit his anti-authoritative streak a thousand miles away from the nearest authority figure. Let's face it — the remote nature of our work makes rule-breaking as easy as shooting fish in a barrel. The big anti-authoritative act is usually just a cover for sucking up to the customer.

So stop being a brown-noser! When the "client" wants you to fly over-grossed, or carry passengers with slung loads, or fly in near zero/zero weather, or exceed duty times, or land in unsafe confined areas, or fly after dark, and makes all sorts of other "time-saving" requests, "just say no."

Impulsiveness:

The framers of any decision-making course would like you to stop and think before you do something rash. I say that the road to hell is paved and curbed with "deep thought." I personally believe that an overwhelming majority of helicopter accidents start during the quiet pre-slumber moments of the evening. As you lay in your bunk thinking thoughts like "my buddy's getting that A-Star endorsement. He flies over-grossed in any kind of weather. The customer and the boss love him. If I don't change, I'll be on this R44 forever." The industry needs a fast-acting solution to these kinds of thoughts. So what do we do?

The premise of "just say no" is the conditioned positive response. In other words, we just impulsively do the right thing. Well, if we expect our children to look a biker in the eye and "just say no" to that bag of weed, then saying no to pushy customers, or operations managers, or even ourselves, should be just afternoon tea. So in the interest of flight safety, whenever you feel any pressure, whatever its source, just say no.

Try it: you'll see how easy it is. For example, the customer says: "The other pilot always carries this amount; I figure you will too." You say "no." The operations manager says, "you will be on standby at the hangar all day, and on call all night." You say "no." The little voice in your head says, "I gotta impress everybody." Reply to yourself: "No, I don't." Pretty soon, doing the right thing will become as impulsive as breathing, consequences be damned.

Invulnerability:

By this point, you may well be wondering about my sanity. Well, get in line. I'm not, however, crazy enough to believe that professional actions and behaviours are always responded to in kind. In fact, I know pilots who were penalized for it. But, that was them, and it can't happen to you. After all, what could go wrong? I mean, what are they gonna do, fire me? Now I know that the PDM courses warn about the dangers of such invulnerable thinking. In fact, the pretty little mantra that I'm required to chant whenever I feel invulnerable is that "it can happen to me." This is true until it comes time to say no to the customer or operations manager. On these occasions, you can't indulge such negativism.

Your primary duty as a pilot is the safety of your aircraft and its occupants — even if it costs you your job. If it is so easy to hover fifty miles along a creek in zero/zero conditions embracing the belief of immortality, and still live up to these obligations, why is it so hard to believe that your career will not end if you do the right thing in spite of personal, operational, or customer pressures?

Resignation:

I believe in the power of the individual to make a difference. So in that, PDM courses and I agree. By the daily choices you make, you influence everything you touch. However, there is a time and place for resignation. We pilots had better resign ourselves of a few realities and embrace them.

Specifically, it is the pilot who lives on the leading edge of an accident or incident. Within minutes of the aluminium hitting the ground, armies of pundits will assess everything you did and conclude that they would have done it differently and, naturally, better. If someone dies, the lives of loved ones are forever and unchangeably altered. The external or internal pressures that propelled you toward the crash site will recede to invisibility like the waters of the great flood. Resign yourself to the fact that you will be left alone with your thoughts, guilt and memories, and ultimately unable to do a damned thing to change any of it. ◆

Dennis Venturi

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DFS Note: *When I read this article, I knew I had to pass it on to all of you, the people of our Air Force who have the biggest impact on how safely we operate. I briefed you all on these bad attitudes last year — I called them "hazardous attitudes" and took most of them from a book by Tony Kern called "Flight Discipline." Our list was more extensive, including: Excessive Operational Outlook, Anti-authority, Impulsiveness, Complacency, Emotional Jet Lag, "Take a Look" Syndrome, Machismo, Invulnerability, Resignation, "Airshow" Syndrome, and Excessive Deference Co-pilot/Apprentice Syndrome. Note that all of the five identified by this author are on our list too. I would certainly continue to recommend that as many of you as possible read Mr Kern's book. Meanwhile, enjoy this article, and think about the attitudes of those around you as well as your own, and look for ways to prevent those attitudes from causing or increasing the probability of an accident.*

Food For THOUGHT

A recent flight safety discussion and some questionable things I have seen about the airfield have prompted me to make a couple of points about the test flight business that I feel need to be made to everyone involved in any kind of flight operation. Firstly, I think we all realize the state of the Air Force from both an experience level and from a manning level. Secondly, I think we all appreciate the high tasking level because of the myriad new programs on the go and, lastly, I think we all appreciate the CF tradition of wanting to make things happen because we really want to get the job done.

In other words, we are undermanned and inexperienced, but we've got an enormous task load and we want to get the job done because that's just the way we are. Every year at the Directorate of Flight Safety (DFS) briefing, we are asked to identify where the next accident will happen. The following recommendation is a practical way to try and mitigate the worst from happening in the CF in general. Apply this not only for test flights but also for every mission. Naturally, there is a difference between test flights and other kinds of flying, but the mindset is essentially the same.

Hopefully, you'll find the following advice a practical refresher with some additional bits of my personal experience added. Take it or leave it! First — **plan every sortie**. Planning forces you to run through what you are going to do, and why you are going to do it, and it also forces you to evaluate the possible risks involved. We have all been lulled into a false sense of security at times because the flight is just another routine mission. But…this is a killer! You don't have to micro-plan every mission, but you must plan. Define the scope of the sortie and tailor the amount of planning to the type of sortie to be flown. Always include objectives to be accomplished. "Going flying" isn't good enough, nor is "being safe" or "having fun." Pick some specific things to be accomplished. If you cannot do this, then you shouldn't be flying. Making it up as you go is not acceptable. As a minimum, you should be putting on the "flying hat" thirty minutes prior to step. This means that once you put on the flying hat you are either delaying or canceling if something else pops up and needs to be addressed. This time needs to be considered sacred and must be respected by everyone, which means no work discussions during this time.

Second — **brief prior to every mission**. Briefing forces you to focus on the mission at hand by getting you out of the office, away from your e-mail, telephone, and other project-related distractions. How thoroughly you brief the sortie depends entirely upon the mission to be flown. Always brief a contingency (i.e. "what-if") plan. The preflight step brief is the last element in the planning stage of the sortie. This, too, is a sacred time. People must not be discussing project-related issues, scheduling problems, etc with the aircrew at the ops desk, unless it relates specifically to the flight about to take place. If it is that important, then the flight should be cancelled. Period. Having experienced this problem myself at the ops desk numerous times, I know that when I step out the door to the aircraft, my mind will NOT be on the mission. Engineers, schedulers, project officers, friends, and everybody else — please leave the pilots alone at the ops desk.

Third — **fly the plan**. Execute what you have already planned and briefed. Ad hoc maneuvers are not acceptable.

Fourth — **debrief the sortie**. Every sortie must be debriefed to find lessons learned. The execution of the mission must be measured against the planned and briefed objectives. The objectives are the standards to which you are going to measure the sortie's outcome. There are always things to learn and to get anything out of out of your sortie this must happen. It requires personal honesty about ones capability to be able to come away with anything meaningful. This, too, is sacred time and must be respected by everyone.

Five — **support each other**. If things "just don't look right," bring them up and discuss them. If you

see other squadrons doing something that doesn't look right, ask the questions. If ATC or maintenance is doing something that is raising your eyebrows, then sort out the problem. It is the duty of the skilled flyers to help the less knowledgeable aircrew get to a higher experience state. It is also the duty of the less experienced crew to ask meaningful questions in an effort to become better qualified. How many pilots look at the other aircraft at the hold short position for flap positions, oil/fuel leaks, etc? How many look at the gear position on the landing aircraft? I suspect that too often we:

a Assume things are under control because "they must know what they are doing!!"

b. Don't have time to check things out or get involved;

c. Are unaware because our minds are elsewhere and we're not looking; and

d. Don't really care.

Points (a) to (c) above are often the case, while (d) may occasionally be the case, but only you will know. If we don't support each other in the CF then we can't be surprised when bad things happen.

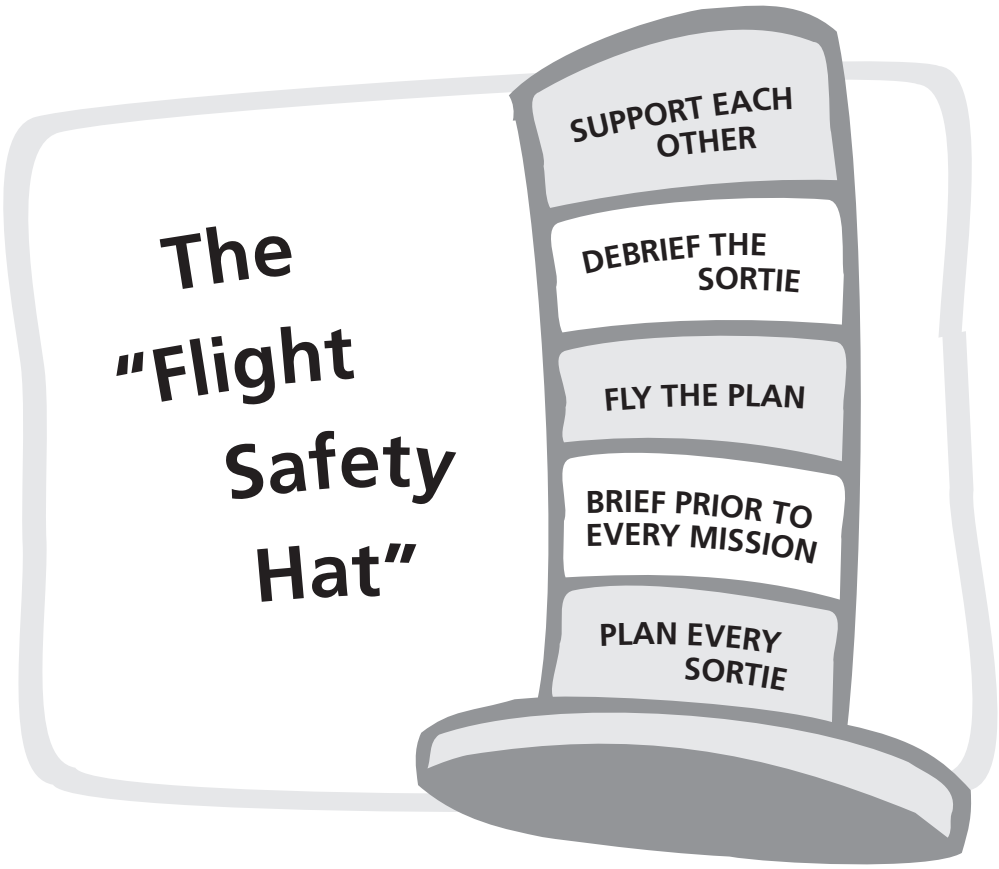
In summary, this isn't about applying some artificial management-developed process. This isn't about writing everything up as a flight safety incident. This is about using your experience to do the right thing. This is about planning the mission, flying the plan, and learning some things along the way. That's what proficiency is for. It is also about understanding that the flight begins at least thirty minutes prior to step time and ends approximately thirty minute after sign in. A typical 1.5-hour sortie is going to take at least three hours out of the aircrew's day and will frequently be more. This is not just for the pilot either — this is for ALL aircrew involved in the sortie. If you can't afford the time because you are too busy, then something has to go. I think we are all at the limit of doing more with less. Serious mistakes are being made. If we continue down this path, the worst **will** happen.

Food for thought! ◆

Captain Roberts

DFS Responds: *I thank you Capt Roberts for your insightful article — this appeared in a local AETE forum and we asked you if we could reprint it in Flight Comment because it applies everywhere. Our air force is working through a period of low experience levels, reduced opportunity for training, and high activity rates; I am convinced that virtually everything that can be done by our senior leadership is being done, but that is not enough. We need people to live the kind of professionalism and discipline this article urges. That, combined with effective risk management at the tactical level, and a real focus on learning and mentoring will get us through this period and leave us the stronger for it. I am encouraged by your attitude — it sets a good example for us all!*

Colonel Harder
DFS



Get The Mission Done!

It started out as your typical Mobile Repair Party (MRP). An F-18 had broken down in the southern United States and a T-33 aircraft was tasked to transport the technician, parts, and tools down south. In this case, though, the F-18 pilot was badly needed back home to meet an operational tasking and time was tight. An MRP had already been sent, but, during the course of repairing the snag, another problem was found that required a different load of tools and parts, as well as a different technician. The original technician did not have the qualifications or experience to repair the second snag. The unit requesting the MRP was going through the typical confusion and hysteria trying to locate and package the parts, find a qualified technician with a current high altitude indoctrination course (HAI) and get him a seat check. By the time everything arrived at the T-33, it was early afternoon, and, yours truly had been waiting for several hours, only knowing that he was "launching the minute that the parts and tech arrive." As the trip would involve two hops and the destination airport closed at 2130 local, I was anxious to launch. The weather at both the destination and the intermediate stop was VFR, but enroute weather was forecast to be relatively poor with storms and low ceilings. This was well below the limits of the questionable TACAN and ADF equipment in the T-33. As a result, the first leg was quite long and spinning the winds got us in with some gas in reserve, but not much, and only if we filed at flight level (FL) 370. The second leg was much shorter and fuel was not a huge concern.

With the parts loaded into the jet, the technician was strapped in and rapidly briefed on the trip, his equipment, emergency procedures, and the intercom system. The start, taxi, and takeoff went smoothly, but not long into the trip I realized that the headwinds were slightly worse than forecasted, and the gas situation, while still legal, was getting uncomfortable. As a result, we requested and got FL410. Those of you with T-33 experience know that this is not a comfortable altitude, and, with the cabin heat full hot, but still shivering from the cold, the cabin altitude was right on 25,000 feet. I tried chatting with my passenger several times, and he was polite but not very talkative. Not a big problem, as I was finding it hard to chat as well due to the cold. Almost three hours later, an eternity on the 45-year old seat cushion, we landed for a gas and go.

While the jet was getting re-fuelled, my passenger and I ducked out for some dinner (about 1930 local) and, it was then, he told me that he had been airsick for most of the ride. No wonder he wasn't very talkative!! By the time we'd finished at McDonald's and returned to Transient Servicing, it was painfully apparent that we weren't going to arrive at our destination before they closed. A quick call was made back to the squadron and, ten minutes later, I was told to go to a different USAF base as they stayed open 24 hours and were only one hour's drive from the broken jet. After re-filing our flight plan, we strapped back into the Lockheed torture seat and blasted off into the inky darkness for points south. We finally landed and shut down at 2330 local and were met by our somewhat irate and frustrated F-18 pilot.

On the way to our quarters, my passenger was told that he was to meet the other technician at the jet at 0400 local so that the F-18 could be ground run at 0700 local and airborne by 0900 local. I was happy not to be in his shoes. At 2am my head finally hit the pillow and stayed there until being awoken by the sound of an F-18 departing just before noon. I met up with the two techs and my squadron mate for a late lunch and then we set off for home.

Late in the evening, after three hops and several airsickness bags from my passenger, we arrived back home. My passenger almost had to be carried from the jet due to exhaustion and lack of sleep. I just chalked it up to fatigue, lack of sleep, the discomforts of flying, and the airsickness.

The following afternoon, I was flying a clear-hood proficiency trip with another squadron pilot (new to T-33's) in the trunk. When he

queried me about the "press-to-test" function on the regulator, a flag tripped in my head. This was the same aircraft I'd flown down south. The regulator seemed to be working, but he wasn't getting a lot of pressure in the mask on the "press-to-test." As we were at low altitude, it wasn't a concern, but we had the ALSE techs look at it once we landed. Sure enough, the cloth outer covering of the oxygen hose was intact, but the inner rubber hose had split. An immediate call was placed to the F-18 squadron and the Flight surgeon was notified. Luckily nothing appeared amiss with my intrepid passenger, but I'm sure he harbours some ill feeling towards my antique jet. I don't expect we'll find him volunteering for an MRP anytime soon. In fact, his HAI expires soon and the last comment I heard from him was that he'd not be renewing it!

What did I take away from this? The same problems and "gotcha's" we've all heard about: rushed tasks; pressures to complete the mission; hurried briefings; and a passenger unfamiliar with the aircraft and its ALSE systems. Luckily, the cloth outer covering on the hose kept the rubber parts together, and provided my passenger with enough oxygen. Had the hose failed entirely halfway through the first leg of my trip, we would have been in a very bad way. The weather beneath us was completely unsuitable for a TACAN or ADF approach (the AUP T-33's are finally getting an ILS, but we didn't have one) and we didn't have the gas to descend and make it to the good weather. The thought of an emergency descent into thunderstorms, low ceilings, and extremely poor visibility with a hypoxic passenger for a TACAN approach at an unfamiliar airfield is something I'm glad I was lucky enough to avoid.

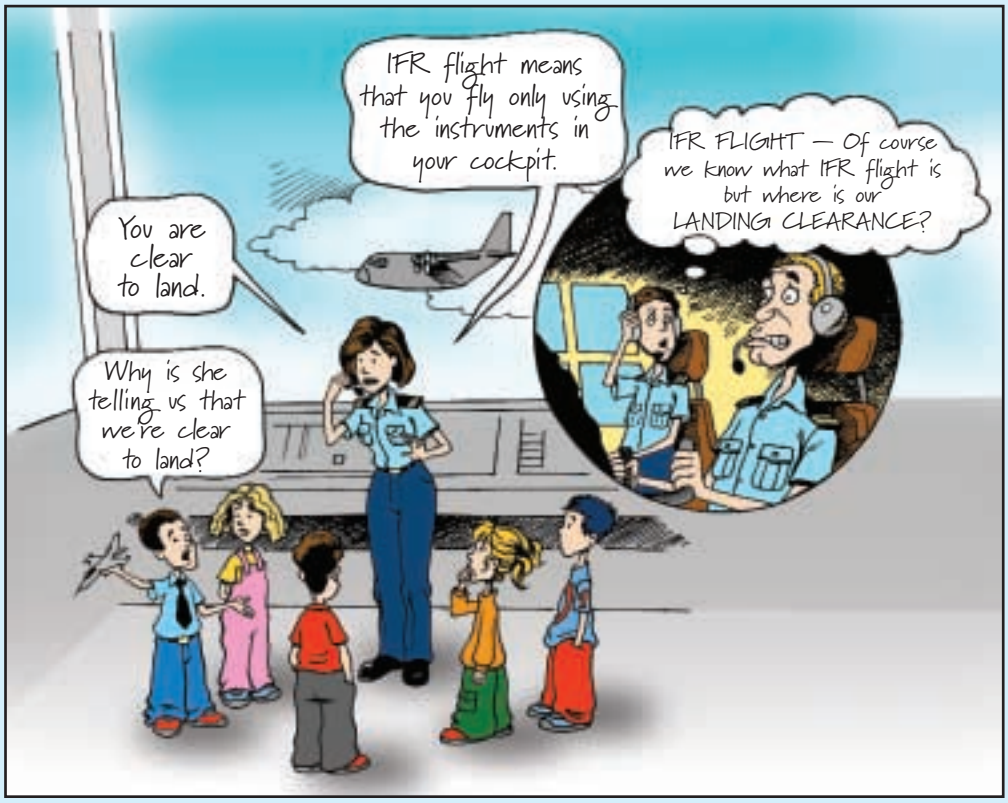
We tend to get complacent when it comes to military passengers, but we jet-drivers can't forget that we're flying high-performance aircraft with complex systems. As aircrew, we're extremely familiar with the ALSE systems and their function and pitfalls. Our passengers, on the other hand, can run the gamut from very experienced to nil experience and a great deal of apprehension. It's our job to not only get the mission done, but to ensure that the passengers are adequately briefed. Passengers should be assured that they can talk to the pilot, especially if they're taking off the mask to throw up. If they are off oxygen, at high cabin altitudes, the pilots need to know about it. Unfortunately, most passengers try to hide the fact that they are sick, either due to embarrassment, fear of disturbing the pilot, or both. My hat is off to the technician that I carried south. Despite the lack of sleep and obvious physiological problems, he was able to complete his job and get the mission done. ◆

Captain Sherwood

Pride vs. Apprehension

During my first operational tour of duty as an Air Traffic Controller in Comox, it was very common to have tour groups visit the control tower to get a briefing on ATC operations and to view the spectacular scenery of the Comox Valley. As an "ab initio" controller in the tower, I was leery to give briefings to tours while on active controlling duties without the aid of my supervisor to either give the briefing or to sign on duty to relieve me so I could conduct the briefing. My apprehension was that it was difficult to control traffic while trying to brief a tour group at the same time. Performing ATC duties requires one hundred percent concentration on the part of the controller so that the situational awareness of the traffic picture can be maintained at all times. Distractions can lead to omissions, which can result in mistakes and may cause a flight safety incident to occur.

One afternoon while working, the CC (Chief Controller) informed me that a tour group, which was originally scheduled to arrive at the tower for a briefing at 1500 hours, was now delayed until 1630 hours. Realizing that the CC would not be available to conduct the briefing because he finished work at 1600 hours and, despite my apprehension, my pride prevented me from asking the CC to stay late at work. Therefore, even though only the Air Traffic Control Assistant and myself were on duty and the flying schedule indicated that there were two pilot training flights to depart at 1600 hours for local circuits, I did not object to the tour group arriving later.



When the tour group arrived at the tower, there was a Buffalo and an Aurora flying VFR circuits and an American P3-Orion inbound for landing in ten minutes. Five minutes after commencing the briefing, the PAR controller advised me that the Orion was at ten miles final to runway 11 for a full stop. I informed the PAR controller to advise me when the Orion was four miles from landing. Meanwhile, I recommenced the briefing and was explaining the difference between the tower and

terminal operations when Red Seven, a fire truck, requested permission to proceed from the fire hall along the ramp across the button of runway 11. It would take the fire truck approximately thirty seconds to reach the runway. I authorized the request and continued on with the briefing without having verified the latest position of the Orion. Less than twenty seconds later, the PAR controller reported the Orion at four miles final and requested landing clearance. After doing a quick visual check of the runway and not seeing any obstructions on the runway, I issued landing clearance to the PAR controller. As soon as I gave the landing clearance, the assistant, who was sitting next to me, discreetly reminded me that the fire truck on the ramp had clearance to cross the runway. I immediately instructed the fire truck to hold short of the runway on the ramp because of the aircraft on final approach. The fire truck was able to comply with the request to hold short of the runway and the aircraft landed safely.

The lesson I learned was that I allowed pride to overtake my apprehension of simultaneously conducting briefings while controlling. During the briefing, I failed to keep track of the entire picture of what was happening and, therefore, the distraction of conducting the briefing took my complete attention away from controlling. Excellent teamwork was demonstrated on behalf of the assistant in maintaining situational awareness and advising me of my grievous error. This certainly prevented a runway incursion from happening. Flight safety is definitely a team effort. Don't allow pride to force you into a situation that you don't want to be in. ◆

Capt. Foley

On The Technician's Shoulders

15 Air Maintenance Squadron (AMS) Moose Jaw was in the process of getting ready for the NATO Flying Training Centre (NFTC) to take over flight training. It had been a long day, as usual, with too many jobs to do and not enough people to carry them out. I was working on a snag that required changing the VORTAC relay and accidentally dropped a plastic spacer under the IFF tray. I had just taken the long-handled brush from my tool pouch to remove the foreign object (FOD) under the IFF tray when my supervisor came and asked me to help tow in aircraft. This small distraction was all that was required for me to screw up. I quickly finished the job I was doing and put my tools away.

The next day, I was called into the Sergeant's office and was told that I had left a brush in an aircraft. The brush was discovered missing by the next crew and they found it in the aircraft that I had been working on. I had not only left the tool in the plane, but I had also failed to thoroughly check the pouch upon returning to the tool board.

I received extra duties for this error, but it was a very strong lesson for me in other ways as well. I learned that even though manpower is short and pressure is on to do the job, the ultimate responsibility lies on the technician's shoulders. With reductions in manpower all over the military environment, more pressure is put on the people doing the work. The fact that there are not more technical incidents or accidents speaks volumes on the professionalism and hard work of the technicians in the field. ◆

Corporal Oddy

*Tool board in photo is **NOT** the one used by NFTC*

NO Fault Found!

As an avionics technician employed on the Griffon helicopter, I was in charge of the squadron's night vision goggles (NVG's) maintenance program. As such, it was my duty to repair and adjust the goggles in use by our flight crews for their night flying operations. While this side of my work involved numerous tasks of a routine nature, it nonetheless required a healthy dose of concentration in order to attain a constant standard.

Since the test equipment required to perform the adjustment had to be calibrated yearly, no thought ever crossed my mind that something could go wrong while I was performing adjustments on the goggles. Periodically, goggles would be returned for defects and adjustments and, out of them, a good percentage were diagnosed as "code 1/2." To repair these problems, you only needed to provide extra training and explanations to the individual that stood 1/2" behind the goggles when the defect was noticed. This was a running joke amongst us. Looking back on it though, this situation made us treat some reported snags as trivial and dampened our vigilance toward actual problems with our test equipment.

All of this went on for more than two years. One of those reoccurring snags came from one of the squadron's flight engineer. It was always the same snag, always the same goggle, always the same man and, after verification, always the same verdict — "NO FAULT FOUND!" After a period of a month or so and three or four of those reports, I made it a point to meet the gentleman. I confronted him on the subject and told him that his goggles met all of the parameters of the test procedures. He was very polite and told me that my test had to be wrong because he could not attain the infinity focus adjustment and that the image always remained blurry. The thought of suggesting a good ophthalmologist crossed my mind

and my eyes must have betrayed me because he immediately told me that he didn't dream it and that it was real. I asked him to give me a good example of this problems and he took me out to the ramp. He then pointed at the tree line just across the helicopter landing-pad and explained that he couldn't find any settings that would permit him to view it sharply when doing his final pre-flight adjustments. I told him that all of the goggles were adjusted in the same way and he was the only one to come up with such a problem. Seeing that he was sincere in his description of the snag, I promised to further investigate into his problem.

While I was far from convinced, I made a point to come back that night, and check his theory for myself. After trying my best to find an adjustment that would make the tree line come into sharp focus, I had to admit that there was really something wrong with my test. I immediately went back in and performed the infinity focus adjustment on the goggles in question. To my surprise, they passed the test without any problems. This alone got my attention. Could it be true that all 27 sets of goggles could be out of calibration? To clear my mind, I quickly carried out the same procedure with a set that I had just finished adjusting. This time it passed and the tree line was sharply in focus. This alone didn't reassure me so I went on and verified two other sets, which both passed.

I had answered one question and killed the doubt that got me running for answers, but a bigger question remained. Why were all the goggles passing the test on the test equipment and yet one failed to reach the actual "tree line" infinity test? While I didn't solve the problem on this particular pair of goggles, I did start to rethink my attitude when faced with reports of malfunctions. ◆

Sergeant Bolduc

It's Not All Fun & Games!

Brigadier General Proulx's retirement visit to 14 Wing Greenwood would set in motion an almost catastrophic chain of events. This day, which was memorable in more ways than one, included a parachuting incident that has altered the mindset of many aircrew personnel to this day. It all started one sunny afternoon, when (now retired) Brigadier General Proulx requested to participate in a parachute descent with the Search and Rescue Technicians (SAR Techs). As the General was still current from his recent jumps in Trenton, the wheels were put in motion to accommodate his request.

We knew that the Wing Commander and Wing Chief would both be observing this historic occasion from the ground in the vicinity of the Pea Gravel Bowl along with the SAR Tech team leader. The jump took place from the ramp of a CC-130 Hercules aircraft, at an altitude of 3000 feet above the ground. There were three sticks of two jumpers, jumping to the pea bowl. The General would be the first out of the aircraft. After the streamers were dropped and an in-to-wind drop pattern was selected, the jumpers began a (then common) ritual of betting on the prowess of each others jumping skills. General Proulx, an excellent jumper by all accounts, was also in on the prize. Each jumper would buy the closest jumper a beer at the gathering in the mess after hours. This practice fostered events contributing to the incident. The winds were very light on the ground; all of the top Brass were watching; the General would be the first to jump; some of the newest SAR Tech's were included in the jump; and, finally, the most senior jumpers were also part of the jump. To say that there was an incentive to do well would be an understatement. Although it had been briefed prior to the jump that the reason for the two man sticks was to provide each jumper with an equal chance at landing in the center of the bowl simultaneously, it was understood that they needed to maintain adequate separation in the air.

Both the General's stick and the rookies' stick went off without a hitch, with one of the rookies landing within three feet of the center disk in the Pea Bowl. The deputy SAR Tech leader and myself were next, and we were both thinking that there was no way in hell that a rookie was going to come out the victor! There was very little talk between him and I as we had jumped together on many occasions, and there was no need, or so we thought, to rehash, "same old, same old!" Initially, both of us had great separation in the air, but as we descended towards the target this separation diminished to almost nothing. With both of our main canopies open and in full control, we focused on the disk in the center of the Pea Gravel bowl. There were very light winds, so neither of us were concerned about the other not making the necessary adjustments to stay out of each other's way. I set up in the normal in-to-wind pattern, although this was a moot point since there were no winds. My partner, on the other hand, elected to play to the camera that was on the ground, and come in on a heading, which ended up being 90° to mine. The accompanying photos are worth a thousand words and clearly demonstrate the near catastrophic collision above the center of the Pea's.

Target fixation and complacency with poor communication were among some of the reasons that this incident occurred. This celebration day almost ended in tragedy. When you concentrate on only one thing and are oblivious to what may be happening around you, you are concocting a recipe for disaster. Situational awareness is key when flying a Ram Air Canopy, as well as any CF aircraft. This is serious business…let's keep our head in the game! ◆

RESCUE
WO Carignan

Get Home-ITIS

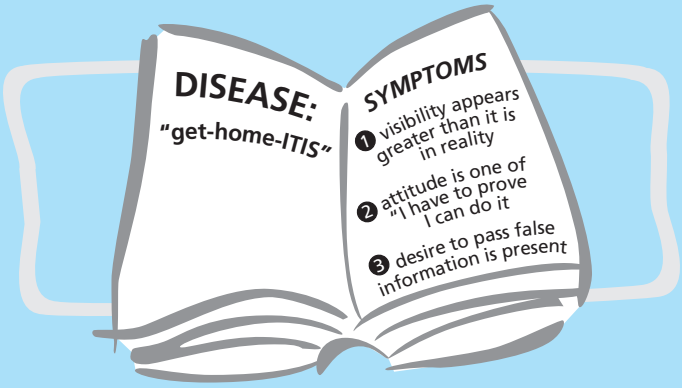
It had been a long day and even longer deployment that one "possibly fatal" night. Everyone wanted to go home to their own beds and their families. We were almost there but, listening to the ATIS and the weather sequence for home, it looked like we were going to spend another night elsewhere. Our destination was fogged in and the nearest alternate was only ten minutes away; just a hop, skip, and not even a jump to get home the next day.

The first officer was very timid and not sure of himself because the aircraft captain (AC) was always on his back. At minimums, he was hesitant and the A/C called "Overshoot, I have control." We were now going in for our second and last attempt to land, and then it was off to our alternate. This time, the A/C had control. Minimums were called and the "contact, field in sight" call was never made, but we were still on the approach. By that time, it was too late and our speed was too slow to overshoot so we had to land. The aft observers noticed the 4000-foot markers and we still hadn't touched down. It was only an 8000-foot runway and, although we landed successfully, you could see the red end lights as we turned to taxi into the hangar.

Once we had landed there was dead silence; not a word from the cockpit or even from the tower to give us taxi instructions. The first statement heard was from the A/C telling the first officer to relate to the tower that the visibility was between 1/2–1 mile. Knowing full well that this was false and that the tower would not believe him, the first officer elected not to send this information.

There are many lessons to be learned from this incident. Firstly, everyone had the "get home-itis" syndrome, which can prove to be deadly. Secondly, the A/C had the attitude of "I have to prove I can do it," and therefore did, endangering the lives of all the personnel on board. Lastly, false information should never be passed because you could be jeopardizing the safety of another aircraft attempting to land after you. Safety should be paramount at all times and someone's attitude and desire to go home should not cloud their judgement. ◆

Capt. Tuck



FROM THE INVESTIGATOR

Aircraft Accident Summary

TYPE: Sea King CH12401

LOCATION: 540 NM ESE of Halifax, NS

DATE: 27 February 2003

The aircraft was deployed on HMCS IROQUOIS. The crew was preparing to launch for Destroyer deck landing training and door gun practice. During the launch sequence, the aircraft lost lift and fell heavily onto the deck; the right sponson collapsed and the helicopter rolled over. All four crew members egressed the helicopter under their own power. Two crew members sustained minor injuries and one ship's member had his hand broken by rotor blade shrapnel that penetrated the hangar door. The initial assessment of aircraft damage is 'A' Category.

The ship was conducting a Replenishment-at-Sea (RAS) during the aircraft's traverse from the hangar, blade spread and engine run-up. During the RAS, several witnesses stated that a wave broke over the front of the helicopter fuselage. Prior to commencing the launch sequence, HMCS IROQUOIS completed the RAS evolution and broke away from HMCS PRESERVER. Clearance was received to launch the helicopter. The pilot pulled into a 20-foot hover over the flight deck to confirm aircraft performance prior to departing to the port side. Within seconds the aircraft descended rapidly to the deck, landing first on the tail wheel and then the right main landing gear. As the right sponson collapsed, the helicopter continued to roll over onto its right side. The main rotor blades sheared off as they contacted the flight deck and parts of the blades were driven through the hangar doors where members of the ship fire fighting team and HELAIRDET were monitoring the launch. The tail boom was severed at the pylon hinge and the tail rotor assembly came to rest on top of the Nulka rocket launcher located on the quarterdeck (aft and below the flight deck).

The ship came to Emergency Flying Stations and damage control measures were initiated. The flight deck and quarterdeck were secured and the wreckage was chained in position for the transit to Halifax. DFS Investigators met the ship in Halifax and coordinated the removal of the aircraft. The investigation is focused on the sudden loss of lift. The aircraft's power train was removed and sent for engineering evaluation. ◆

MAINTAINER'S CORNER

HAZARD REPORTS: THE LITTLE-KNOWN PREVENTION TOOL

A large part of the Flight Safety (FS) program is prevention, and the Directorate of Flight Safety (DFS) spends a lot of effort to familiarize the air force community with current safety issues. You know about the yearly visit to your Wing or Base by the DFS team. Your Wing/Base/Unit flight safety officer (W/B/UFSO) most likely gives briefings on a regular basis as well, and you probably see the flight safety non-commissioned member (FSNCM) around the workplace once in a while. There is one more tool in our arsenal, though, and this tool is the "hazard report."

The aim of the hazard report is twofold. First, to warn the air force community of a dangerous condition and, second, to correct the situation and make it safe *before* the hazardous or dangerous conditions cause injury to personnel or damage to aviation resources such as aircraft, equipment, vehicles or even buildings.

The second point is self-explanatory but the first point needs to be discussed because it is not very clear. The usual way to warn the air force community of a dangerous condition is through the FS system and the Flight Safety Information System (FSIS) by means of the hazard report form. This report can be filled out by anyone who is concerned with a particular situation. When I say anyone, I mean anyone! This includes air force personnel employed in and around aircraft, in shops or labs, in explosive storage facilities, on ships or anywhere else connected to an air force environment; civilian personnel or contractors working on an airfield, in shops and labs, in third line facilities; army or navy personnel who are working on a Wing or flying units; ATC personnel; air cadets; etc. The common factor between all those people is the aviation element. In other words, anyone connected to air operations that see a potential hazard within the work place should inform Flight Safety personnel, preferably through the hazard report form.

Now that we know who can report a hazard, let's define what a particular situation or a potential hazard is. It could be unsafe work habits, equipment or clothing. It could also be inadequate or unrealistic procedures (technical orders, SOPs, etc.) or unsafe conditions (environmental, equipment, resources, etc.). Unsafe conditions could include, for example, the condition of the ramp in winter, an untidy shop environment or even the layout of a shop or lab. As you can see, the range of possible hazards is quite wide, so it is only fair to specify what does not constitute a hazard.

A hazard report should not be used for problems that pose no danger to aviation resources. Here are some examples of items that should **not** be reported through the Flight Safety system. Although they are cause for concern, there are better means to address these problems.

- Disregard to a rule or procedure that is already in place and is considered to be valid, adequate and realistic. For example:
  - ❍ Safety footwear has to be worn when working in and around aircraft. If someone disregards this rule, the hazard report will not solve the problem because there are no problems with the rule itself, and personnel are issued with the footwear they require to follow that rule. So, if someone decides to wear runners while working on an aircraft, that person has to be dealt with by his or her supervisor. It could be in the form of a friendly

reminder (we all have our moments, after all) but it could also be through disciplinary or administrative actions, depending if the person keeps on purposely ignoring the rule. The point is that, in this case, a hazard report will not solve personnel problems.

- ❍ Protective covers have to be installed on aircraft. If personnel are aware of this rule and choose not to install the covers, the problem is the same as the one above. On the other hand, if the person is not aware of this rule, the problem is then with the training provided to that person. In that case, we verify if that person is the only one not aware of this requirement. If yes, the training is working, and there was probably an oversight when that person received the training. Again, the hazard report will not solve the issue. The person has to be retrained, and again, this is a personnel issue. However, if the majority of the people at the unit are omitting to install the protective covers, the training has to be re-evaluated to ensure it is complete. If it is not, this could become a flight safety issue, and the problem has to be solved by re-designing the training, if need be, and re-training personnel. As you can see, some homework has to be done by flight safety personnel before the observation becomes a hazard report. More on that subject later.

• Procedures are in place but the organization responsible to implement them is not responding quickly enough.

- ❍ Ramp not cleared of snow and ice. In this case, the Wing or base has a snow and ice control (SNIC) plan in place, and the snow is cleared but maybe not fast enough to suit the unit. This could definitely cause safety problems, but the SNIC committee or even the general safety committee may be better equipped to deal with this type of situation.
- ❍ Garbage dumpsters or bins too full. In this case, dealing with the organization responsible for contracting garbage disposal companies may be more effective, and quicker, than staffing a hazard report.

Let's be clear on a few points here. I am not trying to tell units not to enter hazard reports in FSIS. However, I want to ensure that hazard reports are used for the right reasons, and that we do not bog down our system with issues that could be better solve by other means or organizations. So, as mentioned above, once someone has identified a potential hazard at the Wing or unit, FS personnel have some work to do in order to deal with the situation as quickly as possible. The goal is to solve the problem at the lowest possible level. The flow chart below (Annex 3-4C-1 in the A-GA-135-001/AA-001) provides a summary of the staffing of a hazard report.

The hazard report form can be found in the A-GA-135-001/AA-001, from your unit, Wing or Base Flight Safety Office, or on the DFS web site on the DIN at http://airforce.dwan.dnd.ca/dfs/. The report can be filled anonymously but it is suggested that you include your name and phone number in case FS personnel need more information or if you want to receive feedback on the hazard. Once the report is filled out, forward it to the FS Office. Once it has reached FS personnel, here is how the hazard report should be handled.

Preferably, the hazard report should go to your unit FS Officer or NCM — but it can also go to the Wing or Base Flight Safety Officer — who will then research the problem. If the hazard is valid, it will then be determined if the problem can be fixed at the unit. If it can, an office of primary interest (OPI) will be assigned to implement corrective actions, the hazard information will be entered in FSIS, and the originator will be advised of the solutions. If it cannot be fixed at the unit, it is normally entered in the FSIS and the next level is notified, which is the Wing or base Flight Safety office. The same process applies here. If the Wing or Base cannot fix the problem, it is passed to 1 CAD FS, who is the next level up. If they cannot rectify the situation, it is then forwarded to the next level, DFS. In most cases, the hazard is fixed before DFS has to get involved.

I must stress the fact that the hazard should be dealt with at the lowest possible level. The reason is to avoid delays in rectifying a situation that could cause injuries, damages or worse.

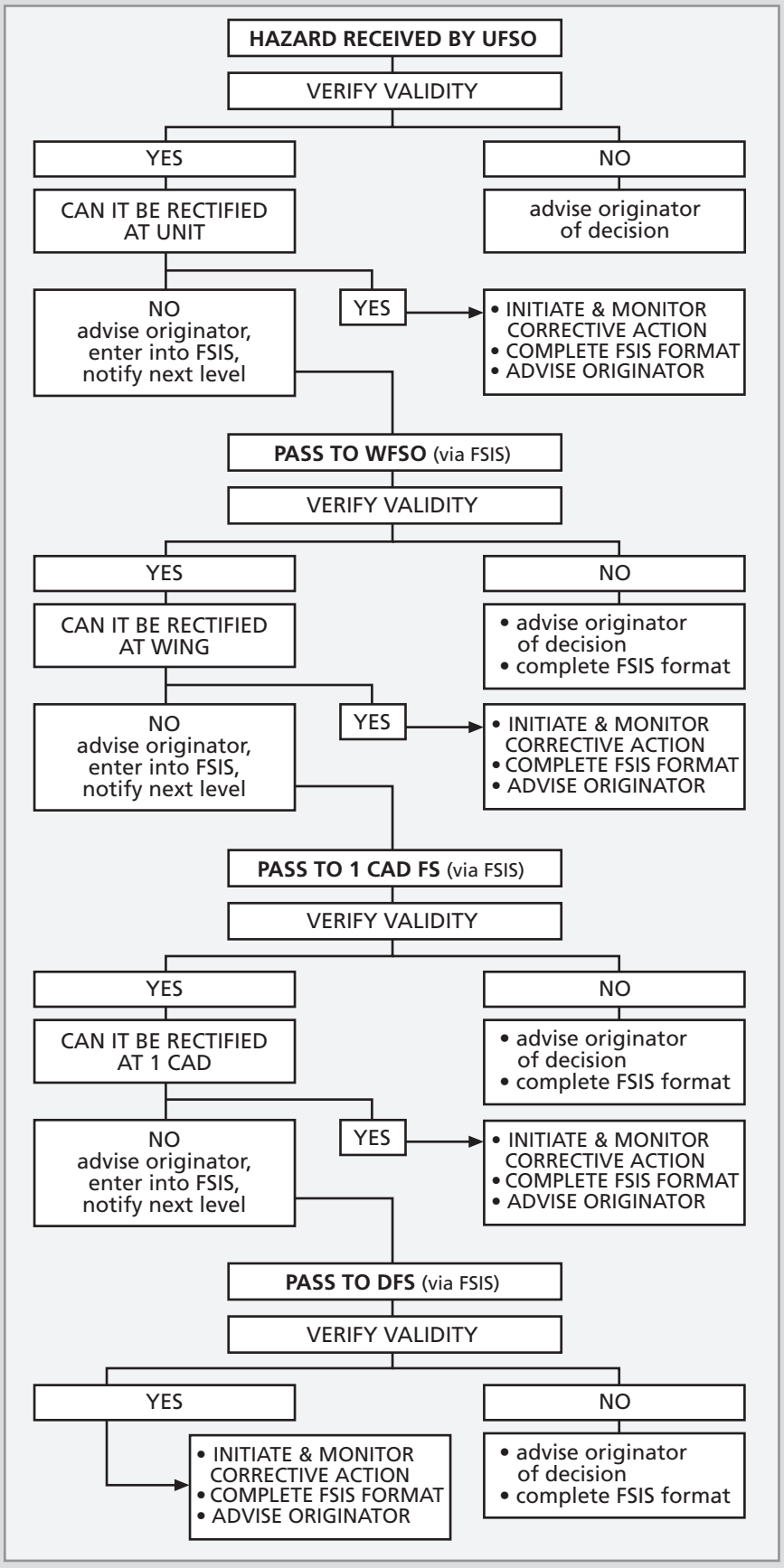
There are a couple of other points I would like to mention as well. One concerns the OPI's, the other, the originators. The problem with the OPI's is that, often, they are not being informed that they have been assigned to fix the problem! Just remember that entering the information in FSIS does not

guarantee that the OPI will know that he or she has been assigned to that task; FSIS is only available to a small number of persons. So, to avoid delays, and bad surprises, whoever assigns the OPI should contact that person at the same time to pass on all the pertinent information. The other point, about the originators of hazard reports, is that they should be kept in the loop every step of the way. I think when someone cares enough to enter a hazard report, the Flight Safety organization owes it to that person to keep them informed of what is being done to correct the hazardous condition. However, originators have some responsibility in the process as well. If you have not received any feedback from the FS officer, you should go visit them and inquire about the hazard report you submitted.

In conclusion, the hazard report is one of the best tools available to the air force community to prevent accidents and incidents. The only drawback is that, often, it is misused by a person who thinks that once the hazard has been identified and entered in FSIS, it will automatically be fixed. I hope this article has cleared up those misconceptions, and I will leave you with this quote taken from the endorsement of the CF Flight Safety program by the Chief of Defence Staff, General Henault: "Hazards that could decrease operational effectiveness through loss of personnel and equipment must be recognized and positive action taken to eliminate them."[1] ◆

1 *A-GA-135-001/AA-001*

STAFFING HAZARD REPORTS



CORPORAL B.J. DIXON

After flying most of the night on a Search and Rescue (SAR) mission, Corporal Dixon prepared to go home to get some well-deserved sleep. While walking past a Labrador helicopter, Corporal Dixon stopped to talk with the flight engineer (FE), who was completing the pre-flight inspection. As he stood near the aft ramp, Corporal Dixon began to scan the engine bay for irregularities. During his scan of the engine bay and surrounding area, Corporal Dixon noticed that the main engine fuel line appeared chaffed. Corporal Dixon notified the other FE and they inspected the area. Further investigation confirmed that the engine fuel line had been rubbing on an adjacent bulkhead, resulting in substantial wear of a critical aircraft component. The consequences of a chafing fuel line going uncorrected could have been catastrophic.

Corporal Dixon's exemplary level of vigilance, particularly after a long duty day, is noteworthy. His professionalism resulted in the discovery of a very serious hazard that could have easily gone undetected. His actions and attention to detail on this day exemplify his level of commitment to flight safety. ◆

CORPORAL SYLVAIN GARCEAU

Corporal Garceau is an avionics technician working in first line maintenance (servicing) at 433 Tactical Fighter Squadron. Following the 11 September 2001 events, Corporal Garceau was assigned to the alert team operating at 8 Wing Trenton, Ontario.

While carrying out a daily inspection on Hornet #785, Corporal Garceau observed something amiss underneath the aircraft. Even though not part of his inspection, he noticed an unfamiliar shadow when looking through a water drain on panel 36, which is located underneath the aircraft. Unable to determine exactly what this shadow was or what caused it, Corporal Garceau immediately informed his maintenance supervisor. In an attempt to inspect the area and determine its nature, the centreline tank and pylon were removed and panel 36 was opened. Once panel 36 had been removed, they found a tool (#3 tip) that had become lodged in this area.

Corporal Garceau's initiative enabled the recovery of this tool, thus preventing it from migrating toward other more critical areas of the aircraft. Without his alertness and immediate reaction, this incident could have deteriorated and become a very critical emergency situation. The professionalism, vigilance and the quick reaction of Corporal Garceau prevented a serious incident, which could have had disastrous consequences. ◆

CORPORAL STEVE LAWTON

In October 2001, Corporal Lawton was tasked to carry out a before flight ("B") check on Hercules aircraft #314. During his check, he noticed that the grease nipples on the lower scissors arm on the nose landing gear were facing backwards and that the upper and lower scissors were grooving into each other.

Taking the initiative, he determined that the lower gear torque arm was improperly installed. Left undetected and uncorrected for too long, this condition could have caused the nose-wheel steering to fail. Loss of nose-wheel steering during landing, take-off, or taxi could have resulted in a serious aircraft incident or accident. The next day, Corporal Lawton took it upon himself to conduct a check of all aircraft on the ramp to ensure that this was not a common problem and was, in fact, only an isolated incident.

Corporal Lawton's attention to detail during a routine "B" check demonstrated his personal commitment to flight safety, while his initiative and motivation established his dedication and professionalism. ◆

CORPORAL DONALD MARTIN

On 30 May 2002, while conducting a bird nest check on Aurora #140115, Corporal Martin discovered a piece of metal inside the lower access panel of the rudder. Unable to identify the origin of the foreign object damage (FOD), he immediately informed his supervisor and initiated a flight safety report, resulting in the aircraft being quarantined and the mission being flown by another aircraft.

As Corporal Martin and his supervisors continued their investigation, they discovered the control rod, causing minor skin damage on the rudder, had damaged the over-centre bracket on the viscous damper. Although this was not part of the bird nest inspection, had this situation gone unnoticed, it would have resulted in further damage to the rudder. With the rudder being a major flight control, this had the potential to become a serious in-flight emergency.

One month later, Corporal Martin was again tasked to carry out a bird nest inspection on the same aircraft, Aurora #140115. On his own initiative, he investigated the previous repair on the rudder viscous damper and discovered that, once again, it had been damaged. If not for Corporal Martin's professionalism, this recurring snag might have been overlooked, leading to a major flight safety incident.

Corporal Martin's diligence and subsequent follow-up resulted in the discovery of a serious unserviceability, which had the potential to develop into a life-threatening accident. He is to be commended for his outstanding professionalism, alertness, and dedication. ◆

CORPORAL DON SANTIAGO
CORPORAL ANDREW WELDON

On 16 April 2002, Corporal Santiago and Corporal Weldon of 408 Tactical Helicopter Squadron were tasked to investigate a snag on Griffon #455. The helicopter had been written up for stiffness in the collective. Normal trouble-shooting procedures were followed and, during hydraulic functional tests, a "clunking"-type noise was noticed from the top of the aircraft. Further investigation consisted of isolating the flight control actuators from the swash plate assembly. Through this, they determined that the noise and, perhaps the problem, was to be found in the area of the swash plate.

As the proper measuring equipment for checking the tolerances had not been provided to the squadron, a visual check of movement between the support plate and swash plate was carried out. Suspecting that something was wrong during his visual check, Corporal Santiago with the help of Corporal Weldon, checked their findings against other aircraft on the squadron. Convinced that they had found the problem in the swashplate assembly, they informed their supervisor of their suspicions.

The Bell Helicopter technical representative was called and determined that the helicopter was, indeed, unserviceable. A local special investigation (SI) revealed that an additional eleven of fifteen aircraft on the squadron were unserviceable for the same reason. 408 Squadron has since acquired a flexible cable dial indicator, which allows for the measurement of this tolerance.

Through experience, attention to detail, and professionalism, Corporal Santiago and Corporal Weldon were able to visually determine that the collective stiffness had actually been caused by abnormally high wear rates of the gimbal ring. The wear resulted from the loosening of the retaining screws and the movement of the gimbal ring assembly bolts. Due to their expertise in troubleshooting, Corporal Santiago and Corporal Weldon have improved maintenance practices and inspection procedures for this part of the helicopter at the squadron level and, thus, prevented the potential for serious flight safety incidents relating to this issue. ◆

MASTER CORPORAL GEORGE ABBOTT
CORPORAL TONY EAGLES

On 26 August 2002, while replacing a cracked rib in the vertical stabilizer section of Griffon CH-146493, Master Corporal Abbott and Corporal Eagles noticed that tension was applied to the rib on installation in the vertical stabilizer structure. Intrigued by this condition, further investigation revealed that the row of rivets on the aircraft skin was misaligned, causing the rib to twist and was likely the cause of the failure of the initial rib.

Inspection of remaining squadron assets revealed that all helicopters had the same manufacturing flaw, meaning that the same row of rivets was misaligned. Director Aerospace Equipment Program Management (Transport & Helicopters) (DAEPM (TH)) was advised and approved the skin repair proposed by Master Corporal Abbott and Corporal Eagles. DAEPM (TH) drafted a complete list of all materials and manpower requirements for use.

Through their dedication and professionalism, Master Corporal Abbott and Corporal Eagles were able to investigate and develop a repair plan that will relieve undue stress to the vertical stabilizer. Their exemplary technical skills will reduce operating costs and enhance the operational capability of the Griffon fleet. ◆

CORPORAL LEROY WARD

Corporal Ward is a 14 Air Maintenance Squadron aircraft structure (ACS) technician. On the morning of April 9th, 2002, while attached to the 413 Squadron periodic maintenance team, Corporal Ward was working in the vicinity of #14 hangar. As Labrador #303 taxied from the start-up spot on the ramp for its rotor blade tracking functional test flight, Corporal Ward noticed a grounding cable swinging freely from its sponson. Fearing that the aircraft would depart with this potentially hazardous situation, Corporal Ward quickly notified the maintenance crew of the problem. The maintenance crew contacted Operations, who quickly relayed the message to the aircrew.

The helicopter stopped and the flight engineer removed the cable, rectifying the situation. There is no doubt that Corporal Ward's quick thinking, coupled with his positive action, prevented a possible catastrophic failure. ◆

MASTER CORPORAL MIKE NEILSON

On 18 April 2002, Master Corporal Neilson reported to the Maintenance Control Office (MCO) that the recently installed Fall Arrestor System beam in Bay #6, appeared to be too low for an aircraft to be towed in safely. The beam was suspended right above the centreline of the aircraft parking spot and, once in position, the aircraft would have travelled approximately ten feet along the beam. Using a Sky Jack to measure the distances between the height of the beam compared to the height of an Aurora tail section, he discovered that the beam was suspended at thirty-five feet from the floor surface. At the all-up weight (AUW) of the Aurora (125,500 lbs), the tail section measured thirty-four feet and five inches from the floor. So as to provide further details, he also measured the height of another Aurora with normal operating equipment and a fuel load of only 28,000 pounds. This was also slightly over thirty-four feet from the floor.

Master Corporal Neilson was concerned that, when applying brakes to stop during aircraft towing, the aircraft bounces slightly and, depending on the AUW, the tail could come in contact with the beam. In addition, restrictions would have to be imposed to common aircraft maintenance activities such as jacking or weight and balance checks. Master Corporal Neilson initiated a hazard report to cover all safety aspects and to prevent the contractor from proceeding with the installation of similar systems in Bay #7 and #9 before an investigation was carried out and the situation clarified.

Master Corporal Neilson's exceptional attention to details and immediate actions most certainly prevented potential ground accidents, personnel injuries, or major damages to equipment. Furthermore, he prevented similar installations, thus eliminating extended safety hazards. As such, he saved both time and dollars to the CF and to the contractor, who was able to modify the remaining arrestor systems prior to start. Master Corporal Neilson is to be commended for his diligence and keen sense of awareness. ◆

CORPORAL NORM HARPER

While performing a before flight ("B") systems check on an Aurora aircraft, Corporal Harper noted an abnormality in the routing of a braided hydraulic line. He immediately lowered himself into the hydraulic service centre in an effort to detect the source of the problem. Further investigation revealed that the clamps holding the two hydraulic lines were installed backwards.

Although hindered by high noise level and extreme heat, he discovered a 6-millimeter chafe in a hydraulic manifold steel line. The hydraulic line feeds the #1 hydraulic heat exchanger and, had this wear gone undetected and the line had ruptured, the #1 hydraulic system would have drained. The subsequent lack of hydraulic fluid would have certainly caused a catastrophic hydraulic system failure and, potentially, a disastrous in-flight emergency.

Corporal Harper's diligence in the difficult conditions and his commendable extra effort undoubtedly averted an aircraft incident and contributed to our ongoing safe mission accomplishment. Without a doubt, the perseverance and expertise demonstrated by Corporal Harper prevented a potential disaster. ◆

SERGEANT JACK NEWBERY

In July 2001, Sergeant Newbery was conducting a pre-flight check on Hercules #305 in preparation for a post-periodic inspection test flight. While conducting his walk-around, Sergeant Newbery noticed a foreign object (FOD) between the left elevator and the elevator trim tab. Closer inspection showed the item to be a castellated nut resting between the inboard edge of the left elevator trim tab and the elevator itself. This extremely small, yet very dangerous, object could easily, and understandably, have been overlooked until it caused the elevator to jam. Only a very professional and discerning eye could have noticed this item.

Sergeant Newbery's meticulous attention to detail in the performance of his duties is commendable. His diligence and thoroughness clearly prevented a possible jamming of the elevator during the test flight, which could have resulted in the loss of a Hercules aircraft and its crew. ◆

MASTER CORPORAL LEE RIVET
CORPORAL JOHN BURKE

On 03 June 2002, while performing a before-flight ("B") check on T-Bird aircraft #610, Corporal Burke noticed that the main hydraulic pressure quick disconnect was leaking fluid. The normal fix for this problem is to simply tighten the line until the static leak is stopped. Not content with this procedure, Corporal Burke elected to ask Master Corporal Rivet to do a ground crank of the engine, so he could confirm that the line was not merely leaking under pressure.

While cranking the engine, both technicians noticed an unusual sound coming from the engine area. Initially thinking that they had a starter problem, further investigation revealed metal filings on the magnetic chip detector for the wheelcase assembly. The aircraft was declared unserviceable and an engine change was carried out. Due to the nature of the problem, the noise could only be heard during a ground crank and would not have been heard during a normal engine start-up.

In the event the wheelcase assembly failed, it would have led to the loss of several pressurized systems that are driven by it. A loss of those systems would have presented a serious in-flight emergency. The excellent initiative of Corporal Burke and Master Corporal Rivet to go the extra step to confirm the fix for the hydraulic leak avoided the potential for an in-flight failure of the wheelcase assembly. ◆

CORPORAL KEVIN DUNBAR

On 10 July 2001, Corporal Dunbar was tasked to conduct the cargo compartment area periodic inspection on Hercules #323. While removing a miscellaneous safety systems equipment card prior to commencing the cargo compartment inspection, Corporal Dunbar noticed what he thought was an abnormality in the appearance of the overhead FS 880 bulkhead.

To ensure the bulkhead's integrity, he carried out a more detailed manual inspection, where he found that the bulkhead flexed excessively. Determined to find the cause of this abnormality, Corporal Dunbar removed the insulation blankets and discovered a fractured aircraft rib and former. Normally, during this type of inspection, the insulation blankets in this area are not removed. He immediately took action to cordon off the area, preventing any further damage to the Hercules by any unnecessary structural loading.

Corporal Dunbar then alerted his supervisor to the situation and to the possible flight safety implications. This damage, if undetected, could have resulted in a failure of the airframe's tail section during flight. Due to Corporal Dunbar's insistence, 8 Air Maintenance Squadron carried out an immediate local survey. This inspection revealed other aircraft with similar cracks and structural damage.

Corporal Dunbar displayed outstanding motivation and attention to detail and should be commended for his diligence and initiative while maintaining flight safety as an integral aspect of his daily duties. His experience and personal motivation, while conducting a routine inspection, permitted him to recognize and deal with a potential fleet-wide aircraft structural problem. His perseverance in this situation may well have averted an incident or accident with its subsequent loss of resources. ◆