

fly^{ing}

SAFETY

JULY 1989

Midairs

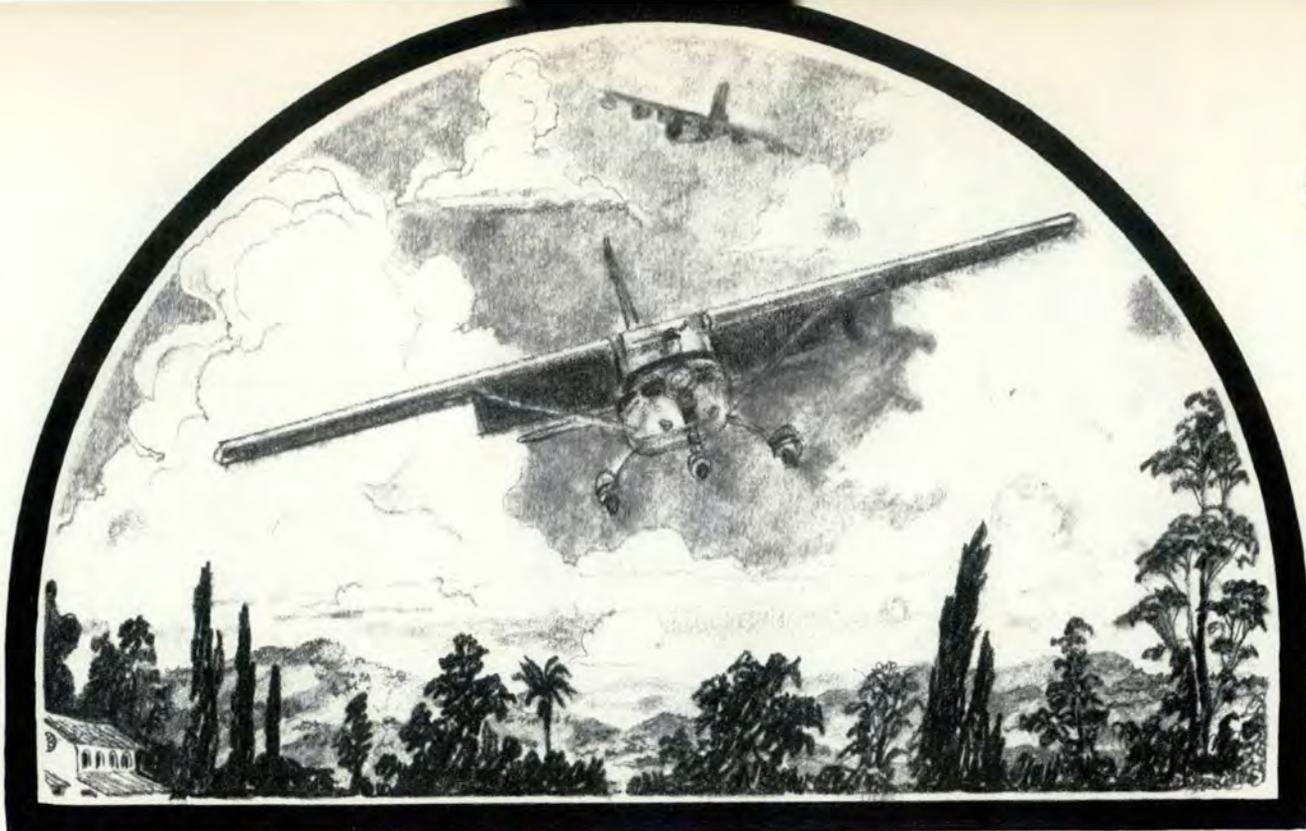
Vacation Time Trouble

Sgt Turnaround and the FOD Walk

Air Leadership . . . we are all instructors

FLIGHT DISTRACTIONS





THERE I WAS

■ I was a highly frustrated student pilot. After almost 20 hours, my instructor still had not signed me off to solo. Hour after hour we practiced stalls and landings. I was consistently making smooth landings right on the numbers, and I was confident my solo flight would be a piece of cake.

Finally, one calm morning after a brief session of touch and go's, the old man signed my ticket and turned me loose. As I predicted, three perfect landings. The next day, I arrived at the aero club early and eagerly checked out the only Cessna 150 available. After a careful preflight, I was on my way to terrorize the skies of the local area. After practicing some stalls and maneuvers, I decided to return to the field and do some touch and go's. When I was abeam of my intended land-

ing spot, I began landing preparations. As usual, ease off power, carb heat on, 20-percent flaps, as I had done a hundred times before.

Suddenly, something was very wrong. The controls were fighting me, and the airspeed indicator wound down to 60, through 50, and finally the stall warning horn sounded. I knew this was a totally unsatisfactory condition at 400 feet AGL. It felt as though something was jammed in the controls. The tower was directing me to turn base to clear the way for an inbound C-130. I was too busy to answer. Instinctively, I forced the nose down and gave the aircraft almost full nose down trim.

Finally, I had the aircraft trimmed at 70 knots in an easy descent. Cautiously, I turned base, and after some strong words from the tower,

I declared an emergency. On final, things seemed normal, and I made a rather shaky landing. I brought the aircraft to a full stop and took a deep breath.

When performing my postflight checks, I realized what caused my problem. The flap switch did not return to neutral after I selected 20 percent. Instead, it continued to the fully extended position.

When I realized what had happened, I was embarrassed, but I also knew the intensive training I received from my instructor probably saved my life. Each time I climb into the cockpit, I think of his philosophy: "In the art of flying, experience is great, but there are no substitutes for detailed preparation and comprehensive training to ensure mission success." ■

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DEPARTMENT OF THE AIR FORCE • THE INSPECTOR GENERAL, OSAF

PURPOSE — *Flying Safety* is published monthly to promote aircraft mishap prevention. Use of funds for printing the publication has been approved by Headquarters, United States Air Force, Department of Defense, Washington, D.C. Facts, testimony, and conclusions of aircraft mishaps printed herein may not be construed as incriminating under Article 31 of the Uniform Code of Military Justice. All names used in mishap stories are fictitious. The contents of this magazine are nondirective and should not be construed as regulations, technical orders, or directives unless so stated. **SUBSCRIPTIONS** — For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Changes in subscription mailings should be sent to the above address. No back copies of the magazine can be furnished. **REPRINTS** — Air Force organizations may reprint articles from *Flying Safety* without further authorization. Non-Air Force organizations must advise the Editor of the intended use of the material prior to reprinting. Such action will ensure complete accuracy of material amended in light of most recent developments. **DISTRIBUTION** — One copy for each six aircrew members. One copy for each 12 aircrew support and maintenance personnel. Air Force units must contact their base PDO to establish or change requirements. AFSP 127-2 is entered as a publication at the Second-Class rate (USPS No. 586-410) at San Bernardino Postal Service, 1331 South E Street, San Bernardino, CA 92403 and additional entries.



MID.



LT COLONEL MIKE BOEHME
71st Tactical Fighter Squadron
Langley AFB, Virginia

■ Since 1980, the fighter community has experienced 52 midairs, resulting in the loss of 23 aircrews and 67 fighter aircraft. Of these midairs, 46 occurred with other fighters, and only 6 involved civilian aircraft. This means that most midairs (89 percent) occurred during tactical and formation maneuvering.

Even though pilots recognize the importance of training rules and human factors, midairs still continue to occur as a result of channelized attention, departing the assigned block without situational awareness, pressing minimum ranges, etc. So why do midairs occur even when pilots feel they are exercising sound flying discipline? The answer can be found in lesser known human factors, such as vision and reaction time.

The Physiology of Vision

A quick review of the physiology

of vision reveals some interesting information and limitations. Our eyes have a very large field of view (160 to 170 degrees). However, our central or focal vision, which provides object recognition and information on distance, closure, etc., only occupies a 6-degree cone in the center of our field of view.

Our ambient or peripheral vision, which provides information on our attitude and positional relationship to our surroundings, occupies the remaining portion of our field of view. The only time we consciously see something in our peripheral vision is if there is sufficient motion and change in the basic relationship of objects or light intensity to attract the attention of the brain, to free it to move our eyes to focus on and analyze the area or object.

Here is where limitations of our visual system's processing become apparent. Since a midair occurs when two aircraft are on a terminal collision course, there is little, if any, movement in the peripheral vision to draw the attention of the brain to

the impending collision.

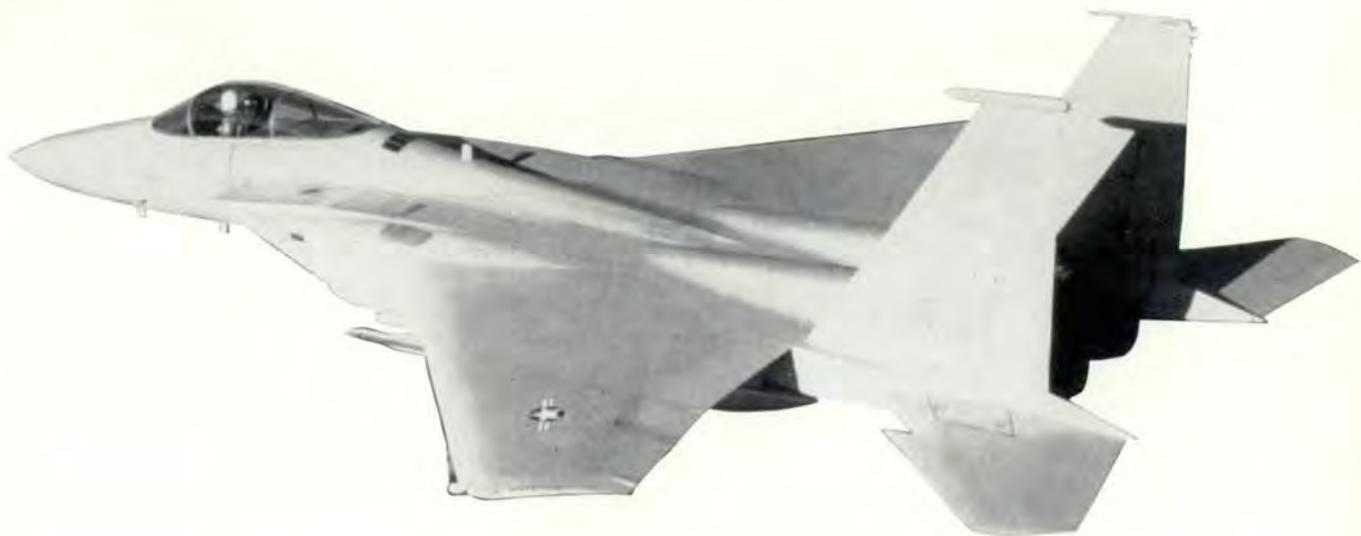
The quality or sharpness of the picture we see obviously plays a significant role in detecting and analyzing objects. Most pilots have 20/20 vision. However, that term describes only the acuity of the focal field of view. By contrast, the acuity of the peripheral vision is very poor and becomes progressively worse as the object is viewed further from the center of vision. Studies have shown this reduction in acuity is so significant that an F-5-size aircraft on a collision course would not be seen if it were just 20 degrees off eye center until it was only 3,000 feet away!

Reaction Time

Now let's discuss reaction time. Reaction time depends upon our experience, the complexity of the situation, and the amount of prior warning. Assuming there is no prior warning, our reaction time involves a four-step process.

First, our vision is not instantaneous. It takes approximately 0.1 to 0.2

AIRS



seconds for all that neurological stuff to produce a picture. Second, once the "picture" of another aircraft is presented to the brain, it requires time to analyze range, closure, and projected flightpath. Third, if it is determined this other aircraft is a potential midair threat, the brain takes additional time to determine what should be done.

Finally, when the best course of action is decided upon, the brain must then tell the muscles how to move the flight controls to avoid the collision. In all, our reaction time is about 2 to 5 seconds.

Some Significant Statistics

At this point, I am sure some of you are unfurling the B.S. flag with "I know it doesn't take me 2 to 5 seconds to react . . ." But, there are several points of which you need to be aware. Remember, our discussion revolves around reacting to a previously unseen midair threat, *not* an aircraft you have been monitoring, and where time is available to plan contingencies. Moreover, percep-

tion of reaction time is blurred by temporal distortion, and awareness of reaction occurs only after it is in progress.

If we apply some basic math, we will find that we travel about 167 feet per second for each 100 kts Vc (closure). Using the following table, you will note some interesting results when closure is compared to reaction time. You can also see how a midair can occur if the initial tally-ho occurs inside certain ranges vs closure rates.

Kts	Ft/Sec	Distance Traveled (Ft.)*
300	501	1,002-2,505
500	835	1,670-4,175
1,000	1,670	3,340-8,350

*NOTE: Distance traveled during the nominal 2- to 5-second reaction time.

Using This Information

So how can you use this information to avoid, or at least minimize, your chances of involvement in a midair? Remember, a midair occurs

when two aircraft are on a terminal collision course where movement on the canopy, if any at all, will be minimal. Therefore, it is extremely important to take sufficient time to use your focal vision to clear your flightpath because your *peripheral vision may not see a midair threat until it is too late.*

Keep in mind that reaction time plus high closure rates equal a significant distance traveled before actual midair avoidance maneuver begins. Have a basic midair avoidance plan ready to execute as you clear your flightpath . . . it might keep you from being the next unfortunate midair statistic.

Finally, adhere to the training rules. They have evolved from countless lessons relearned after each midair. ■

Editor's Note: On your next flight, when ATC calls out traffic that may affect you, request an avoidance vector, and look for the aircraft until you see it and can avoid it, or ATC tells you it's no longer a factor. It will do you little good to be on airspeed and on heading during an approach or other maneuver if you are about to have a midair.



Don't pass the leadership buck

■ Flying is thrilling, challenging, very rewarding and unlike any other vocation in the world, and requires leadership **throughout** the mission. It demands that we remain alert at all times and stay "in tune" with the flight goals. Flights are long enough that it is critical that we stay focused on the specific task at hand. It is easy to become distracted by nonessential information from another crewmember or by thoughts of our own.

Flying demands **leadership at every position!** You must be thinking not only of your specific duty at that time, but also what the other members of your flight are doing to ensure they keep in step with the sortie profile.

The following is an unfortunate example of where others passed the "leadership buck."

The crew was flying for the third Friday night in a row and to cele-

brate, a party was planned following the flight. The mission went smoothly until the crew approached the base for traffic pattern work. The weather was typical for late fall with snow and low ceilings. The pilot wanted to get the latest word on runway conditions, so he decided to discuss the situation with the SOF. Generally not a bad idea . . . but a terrible one where he decided to talk about it. Rather than having another crewmember find out the data and relaying it to the pilot at an appropriate time, the AC was updating his information on runway readings, while flying a nonprecision approach at night in IFR conditions. The pilot and SOF were discussing whether or not to conduct touch and go's or complete a full-stop landing. Call it task saturation or bad judgment, it was definitely a distraction, and a fatal one at that. The pilot discovered his error just prior to ground impact . . . but it

was too late.

You have to ask, why was he so preoccupied that he allowed himself to be distracted from his primary job of air leadership and ensuring the safe completion of the mission? And what about the other crewmembers' duties and their role in leadership? And where were their priorities and thoughts?

Flying is thrilling business, and one of great responsibility, that rewards those who are prepared and penalizes those who aren't. But it is a challenging job that demands we devote complete attention to the task at hand, not become distracted, and not pass the leadership buck to anyone else. When flying or planning a flight, make no assumptions, deal only in **cold, hard facts**. You want your flight buddies to talk about your aviation skills. Make sure you include air leadership on your list. ■



CONTACT

Editor's Review of Flying Safety Reader's Survey

■ Thank you for your many responses to our survey on what interests you most in the *Flying Safety* magazine. We are pleased to read of your continuing interest in this important publication. Your feedback is of great value to us who publish the magazine and to those who read it.

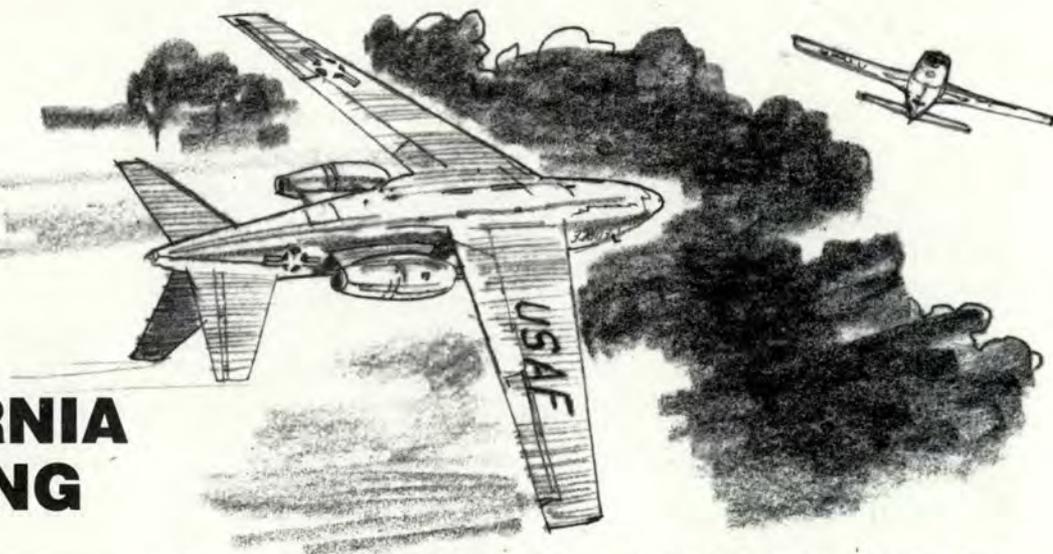
Here are the highlights from the survey:

Areas liked most:

- There I Was
 - Operations, maintenance, and logistics articles
 - Well Done Awards
 - Safety Warrior
 - Dumb Caption Contest
- How to improve *Flying Safety*:
- Mishap summaries, to include cause and corrective actions

- More maintenance articles
- Explosive safety articles
- Enlisted aircrew member responsibilities
- IPIS features
- Flying safety posters
- Aircraft mission articles, with more photos

Thanks for your continued interest in *Flying Safety*. You can anticipate reading articles in upcoming issues about your favorite topics. Your opinions are important and highly valuable. We are always looking for fresh ideas and innovative ways to tell the "safety" story! Please write us at *Flying Safety* magazine, for any further suggestions, HQ AFISC/SEPP, Norton AFB, CA 92409-7001, or call AUTOVON 876-2633/2634 anytime. ■



CALIFORNIA DREAMING

LT COL KENT D. KOSHKO
Editor

■ Cross-country trips can be fun, and they can be fatal! Because of a major fuel leak in our T-39, we were delayed for several days in sunny California. Not a bad setback, for there are plenty of things to do and an adequate number of distractions.

Finally our bird was fixed, and we prepared to depart. After engine start, we began taxiing for takeoff when the problem recurred, so we taxied back in and turned it back over to maintenance again.

After several more hours delay,

we were ready to try again. This time we made it. The pilot was flying, and I was performing copilot duties and thinking about the fine time I had enjoyed over the previous few days. We were climbing out and started to turn right on a beautiful, clear day. No passengers were on board, so we were relaxed and enjoying the ride.

As we rolled out, I started the level-off checklist, when all of a sudden — FLASH! I saw a small aircraft about a quarter of a mile away and heading right for us!

I had just enough time to take control of our aircraft and make a hard left turn, almost ending up in-

verted while barely avoiding a mid-air! The other aircraft was so close that I could clearly see his underside as he whizzed by us totally unaware. As it turned out, he had reported to ATC that he was cruising at 1,000 feet above our assigned altitude. He had lied and almost killed both of us. We reported the incident to ATC, and they found out the other aircraft was flying VFR through our airspace.

So next time you are flying, watch out for those bogies. There is no time for daydreaming while airborne — you might not wake up. ■

■ It's the middle of summer, and many of you are probably planning to take a vacation. We all look forward to this time — getting away from it all, catching up on our sleep, eating what we want, and doing what we want, when we want.

Sounds great! What could possibly mean trouble? Let's look at what can happen.

Before we take off on this long-awaited, and much deserved, vacation, we experience the "two-way rush!" It is a familiar scenario to all of us. At work, we press to finish up those hot suspense items, as well as press ahead on the paperwork that would need to be com-



pleted while we are gone . . . and then there's flying those last few sorties!

And the rush is on at home . . . mow the lawn, prepare the car, stop the newspaper, and run last-minute errands. And needless to say, this "two-way rush" starts all over again when we return. We fight the "catch up" syndrome both at home and at work.

All this double-duty activity does spell trouble in the form of fatigue for crewmembers.

Fatigue and Mishaps

Fatigue has been reported as either a suspected, or definite, contributing factor in approximately 10 percent of recent USAF Class A mishaps. The past 2 years of our

The "Two-Way Rush" is familiar to many of us . . . at work, we press to finish hot suspenses and fly those last few sorties. At home, many final chores sometimes overtask our time.



mishap experience show five mishaps where fatigue was a **definite** factor — one of which was a Class A with a fatality.

The record shows 19 mishaps where fatigue was a **suspected** factor, including 1 Class A with no fatality and 2 Class As with 3 fatalities. It does happen! Fatigue does cause us serious trouble and definitely affects our flying performance.

Fatigue is hazardous for a number of reasons. It produces carelessness, forgetfulness, sloppiness, slowed reactions, inappropriate reactions, irritability, disinterest, and the loss of timing involved in performing tasks. It erodes judgment and causes disorders of attention — distraction, channelized attention, and inattention. It can produce a subtle erosion of performance along with an inability to recognize it, plus an unwillingness to do anything constructive about it.

You may already be aware of the properties of fatigue, but it is *always* useful to review the situation since knowledge and understanding provide an essential means of promoting flight safety.

Types of Fatigue

There are two categories of fatigue: Acute or short-term, and chronic or long-term.

■ Acute or Short-Term Fatigue

Acute fatigue is a short-lived common occurrence. Some causes of acute fatigue include inadequate rest, mild hypoxia (oxygen deficiency), physical stress (pulling Gs is very fatiguing), psychological stress, and circadian rhythm upsets that interfere with sleep (time zone change).

■ Chronic or Long-Term Fatigue

Persistent fatigue results from long workdays, chronic sleeping difficulties, or lack of exercise. A common source of chronic fatigue for crewmembers is the long duty day and long work week.

Countermeasures

Prevention in the form of recognition, proper mission planning, and physical conditioning will help us remain safe and avoid the pitfalls and distractions fatigue may cause.



Thorough flight planning is crucial to mission success. Distractions must not be allowed to interfere with any ground or air operations.

Recognition The first step in prevention is to recognize you may have a problem. Face the fact a problem exists that may affect your performance. We should recognize that around vacation time, there are lots of things on our mind besides flying. Use the self-discipline and good habit patterns you have developed throughout your flying career.

Mission Planning With today's complex sorties, thorough mission planning is more important now than ever. You must be extra cautious and alert during the more demanding portions of the mission.

Prior to every mission, each aircrew should include fatigue when assessing his or her own personal capability of performing that mission. There is a point beyond which you may not be *safe*.

Use common sense to stay on the ground until your alertness and energy are restored.

If you know you face a heavy

schedule upon your return to work, come back a day early. Also, prioritize tasks both before and after you leave so you don't place unnecessary demands on yourself!

Physical Conditioning Be sure to maintain proper diet, hydration, adequate rest and sleep, and proper physical conditioning.

Top Condition

Our modern-day aircraft are both complex and sophisticated and demand we be in top mental and physical condition. When in top condition, we are the most important part of the aircraft system . . . but when *not* in good health, we become the weakest link in the chain. So, as you prepare to "get away from it all" . . . remember the responsibility for minimizing fatigue and maintaining maximum performance rests with you!

Have a good leave and fly smart! ■



Sound preparation for your vacation will help assure you enjoy your well-deserved time off. If you are driving, remember to stop frequently along the way so you will stay alert and return safely. When flying, plan your vacation time to allow for jet lag.

We have a Dumb Caption Winner

... AND THE WINNER
FOR THE MARCH 1989
DUMB CAPTION CONTEST IS:

SrA Jerome Frydrych, Jr.
388 CRS/MACIE
Manuel Electronic Warfare Shop
Hill AFB, Utah



Opening the mail and reading the latest submissions to the Dumb Caption Contest Thing are high points of our day. As usual, it was very difficult to select a winner, but we finally did. Congratulations, SrA Jerome Frydrych, Jr.! Your neat little prize is in the mail.

The next 10 most popular captions are listed below in the honorable mention category. It appears you are having as much fun with this contest as we are. Keep those cards and letters coming! We hope you are reading the rest of *Flying Safety* with as much enthusiasm.

Honorable Mentions:

1. **I wonder if I can blame this on the navigator!**
Harry Best, 758 TAS G.P.I.A., Pittsburgh, Pennsylvania
2. **I would feel better if they went back to using tire pressure gauges instead of having to see the air in these tires!**
TSgt William E. Soest, 126 CAMS O'Hare ARFF, Chicago, Illinois
3. **Mmm, Juicy Fruit! My favorite!**
SSgt Danny L. Maloney, 49 EMS/MAECD, 9 CMU, Holloman AFB, New Mexico
4. **... Just a little higher and to the right ... A-h-h-h-o-o-o-o m-m-m-m that feels so-o-o-o good!**
Sharon Jacobsen, Chief, Programs, 58 TTW/MASC, Luke AFB, Arizona
5. **Don't you just HATE it when your kid borrows your plane?**
Ms Lyn M. Killebrew, 3246 TESTW/MASA, Eglin AFB, Florida
6. **Geez! I've got to stop doing these doughnuts in the parking lot!**
SSgt Stan Morrow, 33 TFW/MASB, Eglin AFB, Florida
7. **That reminds me — I need to stop by the BX and pick up some new underwear!**
TSgt Douglas G. DeGraff and SSgt Sandy L. Mullins, 6516 LTS TEXTL, Edwards AFB, California
8. **Well, I guess the "Old Man" was right. They *don't* make 'em like they used to!**
Maj Gen Robert E. Harris, Commander, PA Air National Guard, Anville, Pennsylvania
9. **Hang in there, Baby! Three more landings and I'll have the record.**
SSgt Steven C. Owens, 1776 ABW/OTM, Andrews AFB, Maryland
10. **Last time I let the Stan Eval make the landing.**
MSgt Dennis E. Faris, 1776 ABW/OTM, Andrews AFB, Maryland

An Open Letter To The Air Force

From an instructor pilot

Dear Friends in Blue:

I envy you all. Those of you who fly the airplanes, who work at the BX, who guard the front gate, who keep the base clean — every last one of you. "Why," you ask, "am I so jealous?" The reason is simple. While most of you continue to live your lives with enthusiasm, taking everything and everyone around you for granted, and seeing your family and friends every day, I came very close to losing that luxury.

The details of my story don't matter. Suffice it to say, I was a victim of myself, of that self-generated disease called "get-home-itis." You've all experienced it, probably in its milder manifestations. Have you ever had just *one* beer too many at the club? The little voice of Better Judgment keeps imploring you not to drive, but it's drowned out by other, totally logical (you believe) arguments. You would rather not wait for your friend to drive you home. You don't want to leave your car because you'll need it in the morning. All that hassle for what? You're not even drunk! Yet, you always realize the next day that you probably should not have driven. That's get-home-itis in its purest form.

I look back and understand now that some things I considered so im-

portant were, in fact, inconsequential. Sure, my commander might have been upset upon finding out that I was stuck in Texas due to bad weather. Instructor pilots just aren't supposed to make mistakes like that. The voice of Better Judgment said, "Okay, lesson learned. Next time I'll be more conscientious when I check the weather forecast." But the voice of get-home-itis thundered, "Who needs that kind of visibility? Let's not say anything and take off — nobody will know. Besides, the winds are only 5 knots beyond limits. That's nothing!" Which voice do you think I listened to? I can tell you from experience, any commander's wrath would have been a more pleasant alternative considering my close call.

But the vilest form of get-home-itis occurs when you want to avoid looking stupid or when you want your car in the morning. It occurs when you're in a rush to see someone you love. "Snow Tires Only Ahead," the sign cautions. You haven't seen your parents in 2 years. The nearest tire store is an hour in the other direction. Visions of warm drinks by the fire with your parents dance in your head. "I've got front-wheel drive — I'll be alright," you

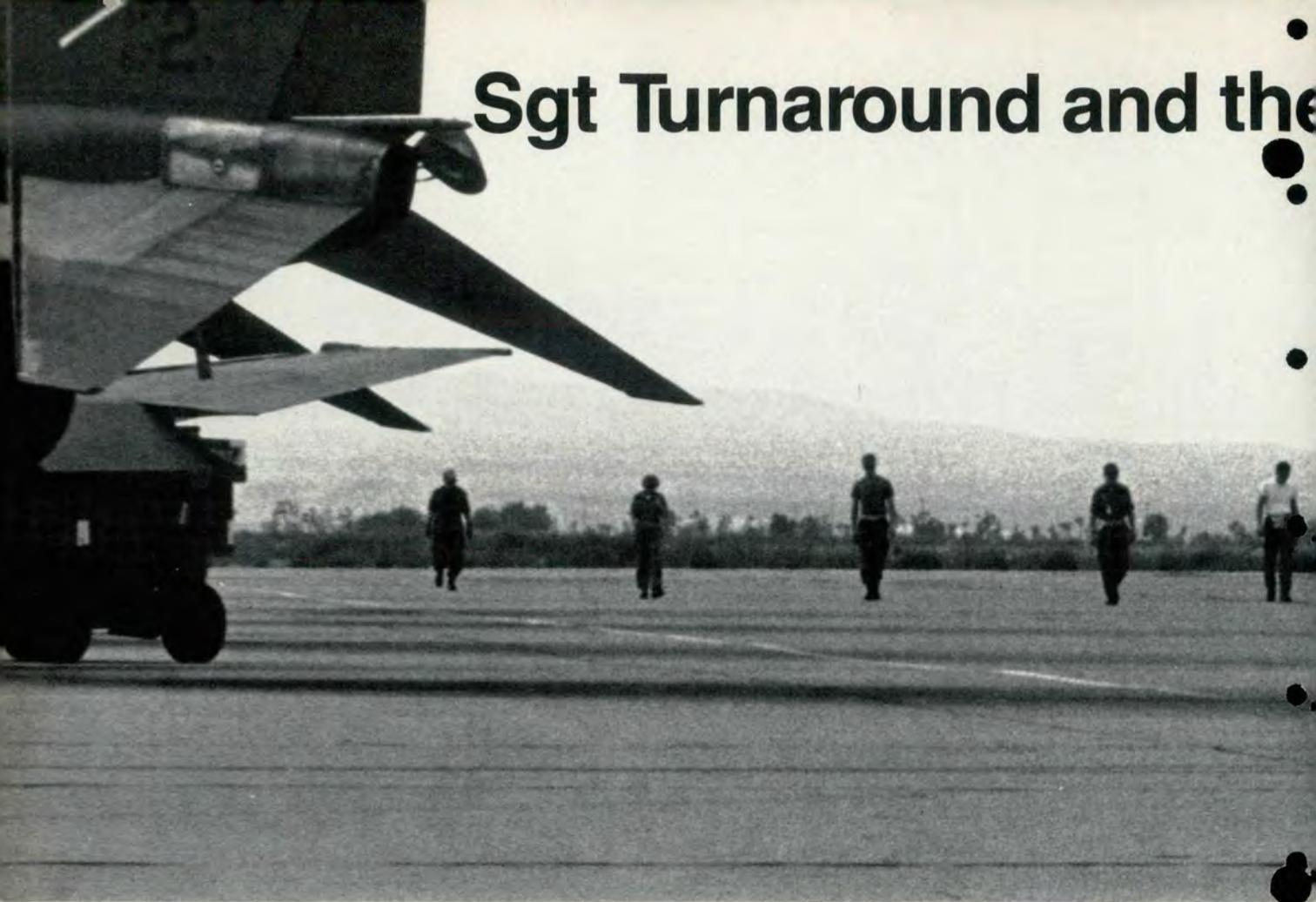
declare, and on you go with your normal street tires. A wise decision? Of course not! But one I guarantee you'd be tempted to make.

What makes this kind of get-home-itis so horrible is the total irony involved. Let's face it — you drive over snow or ice with improper tires, and you just might kill yourself. Will you be around to suffer the consequences of that? No, but your family and friends will. The very people you love so much and were rushing to see will experience the most pain over your loss. Do you want to do that to them?

The world is a dangerous place. On top of all the natural misfortunes that possibly await us, some of us choose to make our lives even more risky by pushing unreasonable limits. Next time you're with your family, take a good look at them. Appreciate them. Visualize how they would feel if they lost you like mine almost lost me. Think about it. Don't let the insidious disease of get-home-itis get *you* ... as it nearly did me. Don't let good advice about safety you have been given over the years fall on deaf ears and a dumb brain. Instructor pilots are supposed to lead, not be led. And certainly not be lead heads. Sincerely

LT GABRIEL EHRENSTEIN
99 FTS/TI
Williams AFB, Arizona

Sgt Turnaround and the



HAROLD R. BUCK
405 TTW FOD Prevention NCO
Luke AFB, Arizona

■ Foreign object damage and debris is quickly becoming one of the most well-known destroyers of aircraft and engines in the aerospace industry. A little effort and ambition will help reduce FOD damage anywhere, but it will take a lot more to bring the damage down to an acceptable level.

One of the best tools for getting everyone involved in FOD prevention is incentive awards. Take, for example, the following incident which, by the way, is factual. See for yourself where incentive programs would help in the prevention of FOD.

It's 0600 on a cold, breezy morning at Boondock AFB. The chief has just completed the morning rollcall with the normal routine, scheduled

appointments, flying schedule, and safety briefings. After completing all of this, the chief calls out, "FOD walk! Everyone report to the flight line."

Sgt Turnaround had just made it to work on time and was telling his buddies he had gotten in 6 hours of study for his upcoming WAPS test. All during the FOD walk, Sgt Turnaround was talking about all the new material he had studied the night before. At the conclusion of the FOD walk, Sgt Turnaround checked out his tool box and headed out to the flight line to prepare his jet for the day's flying.

It is now 0730, and Sgt Turnaround has completed all of the preflight checks he is required to do. "Not due for crew show for another 45 minutes," mumbles Sgt Turnaround. "Think I will get in some more study time while I'm waiting."

Before he knows it, the time has passed, and here comes Sgt Turn-

around's crew, all set to fly. "Good morning, sir," says Sgt Turnaround, as he executes his sharpest salute. "The jet is all set to go, sir. Here are the forms."

The pilot returns the salute and begins to review the forms while Sgt Turnaround begins to remove the remaining safety equipment from the aircraft. The pilot then completes his preflight inspection prior to strapping in for flight. The rest of the launch proceeds without a hitch, and the aircraft lifts off on time for the umpteenth time this month.

During the thruflight inspection, Sgt Turnaround discovered several first-stage fan blades damaged on his no. 1 engine. Knowing that the DCM and everyone else would be looking at him and his aircraft, he began a thorough inspection to make sure whatever caused the damage was not a part off his jet. The investigation revealed the dam-

FOD walk, OR, HOW TO OVERLOOK THE GOLDEN WASHER



age was most likely to have been caused by a small, round, metal object that left thread indications on one of the blades, similar to a screw. There had been no maintenance performed on his jet recently, so Sgt Turnaround was fairly sure the object didn't come from his jet. Only one thing was starting to bother the sergeant. What if he missed that screw during the FOD walk this morning?!

It has been only 1 hour and 30 minutes since Sgt Turnaround discovered the damage to his engine, and now the FOD NCO is here to do his investigation and ask questions. First question: "Sgt Turnaround, did you do a FOD walk in front of your jet before letting it taxi this morning?"

"No, sir, I didn't."

"Did you participate in the AMU FOD walk this morning?"

"Yes, sir, but I didn't find a lot of debris myself."

"Was that because you were not paying attention, or was it because your ramp is that clean?"

"I guess it was because I wasn't paying a lot of attention."

"Sgt Turnaround, did you know that Amn Sharp just came to my office to turn in the golden washer he found this morning during the FOD walk. I asked him where he found it, and he told me that while out on the FOD walk he noticed something bright that caught his eye, and that you had just stepped right over it while you were talking to your buddies. Now he's looking forward to a 3-day pass and more for finding the golden washer. Just another part of the job that gets neglected most of the time because we don't think it is important until something goes wrong."

It's a little late now for Sgt Turnaround. But the next time he goes out on a FOD walk, he will be doing more than rapping with his

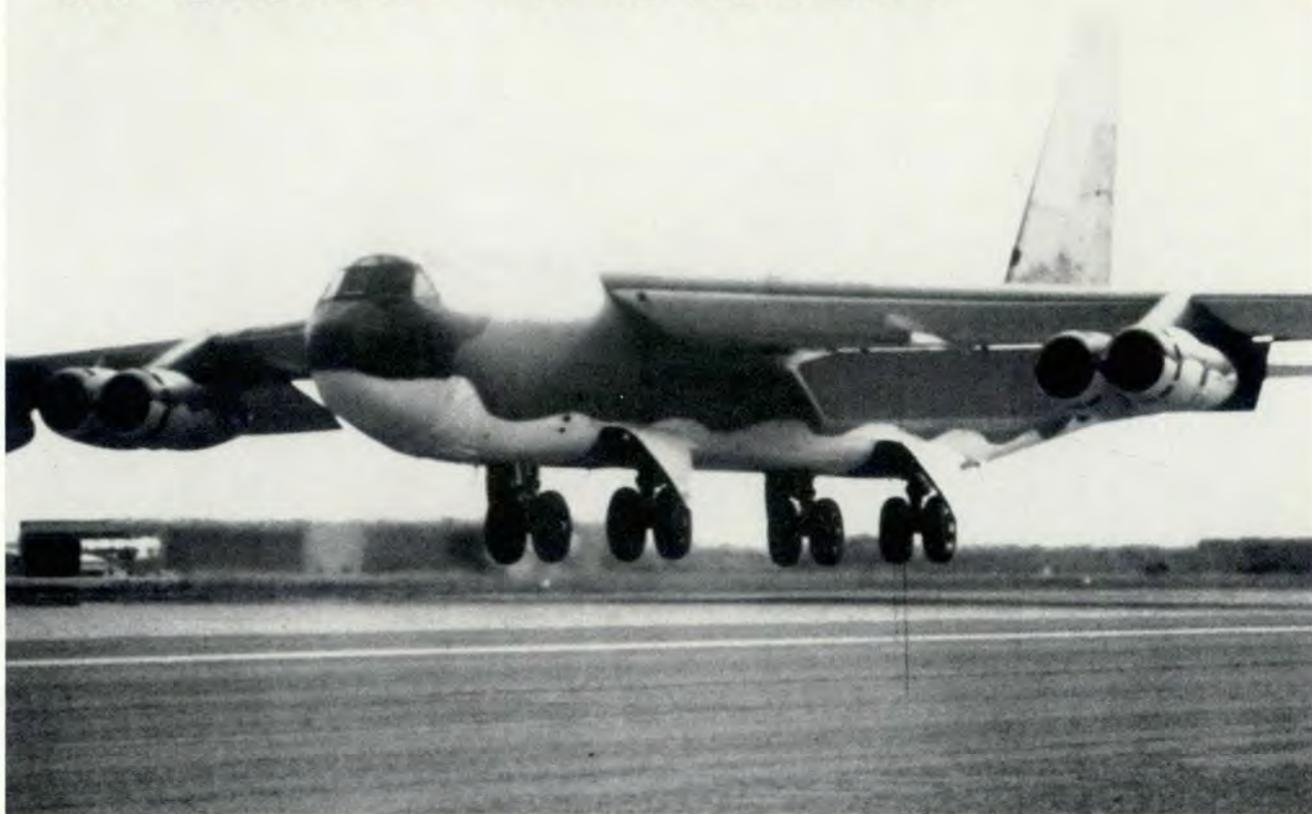
buddies. He'll be looking down and thinking about FOD prevention. Why ruin a good thing by not paying attention? And look at the benefits he might gain for doing his job — 3-day pass, time to study, and even more.

"Well, once is enough. I'll never let a piece of FO ruin my day again," said Sgt Turnaround. "And I might even find that washer."

Editor's Comment

The theme of this article is the value of incentive awards for getting people involved in FOD prevention. However, there is another point that should be raised about Sgt Turnaround's action. He *not only* missed a 3-day pass, but he was also derelict in his duties. His failure to make an FO inspection prior to engine start could have cost the Air Force an aircraft or, even worse, the lives of a flight crew. ■

A GOOD DECISION



LT COL KENT D. KOSHKO
Editor

■ Following an uneventful taxi-back landing in a B-52H, I climbed aboard to update my touch-and-go currency. We took off and completed a low approach to let the wheel brakes cool. Sitting in the IP seat, I watched the pilot set up for a touch-and-go landing.

As we touched down on the rear landing gear, the pilot eased the front trucks onto the runway and raised the airbrakes to position six, then the copilot reset the stabilizer trim to the takeoff setting. The pilot began to advance the throttles.

Suddenly, the aircraft shuddered and started veering to the left as the pilot fought to control it. He started to apply more power to complete the touch and go when the aircraft

shuddered violently again. The pilot, fighting to maintain control of the aircraft, quickly discussed the situation with the copilot, as we were headed toward the left side of the runway and possibly into the grassy infield.

I wanted to yell out, "ABORT!!!" But I kept quiet, hoping they would make the correct decision and knowing the value of a back seat driver when their hands were already full. We were now about halfway down the runway and quickly running out of pavement.

Finally, the pilot elected to abort and called for the abort checklist. As he pressed further on the brakes, the mighty beast shook terribly as we began slowing down.

Finally stopped, we all got out to examine the aircraft's damage . . . a blown main gear tire that was shredded, a 10-inch hole in the right

flap section, and a very nervous, but relieved, flight crew. We all agreed the pilot made a good decision by aborting. I doubt we could have made a successful takeoff. Any kind of distraction at the critical decision point would certainly have been costly. We saw the long skid marks on the runway where the gear had locked up as we had taxied out for takeoff.

Cause . . . a main gear wheel brake had locked up which did not allow the tire to rotate and was not caught as we taxied out for takeoff. A B-52H at light gross weight, 250,000 pounds, has plenty of extra power for taxiing.

I learned that when the supervisor of flying checks tires for rotation, to ensure they are *all* rotating following a taxi-back landing. Remember, many checklist items are a result of problems someone else experienced on a previous flight. ■

SAFETY INSPECTION RECORD

CAPTAIN DALE T. PIERCE
919th Special Operations Group
Duke Field, Florida

■ Wise persons of our time have identified certain factors concerning the importance of paperwork to our lives. The first is a fundamental truth in the bureaucratic world: The job isn't over until the paperwork is done. The second is Bosley's First Law of Safety: A safety inspection not documented wasn't done.

Bookkeeping is generally one of the most often used and least often appreciated of human endeavors. As I'm sure most of you have noticed, there is a lot of paperwork to be done in the safety business. Ironically, there also seems to be more and more people in the business of creating requirements for more and more paperwork, instead of the reverse. However, there are occasional examples to the contrary.

One such example is Lt Col Bosley, Director of Safety for the 919 SOG. He is one who abhors paperwork, but realizes that actions not documented don't count at inspection time. One of his never-ending projects is to maximize the efficiency of safety office paperwork.

An example of his efforts toward maximizing the efficiency of safety office paperwork is 919 SOG Form 101, Safety Inspection Record. On the front is a complete picture of the nature of the inspection or discrepancy, as well as the cause, recommendation, corrective action, and who worked the problem. On the back is a complete followup summary.

It's simple, straightforward, and has been revised and updated over several years of use. Does it work? You bet. If you would like a copy for your very own, call me at AUTOVON 872-2012 (TAWC), or write to the following address:

919 SOG/SEF
Duke Field, FL 32542-6005



What Would You Do?

Engine Fire?

■ The pilot of a fighter was setting up for a weapons delivery on the range. The aircraft was descending from 5,000 feet MSL to 1,900 feet MSL with both engines in maximum afterburner when the right fire light illuminated. The pilot terminated the pass and reduced the right throttle to military, then to idle. The fire light went out as the throttle was reduced.

What Would you Do?

- Assume it was a false fire light and continue the mission.
- Assume it was a false fire light, but leave the engine in idle, and terminate the mission.
- Assume the light was due to an actual fire, perform the bold face items, test the circuit, and terminate the mission.
- Don't assume anything. Leave the engine in idle, test the circuit, and look for other signs of fire.

What The Pilot Did

The pilot chose option b. His decision was based on having experienced two false fire lights in another type fighter. His assumption was reinforced by the light going out when he reduced power.

After the pilot had made two 360-degree climbing turns over the range, the utility and flight hydraulic lights illuminated due to heating of the hydraulic fluid. He made an immediate descent and landing at the auxiliary field. At 90 knots on the landing roll, the fire light came on again. He shut down the right engine and stopped on the runway.

There was extensive heat damage caused by an engine burn through. The fire light went out because the right aft fire warning sensor had been burned through. Had the pilot checked the circuit, he would have discovered the loss of continuity. He then would have been alerted to a possibly serious problem and would have shut down the engine. This would have considerably lessened the damage.

The best course of action would have been option c. Never assume a fire light is false. Too many people have gotten themselves in trouble by making such an assumption. Also, always test the circuit to find out if it is still functional. It just might have been destroyed by the fire or overheat. ■

Send your real-life submissions to:

What Would You Do?, *Flying Safety* magazine, AFISC/SEPP, Norton AFB, CA 92409-7001.

USAF SAFETY AWARDS

FOR 1988



THE MAJOR GENERAL BENJAMIN D. FOULOIS MEMORIAL AWARD MILITARY AIRLIFT COMMAND

The Major General Benjamin D. Foulois Award is presented to the Military Airlift Command in recognition of the most effective aircraft mishap prevention program of all major commands during 1988.

The Military Airlift Command (MAC) had a zero Class A and B flight mishap rate — an extraordinary feat for such a large flying command. Never before has a command with as many flying hours obtained this ultimate goal of aircraft mishap prevention — zero major mishaps. This impressive achievement came in a year when the command moved more than 340,000 tons of cargo, 1,556,700 passengers, and 79,000 medical patients, had 95,492 departures, and flew over 673,360 hours.

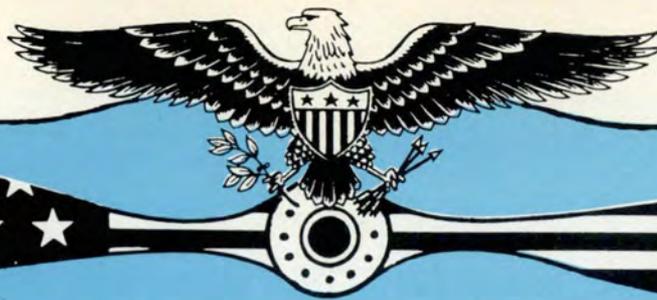
This success proved beyond a doubt that safe mission accomplishment stems from strong command support and leadership, supervisory involvement, and personal commitment at every level. ■



THE KOREN KOLLIGIAN, JR., TROPHY CAPTAIN KENNETH J. VANTIGER

27th Tactical Fighter Wing
Cannon Air Force Base, New Mexico

■ The Koren Kolligian, Jr., Trophy is awarded annually to the USAF aircrew member who most successfully coped with an inflight emergency situation. Captain Vantiger, flying an F-111D, was entering initial approach for landing at Eglin Air Force Base, Florida, when his aircraft experienced a flight control malfunction. After the crew regained control of the aircraft, they climbed out and flew away from the field to analyze their situation. The stick was deflected full right and, with maximum coordinated effort, could not be moved past center. The aircraft was barely controllable, with rudder alone available for directional control. Captain Vantiger was later faced with violent pitch oscillations as he configured the aircraft for landing. These pitch oscillations continued through the approach, and the full-right stick deflection made aircraft control difficult. At 50 feet over the runway, the right wing dropped again, but a quick rudder input brought it up. Captain Vantiger landed the aircraft and brought it to a stop without any damage. ■



AVIATION HERITAGE

Pride in the Past . . . Trust in the Future

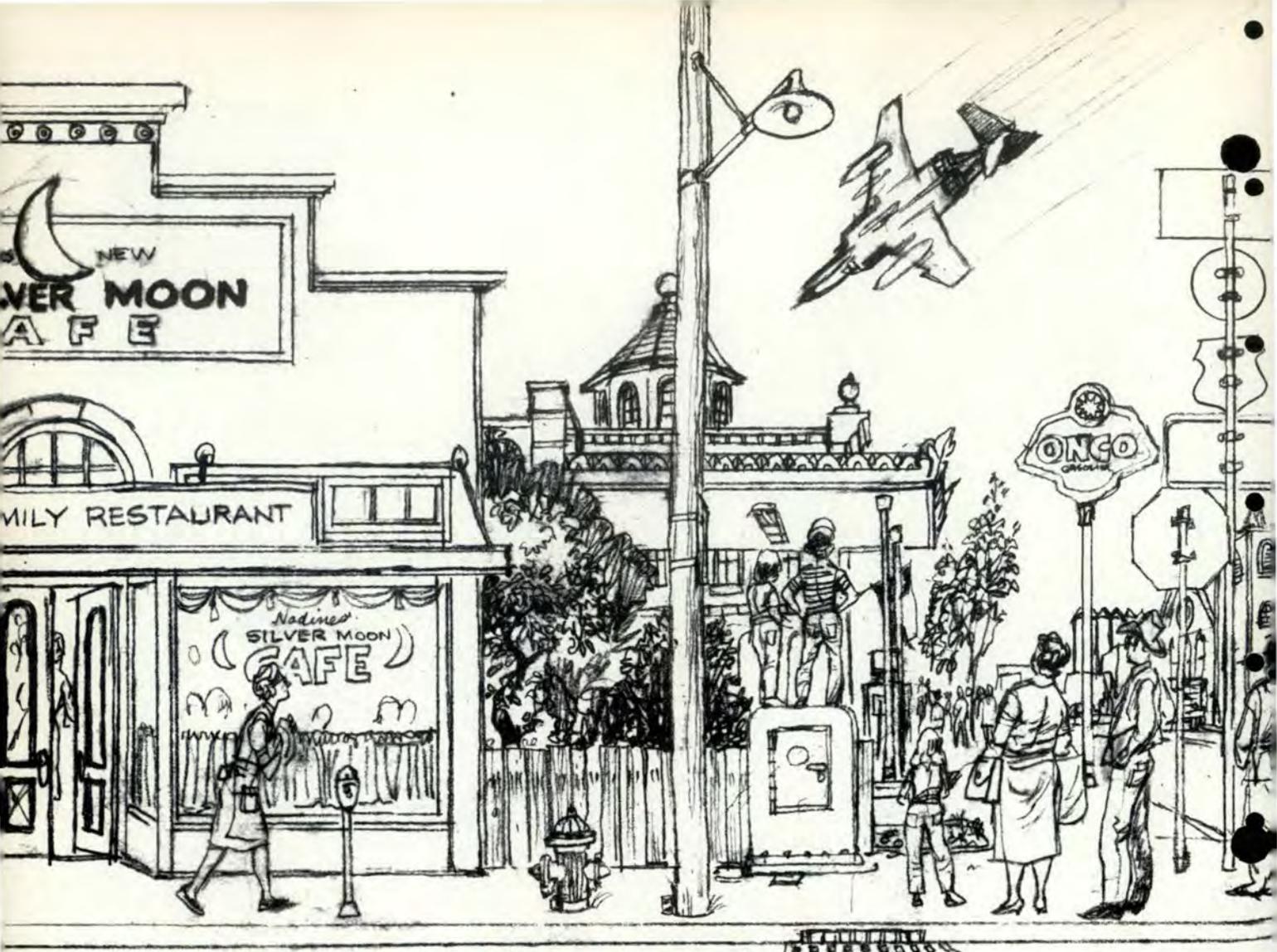
JULY

America has a rich heritage of aviation firsts, thanks to the foresight, perseverance, and sacrifice of countless dedicated men and women.

In July, we are proud to salute the anniversaries of these bold pioneers:

- | | | |
|------|------|---|
| 5th | 1942 | The "Flying Tigers," commanded by Gen Claire Chennault, was transferred from the Chinese Army to the US 14th Army Air Force. |
| 11th | 1955 | The United States Air Force Academy (USAFA) opened its doors for the first time with temporary quarters at Lowry AFB, Colorado, and 300 students. In 1958, the USAFA moved to Colorado Springs. |
| 12th | 1957 | The first test flight of McDonnell's RF-101 took place. The "Voodoo" was active in Vietnam from 1961-1967. |
| 20th | 1969 | Apollo II landed on the moon as Neil Armstrong and USAF Col Edwin Aldrin became the first men to walk on the lunar surface. They stayed for 21 hours. |
| 26th | 1947 | President Truman signed the National Security Act of 1947, establishing the Department of Defense and a separate Air Force. |
| 31st | 1952 | The first transatlantic helicopter flight was made in two H-19s from Westover AFB, Massachusetts, to Prestwick, Scotland, by Capt V. McGovern and Lieutenant H. Moore. |

These courageous aviation leaders set hallmarks that have made our skies SAFER and FREER for millions of people.



AIR LEADERSHIP . . . we are

MAJOR MARK MAYHEW
Directorate of Aerospace Safety

■ Do you remember basic training, pilot, navigator, or tech training? Was there someone who made the difference — someone who kept you going? Through the last however many years you've been in the Air Force, has there been someone whom you've respected and someday hoped you could meet again to show what a great job they did to make you a success today? Lastly, are you the kind of person who inspires that type of respect in others? The example you set for others to follow or avoid can have a major, but often untold, effect on safety.

Whether you are a general or an airman, all of us are observed by those around us. Supervisors look at our duty performance, and subordinates look to us for direct or implied direction. Additionally, folks not in our chain of command, and maybe not even in the military, look at us as the United States Air Force, representative of the entire Department of Defense.

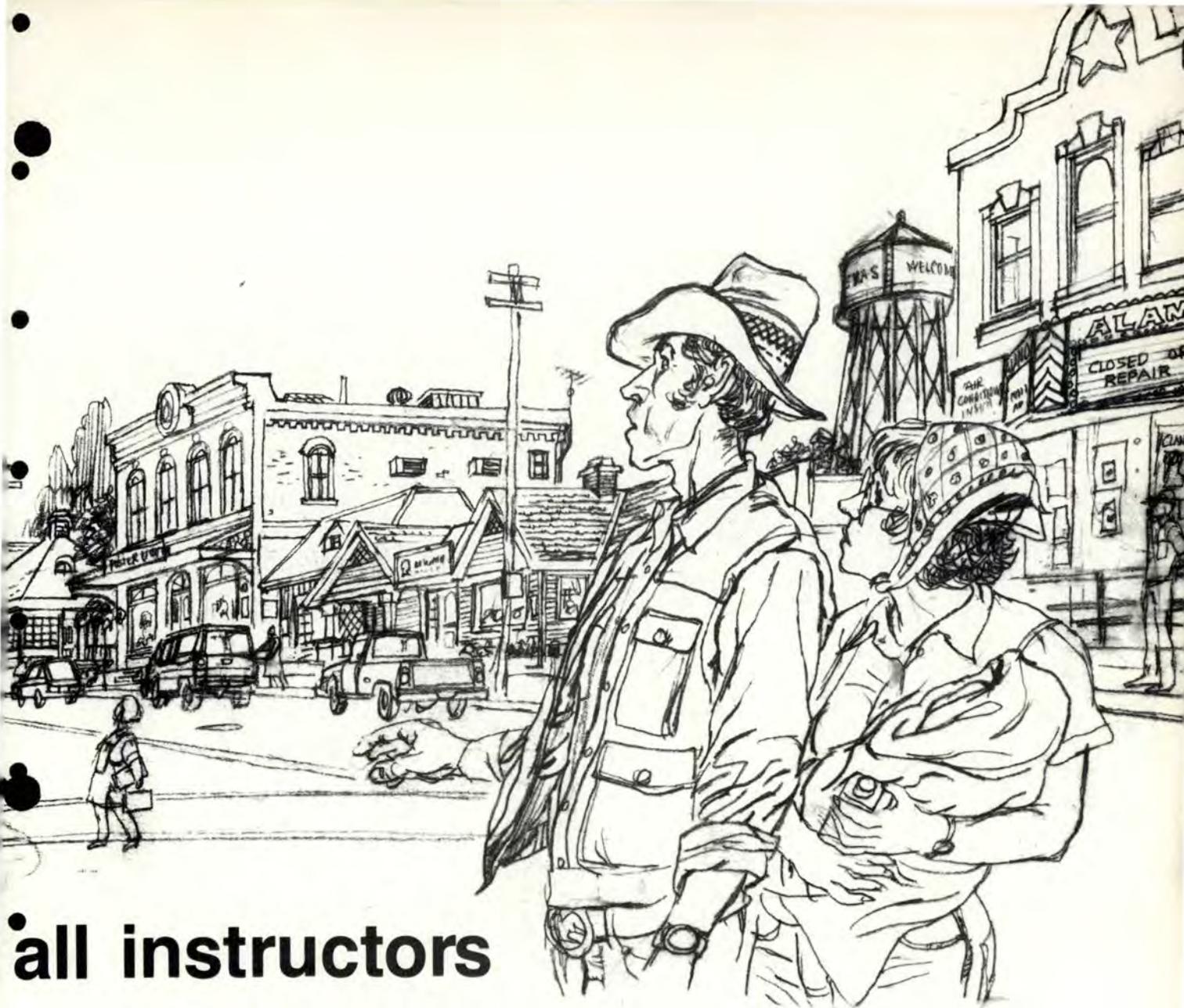
Two Categories of Instructors

There are at least two categories of instructors. The regulations describe qualifications and AFSCs of people who are, by definition, formal instructors. These individuals act as formal trainers and have spe-

cial evaluations and responsibilities.

Then there are the rest of us — those of us who follow or don't follow technical orders, established standards, or regulations and who, day to day, influence others. I have a couple of stories to share with you to help support this second type of instructor.

■ Three years ago, I was a T-37 instructor at Williams AFB, Arizona, and heard the following scenario from ATC's traveling road show. It seems the mishap investigation team had just arrived in a small Texas town, the scene of a recent F-4 crash. The board members were looking for witnesses and were surprised to find that almost the entire



all instructors

town had seen the mishap. As the questioning proceeded, it became obvious what had happened was an unauthorized airshow.

The townspeople said that every year about this time, the mishap pilot would call and tell them when he would fly by in his aircraft to give his show. It seems he had been doing this for the past 5 years, ever since his instructor pilot (IP) and he had done the first show back when he was a student. By reviewing the pilot's records, the board found out where he had attended pilot training and who his instructor had been. They were able to track down his instructor, now retired, and asked him about what the witness-

es had alleged.

Sure enough. In order to motivate his students, this man had taken many of them on this type of mission. It's not known how many other of his "motivated" students met a fate similar to the unfortunate one in Texas or how many others might still be out there passing on their IP's techniques and tempting fate.

If the Books Aren't Clear?

In another example of good leadership in the air, an aircraft commander once told me that if the books aren't clear on whether or not you can do something, just imagine the squadron commander is on board with you. If you would feel comfortable doing the maneuver

with that in mind, it's probably okay. I don't suppose there is anyone out there willfully breaking the rules — but what about the checklist or radio discipline? The new guys are watching, not to turn us in for a violation, but to see how an experienced aviator does it.

■ My next story about air discipline comes from a personal experience I had in pilot training and how that situation came back on a grander scale some years later. There I was, a student on my dollar ride, coming up initial in the mighty T-37. My IP asked me if I wanted to make the radio call to let the RSU know we were going to make a full-stop landing. No prob-

continued



LEADERSHIP . . . we are all instructors continued

lem. I had practiced my radio calls the night before.

I looked down at the fuel quantity indicator so I could include fuel remaining in the call. We had 380 pounds remaining, meaning we would land with minimum fuel. The IP told me to say we had 600 pounds remaining so he wouldn't have to explain why he had come back so low on gas. Somewhat confused and not wanting to botch the call, I delayed making the call to the point that he had to do it. He made the call as he had wanted, and that was the end of that. Had we needed to leave the pattern for an emergency or a runway change, things might have been different. That experience about proper fuel reporting stayed with me for a long time.

About 4 years later, I was flying out of a base in the Pacific when I ran across this incident scenario and another example of poor air leadership judgment. Apparently, this tanker crew — I don't remember what service they belonged to — had been TDY for over a month and were on their way back home. You know how "get-home-itis" can be.

Well, they were returning as fast as their craft could carry them when they received a call from the com-

mand post concerning their fuel state. Although they thought it was a bit bizarre, it wasn't the strangest request they had ever had from those guys. This aircraft commander (AC) was sharp. He knew that if he gave the actual quantity, they would know something was wrong because, of course, the command post knew their takeoff fuel and how much they should have burned since takeoff if they had been flying fuel conservative airspeeds. The crew knew they had more than enough gas to get to their destination at their high speed, so the AC asked the other crewmembers to figure out what the fuel quantity should have been. He passed that on to the command post. No biggie — they would never know.

A little more than a half hour later, command post called them back. Another location had gone below weather minimums. Now a number of aircraft needed to divert. A flight of fighters would not have enough fuel to reach the divert base. The command post had figured out how much fuel it would take the tanker to make their destination, subtracted it from the number the tanker had passed to them

earlier, and determined the tanker could pass enough gas to the fighters to get them home.

They were in the process of directing the fighters to the tanker's position when the shaky voice of the tanker AC confessed that his actual fuel state would not permit him to offload any fuel and still make it home. Another refueler had to be scrambled to give the needed fuel to the fighters.

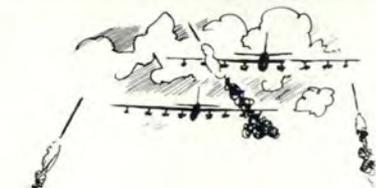
Lesson Learned

Ethics is another topic that isn't taught by a syllabus. We teach by our actions. If we exceed an operations limit and no one else knows (or maybe just the student does), by not writing it up and taking the heat, not only are we endangering that unsuspecting aircrew that may fly the bird next, but you may be sending a message to a student that it's no problem to just let it slide.

There is a great deal of experience leaving the Air Force in this era. Whether you are a formalized instructor or not, you set the standard, you convey the attitude toward rules and ethics. The top brass can put it in print, but it depends upon all of us to make it happen. ■

FLIGHT LEADER

MAINTAIN THE EDGE



LT COLONEL KENT D. KOSHKO
Editor

■ "Maintain the edge on awareness and don't become distracted," the commander warned. It was especially apropos on this mission.

This was the crew's third flight over Hanoi and the mood was sober. On the two previous flights, dodging the barrage of surface-to-air missiles and a few MiGs en route to the target area had made the crew aware of how critically they depended on each other's expertise.

For tonight's mission the enemy had a day to regroup and reload since the previous day had been a down day, in recognition of Christmas. So they were not only aware, but *more than ready*. As the cell approached the target area, someone called out "MiG," and the tension increased as the crew scanned the midnight sky for any intruders.

As they flew closer to the target, the MiGs backed off so as not to be hit by one of the many SAMs. The gunner called "missiles launch at 5 o'clock," and the pilot maneuvered away from the impending collision. Shortly thereafter, about five SAMs were launched ahead and at about 10 o'clock and coming right for the bomber.

It seemed to take a long time, but as the first group of SAMs passed clear, the aircraft commander stood on the right rudder and turned the yoke as hard as he could, just in time to see one of the SAMs sail by



the window about 20 feet away. Quickly he rolled out and ready for bombs away on our target, a SAM site in downtown Hanoi.

Past the target, the pilot remembered the advice, "Maintain the edge, and don't get distracted." Suddenly, the no. 3 in the cell called for help. Amid the blackened skies and turmoil, he had lost his position in the cell and urgently needed help in rejoining the formation.

The gunner turned on his lamp and searched unsuccessfully to find the missing plane. The lost pilot called again, with more concern in his voice. Still in the target area, but concerned about the other crew, the pilot decided to take a chance. He opened the air refueling slipway doors and turned on the air refueling lights. They shone like a beacon in the night, because he immediately heard, "I've got you visual!"

The rejoin was completed over the target area and they remained vigilant until the landing. A grateful crew bought a round of drinks that night, and they all learned how dependent they are on one another.

The advice they had received before the mission certainly helped them out that perilous night, and still applies to everyday peacetime flying . . . *maintain the razor sharp edge on your mission..* ■

Send me YOUR flight lead stories, so we can share them with others. Call me at AUTOVON 876-2633/2634, or write *Flying Safety* magazine, HQ AFISC/SEPP, Norton AFB, CA 92409-7001.

Let us tell your story in... **THERE I WAS**

"There I Was" is a popular feature. You have some great stories that are just waiting to be told, so how about jotting them down. **Photocopy this page*** or obtain the printed forms from your safety office.

This is an **anonymous program**. The inputs will re-

ceive the immediate personal attention of the Editor of *Flying Safety*. You can write to us at HQ AFISC/SEPP, Norton AFB, California 92409-7001, for additional forms. By the way, if you don't have a form, just send your story.

* Do not remove this page from the magazine as other readers would like to see the entire issue. Photocopy this page and use the back to complete your story. Fold on dotted lines, then tape or staple together prior to mailing.

(Fold Here)

Photocopy this page and continue your story on the reverse side. Your signature is optional, as these are anonymous articles. Unless you specifically waive it, your confidentiality will be strictly observed. Our purpose is to pass on to others lessons that have been learned through firsthand experience.

(Fold here)

HQ AFISC/SEPP
Norton AFB CA 92409-7001

THERE I WAS
Flying Safety Magazine
HQ AFISC/SEPP
Norton AFB CA 92409-7001

"EYES ONLY" for the Editor

Write A Dumb Caption Contest Thing

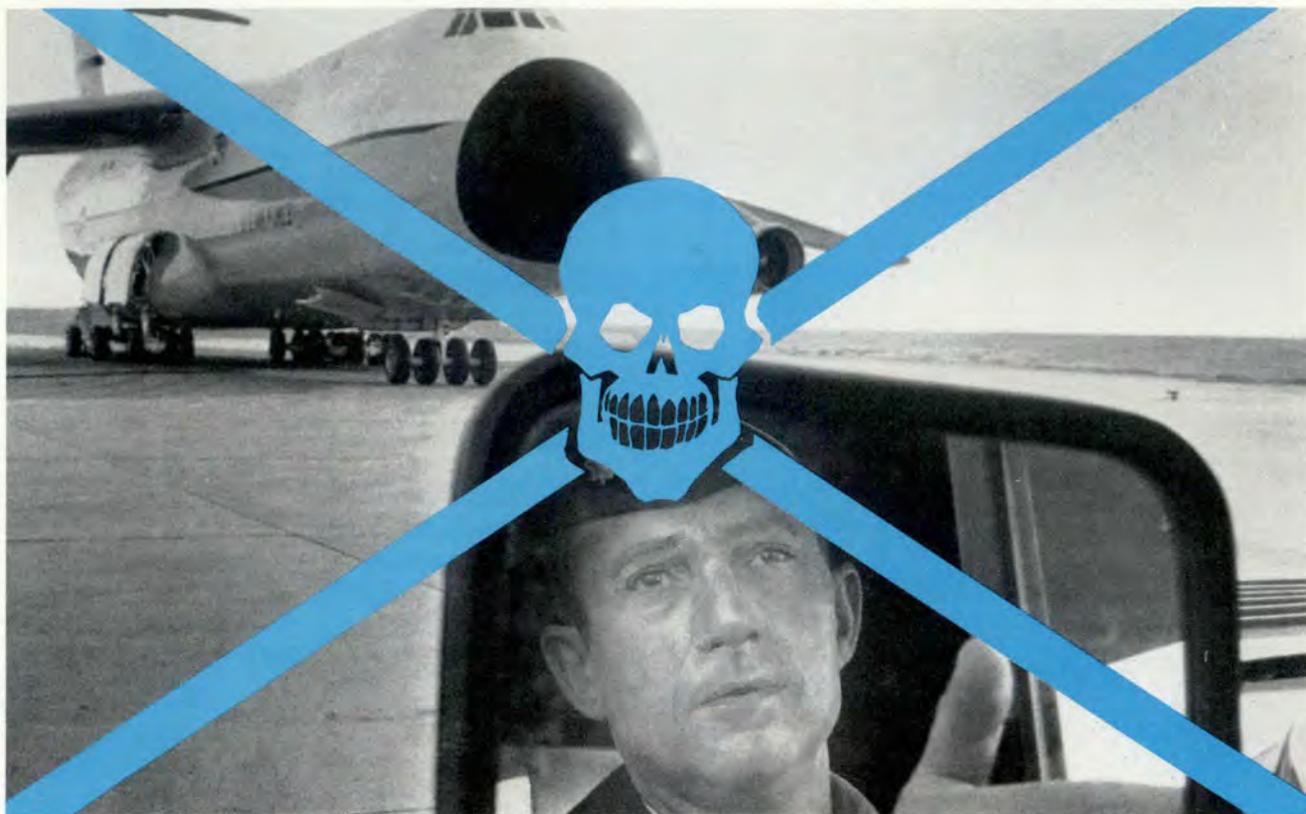


Are you a clever person? Are you good at unsolved mysteries? Would you like to collect our secret prize? Then, why not enter our Dumb Caption Contest and be a winner?!

Write your captions on a slip of paper and tape it on a photocopy of this page. DO NOT SEND US THE MAGAZINE PAGE. Use "balloon" captions for each person in the photo or use a caption under the entire page. You may also submit your captions on a plain piece of paper. Entries will be judged by a panel of experts on dumb humor on 19 September 1989. All decisions are relatively final.

Send your entries to: "Dumb Caption Contest Thing" • *Flying Safety Magazine* • HQ AFISC/SEPP • Norton AFB CA 92409-7001

FATAL CROSSING



Don't Be Distracted

CMSGT ROBERT T. HOLRITZ
Technical Editor

■ Since 1981, the number of runway incursions reported each year has continued to increase. While we have not had any serious mishaps in the past 10 years, a time bomb is ticking away. Unless it is defuzed, it's just a matter of time before an unauthorized runway crossing results in a catastrophe.

The majority of runway violations are the result of poor communications. A typical incident occurred when a T-37 was on final. The tower instructed a sweeper and a transportation vehicle to hold short of the runway. When the Tweet landed and rolled by the sweeper, ground control instructed the

sweeper to cross the runway. At the same time, the transportation vehicle assumed the clearance was for him. He crossed the runway 1,500 feet in front of the landing aircraft.

In another instance, shortly after takeoff roll, the flight lead of a formation takeoff aborted the mission when he noticed an F-4 being towed across the departure end of the active runway. Investigators blamed the incident on a breakdown in communications. The tow team chief believed the Maintenance Operation Control Center (MOCC) could grant clearance to cross the active runway. The MOCC understood the radio request to be for "tow clearance," not for "runway clearance."

In addition to communication breakdown, many runway viola-

tions occur because people are not familiar with the airfield or procedures. Quite often, newly assigned personnel and contractors are not thoroughly educated on the physical layout of the airfield and the procedures for obtaining permission to cross the active runway.

For example, disaster was narrowly avoided when an alert controller instructed a C-5 to go around after he noticed an unauthorized vehicle on the active runway. The driver of the vehicle was a subcontractor for runway construction. When questioned about the incident, he explained he was not formally briefed on the procedures for gaining access to the runway. Apparently, the prime contractor failed to ensure the subcontractor was briefed on airfield driving procedures in accord-

The giant C-5A Galaxy is even larger when viewed from a vehicle in the wrong place . . . a time bomb is ticking away.

ance with the safety clause in the contract.

In another incursion, a T-39 was forced to execute a missed approach when the driver of a snowplow missed a taxiway turnoff and accidentally drove onto the runway. The day of the incident was the driver's first day on the job. A review of the driver's records revealed he was not properly trained. Although the documentation was complete, no flight line orientation ride had been accomplished.

Procedures for establishing effective flight line driving are contained in AFR 55-48, Airfield Management and Base Operations. However, a review of runway violations that have occurred within the past few years suggest the following additional guides to a safe flight line driving program.

- Ensure the proper radio equipment is available. There have been many runway violations that occurred because the driver misunderstood communications from the tower. Quite often a hand-held radio does not provide adequate communications due to excessive flight line noise in the vehicle cab. For this reason, it is wise to use portable radios and, whenever possible, radio headsets when crossing the runway.

- Be sure you understand the tower's transmission by repeating it back to the controller with your call sign.

- Whenever possible, use radio contact from the tower for authorization to cross the runway. Light guns are not always understood by flight line folks.

- Ensure flight line drivers remain familiar with the airfield layout and runway crossing procedures. This can be accomplished by recurring training, including flight line check rides and written exams. This is especially important for people who drive on the flight line infrequently. It is important to note that although the tow team super-

visor who towed the F-4 across the runway had been on station for years, he had not worked on the flight line for a long period of time. He was no longer familiar with the airfield or proper runway crossing procedures.

While the above guides can help

prevent unauthorized runway crossings, it will take the personal involvement of every flight line driver and every supervisor to defuse the time bomb. Think about it the next time you cross the runway. **Don't YOU be the cause of a fatal crossing.** ■

876-SAFE



Brig Gen James M. Johnston III has established a "Safety Hot Line." If you have a safety concern you think the Director of Aerospace Safety should know about, call this AUTOVON number (876-7233) and leave a message. Brig Gen Johnston or a member of his staff will personally review and answer each call.



OPS TOPICS



Watch Those Lap Belts

■ During a night range mission, the OV-10A pilot twisted in his seat to observe a flare drop and noticed his lap belt had released. The pilot refastened his lap belt and continued the mission. The

URC-64 survival radio in the left lower pocket of his survival vest apparently contacted the lap belt release mechanism and opened the belt. Three other squadron pilots had experienced the same problem.



Just Leave it Running — We Won't Be Long

A tow tractor was driven onto a C-130 and secured with some other equipment in preparation for a deployment. At the time of loading, the aircraft APU was operating. Passengers were then loaded, and the aircraft prepared for departure. One passenger smelled exhaust fumes, but thought it was coming from the C-130.

After about 2 hours of flight, a passenger leaned on the tow tractor and dis-

covered it was warm. A loadmaster sitting on the seat of the tractor said it was warm from the overhead vents. The passengers then observed warm air was blowing from the radiator, so the passenger who was sleeping on the hood of the tractor was asked to move so the engine could be checked.

At this point, as the original mishap message stated, the impossible was found to be possible, and the engine was turned off.



St Elmo's Fire

A B-52G was flying a night low level when it became necessary to climb to the en route IFR altitude due to loss of VFR references. They could see lightning and thunderstorms in the distance and confirmed by radar that all weather was 25 NM or greater from the aircraft.

The copilot saw St Elmo's fire on the right wing. A few seconds later, there was a large static discharge on the radome. The bright flash momen-

tarily blinded the copilot and safety observer. The pilot initiated a climb, turned all cockpit lights full bright, and declared an emergency with ATC.

All aircraft systems were working normally, but the pilot suspected the radome had been damaged and terminated the mission. Following an uneventful landing, a rectangular hole, 2 inches by 3 inches, was found in the radome. No other damage was found.



Flu? No Fly!

This incident suggests the need to reemphasize the importance of good health for flying duties. One morning while transiting one of the more ex-



otic places TDY people frequent, the copilot informed the aircraft commander he felt ill; *but not bad enough to see a flight surgeon*. What he didn't tell the AC was that he



OPS TOPICS

had been violently ill and nauseous most of the night. The copilot was operating in the "press-on" mode and wanted to continue the mission.

Upon reaching cruise altitude, the copilot's malady returned, and he

became violently ill — so ill he was unable to perform his flight duties and had to get out of the seat. The AC was able to make an uneventful approach and landing, assisted by the scanner who moved to the copilot's seat.



Refueling Hose Job

On a clear night, a KC-135 crew was flying a routine training mission designed to qualify Navy fighter pilots in drogue refueling. The rendezvous was completed smoothly. Then, during light turbulence, the fighter made several unsuccessful attempts at contact.

On one attempt, the fighter broke off approximately 6 inches of the air refueling probe, which went undetected by both receiver and boom operator. During the next contact, the receiver probe became wedged into the receptacle of the drogue basket.

After some difficulty in trying to remain in the air refueling envelope, the fighter attempted a disconnect while in the lower elevation limits. Unfor-

tunately, the fighter ripped the drogue basket from the hose during the disconnect. The basket and several feet of refueling hose were stuck to the Navy jet's refueling probe. The hose repeatedly struck the receiver aircraft's canopy, causing numerous puncture holes in the canopy. The fighter declared an emergency with air traffic control and aborted to a military base in the area. The KC-135 recovered to the same base.

Investigation revealed the drogue hose failed when the receiver attempted a disconnect from the lower limits of the air refueling envelope. Previously it had been concluded that air refueling drogue hose assembly inspection requirements were inadequate and were being updated.

EDITOR'S CORRECTION: The author of the IFC Approach article featured in the May 1989 issue should have read Major Bill Stanford, USAF IFC/FO, Randolph AFB.



Boating Midair

Two C-141s were flying a VFR formation on an overwater flight at FL 410. No. 2 was $\frac{1}{4}$ to $\frac{1}{2}$ mile in trail and slightly below lead when the lead aircraft lost its 20-man liferaft and accessory kit from the right wing.

The raft struck the no. 2 aircraft, causing minor damage to the no. 2 engine pylon and wing leading edge. The pylon sustained a 3-inch by 5-inch cut, while the leading edge received a 1-inch by 2-inch puncture.



Nav Digitalis Numbus

Isn't life a scream?

On completion of pre-flight checks on a Phantom, the pilot closed the front canopy. As the canopy was lowering, the nav placed one hand on the canopy hinge line to pull himself up, while looking rearward to adjust the shoulder harness with his other hand . . .

The subsequent scream from the rear cockpit was answered by the pilot re-opening the canopy. The canopy had closed fully, and the navigator, who

was not a QFI (quick finger individual), received crushed fingers. Fortunately, no permanent damage was done.

Moral: Flight safety begins on the ground. Even the most steely aircrew need fingers to operate digital equipment. Before all the navigator jokes are dusted off, did you hear about the F-5 pilot who walked into the pitot tube, narrowly avoiding a serious eye injury? ■

The above ops topics are lessons learned from past incidents

MAINTENANCE MATTERS



Reader's Response

■ The results of the poll we published in our March issue are still coming in, and I am delighted (although not surprised) that nearly half of the responses we received were from maintenance specialists. Almost every reply from a maintainer asked us to print more aircraft maintenance and munitions articles. In response to your requests, we will increase the number of maintenance-related articles.

Experience shows that many good ideas for arti-

cles come from people in the field. This is true for maintenance folks as well as fliers. For this reason, *Flying Safety* magazine solicits your articles and ideas. If you have an article, or an idea for an article, let us know by letter or phone. It is no secret that flying safety starts with quality maintenance. Send your articles to: Technical Editor *Flying Safety* Magazine Norton AFB, CA 92409-7001

Or call me, CMSgt Bob Holritz, AUTOVON 876-2633 (commercial (714) 382-2633).



Blast Off!

After washing the T-37, the worker called for his supervisor who inspected the job, signed it off as accepted, and then departed the area. Now the worker was left without assistance to declutch the aircraft canopy, a procedure to ensure moisture

would not cause the mechanism to malfunction.

Working alone, he stood outside the Tweet, holding the canopy with his right hand and activated the declutch handle with his left hand. After reaching inside the aircraft and removing the initiator

safety pin, he reached for the door that contained the declutch handle.

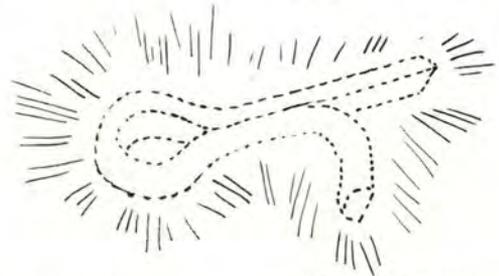
Inadvertently, the worker opened the panel door containing the canopy jettison handle (both panels are located side by side on the T-37 aircraft exterior) and pulled the lever that engages the initiator handle, jettisoning the canopy. Fortunately, the worker wasn't injured, and the canopy landed on the ramp 8 feet from the tail of the aircraft.

Investigation revealed the worker had not declutched a canopy since his initial "new guy" training during the T-37 crew chief FTD course 1 year prior. Granted, both access panels are yellow and located side by side,

but they have different markings.

Not only did the repair costs exceed \$3,000, but the Air Force was deprived of the training capability of a T-37 aircraft for the time required to accomplish the repairs. This was certainly the hard way to learn where the correct access panel was located.

Such mishaps serve to remind us of the need to stop sometimes and ask for assistance. Regardless of how anxious we may be to do something simple like declutch a canopy, the time saved by taking the task for granted will certainly not compensate for the additional time spent in replacing an aircraft canopy and its explosives.



Missing Cotter Pin

The TR-1 pilot was performing an acceleration check during a functional check flight. After retarding the throttle to idle, he noticed the engine RPM remained at 92 percent while the aircraft continued to accelerate. Not only was the engine completely unresponsive to the throttle movement, but the throttle was also binding and could not be advanced any farther than half way.

The pilot lowered the landing gear, extended the spoilers, and began a shallow descent. Using the cutoff switch, he then shut the engine down and landed the aircraft uneventfully.

Investigation showed the throttle linkage had become disconnected from the fuel control. The nut and bolt which secure the linkage to the fuel control were found laying on the panel below the fuel control. The cotter pin which safeties the linkage

was not found.

The lack of a cotter pin could very well have led to a major mishap. Engine and throttle linkage areas are critical. Taking a few minutes to ensure proper installation of safety wires

and cotter pins can provide big dividends in flight safety. Also, don't forget to make the proper entry in the aircraft forms whenever disconnecting any throttle or fuel control linkage.

removal of the sear for further inspection. At this time, the cartridge was not in the guillotine.

Technician 1 returned to the maintenance bay, re-inserted the cartridge into the guillotine for "safe keeping until he could obtain a cart can," but did not install the safety pin.

Technician 2, unaware the cartridge was not installed, directed his assistant to pull the sear. The first technician handed the guillotine to technician 2 who, assuming it safe due to the lack of the safety pin, pulled the sear. The cartridge fired, impacting technician 2's

right hand and stomach. Fortunately, he was hospitalized for only 3 days and was able to return to duty.

The best in technical data is available for our use. Strict adherence to the TO procedures will prevent any possibility of egress system incidents such as these. The safest way to perform any maintenance task is to follow the book. Egress system errors can be prevented if supervisors require strict adherence to tech data. Even the most simple maintenance should never be attempted without it.



Careful With the Seats

Two egress systems technicians were moving an ejection seat from a dolly maintenance stand within their shop. After installing the JAU-3 initiator, they placed the seat on a workbench. Suddenly, they heard the initiator fire.

Why did it happen? The egress technicians didn't install the safety pins into the ejection seat handles. The full weight of the bucket resting on the handles enabled them to ro-

tate, causing the initiator to fire.

Here's another incident. After pulling a seat from an aircraft on the flight line, the two egress technicians took it to their shop for an inspection. Upon close examination, they found several cracked nutplates which required disassembly of the seat.

Technician 1 removed the explosive items from the seat and noticed the sear on the guillotine was bent. He told his shop chief who directed the re-



C-130 Missed "Caution"

After completing the lube cards on a C-130 undergoing isochronal inspection, a maintenance technician proceeded to retract the ramp using the aircraft hand pump. Closing operations went smoothly until he noticed a 12-inch gap between the ramp and the aft cargo door. He continued operating the pump, when suddenly a loud "pop" was heard! A quick inspection revealed a 36-inch crack to the right lower longeron assembly.

What caused the expen-

sive ground mishap? No one adhered to the "CAUTION" in the TO which states: "Visually inspect the ramp locks to ensure they are all fully retracted prior to raising ramp to closed position."

Once again, we remind all maintenance people to be aware of the importance of tech data "WARNINGS" and "CAUTIONS." Let's not damage aircraft or hurt someone by failing to adhere to these key words. ■

The above maintenance matters are lessons learned from past incidents.



UNITED STATES AIR FORCE

Well Done Award

*Presented for
outstanding airmanship
and professional
performance during
a hazardous situation
and for a
significant contribution
to the
United States Air Force
Mishap Prevention
Program.*



CAPTAIN
Stephen E. Rose

**432d Tactical Fighter Wing
Misawa AB, Japan**

■ On 7 March 1988, Captain Rose was flying a single-ship incentive flight in an F-16D. Thirty minutes into the mission, the SOF notified Captain Rose that a weather recall had been initiated due to rapidly deteriorating weather at Misawa. As he began his IFR penetration from an assigned holding pattern, the engine alternator failed, causing an engine flame-out. In addition, this anomalous failure mode caused loss of compass, INS, primary ADI, and several other instruments including the tachometer.

As he initiated a turn toward base, Captain Rose realized his heading, attitude, and navigation information were erroneous, and he would be limited to using the standby attitude indicator and whiskey compass. Using backup gauges, he verified a 60-degree bank, 20-degrees nose low unusual attitude, leveled the aircraft, and initiated appropriate engine restart procedures.

After ensuring thrust was once again available, he completed remaining checklist items, notified the SOF of his situation, and coordinated with Misawa Approach Control for a no-gyro approach. While being vectored for the approach, Captain Rose emerged from instrument conditions into VMC and positively identified his position using ground references. Because of his known attitude, heading, and INS malfunctions, Captain Rose elected to proceed VFR back to the field where he executed a flawless modified straight-in SFO.

Captain Rose's extraordinary aircraft systems knowledge and his coolness under emergency conditions, compounded by deteriorating weather, prevented possible injury or loss of life and saved a valuable combat aircraft. WELL DONE! ■



UNITED STATES AIR FORCE

Well Done Award



CAPTAIN
Raymond A. Bivans

CAPTAIN
Jon W. Halvorsen

20th Tactical Fighter Wing
RAF Upper Heyford, England

Presented for

outstanding airmanship

and professional

performance during

a hazardous situation

and for a

significant contribution

to the

United States Air Force

Mishap Prevention

Program.

■ On 27 April 1988, Captain Ray Bivans, Instructor Pilot, and Captain Jon Halvorsen, Fighter Weapons Instructor, 20th Tactical Fighter Wing, RAF Upper Heyford, were returning home in an F-111E from a training sortie in northern Scotland. While flying an approach at 4,000 feet in IMC, the aircraft was struck by lightning.

Captain Bivans cross-checked all three ADIs and began a shallow climb to VMC conditions. During the climb, Captain Halvorsen recognized all their airspeed indications were reading zero and the INS and ARS were inoperative. In addition, the only operative heading indicator was the whiskey compass, and the only operable cockpit systems were the engine instruments, the TACAN bearing pointer, the standby attitude indicator, and the Guard channel on the UHF radio.

Captain Bivans declared an emergency and began coordinating for a chase plane, while maintaining aircraft control during the climb by using a known pitch and power setting. London Military Radar vectored in another F-111E on top of the ceiling at 9,000 feet. The chase crew, Captain Kevin Kimsey, AC, and First Lieutenant Dan Grillone, IWSO, confirmed the pitot boom was missing, and the aircraft had suffered significant structural damage.

All divert bases were reporting 800-foot ceilings or less, and both F-111s were approaching emergency fuel. The crew coordinated with home station and determined that RAF Lakenheath was the most suitable airfield for recovery. Captain Kimsey flew a flawless vector PAR, and the formation broke out of the weather 100 feet above minimums. Captains Bivans and Halvorsen landed their plane using known power settings and outside visual references. The chase plane landed with less than 15 minutes of fuel remaining.

Both crews exhibited outstanding judgment and superb airmanship in handling a situation which could have resulted in the loss of a combat aircraft. WELL DONE! ■



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