TAC ATTACK

APRIL 1982

USAF FLYING SAFETY WEEK ...Pg 4

Congratulations

to the men and women of Tactical Air Command, who have earned the highest safety award in the Air Force, the Secretary of the Air Force Award, for their achievements in all areas of safety.

TAC ATTACK

READINESS IS OUR PROFESSION

Contents

TACRP 127-1

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VOLUME 22 NUMBER 4

a look at flying safety week

Sometimes a job becomes like a treadmill that is going too fast. You can't slow it down without getting off, but you can't get off without slowing it down. You may know that there is a better way to do your job, but you're too busy doing the job the old way to take the time to change it. It's the same as the old story about the alligators and the swamp. We can't act on the cause of a problem because we're too busy reacting to its effects.

What's the answer? How can we back off enough to get a handle on what we're doing? Well, that's one of the reasons we are going to have a Flying Safety Week from 17 May to 21 May. We're hoping that we all will take the time to do those things we're always putting off, like really talking shop with our respective AMUs or ops squadrons.

Since most of us will still fly a full schedule that week, it'll take some planning right now to free some time for our Safety Week activities. All the additional duties, collateral training, and just plain running around that can be moved up to the week before or delayed to the week after should be. Then all the time that isn't directly supporting the mission can be used to improve the way we do business. To dedicate that time, we'll need the support of commanders and supervisors at all levels. Otherwise, we'll simply have added more activities to an already packed schedule. We'll be adding alligators, not draining the swamp.

If we do set aside some time, what we accomplish will be limited only by our own imagination. What follows here are some suggestions. You'll notice that even though it's called *Flying* Safety Week, we've included suggestions that relate to ground and weapons safety. That's because we don't believe the different areas are really separable. Safety is an attitude toward the way we do things. It's more than just a set of procedures or AFOSH standards. Ground and weapons mishaps can stop the mission just like a flight mishap. How do you launch a sortie if the pilot is in the hospital from a motorcycle accident, the crew chief is in the hospital for inhaling hydrazine, and the weapons load crew chief is in the

hospital because he was blinded by a BDU-33 spotting charge?

We're not saying you should try to cover everything at once, but don't limit yourself unnecessarily. The whole base can get involved. Risks exist everywhere, and we can do something about them everywhere.

The first and greatest problem we should deal with is communication. Do we really understand each other? Take for example pilots, crew chiefs, and

weapons loaders: we're all working for the same purposes, but are we pulling together? This may be our opportunity to get together. During Safety Day in USAFE, some units had seminars in the squadron for aircrews. Why just aircrews? We could have seminars which include aviators, crew chiefs, specialists, and weapons loaders. We could teach each other and learn from each other and maybe come up with some creative solutions to problems.

To run seminars smoothly, you'll need an agenda of topics. One way to plan that agenda would be to circulate a questionnaire on hazards and problems. The results of that survey could then be developed into meaningful subjects for discussion. Problems could be aired and fully discussed. If each seminar had a recorder, proposals could be forwarded and compiled. At the end of the week, the recommendations of all the different seminars could be reviewed in a wing-wide meeting at some place like the base theater. Those of you who've attended the USAF Fighter Symposium will be familiar with the general idea. Remember that the seminar leaders will need some preparation. The key is to plan ahead—now.

To further increase understanding, you could set up an exchange program between aircrews and crew chiefs. Pilots and WSOs could spend half a day

working with their crew chiefs on their own airplane. Then the crew chiefs could spend a half day in ops with their aircrews as they plan and brief a mission. After the mission they could attend the debriefing and look at the gun film.

Ops also might demonstrate a briefing and show gun film to the weapons troops and the specialists. Turnabout is also fair play. How many pilots have ever been out to the storage area where munitions are built up?

A mock accident board has also been used as a very effective tool. Take any flight on the schedule, at random, and pretend that they had some kind of a mishap. Look at all the areas a safety investigation looks at, for example, 72-hour history, aircrew training, aircraft maintenance records, life support. The

flying safety week

investigating board could also brief the whole wing in the meeting at the end of the week.

Let's not pass up the opportunity to tell each other what we've learned. Back in our own sections, we should talk about the things that we found out. We have to share more of our knowledge with others.

As we mentioned, that sharing can involve the whole base. The Exchange can even take part with a special display of protective equipment they carry. Base supply could also have an exhibit of protective equipment available to base workers. You could have a Safety Carnival which included these and other displays. Some state highway patrols have a seat belt demonstrator that show you what it's like to be in an accident at slow speed. Try getting them out to your carnival. The carnival could also include bicycle and motorcycle roadeos and possibly a free inspection of bikes.

If you invite them now, you should be able to get guest speakers. The game warden, for instance, may

be willing to talk about gun safety, local survival, and state game rules. The Coast Guard Auxiliary could provide information on boating safety.

The Saturday before Flying Safety Week is Armed Forces Day. You could kick off Flying Safety Week with a fly-in of private airplanes and an open house. The fly-in could emphasize cooperation in dealing with the midair collision hazard. Some of the booths from the Armed Forces Day open house can also be saved for the safety carnival.

We said the whole base can get involved, so don't forget the civil engineers. The engineers can dedicate the week to fixing safety write-ups. Some bases have also had a quick-fix call-in service for safety problems, such as a bad outlet, found during the week. The fire department can demonstrate proper use of fire extinguishers and can give home fire prevention talks and displays at the carnival.

This also may be a good time to set up an amnesty program for illegal explosives. But be careful, don't just set a barrel out for people to anonymously dump contraband into. That barrel could become the most dangerous area on the base. Set up a safe turn-in point with EOD and guarantee anonymity to those who turn something in.

Throughout the week, we have to communicate what's going on. Tell people what's been turned in at the amnesty center (but not who turned it in). Maybe it'll remind them of something. The public affairs experts could put out a daily newsletter on what has taken place. By all means, put out a schedule of what will take place and where.

Flying Safety Week will be a success if we want it to be and we use our imaginations. Whatever we do, we don't want to turn it into a week-long safety meeting. Everything we do should have a defined purpose and be directed at a specific audience. A briefing that's designed for maintenance workers shouldn't be given to aircrews without being rewritten. Otherwise, it may be given, but it won't be received.

You'll notice that this advice isn't just addressed to safety specialists. Flying Safety Week isn't *their* program; it's *your* program. If our purpose is to figure out how to do our jobs better, then we must depend on the line worker to make the program go. If everyone, from the troop fresh out of tech school to the wing commander, doesn't take an active part, Flying Safety Week will be a flop. Or worse, it'll be "eyewash"; we'll think we've accomplished something when we haven't.

We'll cover some more ideas here next month, but don't wait until then to get started. Next month is too late. Now is the time to lay the foundation for your plans. Brainstorm ideas in the shops and the flights. Pass them up where they can be consolidated. By next month we should be putting on the finishing touches. (TAC Chiefs of Safety—If you haven't received our package which includes a typical plan for Safety Week, call TAC Safety Admin, AUTOVON 432-7031.)

Aircrew of Distinction

On 9 November 1981, Capt David M. Powell was flying an A-10 as wingman on a low-level and weapons-delivery training mission. While flying in tactical formation at low altitude en route to the gunnery range, Captain Powell heard a loud thump. The aircraft abruptly yawed to the left. He noticed that the left engine rpm was decaying. The left engine had ingested a large duck, which had sheared three fan blades, left a 10-inch circular hole in the nacelle, and extensively damaged the engine compressor and mounting pylon.

Unaware that a birdstrike had occurred, Capt Powell began a climb and notified his flight lead that he had a problem. He pulled the left throttle back to idle. The aircraft was vibrating severely, even at idle; so he shut down the left engine. Still the airframe was shaking badly as the engine windmilled. The vibrations were even apparent to his leader, who had joined up in chase position.

Captain Powell found that he could maintain no more than 200 knots in level flight on his return home. Any bank angle over 20 degrees would cause him to lose airspeed. He expertly maneuvered his airplane for a straight-in approach. He delayed extending the landing gear until on short final because of the critical thrust condition. He touched down flawlessly and brought the aircraft to a safe stop with emergency braking.

Capt David M. Powell
75 TFS, 23 TFW,
England AFB, LA

Captain Powell's prompt, decisive reactions, superb flight analysis, and superior airmanship not only prevented loss of the aircraft and injury to himself but averted possible loss of life and damage to property below the aircraft's flight path. His actions qualify him for the TAC Aircrew of Distinction Award.

TAC TIPS

...interest items, mishaps with morals, for the TAC aircrewman

He seen his duty and he done it.

—Bugs Bunny

Green Apple Jam

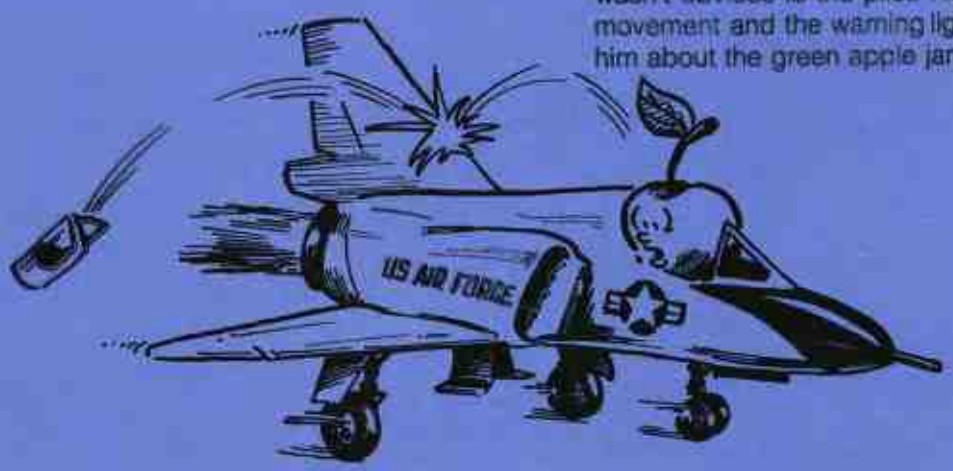
Fifteen minutes before takeoff on a night mission, the F-106 pilot taxied out of the alert shelter. Once outside, he lowered the canopy. First he let it down to about three inches from the rail, then continued to the full down position. He pushed the canopy latching handle full forward, and the canopy-unlocked light went out.

A couple of minutes later, when the end-of-runway crew checked his airplane, they noticed the canopy was open about two inches. The ground crew didn't say anything to the pilot because they are used to seeing the canopy in any position from full open to full closed, whatever the pilot desires.

The pilot taxied onto the runway and made his "pin, canopy, pressure" call on the radio. At about 100 knots on takeoff roll, the pilot noticed that the wind noise was louder than usual. When he saw the canopy begin to rise, he aborted takeoff. Too late—the canopy continued to rise until it blew off. The canopy bounced off the fuselage and then hit the vertical stabilizer. It cartwheeled in the air and came down on the centerline of the runway, where it shattered plexiglass for a thousand feet.

After he stopped the airplane, the pilot checked the handle and light again. The handle was still all the way forward, and the warning light was still out. He found out later that it's possible to move the handle full forward if the canopy is open two inches or more. The latch hooks will rotate to the closed position but will not engage or even touch the latch rollers on the canopy. The canopy warning light will go out, and the canopy will even sound like it's closing.

The reason the canopy was open two inches was that the knob for emergency oxygen, the "green apple," had flopped over onto the canopy rail. The canopy hit the green apple and stopped. Because it was night, the gap between the canopy and the rail wasn't obvious to the pilot. He relied on the handle movement and the warning light, but those didn't tell him about the green apple jam.



Hey Lead, Where'd You Go?

While flying at night, the leader of a two-ship of F-4s reached down in the cockpit to adjust his external strip lights. The lighting control knob in this F-4 had just recently been moved to accommodate the new video tape recorder. The strip light control knob was now next to the fuse mount for the lights. When the pilot reached over to turn the light control knob, he actually grabbed the fuse mount knob and turned it. The two knobs are similarly shaped.

When the pilot turned the knob, it came loose; and the spring-loaded fuse popped out. The external lights went out. The pilot lost the fuse, but he was able to regain some external lights by screwing the knob back into the fuse mount. The strip lights didn't work, but the wingman was able to rejoin and fly wing using the other external lights.

Besides the obvious danger of a midair when the leader disappears to the wingman, the lost fuse can be a source of foreign object damage. Two knobs so close together shouldn't be shaped the same. But until they're changed, we'll have to be especially careful in adjusting the strip lights.

Fire Button Shutdown

During an air-to-air mission, an F-15 pilot saw the Master Caution light come on. The right engine's rpm and temperature were decreasing. The airplane was straight and level after making a tactical turn at 27,000 feet; both throttles were at mil. The pilot assumed the problem was engine stagnation, so he cut off the throttle while descending to keep up his airspeed.

At 18,000 feet, with 400 knots and 20 percent rpm, the pilot tried to restart the engine. The fuel flow rose, the rpm climbed to 46 percent, and the temperature reached 500 degrees. The engine stabilized there for about ten seconds and then rolled back again. The pilot tried three more starts as he descended from 16,000 to 10,000 feet at 350 knots, but he couldn't even get a fuel flow reading. Without fuel flow he knew he couldn't get it started, so he quit trying. He concentrated on flying the airplane and made a single-engine landing.

When maintenance troubleshooters checked the engine, they found that the fire button had been pressed. When they reset the button, the engine started and ran normally.

Apparently the pilot had unknowingly pushed the fire button while looking around during the tactical turn. That shut off the fuel. The first time he tried to restart the engine, the fuel trapped in the lines between the shutoff valve and the engine supported the start up to 46 percent rpm. When that fuel ran out, the engine rolled back. The fuel flow indicator was right when it showed zero.

The lesson applies to more than the F-15. In the A-10, for instance, it is very easy to pull a fire handle while checking six o'clock. What we've learned is to check the fire button or handle when we see we're not getting fuel flow during an airstart.

TAC TIPS

Puzzling Pitch Problem

The A-7 pulled onto the runway for takeoff. When the pilot pushed up the throttle, the control stick moved backwards to 14 degrees nose-up trim. The pilot pulled back the throttle and retrimmed the pitch to 5 degrees. Then he advanced the throttle again. The control stick again moved back, this time to 12 degrees nose up. When the pilot chopped the power, the stick moved forward to 2 degrees nose-up trim. The pilot aborted.

Have you figured out what was wrong? Not the pitch trim systems; they checked out good. Nothing was wrong with the airplane.

Somehow, while taxiing out, the pilot had accidentally bumped the automatic flight control switches into some mode beyond normal control augmentation. In the higher mode, the autopilot was retrimming the airplane to maintain an attitude.

So when the pilot pushed up the throttle while holding the brakes, the nose strut was compressed as the thrust increased. The autopilot sensed the change in aircraft attitude and tried to correct for it by retrimming for level flight. The pilot reset the trim when the throttle was back. When he pushed it up again, the nose went down, and the autopilot trimmed up. When he pulled the throttle back just before aborting, the nose came back up, and the autopilot trimmed down.

Who'd have guessed it? It makes sense when you think about it. But we'd have never thought of it either until it was explained.

The Rusty Wingman

The A-10 pilot was scheduled for his first sortie at his new unit. He hadn't flown since RTU, 80 days earlier. For his first mission he was going to fly as number 2 in a two-ship local-area orientation. The instructor pilot briefed him to fly a formation takeoff.

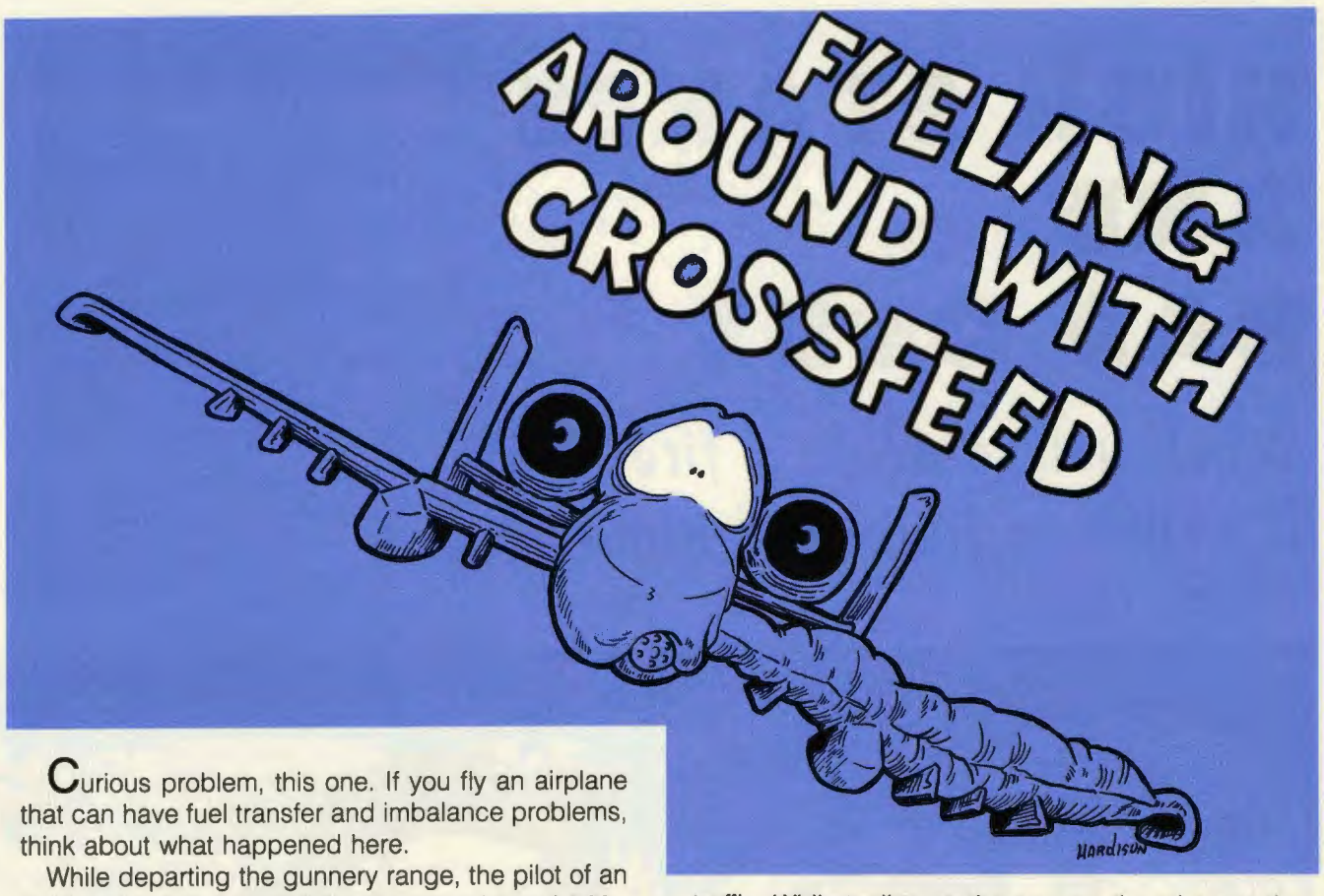
On the takeoff, the pilot concentrated on his position, tucking right in on leader's wing. Actually, he tucked in too close; his wingtip was overlapped on leader's.

At about 50 knots, leader experienced severe wheel vibration. He wanted to abort, but he couldn't. He saw the wingtips overlapped, and he called on the radio for the flight to abort. The wingman didn't hear him, because the wingman was concentrating so hard on flying formation. The instructor didn't dare abort until he was sure the wingman would abort also, so they continued their takeoff while the instructor made several more radio calls to abort. These calls were blocked out by departure control transmitting to other aircraft. Finally, near takeoff speed, the instructor's call got through to the wingman, and he aborted. As soon as they were separated, the instructor also aborted.

The excitement was over for the instructor but not the wingman. The wingman had forgotten to turn on the antiskid system before takeoff. Now, as he aborted with full speed brakes, idle power, and moderate-to-heavy braking, the left tire blew. The pilot managed to keep the airplane under control while it slowed down. The gear doors and inboard flap were damaged, and the wheel was destroyed; but no one was hurt.

This is an example of why we ask flight leaders to tailor the mission to the capabilities of the wingman. The wingman, with only 85 hours in the A-10, had been out of the cockpit for 80 days. He wasn't ready for a formation takeoff. The instructor made a mistake in planning for a formation takeoff. But at least he didn't compound the mistake by aborting without checking the position of his wingman. If he had chopped the thrust without looking, the results would have been much worse than a blown tire.

FUELING AROUND WITH CROSSFEED



Curious problem, this one. If you fly an airplane that can have fuel transfer and imbalance problems, think about what happened here.

While departing the gunnery range, the pilot of an A-10 noticed that his left fuel system showed 500–600 pounds of fuel less than the right system. That's not especially unusual in an A-10. One way to balance the tanks is to open the tank gate to let the tank with more fuel drain by gravity into the tank with less fuel. The pilot tried that for five minutes but didn't see much improvement.

Next, he decided to try to balance the tanks by running both engines from the right fuel system, which had the higher fuel reading. Following the checklist, he turned on the crossfeed and turned off the left main boost pump. He pulled the circuit breaker for the DC fuel pump, which also pumps out of the left system. So now he had only the right system pumping to both engines. Still it didn't seem to make any difference: the left fuel quantity continued to decrease. Soon it showed zero fuel remaining. The right system showed 1,600 pounds, and the totalizer showed 600 pounds. Unable to make sense out of it, the pilot declared an emergency and headed directly for the runway. Before landing, he turned on the left boost pump, reset the circuit breaker, and turned off the crossfeed. He landed opposite the normal traffic flow to save time.

On the ground, he had to taxi all the way back down the runway to fit back into the normal flow of traffic. While taxiing on the runway, the pilot saw the warning lights come on for the *right* main boost pump and the *right* fuel pressure. As he turned off the runway, the *right* engine flamed out. The fuel indicator still showed 1,600 pounds remaining in the right system.

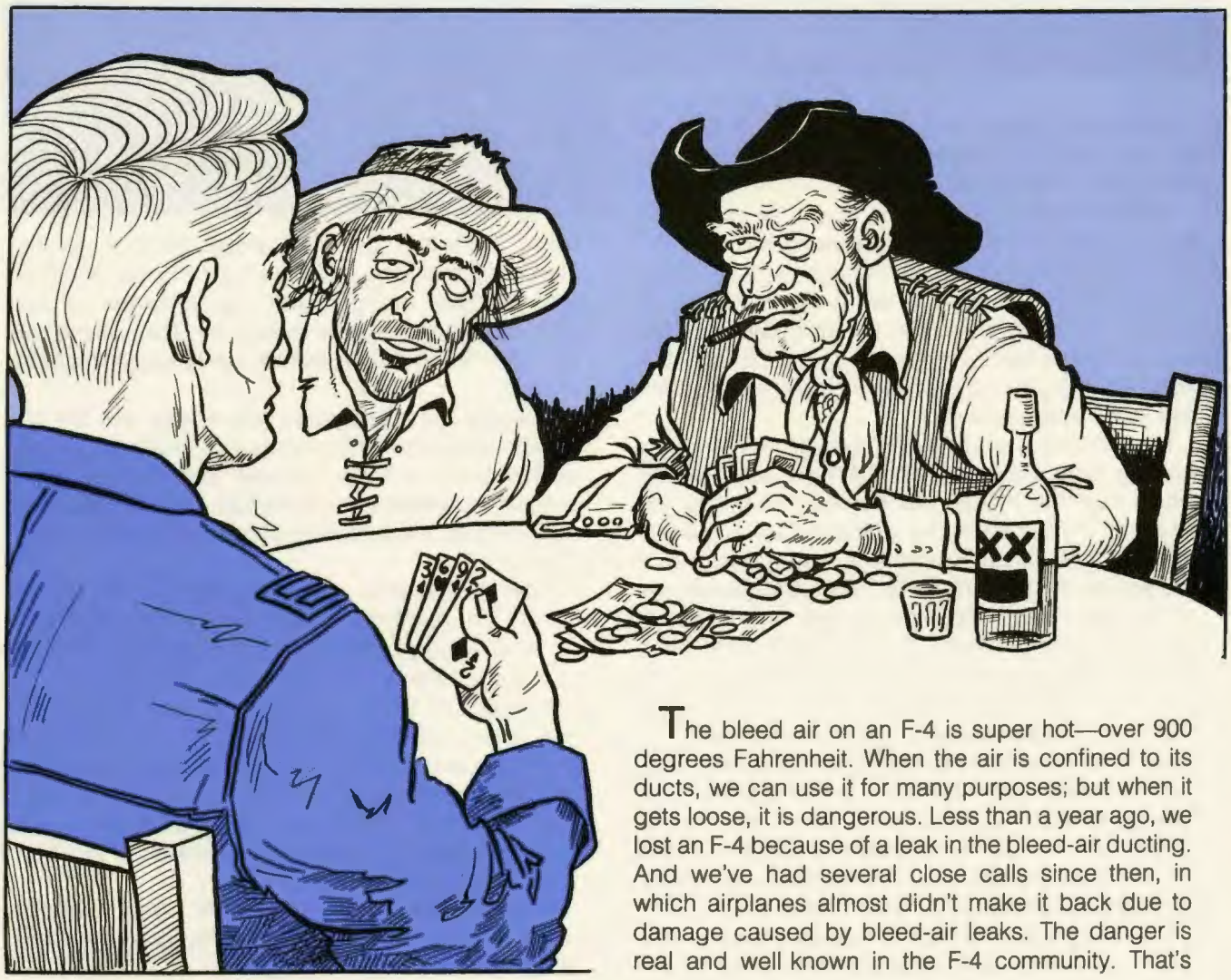
Actually, the right system was empty, and the left system had over 1,300 pounds in it. Confusing, eh? A device that processes signals from the fuel tank probes and sends them to the fuel quantity gage was out of whack. It was sending the wrong signals to the needles.

How do you deal with that problem when you're flying? You might think about leaving the crossfeed on when you get weird fuel readings. Of course, if you suspected a fuel leak you wouldn't want to crossfeed; no sense in pouring all your fuel out the leak. But in cases like this one, the system with fuel in it will run both engines, even if the other tank empties. Or if you find yourself down to emergency fuel, you may want to crossfeed just to cover any gage error. Obviously, the most important thing in either case is to land right away.

Think about the crossfeed switch in your airplane. It may come in handy more times than you've thought of up till now.

HIGH STAKES AND BAD ODDS

When you're dealt a fire light, it's time to fold your hand.



The bleed air on an F-4 is super hot—over 900 degrees Fahrenheit. When the air is confined to its ducts, we can use it for many purposes; but when it gets loose, it is dangerous. Less than a year ago, we lost an F-4 because of a leak in the bleed-air ducting. And we've had several close calls since then, in which airplanes almost didn't make it back due to damage caused by bleed-air leaks. The danger is real and well known in the F-4 community. That's

what makes the following story so hard to understand.

While taxiing out in an F-4, the aircrew noticed the fire warning light for the right engine was flickering. There were no other indications of fire, either on the engine instruments or outside. The crew shut down the engine and aborted the mission.

Maintenance troops then took the airplane. First they checked the fire-detecting circuits for continuity. Next they ran the engine for 30 minutes. Since the fire warning light didn't come back on, they gave the airplane back to the aircrew, who accepted it for flight.

The aircrew took off and flew their sortie. While they were taxiing in after landing, the fire warning light again flickered. Again the aircrew shut down and climbed out of the airplane. This time the investigators didn't just run the engine; they opened up the panels to the engine bay. The troubleshooters found a serious problem in the bleed-air duct: wire mesh over the flexible portion of the duct had failed. Without the wire mesh's support, the duct vibrated and moved down against the fire loop. The stress from that vibration caused a two-inch crack in a weld on the duct, and extremely hot air escaping from that crack had caused the flickering fire warning light.

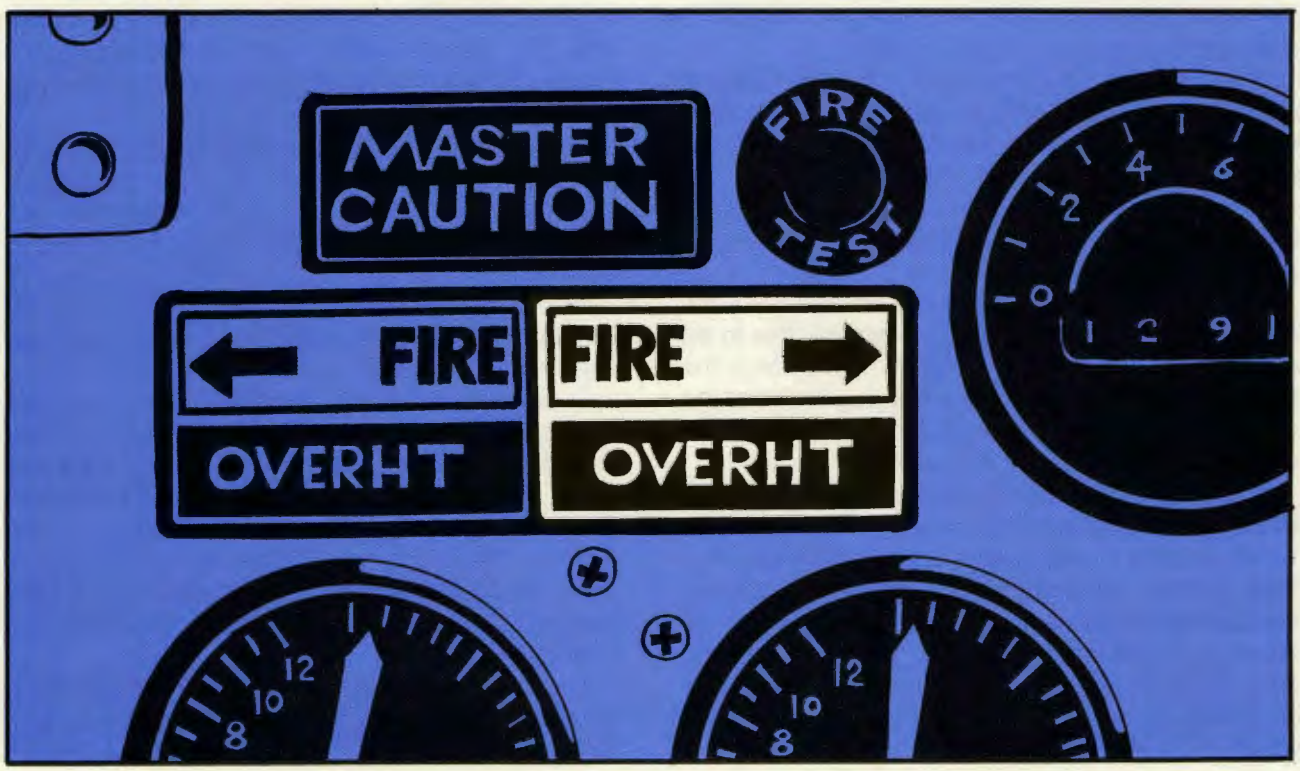
The entire sortie had been flown on the brink of disaster. Why?

After the first fire warning, the maintenance troops who worked on the plane quit because the troubleshooting checklist didn't require them to continue, even though the problem had not been found. Well, the checklist should be changed if that's what it implies. But, checklist or no checklist, common sense says you don't launch an airplane with an unresolved problem as serious as a fire warning light.

Why did the aircrew accept the airplane? Was the writeup cleared to their satisfaction? Or did they just decide to take the risk?

Somebody—or maybe everybody involved—must have felt pressed to get the sortie flown. It was the last month of the training cycle. What was the "ute rate" or "time line"? Was the aircrew behind on training squares? Maybe it was none of those reasons, but something made everyone neglect basic common sense. After all, when they really looked for the problem they found it—after the sortie was logged, of course.

That this airplane made it back at all was sheer luck. The crack could have worsened during flight and started a fire. Ejection would very likely have been the only recourse. That was the risk they took to gain one sortie—talk about your bad bets! When you play for those kinds of stakes, you ought to play closer to the vest.



WEAPONS WORDS

Unsafe Safety Pin

During postflight check of an A-10, weapons troops found that the cartridges in a bomb rack had fired. The carts were in the MAU-40 bomb rack on pylon station 5, and there was no good reason for the carts to have been intentionally fired. As they checked out this MAU-40, they found a firing voltage reached the cartridge breeches whenever the jettison button was pushed, even if the electromechanical safety pin was installed. With that pin installed, it should be impossible to fire the carts.

Well, it turns out that you can fire the carts with the pin inserted all the way in. All it takes is a bent actuator arm. When they took this bomb rack into the shop to find the problem, they learned that the actuator arm for the firing circuit interlock was bent toward the right rear. That allowed electrical current to flow to the impulse cartridges.

How can it get bent that way? Simple. First, the electrical safety circuit interlock assembly has to be out of adjustment. Then someone has to force the safety pin into the assembly hard enough to bend the actuator arm. That's all it takes; the carts will now fire when the jettison system is checked.

In this case, the jettison button was pressed during troubleshooting of an electrical problem on station 4. When the button was pushed, the carts in station 5 fired; but no one heard them because the noise of the auxiliary power unit they were using covered the sound of the carts firing. No one knew the carts had fired; so no one knew that station 5 would not be able to jettison its store in an emergency. The problem wasn't discovered until after the airplane flew.

The Well-Traveled Guidance Unit

An AIM-9E missile was removed and taken to the missile maintenance shop because it had no audio tone. The guidance control unit was removed and replaced, and the missile worked well. The presumably bad guidance unit was put into storage. It couldn't be examined further because the AIM-9 test set was broken.

Nine months later, the container holding this guidance control unit was brought out. It was going to get its long-awaited functional check. But when they opened the storage container, they found the IR dome cracked.

No one knows when it was cracked. This particular container had been moved around again and again during the nine months it was in storage. Every time new parts came in, the containers on hand were moved around to make room for the new shipment. Then there was the time that the seals on the bay doors were replaced. Everything had to be moved. And later, the roof was repaired because it was leaking. The container had to be moved again. Sometime, in all its travels, the unit's dome cover was broken. The person who did it may not have realized what happened.

It's simple mathematics that the more something breakable is moved, the greater the chance of it being damaged. Our job is to reduce those odds.

Disintegrated Combat Turn

During a local exercise in generating loaded aircraft, a weapons crew was taking part in an integrated combat turn. The members of the crew were rushing under the simulated combat conditions. The number 3 crewmember started the MJ-1 as the number 1 crewmember bent over the lift arms in order to lower the travel bar. Without looking up from the lift arms, number 1 signaled number 3 to back up the MJ-1. Then number 1 looked up and saw an AIM-7 on another MJ-1 right behind the MJ-1 number 3 was driving. Number 1 shouted to number 3 to stop. But he couldn't be heard due to the noise of many aircraft engines running. Without looking around, the number 3 crewmember backed into the AIM-7, striking the missile radome with the cooling screen over the MJ-1's engine. The radome penetrated six to eight inches inside the engine compartment. The missile had to be sent to depot for repair.

This isn't the first and, unfortunately, won't be the last incident caused by rushing during an exercise. Somehow we have to strike a balance so that when we step up the pace, we don't lose control. This kind of haste still makes waste.

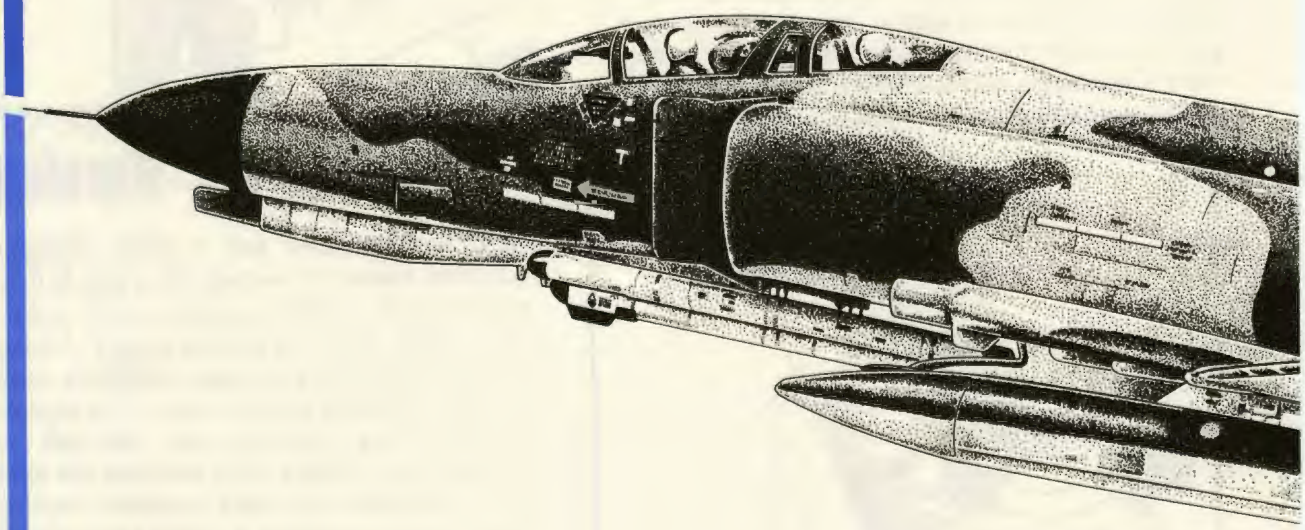
Warning–What Warning?

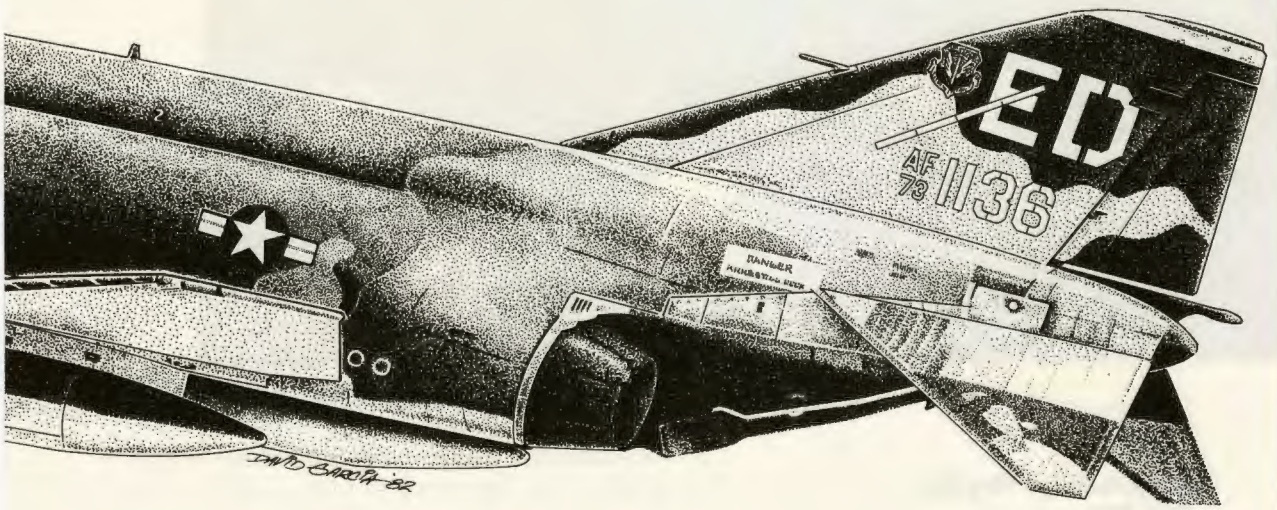
A staff sergeant and a senior airman from a munitions inspection section were sent to inspect six unserviceable AIM-9L guidance and control sections, which were being shipped out. They opened the first container and began verifying serial numbers and contents of each carton. The senior airman was stenciling the lids while the staff sergeant checked the contents. After verifying the top section in the container, the staff sergeant removed it to check the two sections in the bottom. He lifted the top guidance and control section by placing his left hand under the IR dome cover and his right hand under the aft end of the section, about 3 inches from the end. He had raised it about a foot and a half and was moving it toward himself when the dome cover slipped off. The guidance and control section fell nose first to the concrete floor, shattering the IR dome when it hit.

Standing there with the dome cover in his hand, the staff sergeant saw the warning printed on the forward end of the section: "Caution, do not lift or hold forward of line." He could see it now but not before because when the guidance and control section is properly placed in the shipping container, the caution markings are pointed down and are covered by the dome cover.

If he'd only had X-ray vision, the warning might have been useful.

F-4E Phantom II

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RANGER

OF WARTHOGS AND BIRDS

of warthogs and birds

By Maj George Rhymes
917 TFG

If frogs had wings—well, an A-10 would probably hit one. The size, speed, and low altitude arena of the Warthog combine to make it extremely vulnerable to birdstrikes throughout each mission.

So what? you ask, We've lived with the birdstrike hazards for years and will no doubt continue to do so. No argument there, but a quick glance at the recent frequency and severity of A-10 birdstrikes should convince every Hogdriver that there is a real threat out there, both to his bod and his machine.

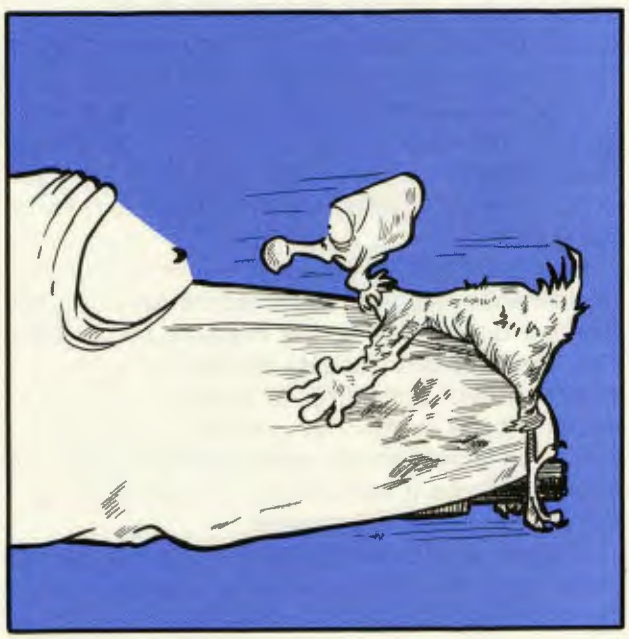
Take a four-pound buzzard—strike it with the leading edge of a wing of an A-10 flying at 250 knots. (Any of those numbers sound familiar?) Repair time on the results of this encounter is currently measured in *months,* Ace. Take another four-pound buzzard—toss it into the intake of one of your TF-34s turning at cruise power. AFR 127-4 will tell you that dollars to repair this one approach six figures. Take another four-pound buzzard (don't worry; we won't run out of four-pound buzzards)—smack this one with a windscreen quarter panel while you're coming down the chute at 350 knots. No, we haven't done that yet, but it's probably not conducive to either long life or good scores on the range. I hope you're getting the picture.

If by now you are hoping I have a magic formula or incantation to protect the A-10 fleet from birdstrikes, well, it just ain't so. However, I believe I can make a few points that may help you avoid some of these unpleasant encounters.

Before you take the runway for departure, listen up

and look around. Is tower warning of heavy bird activity? Do you see flocks of birds over or near the runway? If these conditions exist, are you sure you want to make that formation takeoff? Give your wingman a break; he needs to be able to look around and avoid the birds. Give yourself a break; you don't want a guy on your wing in close formation when the odds catch up with you and you take a turkey in the turbofan. Give the whole flight a break; don't make your takeoff until the bird activity subsides. If the bird activity is *really* heavy, are you sure you want to take off at all? Give your resident safety troop a break; taxi back in and swap war stories at the bar about your close call.

While airborne, use good midair-collision-avoidance techniques. Say, wait a minute! Did we go from birdstrikes to midairs in mid-article? Not really, because in a sense a bird is simply another peacetime airborne threat, and the peacetime threat is at twelve o'clock. Inherent in your collision-avoidance planning should be a consideration of inflight visibility. Example: Our squadron's most recent birdstrike occurred in the LATN area on a somewhat hazy morning about one hour after sunrise. The pilot was flying an easterly course and descending from the bright



sunlight into the haze layer. He didn't see the buzzards until it was too late.

If you encounter an area of unusually heavy bird activity during a mission, let someone know. Airborne flights could use the information to avoid the affected area. The SOF would no doubt like to brief later

flights to plan alternate routes. Common sense dictates that we should not unnecessarily expose ourselves to a threat.

Try to think like a bird. Say to yourself, "If I were a bird, where would I most likely be?" When you've decided where, take your Warthog someplace else. Examples: Migratory flyways have been identified and publicized. Keep these in mind during migration season. Avoid waterfowl (generally) by avoiding bodies of water. If you can identify nesting areas, be aware that activity will probably increase during the periods of dawn and dusk. Newly planted farmland will attract feeding birds. Carrion eaters (your previously mentioned four-pound buzzards) will gather in flocks above sources of food. (A chicken farm during hot weather is definitely a place to avoid.)

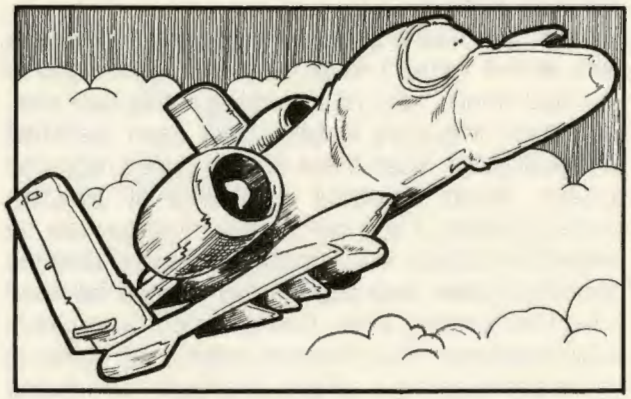
Have I said anything that you haven't heard before? Probably not; but birdstrikes continue to cost us money, manhours, and lost training because of busted airplanes. The point I'm trying to make is this: No matter what the BASH team, the local bird hazard group, the commander, or the SOF does to prevent birdstrikes, when you encounter the bird that *right now* is sitting out there somewhere at your twelve o'clock, the ultimate responsibility for avoidance rests with you, the guy with his hand on the stick. Be ready for it and bring your Warthog home intact.

chock talk

...incidents and incidentals with a maintenance slant.

Gage Jams Controls

The A-10 was overhead the base after returning from a surface-attack mission. The pilot pitched out with about 70 degrees of bank; as he rolled out, he found he couldn't move the stick forward. He could control the bank, but he couldn't stop the airplane from climbing. He checked the flight control panel for

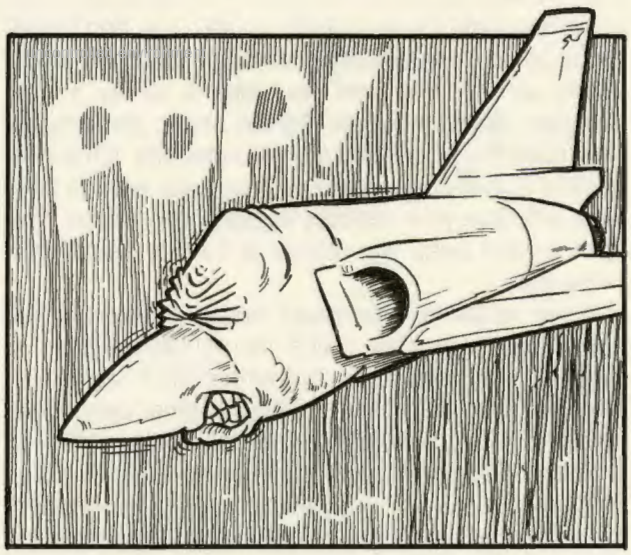


jam lights; none were on. The pilot tried to break the jam by force, but he couldn't. Then he thought to look around the stick to see if anything was jamming it. He found a fuel flow gage wedged between the control stick and the circuit breaker panel. He removed the gage, and the controls worked normally.

Before the flight an instrument technician had replaced a fuel flow gage. He left the bad gage in the cockpit when he finished. It was inconspicuous; neither the crew chief nor the pilot noticed it before takeoff. It could have been catastrophic, but it luckily only cost the pilot a few gray hairs.

Uncontrolled Environment

An F-106 was cruising at 37,000 feet when the pilot felt his ears pop. He checked his cabin altimeter



and saw the pressure altitude rising quickly through 25,000 feet. Inside of ten seconds, it had reached 34,000 feet. The pilot realized he had lost cabin pressurization; so he pulled the throttle to idle, extended the speedbrakes, and descended to 25,000 feet. He stayed at 25,000 feet until he was close enough to his destination to continue his descent to landing. Because he had undergone a fairly rapid decompression, the pilot was met by a flight surgeon. After examination he was cleared to return to flying duties.

While the flight surgeon was examining the pilot, maintenance "medics" examined the airplane. They found a B-nut loose on the pressure control tube. This B-nut had been recently removed by an environmental control system (ECS) technician, who was inspecting the outflow valve. When he replaced the B-nut, the technician apparently didn't tighten it well enough. Maybe it was because he was working in the wind and rain, late at night.

It's ironic that an environmental control technician can't control his own working environment. It would be nice if we could always provide ideal conditions for our workers, and we should all try to improve conditions. Our job being what it is, however, there are always going to be those times when we do our job in the cold and damp. The temptation will be to rush it, but we dare not. The equipment we're working on is more than a matter of comfort; it could be life or death.

T-38 Eats Electrical Leads

An electrician was troubleshooting a generator problem on a T-38. The problem had to do with the generator crossover, so both engines had to be running while the electrician worked. He was on the right side of the number 2 engine intake, about 18 inches back from the intake lip. After checking the frequency, the electrician laid the frequency meter on top of the intake while he checked the voltage. The frequency meter's leads dangled over the edge of the intake and flailed about. Plastic pieces from the ends of the leads broke off and were swallowed by the engine.

After the voltage test, the electrician reached for the frequency tester and noticed what had happened. He had the engine shut down, but it was too late. Those little plastic pieces did $1,500 worth of damage to the compressor rotor blades and stator vanes.

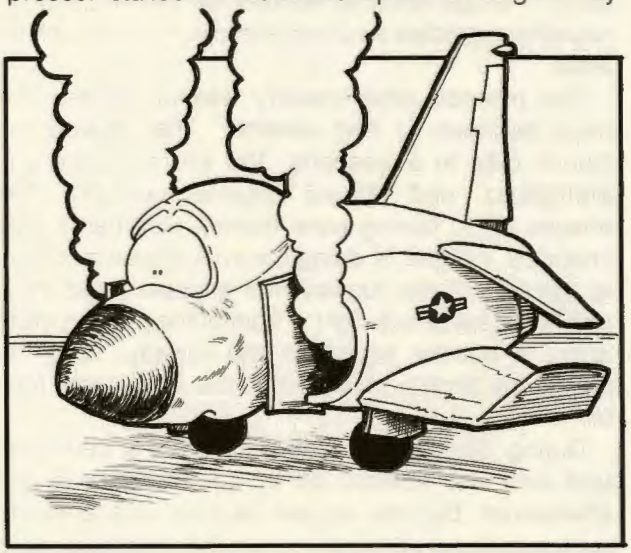
This unit now requires all maintenance work near the intake to be done at the sound suppressor where engine screens are available. Of course, even with screens, equipment that's not being used shouldn't be set on top of the intake.

Fire Bottle Baffles Crew

Fire extinguishers are available wherever we have aircraft. Before starting an aircraft, we check to make sure a fire bottle is handy. That makes sense because a fire bottle can prevent a lot of damage *if we know how to use it.*

Three maintenance workers set up an F-4E for an engine run on the trim pad. The three were an engine run supervisor, an engine technician, and an assistant crew chief. The run supervisor got approval from operations and then climbed into the cockpit. The engine technician manned the headset while the crew chief stood by as ground observer. The supervisor cranked up both engines and let them idle for a minute and a half. Then the supervisor pushed the left throttle up to 85 percent rpm.

After another minute and a half, the engine compressor stalled. A fire flared up in the engine bay.



The engine technician called "Fire!" over the headset, and then he and the crew chief tried to use the fire bottle to put out the fire. But they could get only a weak vapor out of it. As the supervisor climbed out of the cockpit after shutting down, he saw the other two workers having little success with the fire bottle. He told them to give it up. They all piled onto a Coleman tug and headed away from the fire. While they were leaving the area, they notified tower of the fire by FM radio.

Because the trim pad was almost three miles from the fire trucks, the fire department took a little more than three minutes to get there. Two minutes later, they had extinguished the fire.

Afterwards, the fire department checked the fire bottle that hadn't worked. The only problem with it was that it was lying on its side. The top of the bottle was actually below the bottom because the bottom was resting on the wheel.

With the bottle in this position, it would only produce a weak vapor after about 15 seconds. Upright, the bottle would probably have worked fine. If the crew had just known the equipment better, they might have prevented a great deal of damage.

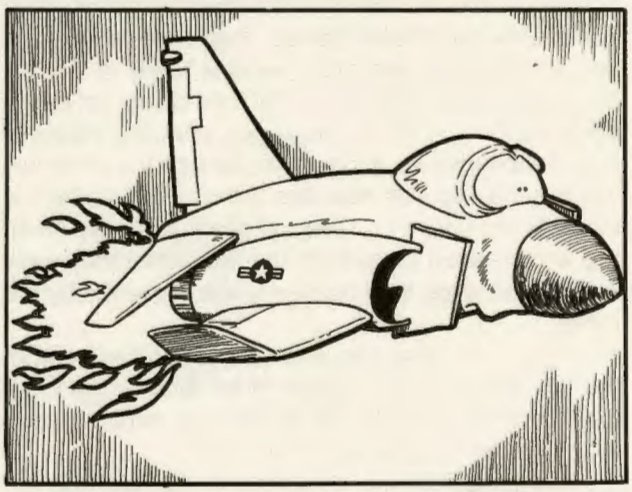
CHOCK TALK

Short But Fiery Cross-Country

An F-4 overseas was scheduled for a cross-country and had a centerline tank installed. A transfer check, in accordance with the tech data, was not done. The maintenance workers felt that single-point refueling provided an adequate check of the tank for leaks.

The planned cross-country was postponed two days because of bad weather. That moved the launch date to a weekend. The aircrew came out, preflighted, and started engines normally. The checks up to taxiing were routine. But then things changed. Instead of doing the end-of-runway check at the end of the runway, the airplane's two crew chiefs did the check right in front of the parking area, about a quarter mile from the runway. After the check, the aircrew taxied out to the runway and took off.

During takeoff, fuel leaked out of the centerline tank and was torched off by the flames from the afterburner. But the aircrew had no idea anything



was wrong. They continued takeoff. When the pilot pulled the throttles back out of afterburner, the fire moved into the engine bays. Then the pilot saw the left fire warning light come on. Shortly afterwards, the right fire warning light lit up, followed quickly by both overheat lights. The weapons systems officer (WSO) in the back told the pilot that their airplane was trailing smoke.

The pilot jettisoned all three external fuel tanks and turned the aircraft around to land in the direction opposite their takeoff. The pilot brought both throttles to idle as soon as he could on the landing approach. The right fire warning light remained on steadily; the left fire warning and both overheat lights were intermittent. After landing, the pilot shut down the right engine. He dropped the hook and took the departure-end barrier. In the barrier he shut down the left engine, and both he and the WSO scrambled out of the airplane. The aircraft was still smoking, but the fire was out.

We can't say whether a fuel transfer check would have found the leak. We also don't know whether it would have shown up on a real end-of-runway check. All we know is the transfer check wasn't done, the airplane wasn't checked at the end of the runway, and the Air Force almost lost an F-4.

Rigging Without the Tech Data

rigging without the tech data

An F-4 was rejoining on its leader after working on the gunnery range. As he closed on the leader, the pilot pulled the throttles to idle as he slid into position. Out of the corner of his eye, the pilot noticed the Master Caution light come on. He moved away from leader and checked inside. The right engine rpm was dropping below 45 percent.

The pilot quickly moved the throttle to cut off and turned off the generator. Then he brought the throttle back above idle and pressed the ignition button. The engine started and indicated normal operation. The pilot kept the throttle above idle for the rest of the flight. He went directly home and landed from a straight-in approach. On the runway after landing, the engine flamed out when he pulled the throttles back to idle.

The airplane had flown two sorties the day before. On the first one, the right engine was written up for high idle rpm, 66½ percent when the tech order calls for 64–66 percent. On the second sortie, the same engine ingested a bird. So maintenance workers gave it a full engine inspection for FOD. Finding no damage, they then began working on the rig and trim problem. By this time it was getting late. When they did the rigging, the workers failed to use the tech data. The seven-level supervisor failed to properly inspect the rig and trim. As a result, the throttle rigging at the engine cutoff/idle point was wrong. In idle, the throttle would cut off fuel to the engine. That's the kind of thing that regularly happens when we skip over the tech data.

TAC Safety Awards

Crew Chief Safety Award

SrA Gary A. Keltner is this month's winner of the Tactical Air Command Crew Chief Safety Award. Airman Keltner is an F-16 assistant crew chief assigned to the 430th Aircraft Maintenance Unit, 474th Tactical Fighter Wing, Nellis Air Force Base, Nevada. His efforts and safety awareness have directly minimized or eliminated several potentially hazardous incidents.

SrA Gary A. Keltner

While Airman Keltner's aircraft was awaiting delivery of a fuel cell, over 150 items were cannibalized from it. Airman Keltner tracked the replacement of each part, insured all maintenance actions were properly documented, and thoroughly inspected all open compartments prior to paneling. He found a loose bolt that had fallen behind equipment in the circuit breaker compartment. He repaired it and eliminated a hazardous condition that would have affected flight safety. Another time, during a thru-flight inspection, Airman Keltner found a very small hydraulic leak on his aircraft. He aborted his next mission and assisted hydraulic specialists in the repair of the B-system reservoir. The evidence of the hydraulic fluid leak could easily have been missed by a less conscientious crew chief. His quick thinking saved a sortie and eliminated a possible emergency in flight. Airman Keltner's safety awareness is not restricted to aircraft. Recently, he noticed a Coleman tractor driving past him, with five lug nuts missing. He stopped the driver and assisted in the repair of the wheel, preventing a ground accident and possible damage to the tractor. Airman Keltner's dedication to safety and attention to detail while doing his job have earned him the Tactical Air Command Crew Chief Safety Award.

Individual Safety Award

SSgt Robert V. House is this month's winner of the Tactical Air Command Individual Safety Award. Sergeant House is a member of the 4th Equipment Maintenance Squadron, 4th Tactical Fighter Wing, Seymour Johnson Air Force Base, North Carolina. Sergeant House made several suggestions to improve the main landing gear wheels for the F-4 aircraft and developed some innovative improvements in his shop for the care and handling of wheels.

SSgt Robert V. House

As NCOIC of the wheel and tire shop, Sergeant House was alerted to wheel fatigue cracks. He thoroughly studied the problem and found too much play between the two main pieces in some wheels. He submitted a suggestion to establish tolerances for this play. He also submitted four other suggestions: redesign of the wheel's outer bearing seal, a new procedure to prepare wheels for nondestructive inspection, redesign of the wheel locking groove, and cost-effective shipping of only worn parts instead of the whole wheel for depot maintenance. Sergeant House identified a problem in war-readiness spare wheels. They had been placed in storage before new inspection techniques were devised, and they hadn't been rechecked. Sergeant House coordinated his findings on wheel and tire deficiencies with the 4 TFW safety office so that F-4 users worldwide could be notified. His improvements to the wheel and tire shop include covering the floor with rubber mats to protect wheel rims and padding the wash rack area, shop vehicle, and trailer. He invented and built a device, easily constructed from scrap materials, to fit around the wheel to protect the fragile rims from being damaged during handling. Sergeant House's safety awareness, involvement, and dedication to his job have earned him the Tactical Air Command Individual Safety Award.

HYDRAZINE REVISITED

Hydrazine revisited

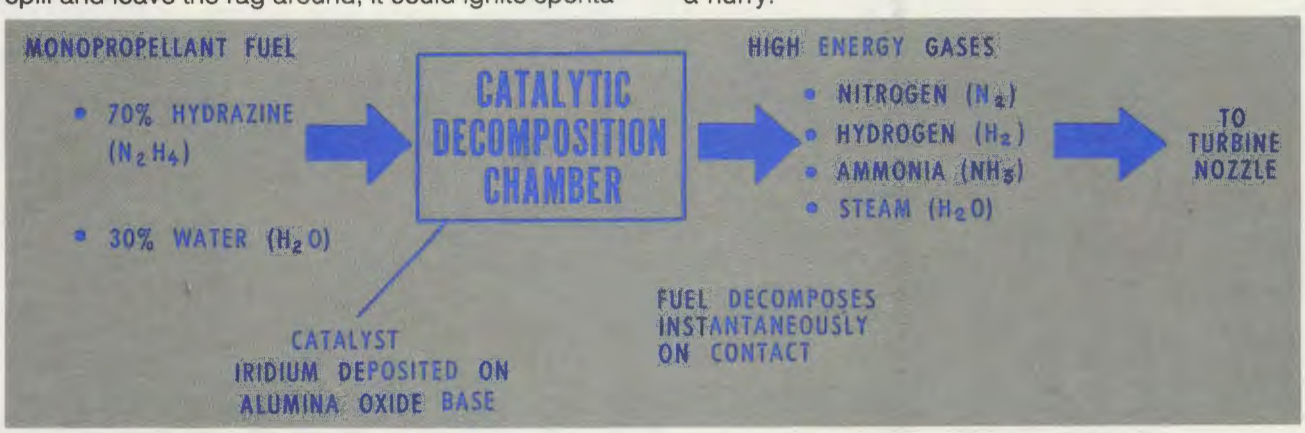
Three years ago we took a look at the dangers of hydrazine. At that time few of us had to deal with it. Now that the F-16 frequents more of our bases, we ought to review what we know about hydrazine. Today the problem may strike closer to home.

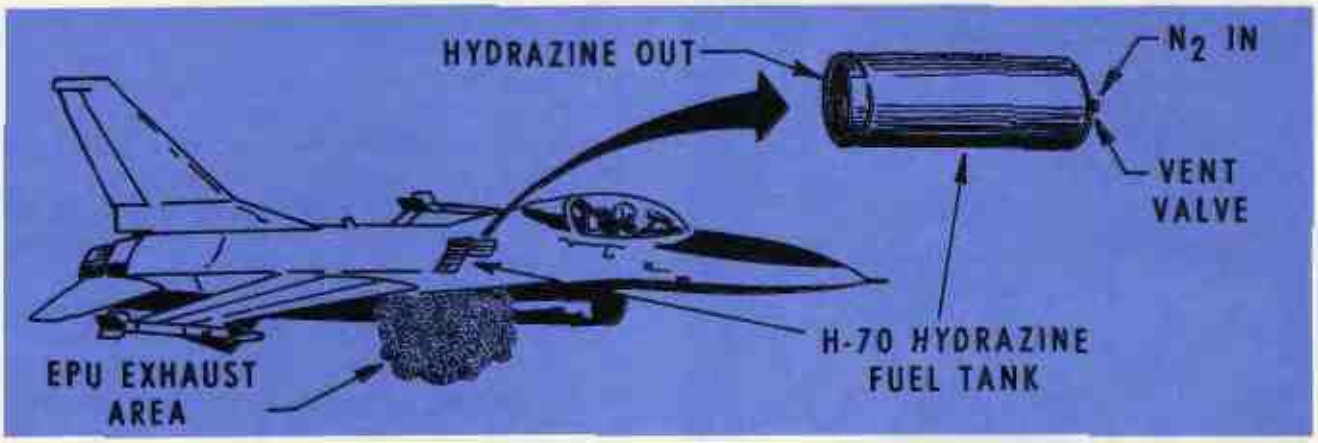
The first question obviously is what is hydrazine? It's a clear oily liquid that smells like ammonia. The problem is in order to smell it, you have to exceed the exposure limits. So we don't want to rely on the smell to determine the presence of hydrazine.

Hydrazine has been used for years in SAC as the propellant in Titan II missiles. It makes a good propellant because it's hypergolic; that means it ignites spontaneously when it's combined with another substance. That's great for rockets: you mix two fuels together and it fires. But it's not so good when you're handling the stuff. If you just mop up a spill and leave the rag around, it could ignite spontaneously when it comes in contact with a strong oxidizing agent.

Besides, the fumes are toxic. You don't want to leave hydrazine around in the open. High concentrations of the vapor may cause dizziness, nausea, and irritation of the eyes, nose, throat, and lungs. Direct contact with the skin can cause severe burns. And if you get it in your eyes it can blind you, temporarily or permanently.

So why do we use such corrosive stuff? Because the advantages are worth the hazards. The F-16 has fly-by-wire flight controls. There are no mechanical linkages; the pilot can't control the aircraft without electrical power. The F-16 also has only one engine. Normally, electrical and hydraulic power are provided through the accessory drive of the engine. If that engine quits, the airplane needs a backup system in a hurry.





To provide emergency electrical power and hydraulics, the F-16 has an emergency power unit (EPU). It needs hydrazine to operate. The hydrazine it uses is called H-70, because it's 70 percent hydrazine and 30 percent water. If the main generator disconnects from the bus system because it failed or the engine flamed out, the EPU automatically starts. It also starts if the hydraulic system pressures fall below 1,000 psi. In just a couple of seconds, the EPU is up to speed.

The way it works is that pressurized nitrogen gas forces the hydrazine, which is stored in a tank, into a catalytic chamber. The hydrazine decomposes when it contacts the catalyst iridium in the chamber. As the hydrazine breaks down, it gives off high energy gases which propel a turbine. The turbine drives the gearbox, which powers the emergency generator and hydraulic pump. It all happens very quickly.

After starting, the EPU can be driven either by the hydrazine or by bleed air from the engine, when the engine is running at high enough rpm. Bleed air alone is used to test the EPU on the ground because the exhaust gases—nitrogen, hydrogen, ammonia, and steam—can be as hot as 1,600 degrees Fahrenheit and will ignite if a flame is present. The gases also smell like ammonia and are irritating to the nose and eyes.

If you are around an F-16, you'll want to avoid the EPU exhaust area, in case it should accidentally start up in the hydrazine mode. The exhaust area is on the lower inboard side of the right strake. (The strake is that odd looking part of the wing that extends forward into the fuselage near the canopy.) Last month's safety awards page told about an F-16 crew chief who rescued his fellow crew chief after the EPU fired in the hydrazine mode. The other crew chief had been overcome by the exhaust gases. Although the hydrazine isn't supposed to fire on the ground, obviously it can.

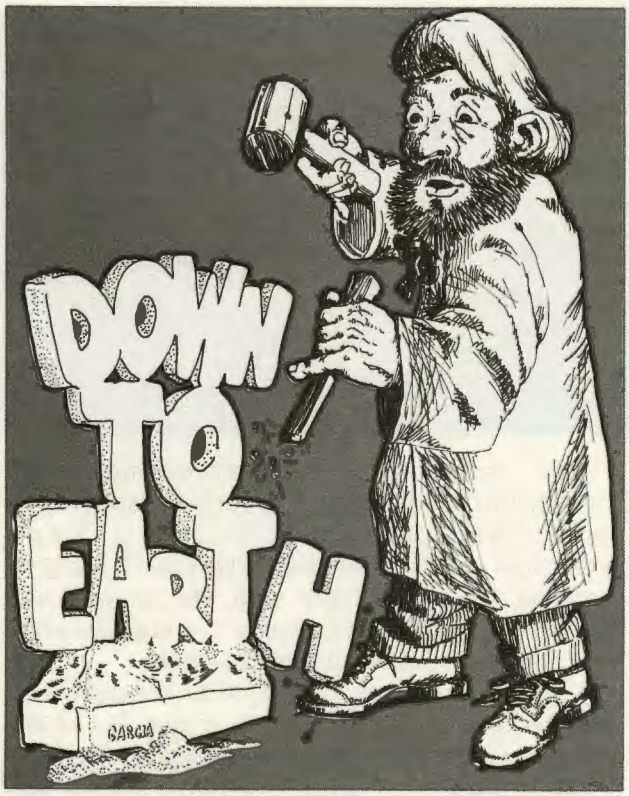
Because of the hazard involved in running the EPU in the hydrazine mode on the ground, the system can be safed with a pin to prevent its operating. The pin goes into a ground safing switch between the engine inlet and the EPU exhaust area. Be careful if you have to install one. We've lost a few engines when EPU pins were sucked down the intake.

If you are assigned to work on or around F-16s, you'll be taught what precautions to take. But what if one drops in on your base, what should you do? The answer depends on whether the EPU system was used. If it wasn't, just be alert for leaks and make sure the EPU is pinned. The pilot should know what precautions are necessary, so follow his advice.

If the transient F-16 is making an emergency landing and the EPU has fired, notify the supervisor of flying, command post, job control, and end-of-runway crew. Have the safety office check out the AFOSH standard on hydrazine (161-13) and notify the bioenvironmental engineer. Park the aircraft in an isolated area and, with the pilot's help, safe it. If a hydrazine leak is discovered, refer to AFOSH and bioenvironmental guidelines. If you suspect that anyone may have been exposed to the hydrazine, take them to the hospital. If anyone touches the stuff, remove any contaminated clothing and flush the area with clean water for 15 minutes. Then take them to the hospital.

It's not the transient base's job to fix or service the EPU. Your command post should notify the F-16's home command post of the problem. They can send out a team with equipment to take care of the EPU correctly. The transient base's job is just to make sure the EPU and the rest of the aircraft are secured and to contain and clean up leaks.

It's everyone's job to protect ourselves and each other from the danger of hydrazine. Let's respect the stuff and deal with it correctly.



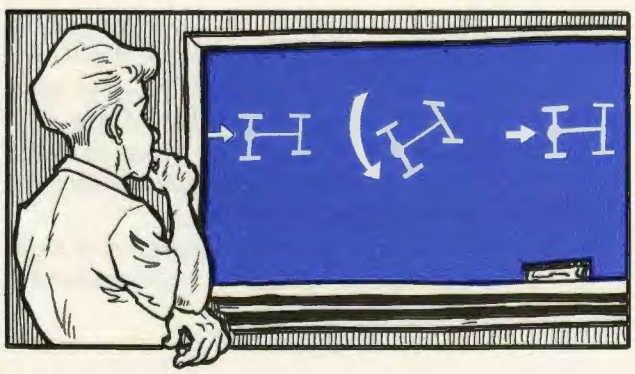
Down to Earth

LET'S CLEAR THIS UP

We've received several phone calls from readers who were puzzled by an article in January's "Down to Earth" titled "Keep Rolling in the Snow." The article from the National Safety Council said, in part:

> If you do start to slide, don't panic and don't hit the brakes. Take your foot off the gas and turn your wheels in the direction that you want the car to go.

That last part about steering in the direction that you want the car to go bothered some people. Whatever happened to "steer in the direction of the skid"?



The truth of the matter is it's the same thing. Steering in the direction of the skid means pointing the nose of the car the way you want to go. When you are looking at an overhead diagram, it's easy to see the direction of the skid. The direction of the skid is the way the rear end of the car is headed.

But when you find youself in a car that suddenly skids, you aren't looking at an overhead diagram; you're looking out the windshield. What you see is the nose of the car going left or right when you don't want it to. Using the references in front of you, you should turn the wheels to point the nose of the car back in the direction you want to go. That's really the same direction the rear wheels are skidding. But it's simpler to react to.

For instance, say you're traveling a little too fast on a wet highway. You hit a slick spot and start to skid. You see the nose of the car moving left. You don't want it headed that way, so you turn the wheel to the right. That's your natural instinct, and it's correct. You have in fact turned in the direction the rear end is skidding.

But suppose, in that same instance, you think to yourself: Let's see, I'm supposed to turn in the direction of the skid. The nose is going left, so I must be in a left skid. Reasoning that way, you turn the wheel left and end up spinning out of control. That's why we don't say to steer in the direction of the skid. To those who don't understand the term, it can be dangerous advice. Those who do understand the term don't need the advice.

By the way, *Driver* magazine reports that front-wheel-drive cars should be treated differently. When they skid, you don't turn the wheel at all. You slow down until the front wheels regain traction and then begin steering again.

GASOLINE AND DIESEL FUEL ARE A DANGEROUS MIX

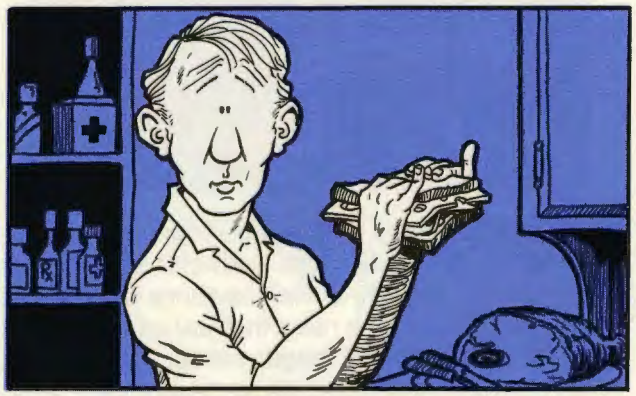
The increased popularity of diesel engines in automobiles has carried with it a new problem—the danger of mixing diesel fuel and gasoline. Some diesel owners have blended gasoline with diesel fuel, especially in cold weather, to improve the flow of the diesel fuel. It's a hazardous practice.

Here's why. Gasoline in a confined area like a gas tank gives off vapors too rich to burn. Diesel fuel vapors in a tank are too lean to burn. But when the two combine, the result can be explosive. All it needs is a spark to set it off. And the spark could be caused by static electricity during fueling. Of course, in an accident the risk of fire and explosion is much higher. So don't mix diesel fuel and gasoline.

OTHER DEADLY MIXES

Everybody knows that alcohol and drugs don't mix, but other drinks or food can also do you in. Foods contain both natural and added chemicals that can interact with certain drugs and produce some serious side effects.

If you're taking tranquilizers, you should have second thoughts about adding cheese to your ham sandwich. An ingredient in cheese enhances the



effect of these drugs and can send you into depression, coma, or convulsions.

Drugs commonly prescribed for high blood pressure, when swallowed along with aged or fermented foods (such as aged cheese, beer, wine, salami, or even pickled herring), can cause a dangerous rise in blood pressure, severe headaches, brain hemorrhages, or even death.

You should never down a tetracycline pill with a glass of milk; the calcium in dairy products slows the absorption of this antibiotic. Nor is it a good idea to take any drug with soft drinks or other acidic fluids. These beverages can increase stomach acid and drugs will dissolve there, instead of in the intestines where they can be more readily absorbed.

—National Safety Council

NEGLECTING OUR CHILDREN

Every year 1,400 children are killed in automobile crashes. One of every five child deaths and more than half of all serious injuries to children are caused by motor vehicle accidents.

Still, 90 percent of American children ride without the protection of child restraints or seat belts. It boils down to a failure to live up to one of the prime responsibilities of parenthood—protecting our young. Most animals seem to take that responsibility more seriously than we do.

THE WEAK LINK

Two workers were preparing an ammunition-loading system to be moved to the armament shop. The supervisor cranked the boom to raise up the container link system on the loader. At the same time the other worker got right up next to the boom in order to disconnect the boom when it was in position. But then a weld on the support link failed. The boom recoiled, and the broken support link was flung up and struck the worker in the face. His face was cut badly, and his nose was broken.

Obviously, the material failure has to be dealt with. But beyond that, we need to anticipate that possibility when we're working near metal under stress. A cable can snap, a chain link can break, and the stress is released in a thrashing piece of metal. If we don't have to be close to it, let's not be. In this case the worker could have waited until the tension was released before he positioned himself near the boom.

How about us? Have you ever used a chain to pull

someone out of a ditch? How close were bystanders to the chain when force was applied? It could snap, you know. And so could the cable on your boat trailer, or the winch on your jeep. If one of them breaks, it'll fly. Don't be in a position to get hit.

MORE ON HOT WATER HEATERS

Here's another hazard associated with hot water heaters. The Association of Home Appliance Manufacturers warns that hydrogen can accumulate in hot water systems. When a hot water system has not been used for some time, hydrogen gas can build up and may cause an explosion when exposed to a spark or flame.

The problem can arise in a vacation home that isn't

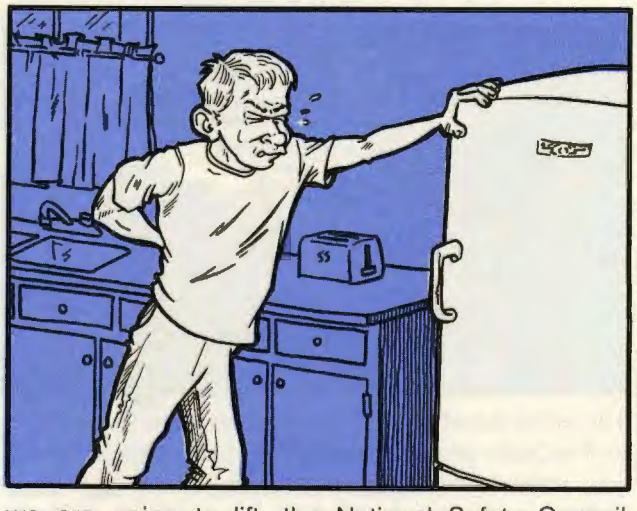
DOWN TO EARTH

occupied year round or in a new home that has had the appliances installed for some time before the owners move in. The association recommends running an unused hot water system for a while before using the dishwasher or clothes washer, which might provide the spark.

SPRING CLEANING: A PAIN IN THE BACK

Back pain is one of the ten most common causes for staying in a hospital in the United States. Before we let spring cleaning make us a victim of back trouble, let's take care of our backs.

When we're spring cleaning, there is always something heavy that needs to be moved. And we're always impatient to get it done. This time let's remember to get help for the heavy loads. On the loads



we are going to lift, the National Safety Council reminds us that we should stand close and bend our knees before lifting. We should face the load, tuck the chin, and keep the spine straight but not stiff. When we lift, we should twist our feet, not the back, waist, or neck. And we should take breathers between lifts.

The best way to take care of our backs is to stay in shape. If we keep our weight under control and exercise regularly, our chances of back injury are much less. On the other hand, if we do little more than sit at a desk all week and then get involved in a strenuous project like spring cleaning, our back is going to suffer.

Hearing Protection. "Millions of Americans are risking hearing loss," says Allen Cudworth, an acoustics specialist with Liberty Mutual Insurance Company. If your environment is so noisy that you can't converse with someone at arm's length without shouting, you have a problem that could cause hearing loss. When you leave a noisy area and things seem strangely quiet for a while, that's an example of temporary hearing loss. If possible, get away from the noise three or four times a day.

Pregnancy and Seat Belts. All occupants of a car, even pregnant women, should wear seat belts. Women who are expecting should position their belts low to avoid putting pressure on the abdomen.

Drinking and Walking. If you drink, not only should you not drive, you should also be careful about walking, according to a study by the University of Michigan's Highway Safety Research Institute. Using a five-year nationwide data base of traffic deaths, it found that nearly a quarter of the pedestrians killed had been drinking.

Raise the Speed Limit? National Safety Council President Vincent L. Tofany on the 55 mph speed limit: "Council statisticians estimate that if the speed limit had been raised to 65 or 70 at the beginning of 1980, the national death toll for the year would have been 5,300 to 7,900 more than was actually experienced."

Have Another Cup of Coffee. A research team at Johns Hopkins University has discovered why caffeine keeps you awake: it blocks the effects of a natural tranquilizer, adenosine, which the body releases to slow down activity.

save money and prevent burns

Simply lowering the thermostat setting on our water heaters can save money and energy. What's more important, it can prevent burns from scalding. Each year some 2,600 persons are injured by excessively hot water coming from home faucets. Many injuries are severe and some are fatal. Young children under five years of age and the elderly suffer the most.

According to the U.S. Consumer Product Safety Commission, most adults will suffer a third-degree burn if exposed to 150-degree water for only 2 seconds, 140-degree water for 6 seconds, or 130-degree water for 30 seconds. Even 120-degree water can cause a burn, but it takes about 5 minutes exposure.

Most home water heaters are set at 140 degrees or higher. The commission is encouraging us to have our water heaters set back. Here are their suggestions:

Electric water heaters. Ask the local electric company to adjust the thermostat at no cost to you. Some companies offer this no-charge service to customers. This is the safest way of resetting the temperature control on electric heaters.

To check water temperatures, use a candy or meat thermometer at a faucet. Hot water should not be used for at least two hours prior to the test. A temperature check made first thing in the morning will provide the most nearly correct temperature reading for your heater.

Gas water heaters. Call your gas company for instructions on lowering the thermostat. Usually, there is an accessible thermostat. Thermostats differ. Some have temperature readings on the control, others merely show low, medium, and high temperature designations. Where precise temperature readings are not given, use a candy or meat thermometer at a faucet to determine the water temperature. Check the temperature the first thing in the morning or wait at least two hours after drawing any hot water in the house. If the water temperature is too high, adjust the thermostat on the water heater and make another check with the thermometer.

Furnace heaters. If you do not have an electric or gas water heater, you probably have an on-line furnace hot water system. Furnaces of this type are usually fuel oil systems. In this case your fuel oil supplier should be contacted to have the hot water temperature lowered. Reducing the water temperature will not affect the heating capacity of the furnace.

The setting you want is the lowest possible setting that will still satisfy the hot water requirements of your clothes washers and dishwashers. Simply lowering the water heater's thermostat from 150 degrees to 130 degrees could save 8 to 9 percent on water heater bills each year.

The commission adds that we should never take hot water temperature for granted. In the office or in a motel, always test the water temperature carefully. Never leave a young child alone in the bathtub or bathroom. Children can be scalded quickly if they turn on the hot water faucet. Your presence is their best protection.

letters to the editor

About Rapport

Mr. Webster's book states that rapport is a close or sympathetic relationship, agreement or harmony. How do you as a jock or crew chief stack up? Either of you got a chip on your shoulder this morning? Please leave it in your quarters. Having "heartburn" with a problem causes bad vibes. The best remedy for you as a jock is a look at that sleek flying machine you're gonna strap into. Hey, the chief knows about the discomfort of the rig you got on your bones; and he normally envies you—would like to drive the machine himself. Don't mess up this dedicated guy's opinion of you with a sharp tone or tenacious attitude. Be civil and friendly. When you land his machine, make your write-ups clear, short, and simple. Maybe a little discussion will help. If you have no discrepancies, tell the chief how great his bird is. From then on you've got first class treatment from him.

Hey chief, crack those lips and let a smile break through. The jock knows when you hit the line to get the birds ready. He should also know the sweat or chill you suffered due to the weather to ensure that all is jam up for their launch—all this before you sign off the 781. Give the jock all the help you can with the mess he's required to lug around. He will appreciate the assistance and remember you as a good chief with a fine flying machine.

Remember, chief, you and the jock are partners in a very costly venture—the successful flight operation and skills training which keep us the number one air force in the world today.

The bottom line is that, although military courtesy should never be forgotten, there is also a mutual courtesy that will solve many of our problems.

SMSgt H.E. "Pete" Bagley
Georgia Air National Guard

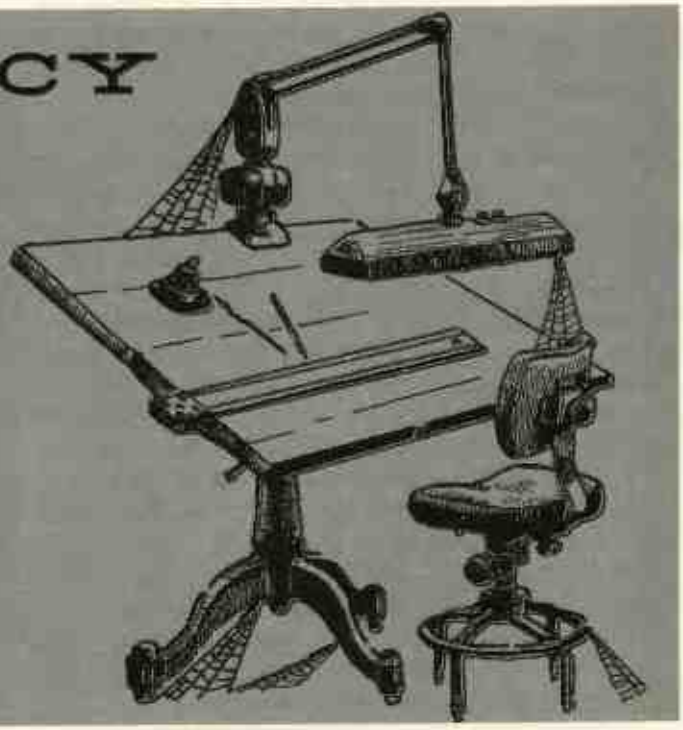
VACANCY

Our military staff artist is leaving us this fall. We're looking for a volunteer (AFSC 231X1) to replace him. The person in this position needs to have a high degree of artistic ability, coupled with professional working knowledge of offset printing, layout, color separation, and photography. He or she will prepare renderings of all types of aircraft, figure drawing, hand lettering, and cartoons.

If you feel you are qualified and would like to be considered, send samples of your best work to:

Art Editor, *TAC Attack*
TAC/SEPP
Langley AFB, VA 23665

Your sample will be returned. For more information call AUTOVON 432-3658.



TAC TALLY

	TAC			ANG			AFR		
	FEB	THRU FEB		FEB	THRU FEB		FEB	THRU FEB	
		1982	1981		1982	1981		1982	1981
CLASS A MISHAPS	2	6	3	1	1	2	0	0	0
AIRCREW FATALITIES	0	4	3	1	1	1	0	0	0
TOTAL EJECTIONS	3	6	3	0	0	0	0	0	0
SUCCESSFUL EJECTIONS	3	6	2	0	0	0	0	0	0

TAC's TOP 5 thru FEBRUARY '82

TAC FTR/RECCE	
class A mishap-free months	
41	1 TFW
40	31 TTW
28	49 TFW
27	355 TTW
20	474 TFW

TAC AIR DEFENSE	
class A mishap-free months	
109	57 FIS
62	5 FIS
59	48 FIS
18	318 FIS
9	87 FIS

TAC-GAINED FTR/RECCE		
class A mishap-free months		
118	188 TFG	(ANG)
110	138 TFG	(ANG)
109	917 TFG	(AFR)
106	116 TFW	(ANG)
96	434 TFW	(AFR)

TAC-GAINED AIR DEFENSE	
class A mishap-free months	
96	102 FIW
92	177 FIG
58	125 FIG
41	119 FIG & 142 FIG
31	144 FIW

TAC/GAINED Other Units		
class A mishap-free months		
151	182 TASG	(ANG)
144	193 ECG	(ANG)
139	26 ADS	
135	110 TASG	(ANG)
131	USAFTAWC	

CLASS A MISHAP COMPARISON RATE

(BASED ON ACCIDENTS PER 100,000 HOURS FLYING TIME)

				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
TAC	1982	7.8	5.9												
	1981	4.0	3.0												
ANG	1982	0.0	2.4												
	1981	9.3	4.8												
AFR	1982	0.0	0.0												
	1981	0.0	0.0												

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FLEAGLE
USAF FLYING SAFETY WEEK
MAY 17-21
HARDISON
NOW THAT AIN'T A BAD IDEA. WHY MOST ANYBODY IS WILLING T'PAY ATTENTION ONE WEEK OUTTA TH'YEAR.
IT WILL BE A GOOD CHANCE FER FOLKS T'THINK 'BOUT WAYS OF CUTTIN' DOWN ON MISHAPS.
IT MAKES GOOD SENSE IF YA'CAN GET EVERYBODY INVOLVED FROM THE COMMANDER TO TH'YOUNGEST PERSON IN TH'SQUADRON.
SUMPIN' GOOD IS BOUND TO COME OUT OF IT. SO MAKE SURE THAT YOUR UNIT PARTICIPATES MAY 17-21.
© STAN HARDISON 1982
FLEAGLE'S SURE WORKED UP 'BOUT SAFETY WEEK.
THAT'S GOOD. 'CAUSE AIN'T NOBODY NEEDS IT MORE'N HIM.