

TAC ATTACK

MAY 1982



TAC Attack

Angle of Attack



It's May and we can finally believe the warm weather is here to stay. The month has a sense of newness to it, as though the new year really begins with the warm weather. May is the month in which the F-4A first flew (in 1958) and in which the A-10 first flew (in 1972). It seems to be an appropriate month for launching something new.

So, this May we're launching the first Air Force-wide Flying Safety Week, beginning 17 May. By now, your plans should be in their final stages. What's left is refining them so you communicate better. Our article "Safety Week Means Communicating" offers some tips to help you.

For those of you who are entertaining the idea of doing some private flying in an aero club, we offer a new department, "Aero Club Clinic." We won't run it every month, but occasionally we'll have it as a kind

of "TAC Tips" for those TAC people who fly light airplanes.

Ever since the Phantom first flew in 1958, we've had a problem with canopy jury struts. "Phantom Canopy Snakebite" reviews that problem and suggests ways to avoid it.

Just for the fun of it, take the quiz in "Spring Mind-Cleaning." Maybe it'll help us clear some cobwebs out of our heads before we get involved in outdoors activities.

It'll be good to spend more time outdoors again. We can enjoy the outdoors and do it safely if we just take a little extra time to prepare. Nothing ruins our fun like an accident. Let's do it right and have fun all summer.

RICHARD K. ELY, Colonel, USAF
Chief of Safety



MAY

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Safety week means communicating

They gotcha, didn't they? Just because you happened to be in sight, you ended up in charge of a project for Flying Safety Week. The overall plan is laid out—it better be, by this time—but you aren't sure how to approach actually doing it. Some things are cut and dried: you need to coordinate the physical facilities and set up what needs to be set up. But then what?

Well, let's stop and think. Whatever else we're doing, we're primarily trying to communicate. We want everyone to learn something that'll help him or her do the job better. We learn through communication, and that's the only way we learn. So communication is the heart of the matter.

True communication is always two-way. Anyone who is locked into the transmitting mode can't communicate until he begins to receive. Even if you're giving a stand-up briefing to a crowd, be prepared to receive as well as transmit. Tune in to your audience's response. No response is a response: either they've died or they've quit listening. Think of those

you are communicating with as partners in communication.

If you're going to communicate successfully, you and your partners better have something in common—language. That's more involved than it seems. Even if you all speak English, it isn't necessarily the same English. "Max burner to warp eight and then a double whifferdill" may mean something to a fighter pilot, but it doesn't say much to the troops who fix the airplanes. And all those maintenance acronyms don't mean much to the aircrews. Some even have double meanings: Does IFR mean inflight refueling or instrument flight rules?

The first step in communicating is to agree on what the words mean, at least roughly. If you need to use your own jargon, go ahead and use it but explain what you mean, especially when you see puzzled looks on people's faces. If you are leading a seminar or informal group, encourage questions to make sure everyone knows what the group is talking about. (What do you mean, that's a *bad* plane?)

Tone also has a lot to do with how well you communicate. Safety is important, but it doesn't call for your sinner-in-the-hands-of-an-angry-God style of sermonizing. No one will listen if you overstate your case. In general, you're better off understating than overstating. Don't forget that you and your partners in communication are there to try to find answers to a common problem. It's two-way, remember?

If you think of your communicating as a partnership, you'll quickly realize that your message has to be precisely aimed. Let's say your project is to brief the results of a mock mishap-investigating board. When the board finishes, you have a mass of information from which to develop your briefing. Suppose that you are asked to give your briefing on separate occasions to the commander and his staff, the flying squadrons, and the AMUs. Can you write one script that'll handle these separate briefings?

Not if you're going to communicate meaningfully. Each briefing should be tailored precisely for its audience (your partners). The style, vocabulary, tone, and emphasis should be changed in each case. Although the commander and his staff may need all the details, the flying squadron may not need technical maintenance details, and the AMUs may not need the technical operational details. So even your selection of material varies from briefing to briefing. In addition, your briefing should evolve and improve as you give it. Feedback will give you ideas to incorporate in later briefings.

The problem for you now, though, is to get those ideas before you give the briefing the first time. There's only one way to get feedback ahead of time, and that is to test it. Take your plan to the same kind of people you're going to brief and listen to what they think of it. Talk to a staff officer about the commander's briefing, a pilot about the ops briefing, and a crew chief about the AMU briefing. You don't have to follow all their suggestions, but listen with an open mind.

Communication really is two-way; and if you're going to be successful with your Safety Week project, you'll need to listen as much as talk. Get some advance feedback, no matter what your project is. If you are writing, have someone in your target audience review your rough draft. If you're planning a



seminar, talk over the agenda with the participants ahead of time. A good communicator listens a lot.

When you finally present your briefing, or whatever it is you're doing, continue to listen. Watch the responses of your communicating partners. If they look puzzled, deviate from your plan and take time to explain what you mean. If you are talking about abstract concepts (safety, for example) and your listeners have wandered off into another world, stop and give hard, concrete instances of what the concept means. Flying safety is abstract, but hitting the ground at 500 knots isn't. Ground safety is abstract, but hurtling through a car's windshield at 50 miles an hour isn't.

If you pay attention to their responses, your partners will help you communicate better. Some of their responses will be unspoken, but some will be verbal, in the form of questions and, we hope, suggestions. Don't waste their ideas. Write them down, or arrange ahead of time to have a recorder write them down. You may want to tape the whole session so that no spontaneous ideas (including your own) are lost.

You see how the flow of information will go—back and forth. It never ends. At the end of Safety Week, you'll need to communicate what you've learned to those who can do something about it, whether they are above you, below you, or next to you. Then you need to listen and react to their responses. It's a continuing process. And so is safety. ➤

SPRING MIND - CLEANING

By A1C Mike Woods
111 TASG

It's spring again and along with the new season comes spring cleaning. People are taking their jogging suits out of the mothballs and their motorcycles out of the garage. Baseball gloves are being oiled. Windows are being washed. Walls are being painted and rugs are aired out.

What we would like to do here is air out your mind—not the whole thing, just that part you save for safety. We have assembled five multiple-choice questions. Pick the answer you feel is correct. When you are done, tally your correct answers and find out where you stand as far as safety-minded people go.

1. You get together a softball game. You choose sides. You think you're ready to start the game. What important thing should you do next?

- A. Go get some beer.
- B. Warm-up exercises.
- C. Choose positions.
- D. Place a bet on the other team.



2. You just walked out to the flight line to admire the airplanes. You're wearing your organization baseball cap and your new mirror-faced sunglasses. You think you look cool leaning on one bird, watching another taxi by. Suddenly the sunglasses and cap are blown from your face and are sucked into the intake of the oncoming aircraft. You have just become:

- A. Available for assignment to Alaska.
- B. Another FOD statistic.
- C. Number one target on the boss's hit list.
- D. Convinced you should live in Toronto.



3. Your wife has finally talked you into mowing the lawn and all because your kid got lost in it for three days. You've got the old lawn mower ready. What's your next step?

- A. Hire the kid as a guide.
- B. Proclaim it a wilderness area and apply for a federal grant.
- C. Check the lawn for stones and other possible projectiles.



4. You got the old bicycle out of the basement, cleaned off the rust, and oiled it. You've donned your designer shorts and top, your new Italian racing helmet, and your \$49.95 running shoes. If you forget one thing after you've set out, you'll blow the whole project. So don't forget.

- A. Lift your butt while going over bumps.
 - B. Follow the same traffic laws that automobiles use.
 - C. Never enter the park after dark.
5. You are cooking breakfast and everything is going fine. You've just returned from the dining area into the kitchen to discover a grease fire in one of the pans. How do you put it out?
- A. If possible cover the pan with a lid, or throw flour or baking soda in the pan.
 - B. Beat it out with the pot holder your mother-in-law gave you for Christmas.
 - C. Beat it out with your mother-in-law.
 - D. Pour water on it.



Have you answered everything to the best of your knowledge? That bad, huh? Well here are the answers so you can see how safe you are. 1-B; 2-B; 3-C; 4-B; 5-A. Score yourself by this list:

- 5 correct: You probably will never hurt yourself.
- 4 correct: Once in a while you cut yourself shaving.
- 3 correct: You have more than one cut at a time.
- 2 correct: You should own stock in a band-aid company.
- 1 correct: You are probably bankrupting your medical program.
- 0 correct: Shoot yourself and save us the expense.

Courtesy of Observation Point

TIPS

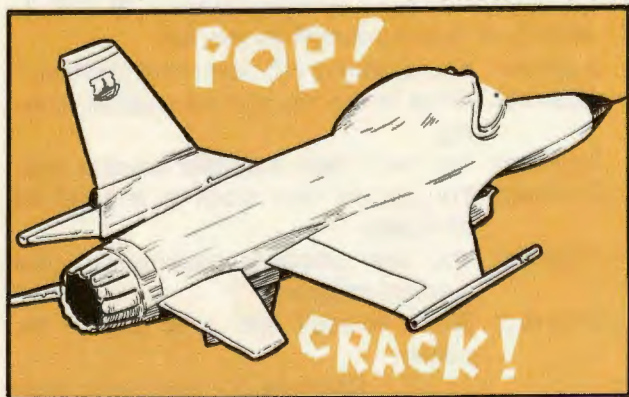
A superior pilot is one who stays out of trouble by using his superior judgment to avoid situations which might require the use of his superior skill.

—RAF Ostrich

F-16 ENGINE STALLS: THE WRONG WAY AND THE RIGHT WAY

Here are two separate stories in each of which the pilot of an F-16 had to deal with an engine stall and stagnation. Notice the differences.

In the first incident, the pilot was flying as number 2 in a two-ship combat air patrol (CAP) preparing to engage a single F-16 "bandit." The CAP flight had an altitude block up to 34,000 feet. The bandit entered the area at 40,000 feet. The pilot of number 2 found the bandit on radar and pulled up to bring the target designator box into the head-up display's field of view. As he neared 34,000 feet, the pilot didn't yet have the bandit in sight, so he pushed over to stay in his altitude block. Then he spotted the bandit at his right 1 o'clock, 50 degrees high and a mile away. The pilot of number 2 selected afterburner and began pulling right. Immediately, he heard a popping and cracking sound.



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

Not recognizing the engine stall, the pilot continued to pull the nose up. Airspeed decreased rapidly. At about 60 degrees nose high, the pilot noticed that he had an engine problem: the rpm was 55 percent, and the engine temperature was 1,000 degrees Centigrade. The pilot pulled the throttle back to military power and rolled the airplane toward the nearest horizon. At 39,000 feet and 75 knots, with the engine still stagnated, the pilot moved the throttle to cutoff. The emergency power unit (EPU) fired normally.

(Before we go any further, we should tell you what the Dash One says about airstarts. It calls for lowering the nose to 30 degrees nose low to achieve a minimum of 300 knots above 30,000 feet and 250 knots below 30,000 feet.)

The pilot placed the nose 20 degrees down. With the rpm at 25 percent and the temperature at 800 degrees, he moved the throttle to midrange to preserve engine rpm. The airspeed was now 165 knots at 34,000 feet. The nose had risen to 15 degrees nose low. As the rpm increased to 30 percent, the temperature reached 1,100 degrees; the pilot returned the throttle to cutoff. He again lowered the nose to 20 degrees nose low.

As the rpm decreased again through 25 percent at an engine temperature of 800 degrees, the pilot decided to try another start, this time with the jet-fuel starter (JFS). The JFS didn't run. The airplane was passing through 26,000 feet at 280 knots. (The Dash One recommends using the JFS for airstarts below 20,000 feet. The probability of a successful JFS start above 20,000 feet is extremely small.) During the start the nose again rose to 15 degrees nose low. At 30 percent rpm, the temperature was again up to 1,100 degrees; so the pilot moved the throttle back to cutoff.

The pilot lowered the nose again. The airspeed increased to 315 knots at 21,000 feet. The pilot tried another start with the engine at 23 percent rpm and 700 degrees. This time the engine started normally. The pilot landed at a nearby airfield with no further problems.

The stall was caused by failure of the augmentor to ignite. Most of the damage to the engine, however, was caused by the overtemperatures during the start attempts. The pilot did not lower the nose enough when he first began his dive for airspeed. He tried to use the JFS at too high an altitude. When the airplane was in the correct airstart parameters, it started successfully.

That's one way to handle, or be handled by, an engine stall in the F-16. Here is a very similar incident that was handled differently: This pilot was flying dissimilar air combat tactics (DACT) in his F-16 against F-15s. In full augmentor at 30,000 feet and 1.4 Mach, he pulled up into the vertical and continued over the top inverted at 42,000 feet and 230 knots. As the nose of the airplane came through the horizon, the pilot felt and heard a loud bang.

The pilot immediately pulled the throttle back to military power and lowered the nose to 30 degrees nose low. The temperature was 1,000 degrees and increasing; the rpm was 65 percent and decreasing. When the rpm reached 60 percent, the pilot pulled the throttle to idle. At 55 percent he placed it in cutoff. The EPU fired normally as the airplane was passing 30,000 feet and 230 knots. The pilot maintained the 30-degree dive. At 25,000 feet and 280 knots, the pilot saw that the engine temperature was below 700 degrees with the rpm at about 30 percent. He brought the throttle up to midrange, and the rpm began to rise.

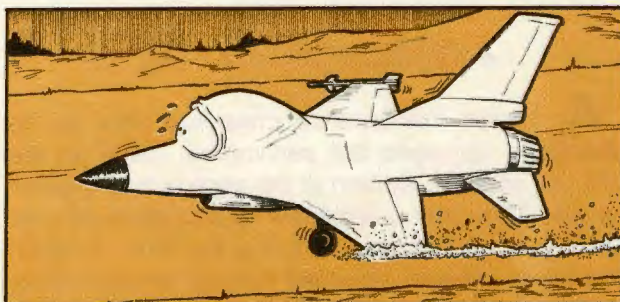
At 20,000 feet the pilot turned on the JFS. The rpm was increasing through 50 percent. By 19,500 feet the JFS was running, and the engine was at 80 percent rpm. The pilot turned off the JFS and reset the EPU to normal. He then made an uneventful landing at a nearby airfield.

Doesn't that seem like a better way to airstart? Do you suppose that's why the Dash One says to do it that way?

SLIPPIN' AND SLIDIN'

This time of year, runways and taxiways often get slippery because of rainshowers. But there are other times when even a seemingly dry taxiway can fool you.

An F-16 landed normally and turned off the runway. As the pilot steered the airplane into a right turn onto the parallel taxiway, he felt the F-16 begin to tip over. The airplane rolled left until it was riding on the left wingtip missile rail. The pilot shut the engine



down. When the airplane slowed to a stop, it rolled back upright. The pilot had seen enough; he left the airplane there for maintenance to tow in.

What do you think the cause was? Pilot taxiing too fast? No, he was really only doing about 10 knots. What then? Would you believe, *reclamite*? Reclamite is an asphalt rejuvenator which is applied to taxiways to make the surface more ductile. Asphalt that is more ductile has a self-healing property which helps prevent cracks and fights deterioration. Besides all those good features, reclamite has another characteristic—it's slippery.

The day before, reclamite had been applied to the taxiway. When it was applied, the workers at first missed a section. But the workers noticed it before they finished. They went back and covered the part they had missed. As they did, they also put a second coat on the surrounding area. That's a no-no. The dosage has to be carefully controlled so that it penetrates the surface; otherwise, it stays slick.

It wasn't the slickness that caused the tip-over; it was the change back to a dry surface that caused it. As the F-16 turned the corner to the right, it crossed the slick area and started skidding to the left. When the left wheel hit dry pavement, it dug in. The sideways momentum of the airplane was to the left, and the right wheel was still skidding; so the airplane tipped to the left.

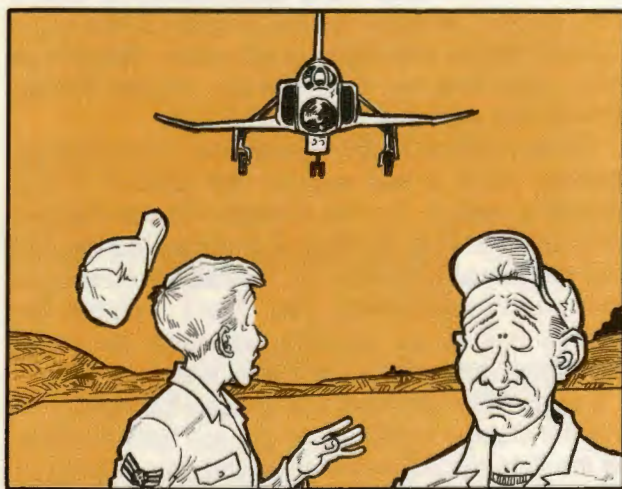
The pilot had no warning of the danger. The only notice all of the pilots received was that the intersecting taxiways would occasionally be closed for unspecified maintenance and pilots should use caution for men and equipment. Nobody said anything about it being slippery. Afterwards, base ops checked the runway condition reading (RCR) of the reclamite area and came up with a reading of 6. Ice gives a reading of 4. The normal RCR of dry asphalt is 16. That's a significant bit of information that the pilot didn't have.

TAC TIPS

A COMMUNICATIONS GAP

A barrier maintenance crew was sent out to change a damaged but serviceable cable on the BAK-12 arresting system at the approach end of the runway. This crew called tower for clearance onto the runway for 10 minutes to change the BAK-12 cable. The tower operator assumed they would be working on the BAK-9 gear, because it was NOTAMed out. Tower cleared them on the runway.

Seven minutes later, the tower told them to clear off of the runway because an E-3 was flying an approach. As they cleared, the barrier crew told the tower that the BAK-12 cable was loose on the runway. That's the first time the tower realized the BAK-12 was out of service.



Predictably, this was the time when an F-4 developed an emergency that called for an approach-end arrestment. The F-4 called in with an unsafe left main landing gear. The SOF told the pilot to plan on landing last, behind the E-3, several other F-4s, and a transient Navy bird, because the emergency aircraft would be taking the BAK-12. The tower then told base ops and the SOF that the BAK-12 was out of service. This was the first time they learned that arresting gear outage had even been planned.

All the airplanes were held while the barrier crew went back on the runway to fix the cable. Their truck stalled on the runway. (By now, the SOF must have been pulling his hair out.) But in 10 minutes they had

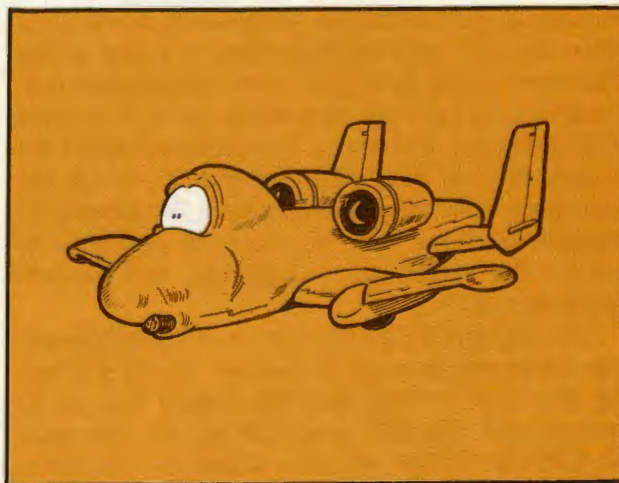
the barrier back in service. Then they pushed the stalled truck off the side of the runway.

The other airplanes took about 10 more minutes to get on the ground. Finally, about 30 minutes after declaring the emergency, the F-4 landed and engaged the BAK-12 cable without incident. Thirty minutes is a long time in an F-4; but, luckily, this F-4 had air refueled before the emergency and had the fuel to hold for the barrier crew.

Communication on any planned work that would affect airfield status is essential between the workers, base ops, tower, the SOF, and pilots. In this case, like the case of the reclamite, that communication didn't get done. Both times we were lucky the results weren't tragic.

THINK ABOUT IT NOW

Picture this: You're flying in the soup at night. You roll into a right turn using the ADI as your main reference. The ADI slowly rolls to a 60-degree right bank. You happen to check the standby attitude indicator, and it shows a 30-degree right bank. Which do you believe?



The situation happened to an A-10 driver. The weather was 900 overcast, 3 miles visibility, with fog. The pilot was on downwind, just beginning a descending turn to base leg when he noticed the difference between attitude indicators. He chose to believe the standby indicator. Declaring an emergency, he successfully descended out of the weather as he continued his approach and landed.

Would you have chosen the right one? How would you decide? Now is a better time to think about it than later—say, at night in the clouds.

Aircrew of Distinction

On 16 December 1981, Lt Col ROBERT J. VORGETTS and MAJ WALTER GUTHRIE took off in an F-4C for a surface-attack mission. As the airplane accelerated through 300 knots after takeoff, the Master Caution light and the Check Hydraulic Gauges light lit up. Utility hydraulic pressure was decreasing through 1,000 psi, and it rapidly fell to zero. About 10 seconds later, the aircrew heard a loud bang and felt a hard thump on the right side of the airplane. Colonel Vorgetts saw that the right engine's temperature was passing 850 degrees and still increasing fast. He pulled the throttle to idle momentarily. When the stall didn't clear, he shut down the engine. Aircraft control was precarious with no utility hydraulic pressure and one engine shut down; airspeed was critical. Beginning a gently climbing, shallow turn to the left, Colonel Vorgetts notified the appropriate controlling agencies by radio of the emergency. Major Guthrie assured that every checklist item was completed.

After they had climbed to 7,000 feet and maneuvered to a clear area, the aircrew jettisoned the external fuel tanks and dumped the internal wing fuel to reduce their gross weight. Colonel Vorgetts requested that the BAK-12 arresting cable be removed from the approach end of the landing runway because he knew their weight and speed would exceed the limits of the cable. When he was sure the cable had been taken off the runway, Colonel Vorgetts blew down the gear and lowered the tail hook. He kept the airspeed at 250 knots until 3 miles out on final, where he slowed to 240, holding that speed until the landing was assured. Then he let the airspeed bleed off to 210 knots as he flew the airplane smoothly onto the runway.

Colonel Vorgetts deployed the drag chute, but it was a streamer. Controlling the airplane with light directional braking, Colonel Vorgetts steered for the departure-end arresting cable. They hooked the cable at about 130 knots. The aircrew shut down the aircraft and egressed.

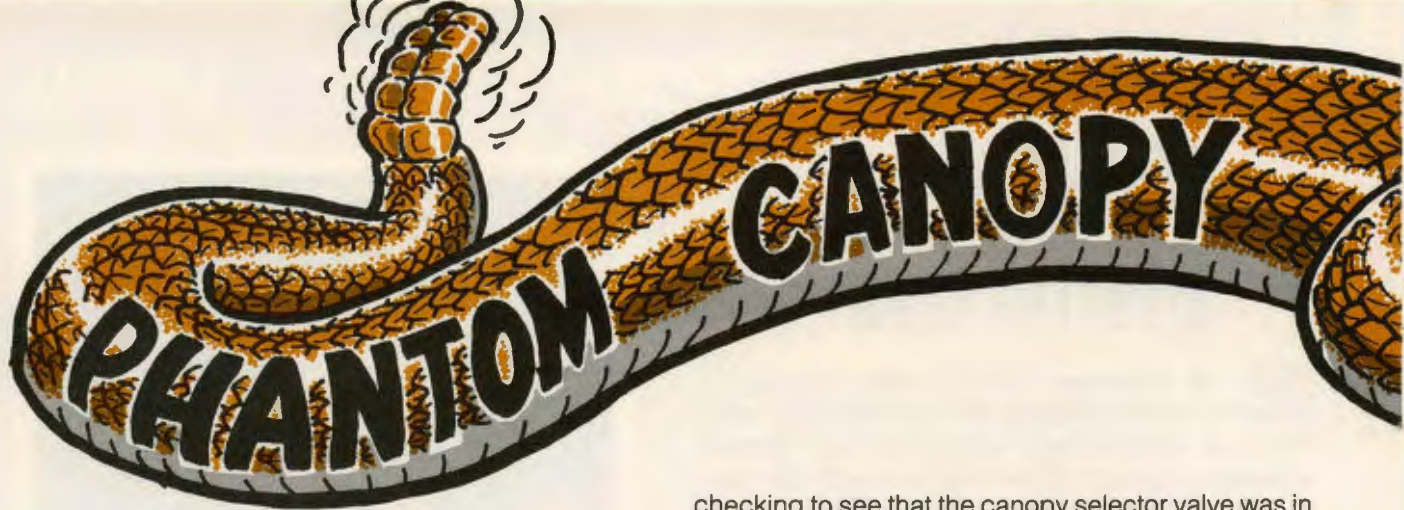
Later investigation showed that they had actually had a fire in the forward engine bay on the right side. Hydraulic fluid from a failed variramp servo had ignited. Colonel Vorgetts and Major Guthrie's actions saved the aircraft. They have earned the title of Tactical Air Command Aircrew of Distinction. ➤



Lt Col Robert J. Vorgetts
58 TTW, Luke AFB, AZ



Maj Walter Guthrie
311 TFTS, 58 TTW
Luke AFB, AZ



By Capt J. L. Nelson
334 TFS Flight Safety Officer

You Phantom phlyers and phixers probably don't realize it, but there's a canopy snake waiting for you every time you start up the boarding ladder. What is infamously known as the F-4 "canopy snakebite" can be as deadly as any venomous reptile.

In a recent mishap here, the snake struck again. We suspect someone entered the front cockpit of the aircraft by manually opening the canopy, then installed the canopy jury strut without inserting the safety pin to secure it in place. Leaving the canopy selector lever in the closed position, this person left the aircraft. Sometime later, a servicing crew came along and serviced the pneumatic system, not

checking to see that the canopy selector valve was in the open position. Closing air pressure was then applied to the canopy cylinder. The canopy actuator moved down, dislodging the jury strut, which in turn was jammed by the weight of the closing canopy onto the top aft mechanisms of the ejection seat. The jury strut left two pair of small gouges in the canopy plexiglas just above the ejection seat on the inside of the canopy. These gouges match the top of the jury strut and are similar to snake fang marks, hence the name "snakebite." The jury strut damaged the ejection seat, bending the crossover shaft, skewing the banana links, and damaging the canopy interlock block.

With these parts damaged, one hopes the story would end when the first person saw the ejection seat or canopy. This damage, however, was insidious and would be missed by several qualified people. As you can see in the photos, at a glance the



Looking at canopy gouges from inside the front cockpit.



damage is not apparent. No damage could be seen by looking at the banana links from the left or right sides of the seat. Unless the damaged parts of the ejection seat were observed closely from directly above the seat, the damage could not be distinguished. Unless someone looked directly at the canopy marks, they also would go unnoticed.

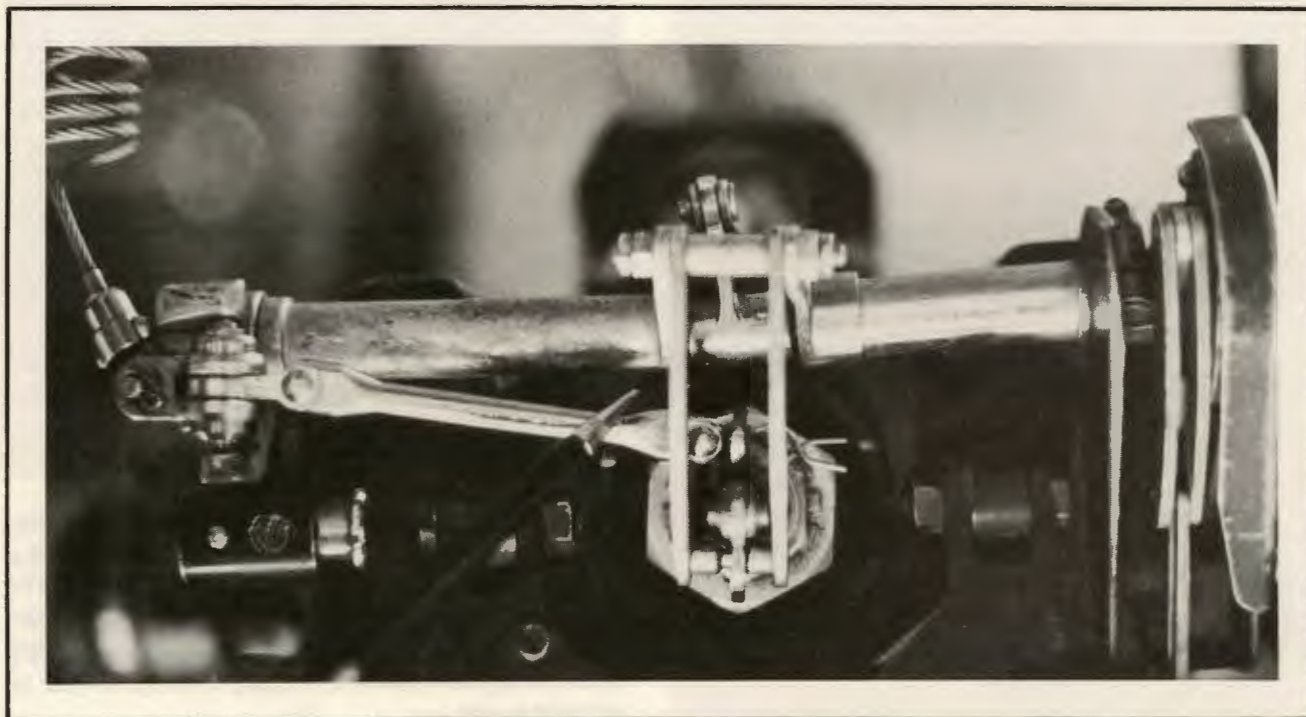
As planned, the aircraft was placed on the morning schedule. The crew chief who performed the preflight inspection the night before (our first set of eyes in the vicinity of the damage) said he saw the gouge marks on the canopy but felt they were not serious. Aircrew preflight came next (our second set of eyeballs); ejection seat preflight was standard, and nothing unusual was noticed. When the airplane returned to the chocks after flight, the crew chief boarded the aircraft to help pin the seats and found the pilot's interlock block dangling from the canopy. The pilot was told to remain in the seat, and the crew

chief called egress (another look over the area). Finding only the interlock block damaged, the egress specialist safed the seat and replaced the interlock block. Even this expert's eyes missed the other damage. The aircraft flew two more sorties that day.

That night, egress discovered the damage. When the day's events were reconstructed, the seriousness of this mishap began to sink in.

To determine what effect the damage would have on seat operation, egress performed a functional check of the ejection seat. It took 130 pounds of force to pull the face curtain, and 85 pounds to pull the D-ring. In the tech order, maximum allowable force is 50 and 45 pounds, respectively, for the two ejection handles to rotate the crossover shaft.

For additional information on Air Force F-4 "canopy snakebites," I called and received from AFISC a computer run on all F-4 ground mishaps involving canopies, 1978 to date. I also learned from the Martin



Bent crossover shaft and skewed banana links.

Phantom Canopy Snakebite

Baker representative at San Antonio ALC that he had published an article in the 1977 spring issue of *Air Force Maintenance* magazine titled "Common Sense and the Canopy Strut." I discovered that the canopy snake has been around since the F-4, damaging canopies, ejection seats, hands, and arms as well. Here are just four examples:

- While preparing an F-4 for a defuel operation the crew chief pushed the "close" button on the front cockpit without removing the jury strut. The jury strut, which was not pinned, went through the canopy.
- During prelaunch preparation a crew chief forcibly removed the rear canopy jury strut, resulting in a punctured canopy and damage to the seat. The canopy selector inside the rear cockpit had been left in the closed position.
- The crew chief was preparing the rear cockpit for launch. When he removed the jury strut pin, the canopy fell. Since there was no pressure on the cylinder, the jury strut pierced the canopy bubble and caught the crew chief's arm. In this case the injury was only a contusion, but in similar cases hands and wrists have been broken.
- Here is one incident like ours, and it shows how aircrews can be bitten. At an unknown time, the canopy control was activated to the closed position while jury struts were installed. The aircrew performed their preflight and failed to notice the jury struts were still in place. The Dash One requires aircrews to remove the struts before entering the cockpit. The Dash One also directs the canopy control lever be placed in the open position prior to strut removal. The crew chief helped the WSO strap in, then attempted to remove the jury strut. The strut was dislodged and the canopy began to lower. The canopy jammed the jury strut on top of the seat, scratching the canopy and bending the ejection cross shaft.

So the question now should be, What can we do to prevent the snake from biting someone else? The answer is simple—follow tech data procedures. For aircrews, crew chiefs, and anyone who works in the cockpits or around the ejection seats, here are some canopy problems to keep in mind:

1. If the canopy strut is correctly secured in the locked position on the canopy actuator and you must remove it, take care with the actions preceding its disengagement. Push the forward-canopy-open button and ensure the canopy actuator is fully extended. Depressing the "open" button ensures the canopy is not bearing down on the safety strut from an earlier "close" selection. A loose jury strut indicates a fully extended canopy actuator. Never remove a jury strut that is tight.
2. When installing the canopy jury strut, double-check the safety pin to see if it is correctly installed.
3. When servicing the F-4 with air, ensure the canopy-selector-valve buttons are pushed in to match the canopy position.
4. If a jury strut is dislodged against the rear of an ejection seat, a very hazardous condition exists. Damage resulting to the seat can include scored actuators and damaged catapult sears—not to mention the terrible possibility of through-the-canopy inadvertent ejection. In the most serious cases when a catapult sear is extensively damaged, call San Antonio ALC/MMIRCB, AUTOVON 945-7448. They will advise you on de-arming or will make further arrangements for de-arming.

Finally, for aircrews, give your canopy and ejection seat a good, hard look before every flight. Don't let a cursory preflight make you a snakebite victim. For maintenance personnel, don't let a moment of inattention during a simple task like removing a canopy strut transform itself into a costly mishap for you or someone else.

TAC Safety Awards

Crew Chief Safety Award

SERGEANT DANIEL H. CROWE is this month's winner of the Tactical Air Command Crew Chief Safety Award. He's an F-15 crew chief with the 33d Aircraft Generation Squadron, 33d Tactical Fighter Wing, Eglin Air Force Base, Florida. Sergeant Crowe has earned this award by his alertness to hazards to people and equipment.

On one occasion during engine start, Sergeant Crowe decided the sound of the jet-fuel starter was not correct. He informed the pilot of the unusual sound and instructed him to shut down the engine and leave the airplane. Just then, the jet-fuel starter caught on fire; fortunately, it extinguished itself. Sergeant Crowe's judgment in having the pilot shut down and leave the airplane may have prevented a more serious accident. Another time Sergeant Crowe was part of a team to remove an airplane from jacks and prepare it for towing. The airplane had previously been lowered to the ground. Just before the jacks were removed, Sergeant Crowe sensed that the landing gear didn't look right. A closer look showed the over-center lock on the drag brace was not



Sgt Daniel H. Crowe

locked. He stopped the tow crew, notified the production supervisor, and jacked the airplane up again.

Sergeant Crowe's sound judgment and quick actions prevented damage to aircraft and possible injury to the people working with him. He has earned the Tactical Air Command Crew Chief Safety Award.

Individual Safety Award

SENIOR AIRMAN CARL R. WAISANEN is this month's winner of the Tactical Air Command Individual Safety Award. Airman Waisanen works in the Wheel and Tire Shop of the 474th Equipment Maintenance Squadron, 474th Tactical Fighter Wing, Nellis Air Force Base, Nevada. Airman Waisanen helped improve the safety environment of his shop.

Airman Waisanen suggested using rubber matting in the wheel turn-in area to protect the wheels from damage due to mishandling. Believing that a better equipped area is safer to work in, he designed a mobility and composite tool kit. The finished kit not only has the necessary tools for mobility but includes a fold-out work bench for setting up shop quickly and starting work safely. Airman Waisanen was instrumental in getting an ultrasonic cleaner that was a hearing hazard to shop personnel moved to another location. Airman Waisanen also has worked with a seatbelt safety awareness group to encourage everyone to wear a seatbelt when commuting to and from work. He also wrote an article for the base newspaper in an attempt to convince motorcyclists to wear

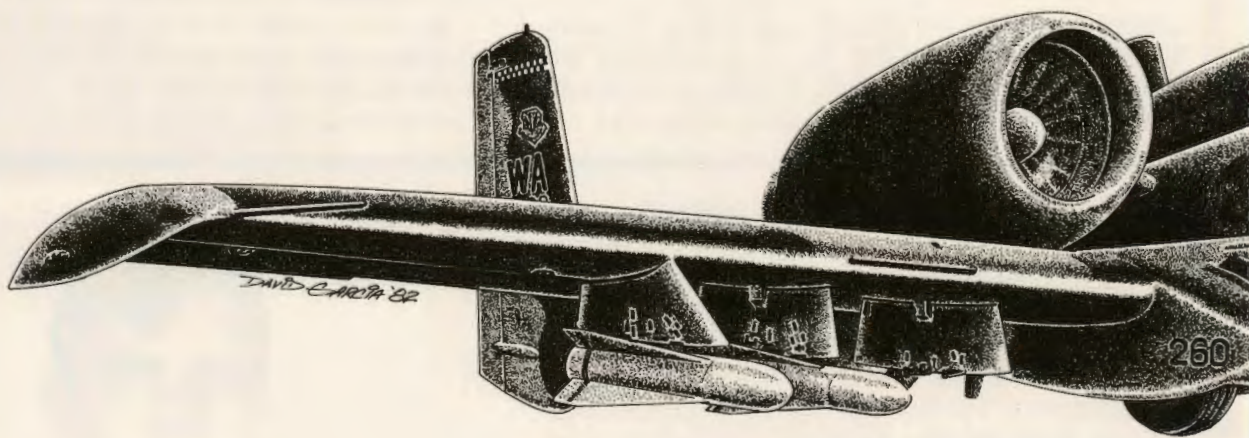


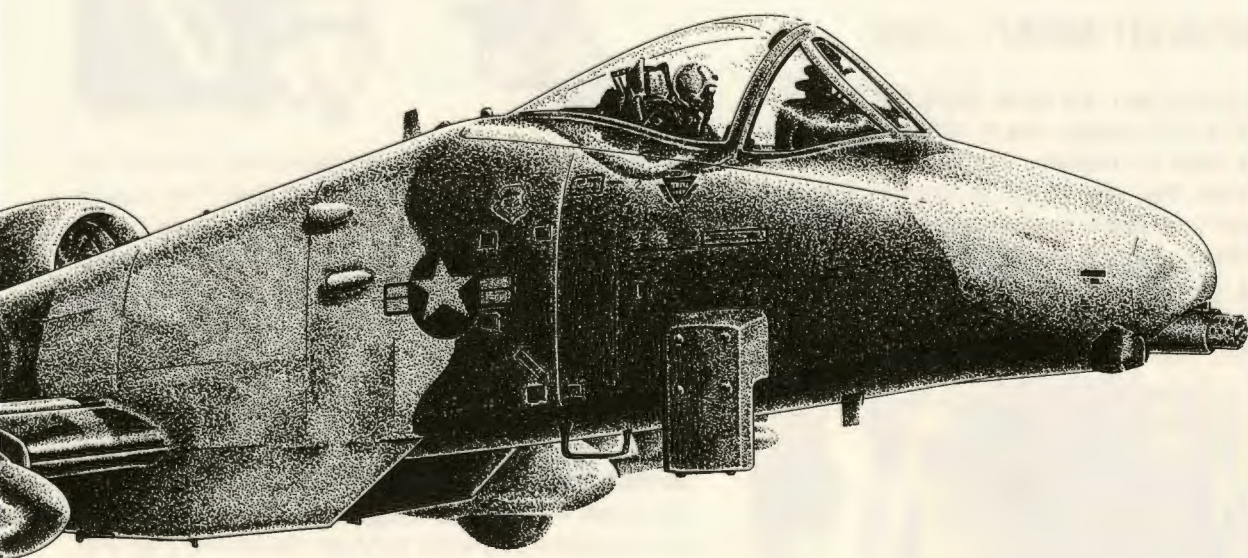
SrA Carl R. Waisanen

proper protective clothing.

Airman Waisanen is competent, enthusiastic, and conscious of safety. He sets an outstanding example and is deserving of the Tactical Air Command Individual Safety Award.

A-10 Thunderbolt II





WEAPONS WORDS

GROUND BURST BURNS—AGAIN

A few months ago, we wrote about the danger in handling M115A2 ground burst simulators. These devices are used for realism in combat training. They are safer than the real thing, of course, but that doesn't mean they aren't explosives. Apparently, the word still hasn't reached everyone.

During a ground defense exercise, a sergeant suffered for his lack of knowledge. At about three in the morning, explosive ordnance disposal (EOD)



troops threw some burst simulators into the exercise area where the sergeant was located. The object was to simulate an attack on the site. Three of the simulators didn't go off. Both the EOD troops and some of the training unit's people looked around for the duds, but they couldn't find them. The EOD troops then briefed the others to sandbag any duds they found and to call EOD.

After the excitement, the sergeant went to bed. When he arose the next day and went outside, he spotted one of the missing ground burst simulators. He knew it could be dangerous, so he decided to bury it before someone got hurt. He picked it up with a shovel and moved it away from the unit's vehicles and equipment. Then he began digging a hole to bury it in. While he was digging, his shovel struck the simulator. It exploded. The sergeant was badly burned on his hands and arms.

There is a sidelight to this story. The sergeant had never received any explosives safety training. He was scheduled for field training before the exercise. The field training given by this unit included explosives safety training. However, the sergeant had to cancel the training because of a heavy workload within his section. His supervisor thought the sergeant didn't need the training because he'd had field training at another base. But that field training did not include explosives safety. The supervisor *assumed* that the sergeant was trained, even though he wasn't. Later events showed that he needed the training.

THE AUTOMATIC BOMBER

The A-7 had been written up for two discrepancies: the head-up display (HUD) was inoperative, and the armament release button on the stick just didn't feel right. The HUD specialist came out to troubleshoot it, but he couldn't because of the stick problem. The electrical shop was called in to check the armament release button.

Since the pilot's show time was getting close, maintenance control called the supervisor of the weapons-control-systems (WCS) shop to see if the airplane was flyable as it was. Thinking only of the HUD problem, the WCS supervisor said yes. The airplane was called in to the pilot as ready. Control didn't check with the electrical shop. When the pilot arrived at the airplane, he read the write-up in the forms and asked for a spare aircraft. He was told that the write-up was considered flyable and that there was no spare. So he accepted the airplane.

On the gunnery range, the pilot experienced release problems and decided to drop in Manual mode. He tried to release bombs three times but couldn't spot the bombs hitting. As he set up for another try, he happened to look at the bomb rack as he turned on the Master Arm. He saw a bomb drop off. That's why he wasn't spotting the bombs; instead of releasing when he pushed the release button, they were releasing when he selected Master Arm. Luckily, all the bombs hit within the range area, although nowhere near the target.

When the airplane was back on the ground and an electrician got the chance to look at it, he found a broken spring in the release button. With the broken spring, the button was continuously signaling release. In Manual mode when Master Arm was selected, the circuit was complete and the bombs immediately released.

Somewhere it is written: Thou shalt not fly airplanes with known armament problems on gunnery missions. Maybe this incident will remind us of that.

SHOT IN THE FOOT

A recent change to the requirements for weapons qualification added a new event for the .38 caliber revolver. It calls for a 5-second draw, double-action fire, and reholster.

Air Force regulations also require anyone who is in charge of 10 or more weapons to carry a loaded gun to protect those resources from theft. Those two

requirements combined with some absent-mindedness on the part of a small-arms instructor can create a problem.

An instructor checked out 30 pistols for a training class—the first one to be taught the timed draw. Since there was no other security guard provided for the weapons, he was issued a loaded weapon, which he wore in a holster.

The instructor demonstrated the new timed-draw event with an unloaded revolver; he simulated the movements outside his holster, which held the loaded gun. Then he left the empty revolver on the podium while he helped the classmembers put on their holsters and belts. A couple of students still had some questions about the timed draw, so they asked the instructor. He gave them another demonstration, but he purposely did it wrong to show an error they should avoid. As he drew, the gun fired; and the bullet injured his leg and foot. The unloaded revolver was still laying on the podium. Forgetting that, he had drawn the loaded pistol.



It makes you wonder if security guard and instructor duties are compatible. Is it a good idea to be demonstrating small-arm techniques in the classroom while carrying a loaded pistol? It seems like it's too easy to use the wrong pistol. Maybe the instructor and the security guard should be two separate people.

HOW DO YOU USE TECH DATA ?



How do you use tech orders? Do you use them as a general reference or do you follow them step by step? Here's what can happen if you don't follow every step. It may change your mind on how closely you need to follow the tech data.

An engine specialist and a crew chief were sent to the trim pad to do a trim check after an engine change. The crew chief was qualified to run the engine, and the engine specialist was qualified to trim the engine. All the required tech orders, checklists, and tools were available at the trim pad.

The engine specialist hooked up the trim equip-

ment to the aircraft. He scanned the tech order, but didn't follow it step by step. He missed the line that says, "On newly installed engine, insure oil tank filled."

The crew chief didn't go through every item on his checklist either. He skipped from the exterior check to the engine start procedures and motored the left engine. He saw positive oil pressure. All other indications were also normal. He stopped motoring the engine. Neither the crew chief nor the engine specialist noticed any unusual sounds during engine roll down.

At this point in the trim run, the tech order says, "Immediately following roll down, service engine oil tank." That step was also overlooked.

The crew chief started the engine and ran it at idle. The tech order tells the engine specialist to insure the oil pressure indicator indicates between 40 and 55 psi during the idle speed trim check. But neither the specialist nor the crew chief checked the oil pressure at idle.

The crew chief next pushed the throttle up to full thrust to continue the trim check. With the engine at max thrust, the crew chief noticed the oil pressure was only 30 psi. He mentioned that to the engine specialist. The specialist said not to worry, it was just warming up.

However, the crew chief's checklist cautions, "Immediately shut down engine if . . . oil pressure is below 40 psi during engine operation above 85 percent core rpm." And the tech order the engine specialist should have been following says to compare trim-test-set and cockpit-panel indications at max power: "Oil pressure shall be . . . 60-90 psig."

Both the specialist and the crew chief were more concerned about low fan rpm. That's what had caused the engine change in the first place, and the fan rpm was still too low. When the crew chief happened to mention the low oil pressure again, the engine specialist replied, "We're not really worried about oil pressure." Their attention was riveted on the fan speed.

At about this time in the engine run, the engine specialist's supervisor came out to the trim pad to see how things were going. The specialist told him about the low fan speed, but no one mentioned the low oil pressure. The supervisor told the specialist and the crew chief that they could get a more accurate fan reading by pointing the airplane directly into the prevailing wind. He instructed them to shut the engine down and reposition the aircraft. Then the supervisor left, saying he'd stop back during their next engine run.

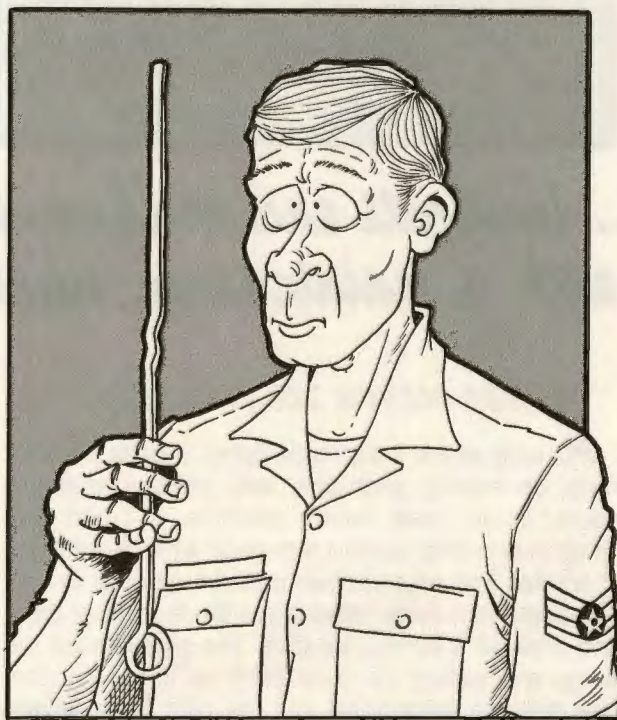
The crew moved the airplane so that it pointed directly into the wind. Then the crew chief restarted the engine. The gage gave a positive indication of oil pressure on start, but again neither the crew chief nor the engine specialist checked the oil pressure at idle. After the engine stabilized at idle, the crew chief pushed the throttle up to max thrust.

At max thrust, the oil pressure was still low. Neither the crew chief nor the engine specialist reacted to the low oil pressure. After running the engine about three minutes at high thrust, the crew chief heard a loud thud. The airplane jerked twice. The engine

specialist saw on his equipment that the fan and core rpm were dropping rapidly. He looked up at the engine and saw a ball of flame shoot out the exhaust.

The crew chief pulled the throttle back and shut down the engine. The flame went out. He called ground control on the radio and asked for fire department help; then he evacuated the aircraft.

The engine had seized. The fan could no longer be rotated by hand. Normally, the fan rotates easily; it'll even windmill in a slight breeze. Afterwards, the crew chief checked to see how much oil was in the engine's oil tank. He first used the dip stick; it didn't



show any oil. The crew chief then used an oil-sampling tube to reach further into the tank. He still couldn't find any oil. It was dry.

The newly installed engine had been delivered to the flight line without any oil in the tank. There were no leaks. It simply hadn't been serviced.

Both the engine-trim tech order and the engine-run checklist contain adequate safeguards to safely trim and run a newly installed engine. The steps aren't mysterious or ambiguous. They're clear: check the oil. But this engine was run for more than 17 minutes without oil.

Let's repeat our original question. How do you use the tech data? Do you really think you're immune to errors? We know one crew chief and one engine specialist who also used to think it couldn't happen to them. But they don't think that anymore. ➤

chock talk

*...incidents and incidentals
with a maintenance slant.*

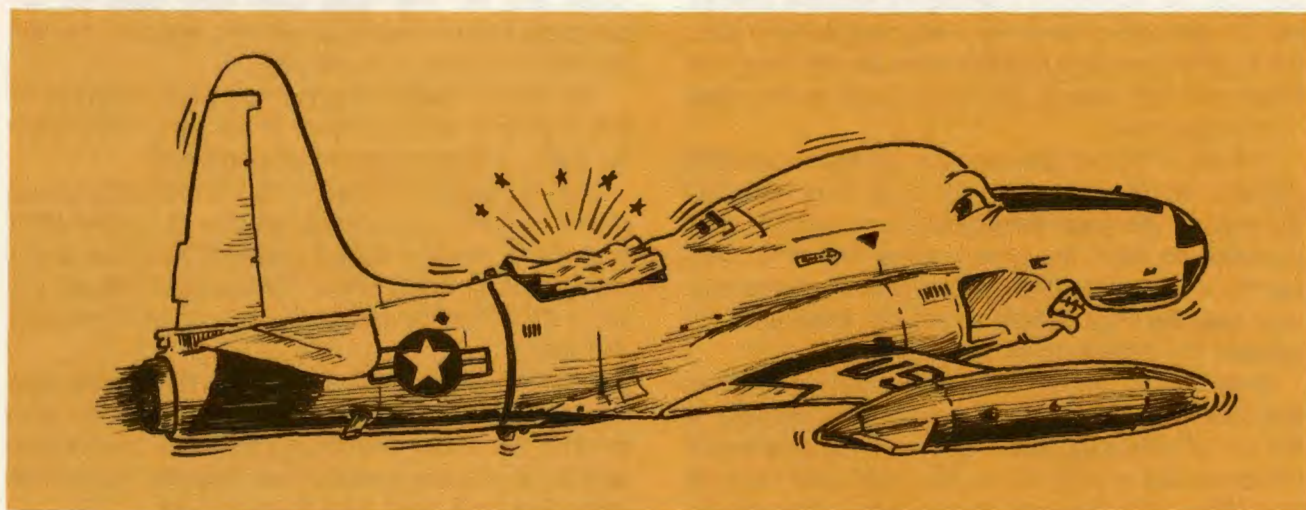
YE OLDE PLENUM DOOR PROBLEM

As long as the T-33 keeps flying, it looks like we'll keep on having problems with plenum chamber doors. In our most recent example, a T-bird was flying in two-ship spread formation when it went out of control. The pilot had just pulled the power to idle. The airplane quickly rolled left to 90 degrees of bank and entered a 40-degree dive. The pilot leveled the wings and pulled the nose back up to the horizon. The airplane responded, but the pilot felt a severe vibration in the airframe and rudder pedals.

As the pilot climbed and turned back towards his home base, the other airplane in the flight joined up in a chase position. The chase pilot reported that both left and right doors to the plenum chamber had buckled. They were ripped partly away from the airframe. While returning to base, the pilot kept his airspeed below 200 knots so that negative pressure was applied to the plenum chamber area. That held the dislodged part of the panels in streamlined as close to the airframe as possible. By keeping it streamlined, the pilot was able to lessen the vibration and to keep the panel from being completely torn away by the airstream. Approach and landing went smoothly; the vibration became unnoticeable below 150 knots on final approach.

The cause of the incident was lack of the proper tool. During thru-flight inspection the crew chief opened the right plenum chamber door to take a SOAP sample. The crew chief didn't have a big enough screwdriver to torque down the fasteners correctly. As a result, the six rear fasteners were tightened but not locked. When the pilot pulled the throttle to idle in flight, that created a positive pressure in the plenum chamber area, forcing the unlocked fasteners loose and exposing the panel to the airstream. The airstream, together with the positive pressure in the chamber area, sheared the rest of the fasteners on the right side and the rear fasteners on the left side. They looked as if they'd been unzipped. The resulting loss of control fortunately occurred when the aircraft was at an altitude and in a formation that gave the pilot time to recover.

It didn't have to be that way. The loss of control could have resulted in a collision with the ground or the other airplane. And it would have all been due to the lack of the right screwdriver.



PARTS OUT OF CONTROL

After quick-engine-change (QEC) buildup, an A-10 engine was run on the test cell. The engine was motored twice and then run seven times. The crew finally rejected the engine because of low power and returned it to the shop. In the shop, investigators looking for the cause of the low power found foreign-object damage in the compressor.

The foreign object that caused the damage was a screw used to install panels during the QEC buildup. Somehow a screw had been dropped into the compressor while the engine was being worked on. The problem was that the screw wasn't missed. With positive parts control that wouldn't have happened. Each QEC kit should have been issued with an exact count of all its parts including screws and fasteners. Then if a screw were lost, the engine could be searched until the screw was found.

Foreign objects don't cause damage if you find them before you run the engine, instead of afterwards.

WHAT FOD REALLY MEANS

At a meeting of the 58 TTW and 405 TTW combined committee on FOD, Lt Col Kris Mineau, commander of the 405th Component Repair Squadron, passed around an 18-by-1/2-inch piece of bright metal. Then he explained it:

"This item is made of molybdenum and is guaranteed not to rust, deteriorate, or corrode for the period of one hundred years. It is called an intramedullary nail; it was in my femur [thigh bone] for six years, holding the bone together.

"What has that to do with FOD? I punched out of an F-4 going straight down at warp eight [supersonic speed] because it had FOD in the bell crank. Where did the FOD come from? The forward AIM-7A missile cavity. FOD jammed the bell crank, and the aircraft took a nose dive at supersonic speed. I ejected going straight down at less than 1,000 feet above the ground, breaking both arms and legs instantaneously from flail injuries [due to supersonic wind blast]. I then had to take potluck with the PLF [parachute landing fall]. Only by the grace of God and the Lord Jesus am I alive today. It took six years for all of the King's horses and all of the King's men to put Humpty-Dumpty back together again.

"So, flying F-15s today, I have a vested interest in FOD, especially FOD that can migrate eventually to the flight controls. So let this be a little attention-getter for today—a good reason to make sure there is no loose scrap floating around in our aircraft."

TAC ATTACK



BOATTAIL FIRE

At 140 knots on takeoff roll, the F-5E's right afterburner blew out. The pilot decided to continue takeoff because of his high speed. Shortly after the airplane broke ground, the pilot saw the Fire light for the right engine light up. His wingman radioed that a momentary flash of fire had come from the right tailpipe. The pilot didn't notice any unusual readings on the engine gages, except for no afterburner; and he wasn't trailing smoke. He pulled the throttle to idle, but the Fire light stayed on. So he shut down the engine.

The pilot set up for a single-engine landing. The Fire light was still lit; it remained on for the rest of the flight. On final approach the pilot felt the flight controls become very sensitive, and he was unable to trim off the pressures on the stick. After landing, the pilot stopped on the runway and shut down.

Investigation showed fire damage to the boattail in the area just above the flight-control access door. The fire had burned through the wires to the stabilator's pitch-augmentation damper and pitch-trim motor. The investigators took the engine out of the airplane and ran it on the test cell. They found that a loose B-nut on the pressure drain tube for the afterburner pilot manifold was loose and allowed raw fuel to spray into the engine bay. There was also a much smaller leak from an elbow fitting on the overspeed governor.

The small leak in the elbow fitting was caused by a small burr on one of the mating surfaces, which allowed fuel to seep out. The large leak was caused by shoddy work during a 400-hour periodic inspection. The B-nut simply had not been torqued down properly. That act of carelessness almost cost an airplane and a pilot.

CHOCK TALK

BELIEVE IT OR NOT

Do you believe this: a mistake in maintenance on a thermos bottle holder can result in the wrong airspeed and altimeter readings? It's true; it happened in an F-4.

Ten minutes after takeoff, while the airplane was climbing through 16,000 feet, the airspeed indicator dropped to zero; and the altimeter decreased to 5,000 feet, then slowly increased to 13,000 feet. The aircrew declared an emergency and joined up with another F-4 that led them back home to a safe landing.

So what's the thermos-bottle-holder connection? Well, the pitot and static pressure lines for the VGH recorder were loose. When no VGH recorder is installed, the lines are supposed to be capped off at fittings attached to the thermos bottle holder in the front cockpit. But these lines had become disconnected from the fittings and caused the errors in the pitot-static instruments.

A couple of days earlier an environmental-control-systems (ECS) technician had removed the thermos bottle holder in order to change a line to the canopy pressure seal. The technician recorded in the aircraft forms that he had removed the thermos bottle holder, but he did not write that the pitot-static lines were disconnected. The entry was coded as a red diagonal.

After a shift change another technician took over and installed the line for the canopy seal. The technician had a seven-level supervisor inspect that job. When he next replaced the thermos holder, the ECS technician should have stopped and had an instrument specialist replace the pitot-static lines. That's a red-X item that also requires a seven-level inspection and a leak check. But the ECS technician reconnected the lines himself and cleared the red diagonal. No leak check or seven-level inspection was made.

Sure enough, the lines weren't secured correctly, and after three flights they loosened. The cause was twofold: one technician didn't enter a red-X in the forms when he should have, and another technician tried to do a job he wasn't qualified to do. And that's how a thermos bottle holder got involved in an emergency.

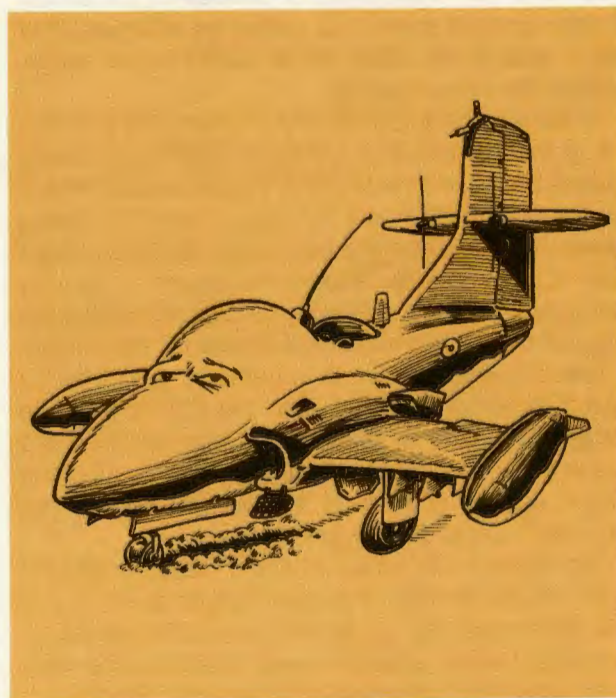
WHAT'S THAT CRUNCH ?

The OA-37 taxied onto the runway behind its leader. As the pilot turned his aircraft to pull into

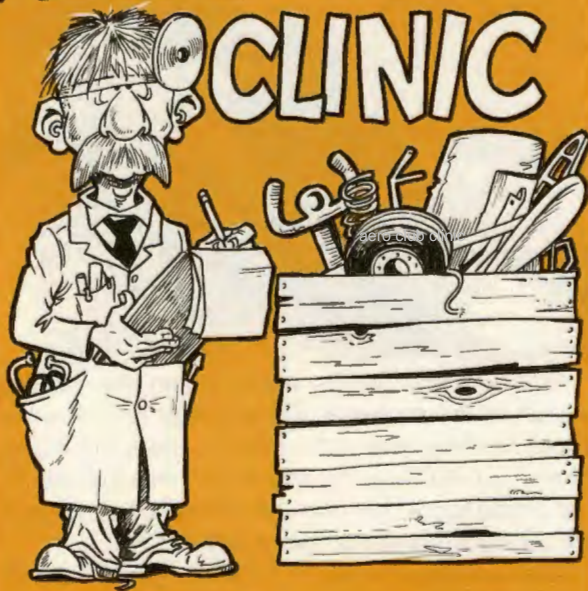
position, he heard a noise. The nose of the airplane dropped about 4 inches, and the aircraft abruptly stopped moving. The observer in mobile told the pilot he had an oddly cocked nosewheel. The pilot shut down the airplane, and maintenance came out and hauled it in. They found that the bearing rollers were gone, the axle shaft had seized and was worn almost a third of the way through, and the strut fork was bent. Both the tire and the wheel were ruined.

Five sorties before this one, the nose strut had been worked on. The persons working on it had installed the left wheel bearing's grease seal backwards. With the grease seal backwards, the axle assembly had to be forced into the strut fork. That created too much stress on the bearings and eventually caused massive failure.

The clue to the persons working on the nose strut that things weren't quite right should have been the excessive force it took to get the axle into the strut fork. The pilots also had a clue: on the sortie before and on this sortie, the pilots heard crunching sounds when they taxied. Because it was winter and the taxiway had snow and ice on it, the pilots thought the sound came from snow being crunched under the tires. Wrong guess. Maybe they should have talked over the strange sound with the maintenance. Together, they might have found the problem sooner.



AERO CLUB CLINIC



HOW TO LAND GEAR UP

Most gear-up landings have something in common (besides scraped bellies and bent props): they usually are preceded by a change in the normal way of doing things. We call that a "disrupted habit pattern," and it has proven to be a factor in a lot of mishaps. Here's a typical example:

The mission was a training flight in a PA-28 to prepare the pilot for a single-engine land rating. He had an instructor on board with him. They took off from their home base and flew directly to a nearby airfield to practice soft-field approaches. The first maneuver was going to be a soft-field approach over a simulated 50-foot obstacle. The pilot intended to continue to a touch-and-go, followed by a climb over a simulated 50-foot obstacle.

Abeam his planned touchdown point, the pilot began his landing check. He disabled the automatic gear-lowering system so that he'd be able to raise the gear below 85 knots on the climbout. The instructor saw that the pilot had begun the landing check; then the instructor made the necessary radio calls while looking for other traffic. Both pilots concentrated on the approach. They were so fixed on flying a precise final and mentally preparing themselves for the soft-field touch-and-go and the following steep climb that they never checked the gear down. The airplane landed on its belly with the gear still up and skidded to a stop in about 450 feet. So much for the touch-and-go.

Sometimes we forget to finish what we're doing before we go on to the next step. That's the big danger in a disrupted habit pattern. We change what we're doing, but we subconsciously assume we've taken care of everything by habit. When the pilot disabled the automatic gear-lowering system, he still assumed the gear would come down the way it always did. He quit thinking about it, and so did his instructor. But when we change our habit patterns, we can't assume anything; we have to change our thinking too.



aero club clinic



A QUESTION OF PRIVILEGE

An aero club pilot took two passengers for a flight in the club's Cherokee. They decided to do some sightseeing and picture taking at a lake in the area. The pilot flew them randomly around the lake at 50 to 100 feet above the ground. Then they decided to check out a canyon.

The pilot flew them into the blind canyon at 120 knots, 50 feet above the tree tops. The terrain rose in front of the airplane. The pilot tried to stay about 50 feet above the trees. While he was concentrating on what was going on outside, his airspeed was decreasing toward stall speed. At about 60 knots, the pilot noticed the airspeed. He pushed the power up and lowered the flaps two notches. He and his passengers talked about turning back; but the pilot feared that trying to bank and turn the plane could result in a full stall and an uncontrolled forced landing. So they continued straight ahead.

At 45 knots, the pilot added a third notch of flaps. The airspeed continued to decay until it reached the point where the pilot knew they were going to hit the trees. He released the manual override button which had been preventing the landing gear from automatically extending. The airplane stalled in a controlled-landing attitude. The airplane's left wing hit a large tree. The wing broke, and the airplane fell to the ground on its right wing.

Although both wings were broken, the fuselage remained in one piece. The airplane had slowed to about 35 knots when it hit the tree. The pilot's leg was broken, probably by the first impact with the tree. The two passengers, who weren't seriously hurt, dragged the injured pilot out of the airplane.

After waiting a while to be sure the plane wasn't going to catch on fire, one of the passengers went back to the fuselage and made several Mayday calls on the radio. The calls were heard by a sheriff's helicopter, who directed a ground rescue team to them. The rugged terrain forced the rescuers to carry the pilot out on foot, but they all made it safely.

Without a doubt, the pilot violated Air Force rules, FARs, and common sense. In short, he caused the crash. The strange thing about it was that this pilot's FAA license had been revoked 3 months earlier for allegedly flying too low over a crowd of people at a state park. The pilot still had his license because he had appealed the revocation. A hearing had been scheduled to take place a month after this mishap. Until then he could use his license.

The supervisors in the aero club didn't know anything about the pending hearing or the alleged violation. He had joined the aero club less than 3 weeks before this mishap; and on the application he had written *no* where it asked if he had ever been reported for violation of FAA regulations.

Now, we don't believe anyone should be deprived of their rights without "due process." But flying aero club airplanes isn't a right. It's a privilege. And to protect lives and property, that privilege should be denied when a pilot's sense of responsibility is questionable. Apparently, we can't trust everyone to be truthful; so we need to do some investigating into the background of new members. That's part of our responsibility to the public.

WET GRASS GO-AROUND

An inexperienced pilot was trying to land a Cessna 172 on a grass runway that was about 2,000 feet long. A rainstorm had just passed over the field, and the grass was wet. The pilot planned a short-field approach with 40-degree flaps at 70 miles an hour. His actual approach speed was closer to 80 mph. He touched down long, 600 feet down the runway, in a three-point stance. The airplane bounced twice and then finally stayed on the ground about 1,000 feet down the runway.

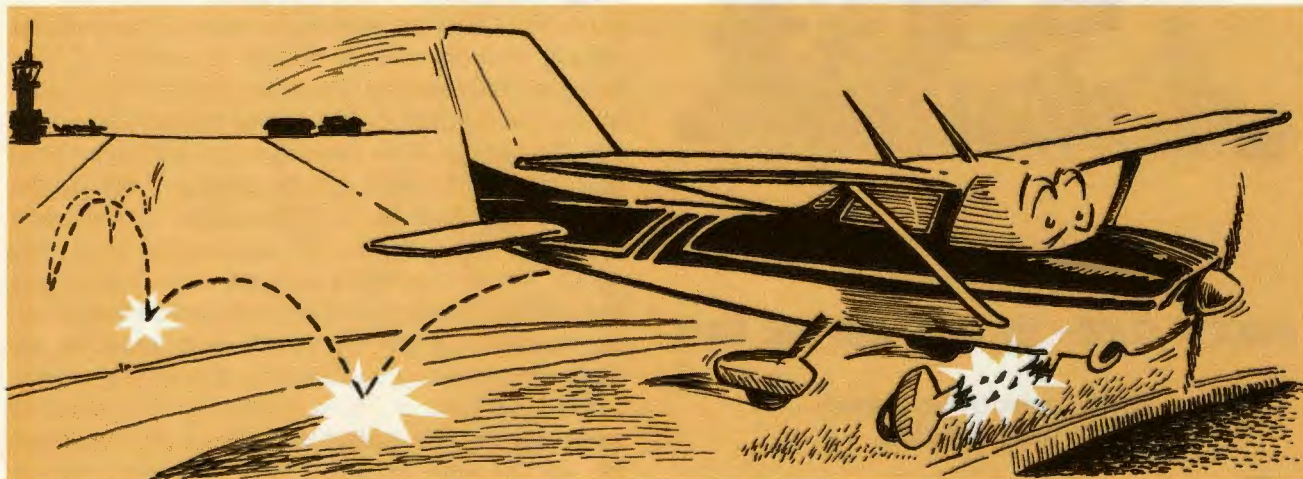
The pilot began raising the flaps and had them up to 25 degrees when he looked up and checked the runway. He felt that he was going too fast to stop in the runway remaining; so he decided to go around. At the time, he was 1,400 feet down the runway at an airspeed below 40 mph.

The pilot added power and set the mixture and carburetor heat. He left the flaps where they were. The airplane broke ground some 10 or 15 feet prior to

Force base and land there. He had two passengers on board, so he moved them both to the rear seat. As he touched down, he shut down the engine and held the nose off the ground as long as he could. When he lowered the nose at slow speed, the airplane skidded for about 50 feet and then stopped. No real damage was done on this landing.

The main error in this mishap appears to be the late decision to go around. If the pilot had gone around when he first noticed that he was landing long, he could have come back in on a better approach. When he didn't do that, his inexperience led him into worse trouble. He really had room to stop on the runway remaining; he was below 40 miles an hour with more than 600 feet remaining. But even though he misjudged the stopping distance, he might still have made it if he had configured the airplane properly for the go-around. The flight manual notes that flap settings above 10 degrees result in very slow acceleration.

The question the aero club considered afterwards was whether inexperienced pilots should use grass



a 6-inch embankment at the end of the runway. The airplane cleared that embankment, flew across a 15-foot-wide drainage ditch, and hit a 3-foot-high embankment on the other side of the ditch. The airplane continued up the embankment and hit the edge of a road running perpendicular to the runway. The nose gear came off when it hit the road, but the airplane continued on. The airplane bounced across the road into the air, sank momentarily on the other side as the left wing dropped, and then climbed back out as the pilot brought it back under control.

The control tower advised the pilot that he may have damaged his landing gear. The pilot flew by the tower, who informed him that the nose gear was missing. The pilot decided to return to his home Air

runways as short as this one. The club officers felt that operating on a grass strip required a higher level of proficiency. Even though the Air Force regulation allows landings on runways as short as 2,000 feet (if the sum of landing and takeoff roll isn't greater than 2,000 feet), the club decided that inexperienced pilots should have a 500-foot margin for error when operating on grass. Their rule now is that pilots with less than 200 hours flying time may land on grass runways less than 2,500 feet long only when an instructor is on board.

None of this relieves the pilot of the responsibility to decide early to go around. But it does encourage low-time pilots to gain experience on grass runways with less risk.



MAKE IT CLICK—101 MOST CRITICAL DAYS

**By Mr. John D. McColman
TAC Ground Safety**

The Air Force has joined with the National Safety Council in sponsoring a seasonal campaign called "Make It Click—101 Most Critical Days." It will run from 29 May through 6 September, which includes the three major summer holidays: Memorial Day, Independence Day, and Labor Day. On an average, Air Force ground fatalities increase 20 percent during this time. Private motor vehicles are the worst offender. The campaign is an effort to introduce and reinforce the lifesaving habit of using safety belts.

The National Safety Council will provide copies of their kit for the "Make It Click—101 Most Critical Days" program to the local safety offices. The Air Force Inspection and Safety Center and TAC Ground Safety will provide additional material.

We in TAC's ground safety office consider seat belts to be the single most effective item for preventing deaths in motor vehicle accidents. We rarely see a fatality report where the victim was using seat belts. Last year TAC experienced 21 four-wheel private motor vehicle fatalities. In one case, seat-belt use could not be determined; and one case involved a bicyclist. The other 19 victims were not using seat belts.

That's why we encourage everyone to participate in the campaign, and we hope the units will integrate it into their regular traffic safety activities.

"BUT WE USED TO"

Ever been caught in the "used to" trap? When in doubt about something, instead of checking, you do it the way you "used to" do it. Then you find out the procedure was changed because there was something wrong with it in the first place.

An NCO told an airman to move a government vehicle into an aircraft hangar to protect it from forecast bad weather. That's the way the NCO "used to" do it in his old job. The airman moved the vehicle into the hangar. After parking it, the airman smelled gas. He didn't check out the problem, but he did write it up. And he told the senior airman who controlled the vehicle and issued the keys. The senior airman checked it over and also smelled gas but couldn't locate the cause, so he placed an out-of-commission tag with the vehicle keys. Later, he left work without telling anyone else about the problem.

After a couple of hours, another NCO decided to move the illegally parked vehicle out of the hangar. He got the keys from a different vehicle controller who wasn't aware of the problem. The NCO took the keys, climbed in, and cranked the engine. After the engine started, gasoline from a cracked fuel line sprayed onto the engine's hot manifold, and the vapor ignited. Fortunately, the fire was confined to the vehicle's engine and didn't spread to the rest of the hangar.

The potential for much worse damage existed because of the decision based on a wrong "used to." But the fire hazard could have been eliminated without destroying the engine if people had just communicated better. If enough people had known about the problem, maybe someone would finally have done something to eliminate it. The smell of gasoline is one thing we can't get *used to* ignoring.

ROADSIDE JOGGERS

By Maj Philip D. Wilder
Defense Mapping Agency

Visit Washington, D.C., for the first time in years, and what grabs your attention first? Maybe the Kennedy Center or Mrs. Johnson's wonderful flower gardens along the Potomac. But more than likely the first thing to strike you will be all those joggers—heads back, knees high, loping past the Lincoln Memorial and down the mall, skimming around the Tidal Basin.

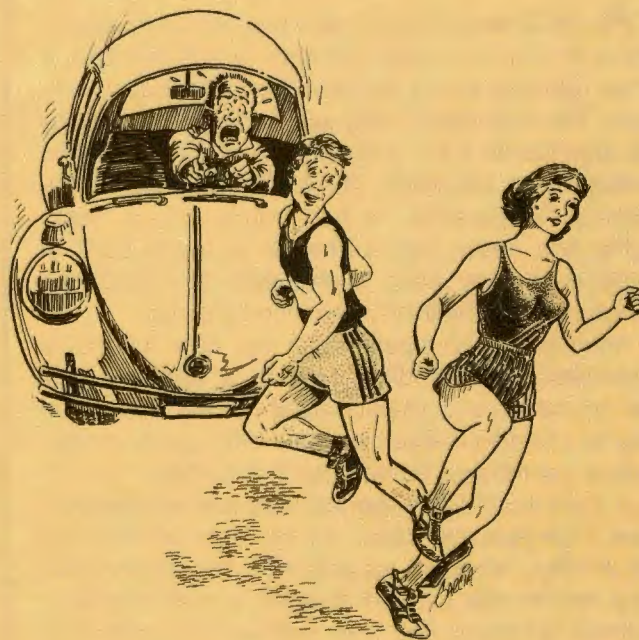
Rain or shine, there they are, flying along in pursuit of physical fitness.

The nice thing about D.C. is that there are at least some places for joggers to run, other than a track, where they aren't endangered by traffic. Not so in most American cities. The jogger has to take his chances along the side of the road, maybe only inches from passing cars.

The world belongs to people, not machines. But people have to get along with machines. Joggers have to get along with drivers, and there's the rub. Unless the driver has concern for the runner, our athletic friends are in danger of worse than a charley horse.

Here are some points to think about. Joggers first:

- There is only one way to run and that's facing traffic.
- Traffic signals and signs apply to you as well as to cars.
- Don't pick a course or a time of day that automatically puts you in conflict with heavy traffic.
- Don't overextend yourself by running to the point of exhaustion. When you're tired, you're no longer alert to the traffic.
- Watch drivers, not vehicles. See that the driver knows you're there and indicates an understanding of what each of you is doing.
- Be aware of the major threats to your safety: drivers from crossways, drivers turning left into you, and drunk drivers.
- Admit to yourself that any argument about right-of-way between jogger and automobile will always be won by the automobile. Your role will be better understood if you remember what it is like to be a driver.
- Wear light-colored clothing for visibility, take a reasonable position on the side of the road without darting or weaving about, and be heads-up and alert to improve your impression upon the driver.



Drivers:

- Try to have empathy for the runner. That means thinking about how tough it is out there.
- Give a fair share of room to the runner, but don't cross over the middle line of the road to pass him.
- Don't throw beer cans and other objects or let your passengers do so—they hurt! (Yes, it happens.)
- When it's a simple choice of waiting a second, pulling out, or turning in front of the runner, try giving the break to the runner. You gain because he will be where you can see him.
- Learn to check the opposite direction from where you are turning. Failure to check both directions is a bad habit on all accounts, but particularly dangerous to pedestrians.

Yes, runners do have a right to be out running. No, if you were to run more than three miles on a track, you wouldn't want to train there either. Don't project your feelings about physical conditioning onto the runner. Lots of people hate exercise, but that doesn't mean they should hate the exerciser. Both runners and drivers need to remember that their roles can be interchangeable. Respect, even a degree of fear, won't hurt a thing.

—Air Force News Service

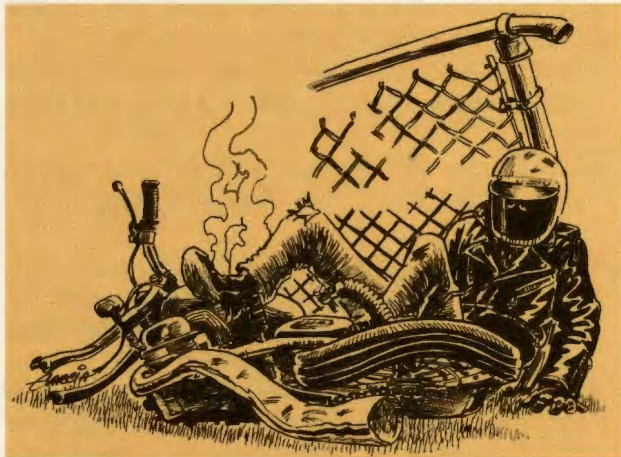
DOWN TO EARTH

BUILD EXPERIENCE CAREFULLY

An NCO was riding his new motorcycle to work in the dark predawn. From the right side of the road, a stray riderless horse wandered into the paved surface. The motorcycle rider was so taken by surprise he didn't even have a chance to apply the brakes before he hit the horse. The NCO was killed by the collision. Apparently, he had overdriven his headlights and never had a chance to react. Lack of experience may have contributed; the NCO had purchased the bike only two months earlier.

Another airman operating a dirt bike fell into a concrete drainage ditch next to a highway. The helmet he wore probably saved his life. Speed too fast for conditions was the cause; but, again, inexperience contributed to the error in judgment.

A third motorcycle operator had just purchased a new high-powered bike. As he rode off from the dealership, his hand slipped from the clutch lever. The motorcycle lurched forward, out of control; it started fishtailing and then tumbled end over end, throwing the rider off into a chain link fence. His head struck a metal gatepost. He too was wearing a helmet, which likely saved his life. When his hand



had slipped from the clutch lever, the throttle rolled full open because his throttle hand was incorrectly positioned. Again, inexperience.

We have to be careful that we don't let our confidence outrun our skill when we're learning something new and difficult like riding a motorcycle. Hands-on training from a pro can be a big help. After that, we have to take it easy and play it safe while we build experience. Then we'll find we're riding like the good experienced motorcyclists—that is, safe and easy.



Tornados—What to Do. Know the terms: A *tornado watch* means conditions are right for a tornado to form, and *tornado warning* means a tornado has been sighted. If you're in your home, the best place is a storm shelter or basement. Second choice is a closet or bathroom on the lowest floor of the building away from outside walls and windows. Don't bother opening windows to equalize the pressure. Leave trailers, mobile homes, and cars for more solid buildings.

What's Your Excuse? An excuse for not wearing seat belts is not being able to get out of a car if it catches on fire or if the car goes off the road and lands in a body of water. Guess what. Fire occurs in only 1 out of every 500 crashes; submersion in water occurs in only 1 out of every 100,000 accidents. If you put the two together, the National Highway Traffic Safety Administration says that's one quarter of one percent. Next excuse, please.

Should Your Youngster Lift Weights? Technically speaking, weight lifting, whose object is to hoist the maximum amount of weight in a single lift, is an Olympic-class sport. Physicians see little value in it for young athletes; they often get hurt trying it. Weight training, on the other hand, uses light weights in repetitive exercises to increase strength, speed, endurance, and flexibility. But even weight training may not be of much value to preteenagers, who have not developed the hormones that allow muscle size to increase.

TAC TALLY



CLASS A MISHAPS	▶
AIRCREW FATALITIES	▶
TOTAL EJECTIONS	▶
SUCCESSFUL EJECTIONS	▶

TAC		
MAR	THRU MAR	
	1982	1981
4	10	5
2	6	4
2	8	4
2	8	3

ANG		
MAR	THRU MAR	
	1982	1981
1	2	3
1	2	2
2	2	0
1	1	0

AFR		
MAR	THRU MAR	
	1982	1981
0	0	0
0	0	0
0	0	0
0	0	0

TAC's TOP 5 thru MARCH '82



TAC FTR/RECCE	
class A mishap-free months	
42	1 TFW
29	49 TFW
28	355 TTW
21	474 TFW
19	347 TFW

TAC AIR DEFENSE	
class A mishap-free months	
110	57 FIS
63	5 FIS
60	48 FIS
19	318 FIS
10	87 FIS

TAC-GAINED FTR/RECCE		
class A mishap-free months		
119	188 TFG	(ANG)
111	138 TFG	(ANG)
110	917 TFG	(AFR)
107	116 TFW	(ANG)
97	434 TFW	(AFR)

TAC-GAINED AIR DEFENSE		
class A mishap-free months		
97	102 FIW	
93	177 FIG	
59	125 FIG	
42	119 FIG & 142 FIG	
32	144 FIW	

TAC/GAINED Other Units		
class A mishap-free months		
152	182 TASG	(ANG)
145	193 ECG	(ANG)
140	26 ADS	
136	110 TASG	(ANG)
132	USAFTAWC	

CLASS A MISHAP COMPARISON RATE

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

TAC	1982	7.8	5.7	6.1									
	1981	4.0	3.0	3.2									
ANG	1982	0.0	2.7	3.2									
	1981	9.3	4.8	4.6									
AFR	1982	0.0	0.0	0.0									
	1981	0.0	0.0	0.0									

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC



HARDISON

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