

TAC ATTACK

APRIL 1983



ADIOS F-104

Angle of Attack



With our cover we bid a fond adieu to the F-104 Starfighter, or "Zipper" as some of the pilots called it. The Starfighter's last TAC flight took place at Luke in March. As excited as we are to get new fighters into the inventory, we still feel a tinge of nostalgia when an old stalwart retires.

Also leaving soon is our editor, Maj Jim Mackin. So we're looking for a replacement. If you know anyone who might be interested in the job, make sure he reads "Help Wanted: Editor."

We're into the thunderstorm season again, and that's the point of "When Thor Gets Sore." Steer well clear of thunderstorms, or you'll get hammered.

In "Views from Flight Safety," one of our flight safety officers presents some of his observations on current problems. Other stories with a flight safety angle include "The Self-Opening Canopy," "Instructor Pilots Should Know Better," and "The Drill Drones On." The lessons involved show that both air and ground crews need to do their jobs right.

We take a humorous look at motorcycle safety in "Uneasy Rider," but the problem it points at is deadly serious. The number of TAC people killed on motorcycles is catching up to the number killed in cars, even though cars are still used much more than motorcycles. Reversing that trend is up to you motorcycle riders. As the weather gets better, you'll probably be riding more. Make sure you're ready to ride.

Soon all of us will be outside more. That's good. Play hard, but play it safe.

RICHARD K. ELY, Colonel, USAF
Chief of Safety



AAPR

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TACRP 127-1

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Views from flight safety

**By Maj Mike Lichty
TAC Flight Safety (F-4)**

A DECISION TO FLY ANOTHER DAY

The F-4 was experiencing erratic engine indications coupled with an increasing amount of smoke

and fumes in the cockpit. The affected engine and generator were shut down with no resultant decrease in the smoke accumulation. By now the pilot could not see his instrument panel. The aircrew completed the appropriate checklist for smoke and fumes in the cockpit with one exception: Command selector valve—HORIZONTAL. When the crew reached that step, the pilot directed the WSO to leave the command selector valve (CSV) stowed. The WSO alerted the pilot to the fact that this was not an optional step in the emergency procedures

checklist; however, the CSV remained in the vertical/stowed position.

The rear canopy was subsequently jettisoned, and a fire erupted in the front cockpit. The pilot directed the WSO to bail out and waited for him to clear the aircraft prior to initiating his own ejection. The pilot indicated he chose individual ejections in an attempt to use every available second to determine whether a safe recovery was possible. While that may have been the heroic or commendable thing to do, it could have resulted in a different ending to the mishap scenario. Instead of one aircraft destroyed and two successful ejections, it may have been one aircraft destroyed and one fatality—no attempt to eject.

The Dash One provides a warning: "Be prepared for immediate ejection when the canopy is jettisoned. The wind blast and draft after the canopy is jettisoned may cause fumes or smouldering material to ignite with catastrophic and incapacitating effect." To refresh everyone's memory, a warning is any operating procedure, technique, etc., which will result in personal injury or loss of life if not carefully followed.

Early F-4 mishaps indicated the need for a sequenced ejection system coupled with a command ejection capability from the rear cockpit. Pilots were being fatally injured when they were incapacitated by cockpit fires erupting in conjunction with the WSO's ejection.

We're all aware that the Dash One "provides the best possible operating instructions under most circumstances, but it is not intended to be used as a substitute for sound judgment." In this particular mishap, judgment should have dictated following the Dash One procedures. If every correct and reasonable attempt is made to safely recover an emergency aircraft and there just isn't going to be a successful gear lowering to end that sortie, disregarding a warning in the Dash One meant to save your life is not exercising sound judgment.

If you were the pilot, what would you have done? If you were the WSO, how would you have reacted to the pilot's decision? Given another situation, how would you (the WSO) feel if the pilot were a fatality as a result of incapacitation and no ejection attempt. The WSO, in exercising sound judgment, should have advised the pilot he was complying with the checklist and opened the CSV. There may have been an argument later over this decision; but, under the circumstances, it would have increased the WSO's chances of having someone to argue with.

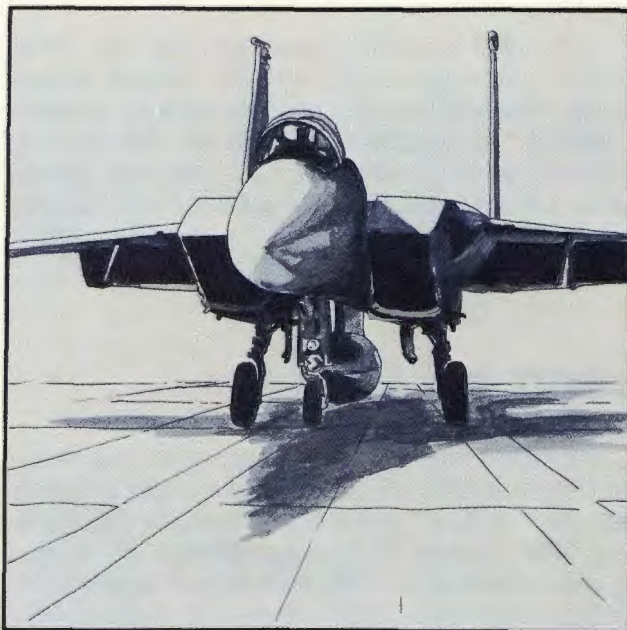
Preventing fatalities as a result of aircraft emergencies depends on your exercise of sound judgment



ment and compliance with appropriate emergency procedures. Until the aircraft loss rate is brought to zero, your knowledge of the Dash One and how you use that knowledge may well be your keys to survival.

THOSE WHO HAVE AND THOSE WHO WILL

"There are those who have and those who will." This old adage is oftentimes applied to those pilots who get airborne without first receiving an authorized takeoff clearance. Usually, this is a benign error of



VIEWS FROM FLIGHT SAFETY

commission, because everyone knows a good pilot always clears final before taking the active and never releases the brakes when there's an aerospace vehicle on the runway in front of him. However, a recent mishap revealed that it's what you don't see that may provide you with a lasting impression.

The mishap involved a dual runway configuration (crossed runways) with perpendicular takeoff headings. The extension of one of these runways was also being used as an active taxiway for taxi back of landing traffic. Throw in a temporary control tower with restricted visibility and controller training in progress, and we have most of the ingredients for a Class A flight mishap. All we need now is a brake release without tower clearance.

That's exactly what occurred in this instance. The incident aircrew heard a "cleared for takeoff" call, but didn't catch the call sign. Querying the tower didn't resolve the issue, so they assumed the clearance was intended for them and stroked the burners. (We all know the consequences of using the word assume.) At 150 KIAS the incident aircraft lost the left engine and initiated a high-speed abort. As the pilot dropped the hook and deployed the chute, he saw six aircraft at 12 o'clock taxiing on the aforementioned runway/taxiway. There wasn't sufficient time or distance to avoid hitting the first aircraft when the hook skipped over the departure-end cable. Results: two aircraft destroyed—three fatalities.

Well, the mishap didn't really end that way. There was no high-speed abort, and the incident aircraft safely cleared all six aircraft on the taxiway. Appears "Murphy" decided to take a day off. The point is, with all the close calls so far the odds are against you escaping disaster should you choose to *assume* you are "Cleared for takeoff."

CRUISE CHECK SAVE

A recent mishap proved once again that those aircrew members who consider the cruise check as another "ho hum" task should reevaluate their thinking. The mishap pilot accomplished all normal ground checks of his CRU-73/A oxygen regulator. All indications were normal and the pilot subsequently

"slipped the surly bonds of earth." Leveling off at 37,000 feet, he noticed problems with his oxygen flow—he had none. The regulator control switch was confirmed on, and the oxygen and emergency switches were placed to 100 percent and emergency, respectively. The oxygen flow indicator still indicated no flow and no associated emergency pressure. About this time, the pilot noticed his first symptoms of hypoxia: flushed face and tingling in his toes and fingers. He declared an emergency and descended to 10,000 feet MSL where his hypoxia symptoms subsided.



Troubleshooting of the CRU-73/A oxygen regulator uncovered an internal leak which progressively increased with altitude. While ground indications were normal, flow rate decreased to zero at altitude. The maintenance folks wisely submitted the regulator for a Category I MDR.

While the CRU-73/A is extremely reliable, it appears it is not "Murphy proof." What's worse, it is apparently capable of an insidious failure mode. The significance of the cruise check in this instance cannot be overemphasized. Had the pilot failed to notice the deficiency at level off, he may have been yet another of our unexplained Class A flight mishaps. An old and well-worn cliché is perhaps appropriate: "The cruise check—use it! It may be a matter of life and breath." ➤

AIRCREW OF DISTINCTION

On 3 December 1982, CAPT JAMES A. FABER was leading a two-ship of F-16s on a cross-country flight. While they were flying over a solid undercast at night, the Master Caution and Flight Control System (FCS) Discharge lights in Captain Faber's airplane came on, indicating a problem in the inverter and battery system that provides power to the flight controls. Captain Faber turned on the emergency power unit (EPU); the EPU Run light came on and the FCS Discharge light went out. Then as he was coordinating with air traffic control for recovery at the nearest military field, about 130 miles away, he experienced a momentary total electrical failure. The inertial navigation system dumped. The electrical system panel now showed emergency generator failure, but the main generator seemed to be good, and the EPU Run light was still on.

As Captain Faber assessed the problems, he was suddenly confronted with an Overheat light. With the situation deteriorating, he decided to divert to a closer civilian field for an immediate landing, even though it would require an instrument penetration at night to an unfamiliar field with only 7,000 feet of runway. He gave the lead to his wingman for the penetration.

Captain Faber's knowledge of the F-16 systems led him to believe that the EPU was malfunctioning and causing the overheat. The situation is not covered in the flight manual or checklist. He turned off the EPU; shortly afterwards, the Overheat light went out. After resetting the rest of the lights, he flew the approach and landed.

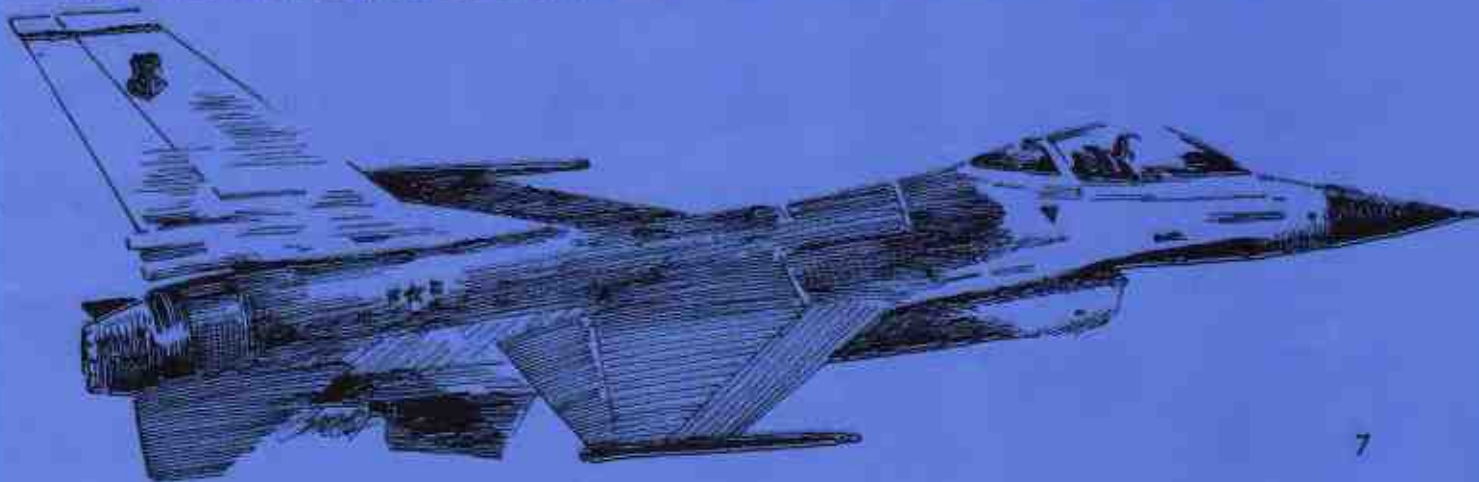
On the ground, he realized his responsibilities weren't over yet. The airplane was contaminated with hydrazine, and the people on the civilian air-



Capt James A. Faber
430 TFS, 474 TFW
Nellis AFB NV

field were unaware of its characteristics. So he instructed the tower to keep everyone clear of his aircraft and upwind. When he climbed out of the aircraft, he found a large hydrazine spill; his forethought had prevented contamination of people on the ground. Later, a detailed inspection of the airplane showed fire damage in the EPU bay, confirming his analysis and actions in the air.

For his display of airmanship, knowledge and judgment in an emergency that was difficult to diagnose, Captain Faber is awarded the Tactical Air Command Aircrew of Distinction Award.



TIPS

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

I fancy that it is just as hard to do your duty when men are sneering at you as when they are shooting at you.

—Woodrow Wilson

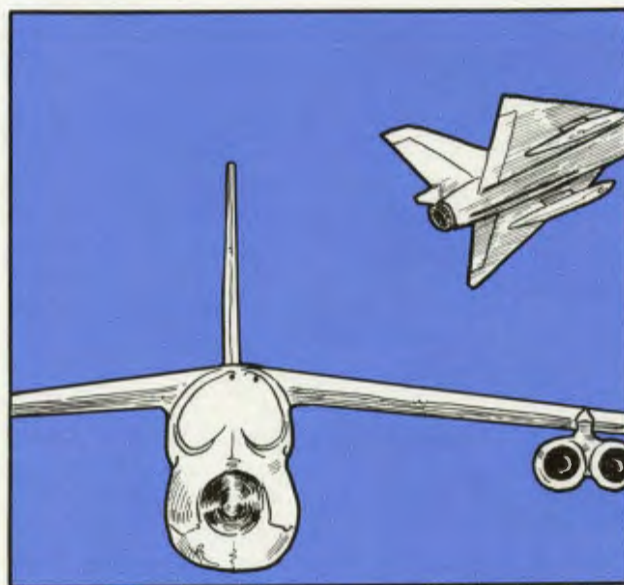
FIFTY FEET OF SAVING AIRSPACE

An F-106 and a B-52 were paired up to simulate a bomber with an air-to-surface missile (ASM) in an intercept exercise. The F-106 was to simulate a missile being launched from the bomber. Other F-106s would attempt to intercept the bomber and its "missile."

Two controllers working separate frequencies were involved: one controller was working the F-106 interceptors, and another controller was controlling the B-52 and its F-106 "missile." For altitude separation, the targets were limited to flight levels with a second digit of 3 or 8, like FL 230, while the interceptors could use flight levels with a second digit of 1 or 6 until they called "Judy." Simulating a missile launch, the F-106 target split from the B-52 at FL 280, climbed to FL 380, and accelerated.

The first F-106 interceptor was only 12 miles from the B-52 when the target leg began. A short-range commit was initiated, and the interceptor pilot locked on the B-52 at 10 miles. Due to a misunderstanding in the briefing, the interceptor pilot thought that both targets would be at the same altitude. He called "Judy" and was free to maneuver. A few seconds later, the radar broke lock, and the pilot began a standard breakaway maneuver.

During his breakaway the interceptor pilot spotted the F-106 target above him, so he began a climbing reattack toward it. He assumed the B-52 was well clear. It wasn't. The B-52 pilot saw the interceptor, belly up and climbing, converge on it from one o'clock. According to the B-52 pilot, the interceptor passed within 50 feet of the bomber's cockpit. The interceptor pilot never saw the bomber.



While this was going on, the target controller was busy trying to regain radar contact with another target he was controlling in another area. He didn't let the B-52 or the F-106 simulating the ASM know that they were being intercepted.

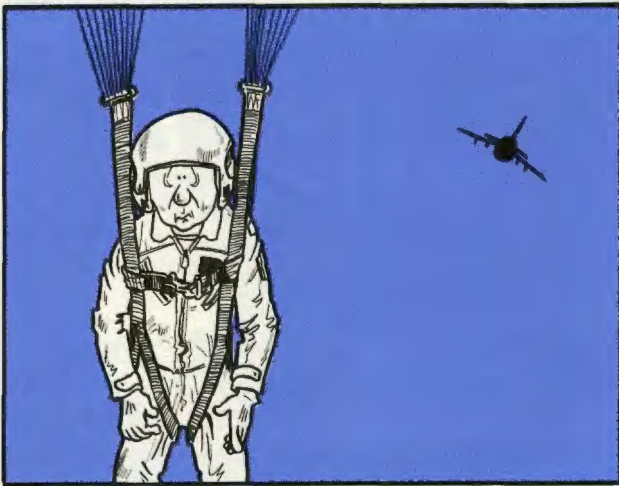
The intercept controller had called "two targets" to the interceptor at commit. But the controller hadn't required a "Reno" call (radar or visual contact on both targets) before the interceptor called "Judy" and left his altitude.

A failure to communicate in the briefing, controller oversight, and inadequate interpretation of target altitude by the interceptor pilot resulted in his leaving a safe altitude within ten miles of the target without the information he needed to safely perform the reattack. Only 50 feet of airspace prevented a catastrophe.

TO JETT OR NOT TO JETT

By Lt Col Gary Lape
TAC Flight Safety

A recent mishap in another command sharply brought home the requirement for a quick decision on whether, or when, to jettison external stores during an emergency. After one of their two motors quit shortly after takeoff, the two crewmembers thought they had it under control and decided to keep the stores. They were wrong on both counts. By the time they realized how serious the situation really was, it was too late. Jettisoning of the stores was followed shortly by jettisoning of the aircraft.



The decision to jettison stores after experiencing a thrust loss between liftoff and safe single-engine climb speed needs to be made back in the briefing room. You need to know before the emergency what airspeed will let you carry that extra weight and drag and whether one motor will give you that airspeed. If you have the right numbers before you step, the decision comes much faster in the air.

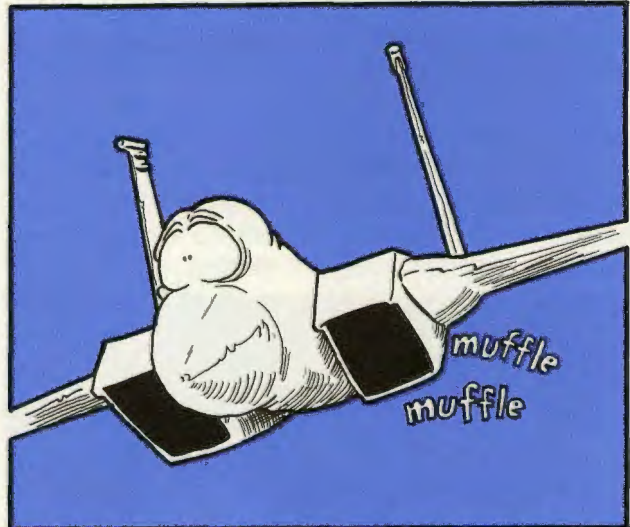
HOW TO GET GRAY HAIR

While flying a functional check flight on an F-15, the pilot noticed that the warning light for the left engine electronic control (EEC) had come on. The light would not reset, and the left ramp didn't seem to be scheduling properly.

The pilot decided not to continue with the FCF checks on the left engine, which would have required shutting the engine down. But then he decided to go ahead and run the checks on the right engine. He in-

tentionally shut down the right engine at 30,000 feet and .85 Mach.

As the right engine rpm decreased through 45 percent, the pilot heard a muffled noise. Then the left



engine rpm rolled back to 50 percent. The engine temperature held steady at about 480 degrees. The pilot began a glide and then restarted the right engine. It came up to speed normally, but the left engine never recovered above 50 percent rpm. During the return to base, the left engine oil pressure warning light lit up, so the pilot shut down the left engine. He made a single-engine landing without any more problems.

The main fuel pump and unified fuel control were replaced afterwards, and the engine problem appears to have been solved. The question is, Why would a pilot shut down the good engine when he knows there are problems with the other engine? Why not call it a day and save some gray hair?

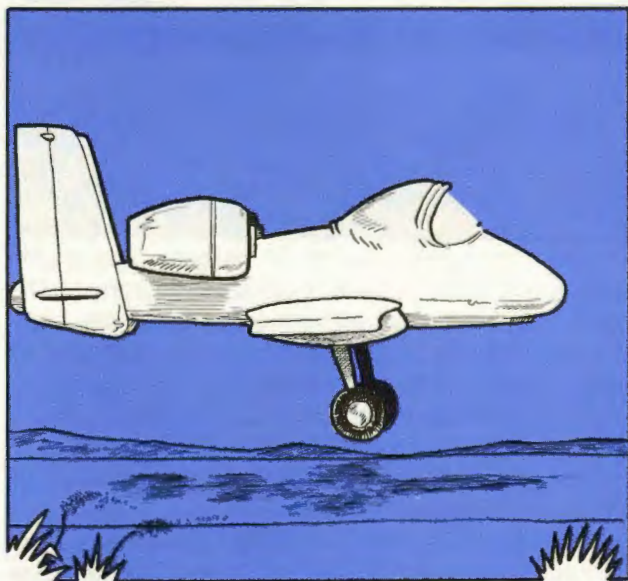
SWITCHES AND HABIT

The A-10 pilot was egressing the target area at 500 feet above the ground and 350 knots. He turned and looked over his right shoulder, trying to spot a helicopter. Suddenly he felt the airplane pitch down. He quickly rolled out, hit the emergency disconnect lever on the stick, and started a climb.

Both hydraulic pressure warning lights were on, and both hydraulic gages read zero. The pilot slapped the flight control mode switch aft with his left hand to put it in manual reversion. When he reached 6,000 feet in his climb, it occurred to the

TAC TIPS

pilot that he could not have moved the flight control mode switch by slapping it back. The switch must be lifted before it's moved. Reasoning that the switch must have already been in manual reversion, he decided to try moving it back to normal. When he did, all hydraulic pressures and flight controls returned to normal. The pilot returned to his base and made an uneventful straight-in landing.



The airplane he flew had a videotape recorder (VTR) installed. The VTR switch is identical to the flight control mode switch, requires the same kind of lifting motion to move, and is on the left console near the flight control mode switch. Habitually, the pilot had been turning off the VTR during egress from each pass. This incident occurred at about the point where he would normally have turned off the VTR. On his way home after the incident, the pilot noticed that the VTR was still on. It looks as though he may have flipped the flight control mode switch to manual reversion by trying to turn off the VTR while he was looking over his right shoulder. The motion was probably an unconscious habit pattern.

If the switches are that similar, we obviously have a human-factors engineering problem to solve. But engineering changes take time. In the meantime, we have to take special care that our hand is on the right switch when we turn off the VTR. The action must remain a conscious movement, not an unconscious habit.

PRACTICE MIGHT HELP

A pilot was flying his A-7D at 37,000 feet when he felt a rumble or vibration in the engine. He moved the throttle to idle, selected manual fuel, and pushed the throttle back up to 86 percent rpm. He felt the rumble again. Leaving the fuel control in manual, the pilot declared an emergency and planned for a precautionary landing pattern (PLP).

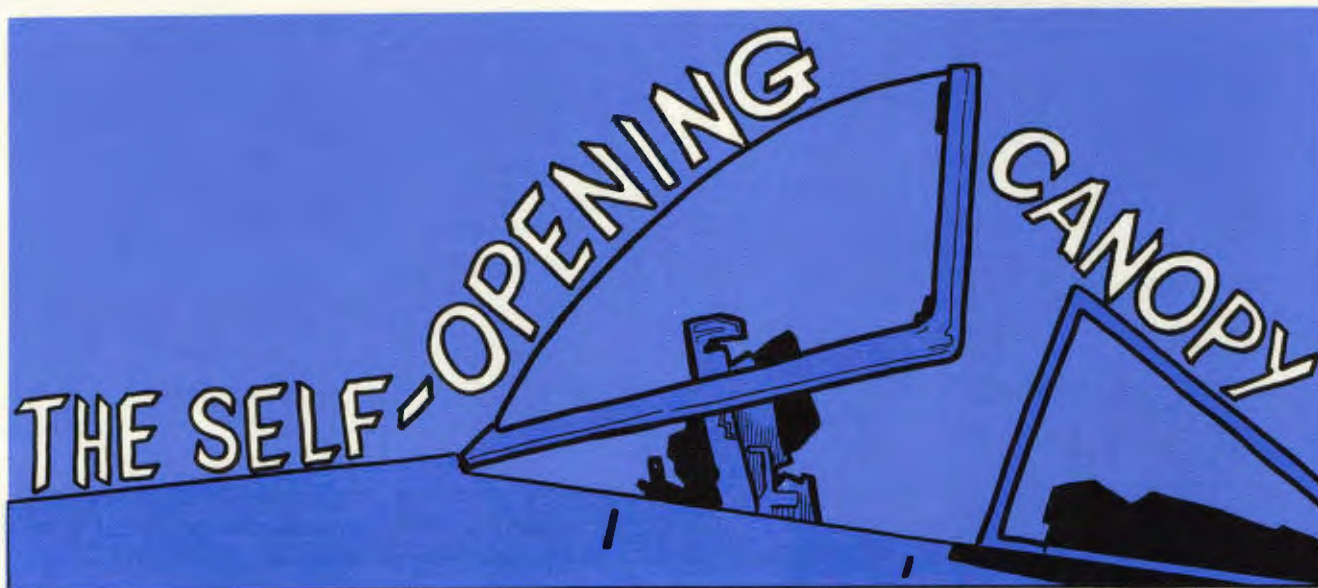
The pilot touched down 2,500 feet past the threshold on a 9,000-foot runway. The mobileer estimated the A-7's airspeed to be more than 150 knots.



From that point, using optimum braking, the pilot should have been able to stop in 5,500 feet, that is, at the 1,000-foot-remaining marker. He got on the binders hard, but he could soon see that he'd need the arresting gear. He dropped the hook well before reaching the departure-end BAK-12 cable. But when he crossed the cable, he was still braking as hard as possible. The hard braking compressed the nose gear; the arresting hook was then at the wrong angle to the runway, and it skipped over the cable.

The tower controller saw that he had missed the cable, so he raised the MA-1A in the overrun. The A-7 continued into the overrun, contacting the barrier first with the TISL pod and the ALR-46 ECM antenna. Then the nose gear engaged the barrier, and the airplane was stopped.

Maybe we should all practice our precautionary landing patterns—now, before we really need to fly one.



During ground operation of an A-10, a pilot unintentionally closed the canopy on top of a throttle cover. The canopy rail was bent and the canopy seal was punctured. The pilot ground aborted and went on to another airplane without writing up the damage to the first aircraft.

Even though the canopy wasn't written up, maintenance workers repaired the canopy rail and replaced the seal. But because it wasn't written up, the problem didn't get the supervisory attention it deserved; and the operational check called for in the job guide for replacing of the canopy seal was never performed.

The canopy damage occurred on a Friday. Monday morning, another pilot came out to fly the airplane. During his preflight of the canopy actuator, the pilot didn't notice any yellow showing. A yellow triangle on the actuator indicates the canopy is disengaged. The crew chief hadn't noticed anything odd about the actuator on his preflight checks either. So the pilot accepted the airplane, started engines, and taxied out. When he closed the canopy, the canopy-unlocked warning light went out and the seals pressurized. He pulled back on the manual assist handles to ensure that the canopy was locked.

At about 60 knots on takeoff roll, the pilot heard the canopy rattle, and then he saw the canopy-unlocked warning light come on. As he aborted the takeoff, the canopy began to rise, slowly at first, then rapidly to full open. The pilot taxied back to the chocks and shut down. When the canopy actuator was checked, it was found in the full down (retract) position, although the canopy was fully open. The actuator was disconnected from the canopy.

Apparently, the actuator had remained disconnected since the maintenance work was done on the canopy. It was still possible to lower the canopy and even to lock it. A downlock hook mechanism, completely separate from the actuator, engages a downlock lever to lock the canopy. Normally, a closed canopy is held down and locked by both systems—the downlock hook and the canopy actuator. If one system fails the other should hold. However, problems with the downlock mechanism are common; it's the usual cause of a canopy-unlocked light coming on in flight. In this case, the canopy was still slightly out of rig after closing on the throttle cover. The downlock mechanism opened on takeoff roll because of the out-of-rig condition.

For the pilot involved, the key to preventing the incident was the yellow triangle on the actuator hooks. Many A-10 drivers simply glance at the hooks as they climb the ladder. But that might not work. The yellow triangle is small and in this case was also dirty. To be sure that he can see the triangle, a pilot has to lean toward the back of the canopy and look directly at the hooks. In this instance, both the pilot and crew chief missed seeing the triangle.

We can learn how to preflight the canopy better from this incident. But there's another lesson here. The canopy wasn't rigged correctly and the actuator wasn't reengaged because the paperwork didn't ensure the jobs were done right. The paperwork was incomplete because the first pilot, the one who closed the canopy on the throttle cover, didn't do his job and fill out the 781 when he ground aborted. That omission set the rest of the events in motion and almost cost a canopy—at least.



MAKE IT A CLEAN SWEEP

Spring cleaning is a great way to shape up your house for safer, simpler living the rest of the year. But even things as routine as clean-up and repair can produce hazards. Don't brush off on-the-job safety habits simply because you're working at home.

Scrubbing the floors, touching up the paint, and spot-cleaning the rug are fine as long as you know what chemicals you're working with. Some are highly flammable or even explosive when exposed to a flame or spark. Many shouldn't be combined with other substances or should be highly diluted before they're used. For instance, never use products that contain ammonia with chlorine bleach because they release hazardous gases.

Always read the label carefully before using paint, varnish, or any cleaning fluid. Beware of unsuspected open flames such as pilot lights in water heaters or on the stove. Work near an open window or exhaust fan wherever possible. If you start coughing, feeling dizzy, or are getting a headache, get some fresh air right away. You'll also need to know

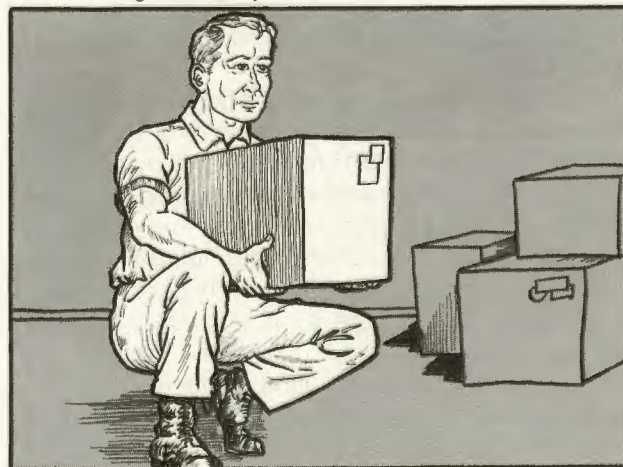


what to do if spills occur. Know what is the best thing to use to clean them up and whether there is a solvent that will neutralize them.

Wash-ups are important. Chemicals can penetrate the skin; and getting hot and sweaty relaxes your pores, making it easier for substances to be absorbed. Wear waterproof gloves if you know the substance is an irritant.

Protect yourself from dust by wearing long sleeves and a cap or scarf. If you tend to have allergies or asthma, a cotton breathing mask can help filter the air. Use some kind of glasses as eye shields.

If you're going to rearrange the furniture or move some more junk to the attic, be kind to your back when lifting those objects.



- Stand close to the object and bend your knees before lifting.
- Face the load, tuck your chin, and keep your spine straight but not stiff.
- Twist your feet, not your back, waist, or neck when lifting.
- Get help for heavy loads.
- Take breathers between lifts.

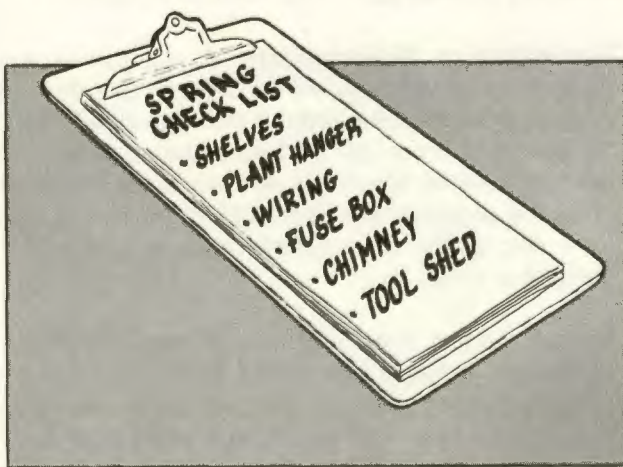
HOME HAZARD CHECK

While you're doing your spring cleaning this year, take a look around and make sure your home is free from these common household hazards.

See that shelves aren't overloaded and are well braced to reduce the danger of sudden collapse. Store heavy objects on lower shelves.

Test the rope holders for indoor plants. They can get soggy when you water and can eventually give way.

Check lamps and appliances for any worn or



frayed wiring. If you discover any, have them replaced as soon as possible, and don't use them until they're fixed.

Label your fuse box or circuit breakers to identify the outlets and fixtures they protect. Keep a supply of the proper size fuses on hand so you can replace them easily and correctly.

Be sure basement drains and sump pumps are functioning properly in case of flash flooding.

Prepare to clean the chimney or arrange to have a professional do it. A winter's worth of soot and creosote buildup can be a real fire hazard.

Get the garage or tool shed ready for spring gardening by being sure tool racks are secure. Hang tools with the heavy side closest to the ground so they're less likely to fall on anyone.

Make sure all carpet on stairs is tacked down firmly to the floor. Install a handrail if you don't have one. And if you decide to carpet your stairs, choose a pattern that doesn't hide the edges of the steps.

Make sure you have a non-slip mat or decals in the tub and shower stall. And grab bars are better to have than a towel rack in case you slip.

ALCOHOL-RELATED HIGHWAY DEATHS ARE INCREASING

Alcohol-related deaths on the highways have increased to 55 percent; up 5 percent from a previous estimate. The increase was shown in a recent National Highway Traffic Safety Administration study.

Of the total alcohol-related highway deaths, 60



percent died driving cars, light trucks or vans, according to analyses of recent fatal highway accidents. Also, 60 percent of those killed while riding a motorcycle had been drinking.

The study also shows alcohol was involved in up to 25 percent of all injury-producing accidents and in some 8 percent of all property-damage-only accidents.

Of the adult pedestrians fatally injured, the report shows 40 percent were legally intoxicated. Nearly 50 percent of all pedestrian accident victims had at least some alcohol in their systems.

The safety administration concluded from its latest statistics on alcohol that:

- Between 24,000 and 27,500 persons killed each year in crashes had consumed alcohol.

- An additional 700,000 persons injured each year in crashes had consumed alcohol.

—Air Force News Service



Buying a Stepladder? Wood ladders have several advantages over aluminum: they're more rigid, they don't conduct electricity, and they're usually cheaper. Aluminum, on the other hand, is lighter and doesn't need special care in storage. But aluminum ladders are dangerous around electrical power lines and when using power tools. So make sure the tool is grounded or that it's double-insulated. Also make sure the ladder will hold the load you expect it to. Type I ladders have a duty rating of 250 pounds; Type II, 225 pounds; and Type III, 200 pounds. The grooves in the steps for wood ladders should be about $\frac{1}{8}$ inch deep and the stringers should be tight. And if you don't want to get pinched by the ladder, buy one with double hinges.

Who's Getting Zapped? If you're using an old color TV set as a video display terminal for a home computer or video games, make sure you know when it was manufactured. Some color TVs made before 15 January 1970 emit dangerous levels of radiation. Children under 18 are especially susceptible: they play the games more, and while playing the games they sit close to the TV set. At a distance of about 15 inches, a child who plays a video game for two hours a day will receive a radiation dose to the thyroid of 779 millirems per year; the eyes will get about 890 millirems. Safe measurements are no more than 100 millirems per year.

Driving Vehicles on the Flight Line. If you've been authorized to drive vehicles on the flight line, you should have been given local training and special instructions on flight line operations and associated

hazards. An orientation and familiarization tour is a must to acquaint operators with the mix of aircraft, vehicles, support equipment, and people. If you haven't received this training, get it right away.

Do-it-Yourselfers. In these days of high prices, many people are deciding to do work themselves. If a do-it-yourselfer is short on know-how and experience, the stage could be set for a serious accident. Here are some questions to consider before starting any project: Are you up to it physically? Do you have the technical knowledge to do the job? Do you have the right tools? Do you have enough time to do the job? Will you get help when needed? If you answered no to any of these questions, don't do it yourself.

Reminders to Motorcyclists. If you corner too hard, a motorcycle always skids out at the rear. To recover from the skid, reduce throttle—don't touch the brakes until you get the bike under control—and steer in the direction of the skid. Avoid the center of lanes: oil drippings from cars can make it very slippery. And always drive defensively—as if no one is going to see you.

More Excuses. If you don't like to wear a motorcycle helmet because you think it might increase the severity of neck injuries or impair vision and hearing—think again. Helmets reduce severity of neck damage because they absorb some of the impact that the neck would otherwise have gotten. And, although a helmet does decrease your field of vision by about 3 percent, you have a better field of view than an automobile driver, and you can hear more than a driver in a car with the windows rolled up.

Scuba Diving? If you are planning to have your scuba tank repainted, be sure that no heat is applied to the tank. If you are in doubt about the paint process you intend to use, discuss the matter with your local dive shop owner or contact the manufacturer. Heating the aluminum alloy reduces its tensile strength; when the tank is filled with air, it may explode. (*TIG Brief* 1, 10 Jan 83).

Portable Stereo Headphones. A recent newspaper story underscores one of the inherent dangers of wearing the popular stereo headphones: While you are listening to music, you aren't hearing warning sounds. The story reported that a 15-year-old boy was killed at a railroad crossing because he was wearing a portable stereo headset and apparently did not hear an oncoming train's warning whistles.

Individual Safety Award

On 11 November 1982, CAPT JAMES W. TURNER was serving as runway supervisory officer on runway 16, one of two intersecting runways at George Air Force Base, California. He saw Zorba 21 flight enter the quick-check area next to runway 16. Zorba 21 was a flight of two transient F-4s who were deployed to George Air Force Base in support of an Army exercise at the National Training Center. Both F-4s were loaded with live munitions. Captain Turner heard Zorba 21 receive tower approval for takeoff with a 20-second interval between aircraft. Zorba 21 taxied onto the runway.

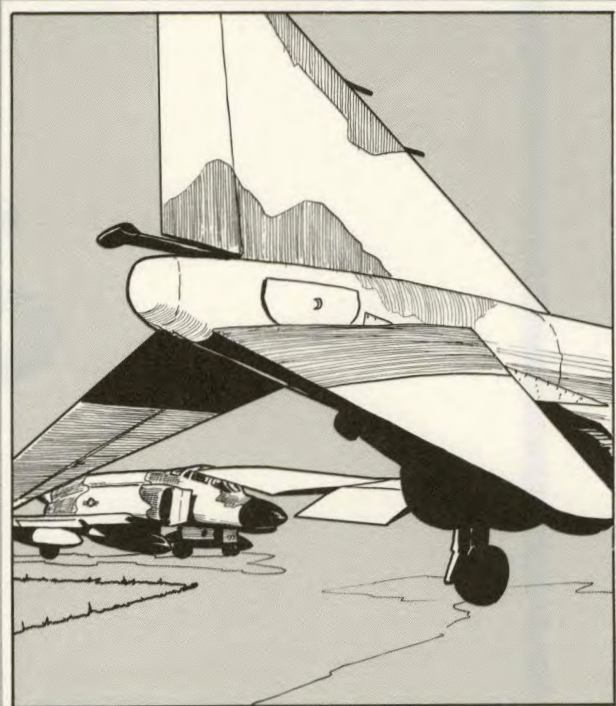
Meanwhile, Lobo 21, a local F-4 with a foreign pilot at the controls, had taxied to runway 21. Immediately after clearing Zorba 21 for takeoff, the tower told Lobo 21 to hold short. The foreign pilot, however, misunderstood the transmissions and thought he was cleared for takeoff. Lobo 21 taxied onto runway 21.

Captain Turner was checking over Zorba 21 flight as the tower cleared them for takeoff. The leader began his takeoff roll, and Captain Turner monitored him until he broke ground. Then he turned his attention to number 2, who was 20 seconds behind the leader. But something else caught his attention. He saw another F-4, Lobo 21, approaching liftoff on the intersecting runway. The other F-4 was on a collision course with Zorba 22. Captain Turner immediately called on Guard frequency and warned both aircraft that they had to change course to keep from colliding. The pilots of both F-4s made quick course changes and missed each other.

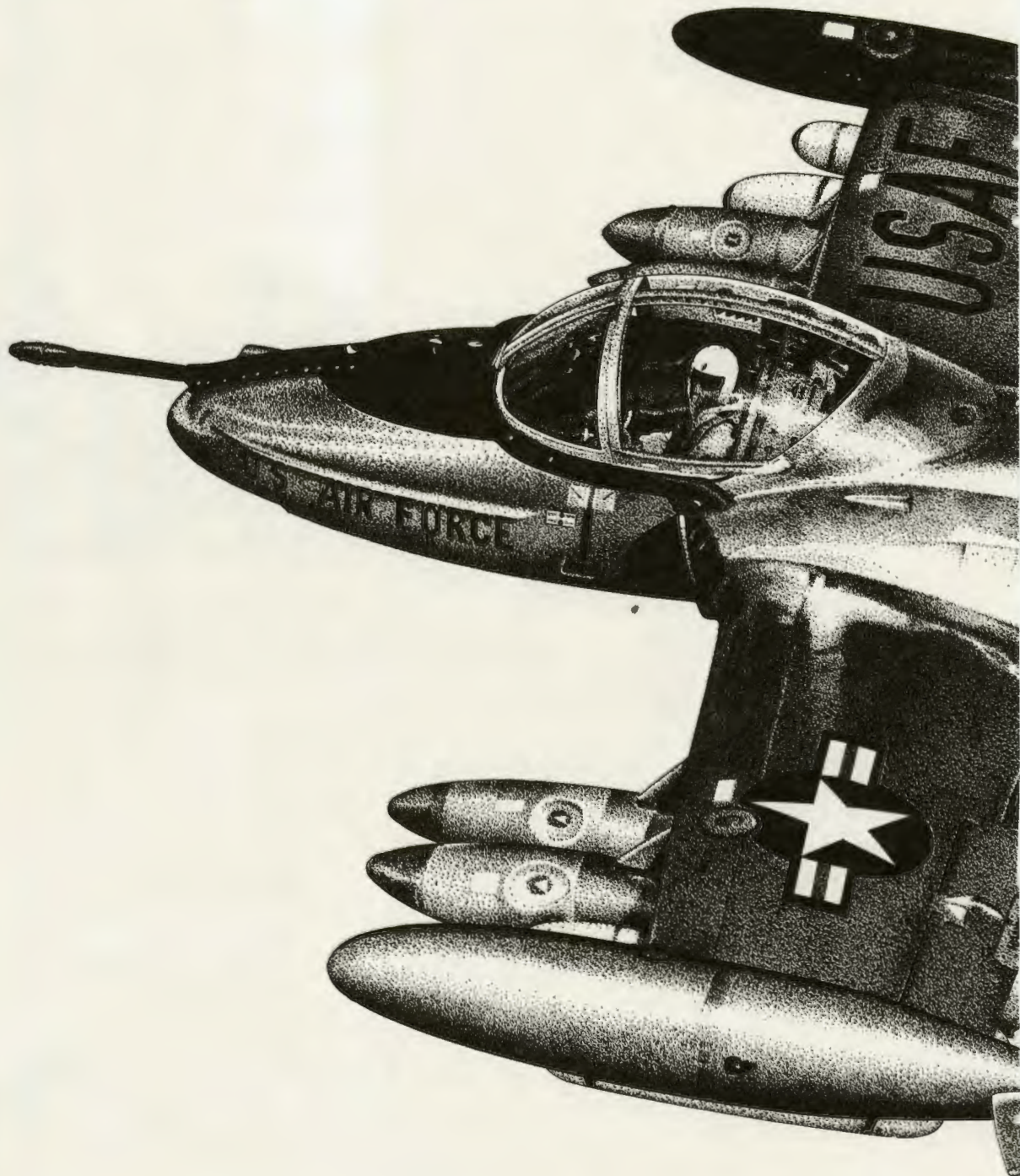
Captain Turner's attention to his duties allowed him to see the danger. He acted before either the supervisor of flying or the tower controller were able to, and his action prevented a catastrophic midair collision. He has earned the Tactical Air Command Individual Safety Award.

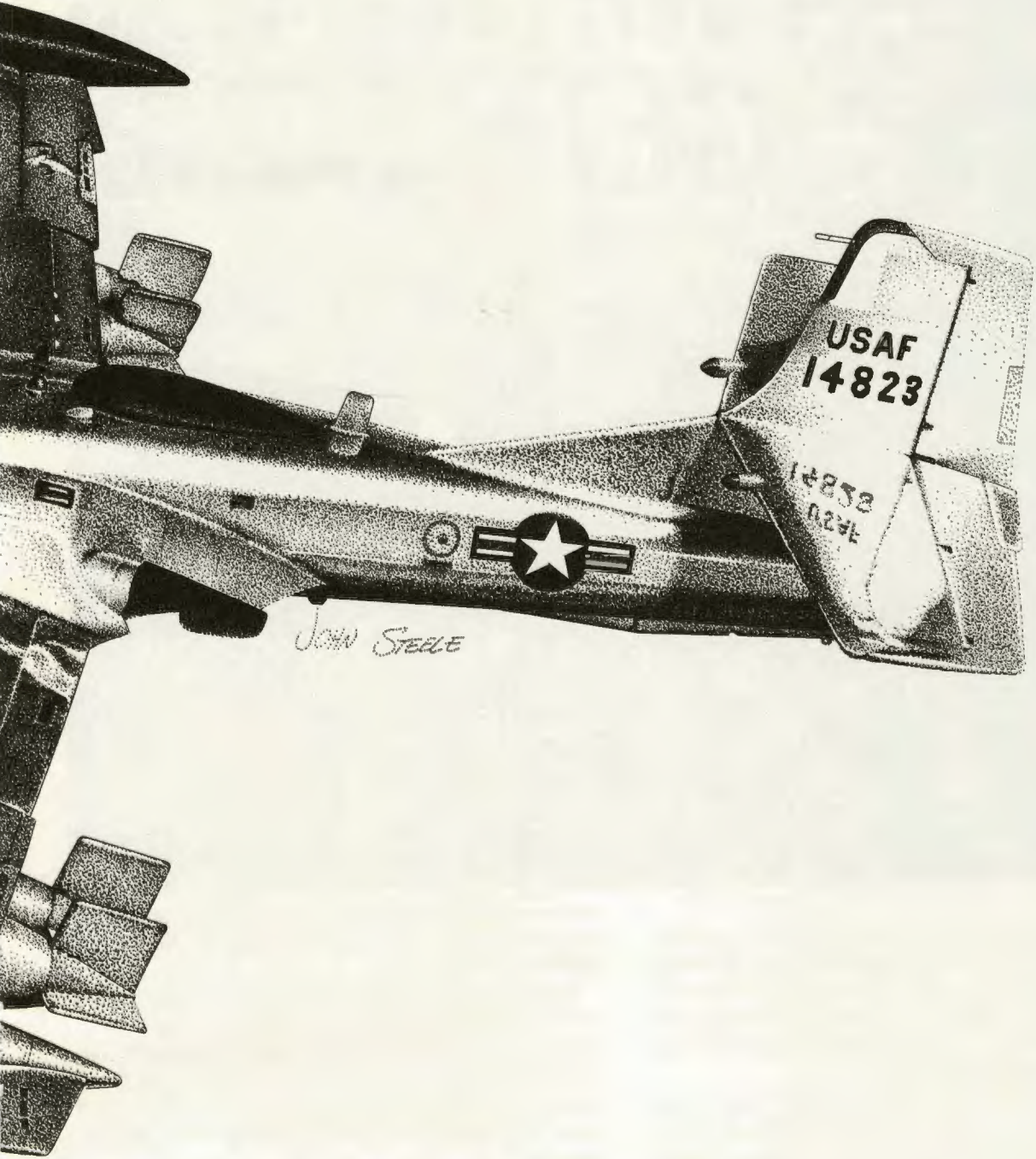


Capt James W. Turner
39 TFS, 35 TFW
George AFB CA



A-37B DRAGONFLY





USAF
14823

14823
0294

JOHN STEELE



Thor's mighty hammer slew monsters and giants. Its power was the power of thunder and lightning, and Thor was the greatest of the gods in Nordic mythology. Jove, or Jupiter, in Roman mythology and Zeus in the Greek pantheon were also known for their ability to hurl thunderbolts.

In mythology, ancient man revealed a truth that has since been confirmed by modern science. Thunderstorms possess power far beyond that of mere mortals. Just the heat energy released by a thunderstorm as it precipitates a half inch of rain over a square mile is almost equivalent to the heat energy

released by the Hiroshima atomic bomb. We puny humans in our aircraft are no match for this armament of Thor.

Remember the DC-9 that crashed in Georgia in 1977? It had penetrated a thunderstorm cell. Hailstones battered and broke through the cockpit windshield. Rainwater flooded both engines, and they flamed out. The airplane crashed on a highway and killed 62 persons on board and 9 more on the ground.

More recently, the July 1982 crash of an airliner shortly after takeoff has been attributed to downburst winds from scattered rainshowers in the

area. The downburst was enough to force the airplane into the trees.

These are not unusual, except in the number of people involved. The National Transportation Safety Board reports that 45 to 50 aircraft accidents a year can be attributed to thunderstorm activity. The storms have silenced radios, shattered windows, bent control surfaces out of shape, and torn off wings.

Thor's hammer packs a wallop that includes just about every weather hazard an aviator can encounter: extreme altimeter variations, precipitation static, low ceilings and visibility, wet runways, icing, turbulence, wind shears, hail, lightning, and, on occasion, tornadoes. No wonder the ancients credited it to their chief god; minor deities didn't have such power.

Apparently, Thor, Zeus, and Jove all preferred warmer weather. Weather observers tell us that thunderstorms occur most often in summer. Already now in the springtime, you can see storms increasing in size and frequency. By June, July, and August, most of us will be encountering a thunderstorm at least once every three days. Some places, like Florida and parts of the Rockies, see thunderstorms as often as every other day in the summer. Thunderstorms prefer warm weather because they need three conditions to form: unstable air, moisture, and a lifting action. These conditions are more likely to occur in the spring and summer.

The stability of air means about the same thing as the stability of an airplane, that is, its tendency when disturbed to return to its original state. The amount of water vapor present affects the stability of the air. The most important element, though, is the rate at which the surrounding air cools; that's called its lapse rate. We know that hot air rises; as it rises, it cools. But if the air around it cools at a faster rate, the hot air will continue to rise. The air is unstable.

The process needs a trigger to provide the initial lifting action. This action can be either thermal or mechanical. Thermal lifting usually takes place on a warm afternoon; and, if the other conditions are present, a local thunderstorm, often called an air mass thunderstorm, will develop. You'll often see these over uneven or mountainous terrain, but they can occur almost anywhere.

Mountains are often a source of mechanical lifting. When warm air is moving across the ground and it comes upon a mountain, it is lifted. The same thing happens when a cold front meets warm, moist air or vice versa. The cold air forces the warm air up and triggers the growth of thunderstorms. These thun-

derstorms are usually larger than air mass thunderstorms.

Spring and summer provide warm, moist air to be lifted. Air from both coasts and the Gulf penetrates the interior of the country. The moisture is critical to the building of a thunderstorm. Air mixed with water vapor is lighter and more buoyant than pure air, so it rises more easily. The moist air picks up some extra lift as it rises, cools, and becomes saturated. Cool air can't hold as much moisture as warm air, so the water vapor condenses and forms a cloud. But the process of condensation releases heat—600 calories for each gram of water vapor condensed. The released heat warms the air, and it rises even more. The rate of climb of one of these updrafts may exceed 6,000 feet per minute.

During its growing period, the young storm comprises mainly updrafts that get stronger as they get higher. But the moisture which feeds the cloud's growth also becomes the source of its destruction. As the storm matures, the condensed water vapor coalesces into droplets. Eventually the droplets grow so large they can't be held up by the updrafts, and they fall. The drops of water (or ice and snow) create frictional drag as they fall, and they change the updraft into a downdraft. Because the air is unstable, once it starts down it will accelerate downward. The downdraft reaches top speed (as high as 60 knots) in the lower part of the cloud system. When it hits the ground, it spreads outward and creates strong surface gusts. The gust is usually cold because some of the moisture evaporates on the way down. The opposite of condensation, evaporation cools the droplet and the air around it.

At its meanest, then, in its mature stage, a thunderstorm is doomed. So was Thor; he was killed in battle. But before he was struck down, Thor took a high toll of the enemy. Thunderstorms have carried on for Thor. They have even affected the outcome of wars. In the Crimean war, the British and French lost more than two dozen ships to violent storms on the Black Sea. Storms also played a key role in the defeat of the Spanish Armada in 1515.

In each case, the losing navy afterward must have wished that it could have made a 180-degree turn away from the bad weather and run for a safe port. They couldn't, but we can. Let's not lose any part of our force to Thor's hammer. Let him have all the sky he wants. We don't have to be in the storm to be hit by lightning, hail, or severe turbulence, so let's not get close. Take the word of the ancients—they knew of the power in thunderstorms. When Thor gets sore, head in the other direction. ➤

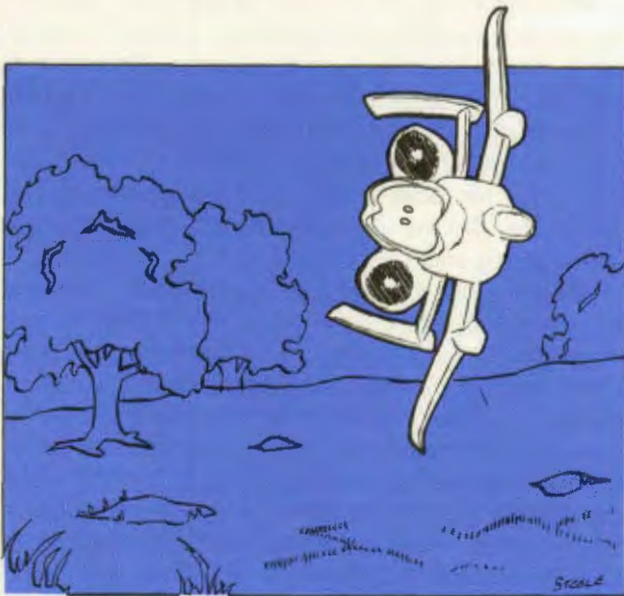
chock talk

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

WHITE AREA WOES

An A-10 pilot was flying tactical navigation at 500 feet above the ground. When he came upon a ridge line, he pulled up to clear it, then pushed over and rolled right to over 90 degrees of bank in order to descend down the back side of the ridge. Once the nose started down, the pilot tried to roll out; but the stick jammed just slightly left of neutral.

The agonizingly slow rollout close to the ground got the pilot's adrenalin flowing. He overpowered the



jam and moved the stick further left and rolled out. Then he climbed to a safe altitude, where he again felt a restriction when he tried to roll left. But when he did a controllability check, the restriction was no longer evident. The pilot flew a straight-in approach and landing without a recurrence of the jam.

On the ground afterwards, the roll controls were inspected from the aileron actuators inboard to the white area and the stick assembly. The investigators didn't find anything wrong until they got to the white area. When they opened the forward section of the white area, they found a fastener clinging to a magnet in the aft tunnel of the forward white area. The fastener was one of the kind used to fasten console and pedestal panels in the cockpit. It showed evidence of having been wedged in the controls before it drifted to the magnet: the tip of the soft metal collar was crushed, and its paint was scraped off. Based on the fastener's size and the clearances in this part of the white area, the fastener had probably been wedged between the roll bellcrank assembly and the base of the white area.

During a phase inspection three months earlier, two fasteners were written up as missing from the left side of the circuit breaker on the cockpit pedestal. The fasteners weren't found in the cockpit. No one knew how long they were missing.

The real puzzle is how the fastener got into the white area. The white area has rigid inspection requirements because FOD in the area is so dangerous. Immediately after the phase inspection the flight control cable was rigged. The rigging requires access to the forward white area through the rig pin access cover at the base of the stick. After the rigging, quality assurance inspectors checked the white area before sealing it. However, their check doesn't normally include the base of the stick; a fastener lodged there would not have been discovered.

Another way the fastener could have made it to the white area is through the stick boot. The paperwork on this airplane didn't indicate that the boot had been changed in the last six months, but the boot seemed to be new. Possibly the boot was changed and not documented. During replacement of the boot, the fastener could have slipped into the white area.

Although we don't know how the fastener got where it was, the fact that there are several ways the fastener could have gotten there needs to be addressed. If our inspection procedures are incomplete, we'd better improve them. And if we all don't know how dangerous foreign objects can be in an A-10 cockpit, we'd better learn. When we leave it up to

the pilot to find those objects, we've failed. And next time he may not be able to tell us about it.

HOW ABOUT EDIBLE 781s?

A crew chief and his assistant were getting ready to run the engine of an F-16 to perform a leak and transfer check on the centerline tank. During his walkaround before the engine run, the crew chief noticed that the accessory drive gearbox (ADG) oil level was low. While waiting for the oil cart to service the ADG, the crew chief completed the walkaround and inspected the intake for foreign objects.

When the oil cart arrived, the crew chief and his assistant serviced the ADG. At the same time, a nitrogen servicing crew arrived and serviced the airplane. A member of the nitrogen servicing crew picked up the AFTO Forms 781 from where they were stowed. He wrote his entries in the forms and laid them on top of the intake.



After servicing the ADG, the crew chief and his assistant ran the engine. During the run the crew chief felt the airplane jump a little in closed loop idle. But the engine instruments were normal during the entire engine run. They ran through the complete leak and transfer check and then shut down. The crew chief looked for the forms where he had stowed them, but they weren't there. His assistant found them—in the intake against the first stage fan blades above the engine nose dome. The binder end caps had come off; they damaged the first, second, and third stage rotor blades and the seventh stage

core module.

The damage to the engine was estimated at \$25,000. All because the nitrogen crewmember didn't put the forms back where they belonged. We have to rely on good procedures to protect our aircraft—at least until we can come up with digestible forms for aircraft engines.

A FOD MYSTERY

An F-4's left engine was removed for periodic maintenance. A tech rep observing the procedure



pointed out some blended FOD on several blue-dyed blades on the first stage of the compressor. One of the blades looked as though it might be out of tech order limits. On closer inspection, the damage to the blade did turn out to be beyond repairable limits.

When the top half of the compressor was removed, more damage was discovered. At least one rotor blade in every stage was damaged. Many tenth-stage rotor blades were severely damaged; one was torn off a half inch from its base. Compressor stators and third-stage turbine blades showed nicks. One fifth-stage rotor blade had a clear impression of a threaded object that appeared to be a 10-32 fastener. But carbon buildup on the damaged compressor blades indicated that the FOD had occurred a considerable time before this periodic inspection.

Four months earlier, the squadron FOD preven-

CHOCK TALK

tion NCO had been called to inspect minor FOD in this engine. He determined that the FOD was out of serviceable limits but within repairable limits. The FOD was then blended with the engine in the aircraft, even though the tech data requires that the engine be removed from the aircraft and taken to the field maintenance facility when blending repairable FOD. The tech order also calls for removing the upper rear half of the compressor case in order to check for FOD in the tenth through seventeenth stages. This requirement also wasn't followed. TAC regulations require all evaluated or repaired FOD to be documented in the AFTO Form 95 for the engine, but this repair wasn't documented.

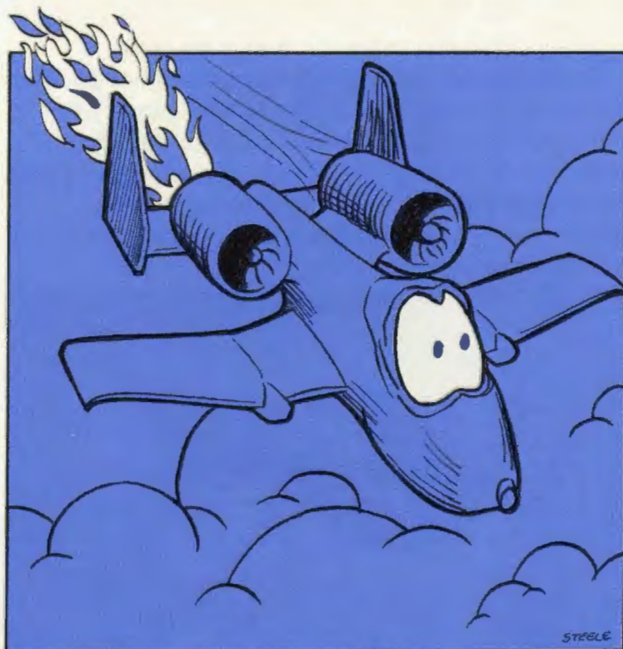
That's not all. The FOD prevention NCO is sure that the out-of-limits FOD noticed by the tech rep was not the same as the FOD he had inspected four months earlier. It seems that someone else had attempted to repair FOD on their own. The new FOD had been blended and dyed even though it was out of limits.



This incident contains so much disregard of the rules and tech data, that it's impossible to determine when the actual damage was done.

A STORY WITH THE WRONG ANGLE

After weapons deliveries on the gunnery range, the A-10 wingman began to rejoin with his leader. As he closed on the other airplane, the pilot pulled the throttles to idle and extended the speed brakes. Shortly afterwards, the Master Caution light came on; the right generator had dropped off line. The pilot saw the right engine's core rpm decreasing through 40 percent and the engine temperature climbing past 835 degrees. The Engine Hot light was also on.



So the pilot pulled the throttle to cutoff and let the engine cool. He then restarted the engine, and it responded normally. Leaving the throttle at idle, the pilot returned to base and landed.

Investigators tracked the problem down to the power lever angle (PLA) of the throttle. With a hard chop idle check the PLA should be 17 to 19 degrees. The right throttle PLA was in the 8 to 12 degree flameout range.

The engine had 5.5 hours on it since installation. It had been installed during inclement weather, and the engine shop was heavily tasked. Several different crews worked on the engine, but somehow they all missed the step that requires setting the PLA with a protractor. After the PLA was recalibrated, the engine worked as advertised.

The missed step was almost predictable. When working conditions are bad, supervisors should expect problems.

HELP WANTED: Editor

By Maj Jim Mackin

I'm leaving. So the magazine needs somebody out there—maybe you—to replace me.

The magazine staff has decided that the ideal candidate should have the following qualifications:

1. Be a handsome bachelor.
2. Have 5,000 hours flying time, including time in every aircraft flown in TAC.
3. Have a PhD in communication studies, with at least ten years practical experience in magazine journalism.
4. Have 5 years experience as a safety professional.
5. Be a below-the-zone major selectee.
6. Be the next Hemingway.

I can tell you they'll settle for a rated major, just as long as he has a callus on his writing finger.

If you're seriously considering the job, give me a call (AUTOVON 432-3658). I'll be happy to talk to you about it. The assignments folks tell me you have to be a major or on the promotion list to major. You also have to be rated and experienced in fighter, attack, recon, or FAC aircraft. Of course, the most important requirement is that you write well. By that I mean communicate with your writing—journalism or English degrees might help, but the ability to communicate to our readers is what's important.

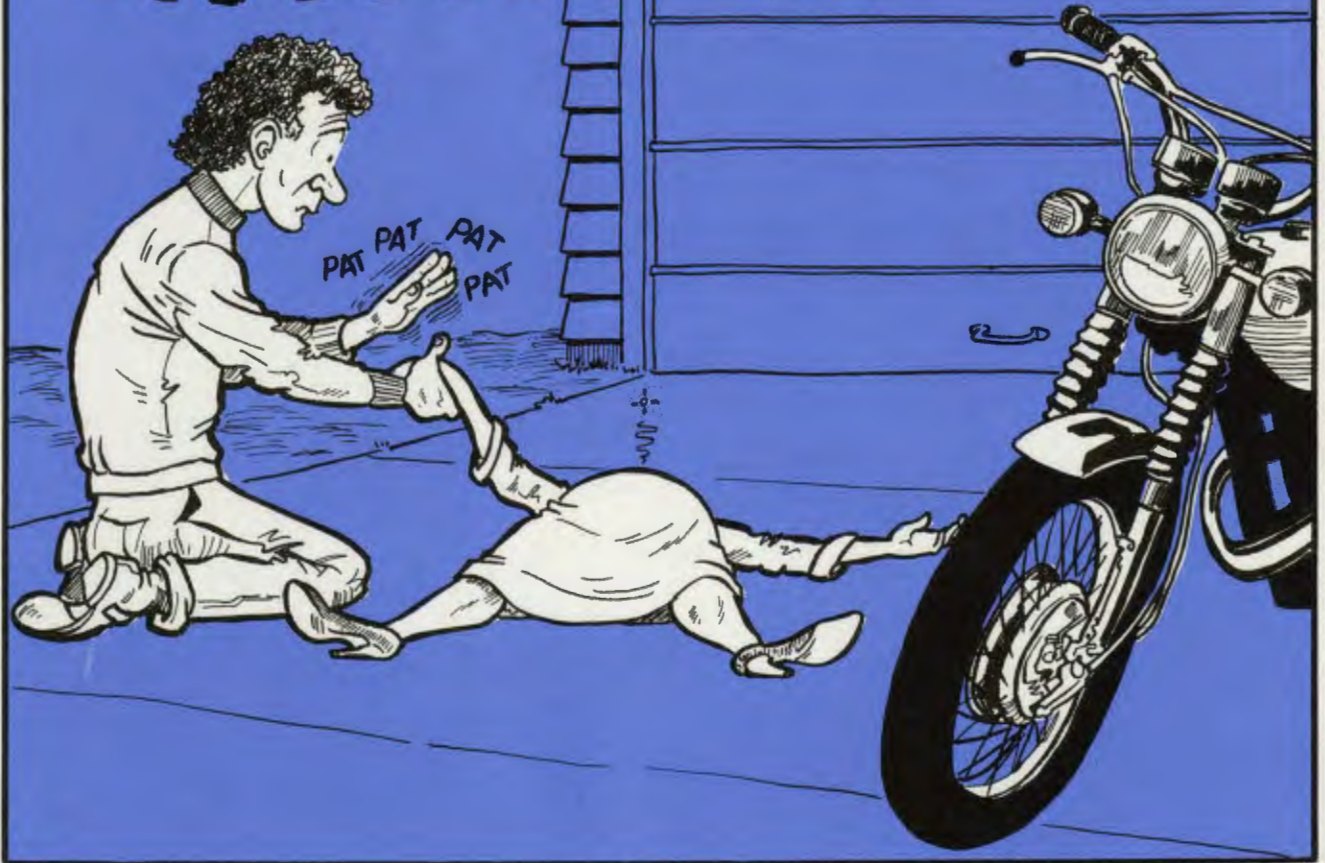
I'm leaving in January. My replacement should get to OJT on a full production cycle—from the beginning of an issue until it is mailed. That cycle runs about 2½ months. So the next editor should be in place here by the middle of November.

I think that as editor of *TAC Attack* you'll have a real opportunity to help your fellow aviators and the people who get you airborne. And every month you have a real concrete product to show for your efforts. There are a lot of jobs around in which you never get to see the fruits of your work. In this job, it's right up front.

Think hard about it. Maybe this would be your best next assignment—even if you aren't a handsome bachelor.



UNEASY RIDER



uneasy rider

**By TSgt Donald G. Stormoen
388 TFW/SEG**

When Dolly Diller came to, she saw that the motorcycle was still in her driveway. The fainting spell was a form of escape for her as well as an attention getter. L.D. Diller had forgotten about his fire-breathing steed and turned his attention toward his prone wife. She waited just long enough for effect then cut loose: "Where did you get that motorcycle? You want to kill yourself? Are you crazy? Those darn things are dangerous. Wasn't that moped you bought enough? We can't afford it. Your mother will die when she finds out. It's only April, let's talk about this in July."

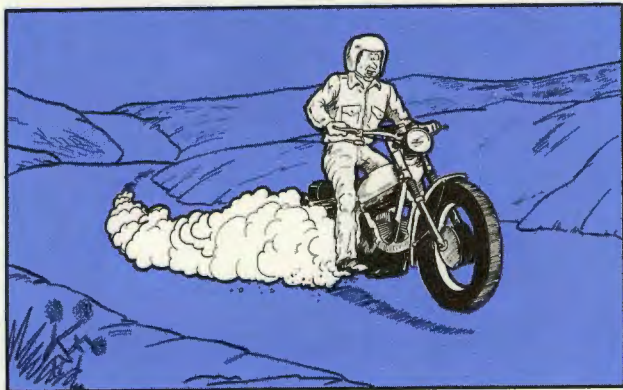
The Dill hadn't expected this assault on his masculinity and ego, so he was ill prepared for

retort. When he was window shopping at the local cycle shop, the salesman had only discussed the positive aspects of cycling: cheap transportation, freedom of the open road, fresh air, and all that. He offered a super trade-in on the moped. So the sale was easy—a 750cc fire-breathing, go-fast machine that gets 45 mpg, goes 0-60 mph in 5 seconds, and stops from that speed in 130 feet. When the salesman asked if he knew how to ride, Diller's ego overrode his native judgment: "I've been riding that there moped, haven't I? I can handle it."

Like most dealers, the salesman didn't want to alienate a new customer by insisting on a preride checkout, so he let Diller motor out of the parking lot on his own. Besides, if the Dill did dump it a few blocks away, he could sell him a new mirror and clutch lever or even an engine case cover. Diller's

insurance agent was also glad to hear he had stepped up to a big fast motorcycle. Of course the Dill was a little dismayed to learn he was paying more for cycle insurance than for insurance on the family VW bus. The salesman hadn't mentioned that aspect.

Now where was that open road? The two-mile ride



to get out of town was no big deal except for the little old lady who didn't see him as she backed out of her driveway. *This thing does have good brakes!* was his second thought. And of course that big dog really had no personal animosity for him, it just hated all bikes and bikers.

Finally, a twisty-curvy country road to test this beast out. *Wow! the rush is great. 0-60 mph in how many seconds?* He remembered the salesman's warning about engine break-in and backed off a few thousand rpm. *This thing corners like it's on rails—Where did that tractor come from?* The pucker factor is increased to 9, and once again those good brakes save the day. After about an hour of fun and games on the back roads, the Dill began to understand about that freedom of the open road stuff. He thought how much motorcycling was like flying. What he didn't think about was the darkening skies and rapidly falling temperature. By the time he returned to civilization, his hands weren't working too well, and he had some trouble getting his foot down at the first stop light. Diller's senses began to return to normal after the third cup of coffee, and once again he couldn't remember the salesman mentioning anything about hypothermia. The short ride home was uneventful until he encountered Dolly in the driveway.

After one more character assassination, Dolly cooled down; her common sense prevailed. She informed the Dill he had better attend that Air Force motorcycle course she had read about in the base paper before he did any further easyriding. And he would have to sign up for the Motorcycle Safety Foundation's Better Biking course that the base

safety office was offering the following week. No, she and the kids were not going for a ride until Diller had more experience and they all had new helmets that fit each one of them.

For the next six months, riding was a real learning experience. Diller made almost every mistake he had seen in those Air Force films. He hadn't gone down yet, but he kept thinking of that one statement from the course that really stuck: "The first six months are the most dangerous for a new rider."

He should also have remembered what the course taught him about over-riding his headlight before he came out of a turn at 55 mph and found himself face to front wheel with a skunk!



A silent Dolly drove him in the VW bus—all its windows wide open despite the chill in the nighttime air. Diller was beginning to realize that learning to ride was a complex, ongoing task. He also realized that the painkiller was wearing off and his broken collarbone was real. Even Dawg wasn't sympathetic. He didn't care for his master's new odor. ➤

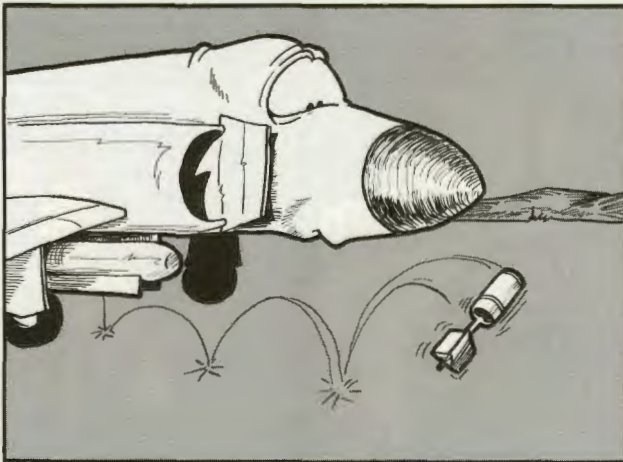


WEAPONS WORDS

A CASE OF PRIORITY

Two armament system technicians were doing a functional check of the bomb button on an F-4. The forward cockpit stick grip had just recently been changed, and the stores release function needed to be tested. The airplane was configured with 370-gallon tanks on the wings, a SUU-21 on the centerline, and another SUU-21 on the left inboard station. So the technicians attached a P-1000 plug to the right inboard, intending to use it for the functional check.

One technician climbed into the cockpit; the other stood by the right inboard to read the meter. With aircraft power on, the technician in the cockpit pressed the bomb button. The meter registered zero voltage. The guy in the cockpit tried again. This time when he hit the button, a MK-106 fell out of the SUU-21 on the centerline station. The technicians turned off aircraft



power and called EOD. No damage or injury occurred.

This airplane had been a ground spare for two days without flying. That's why it was loaded. But when it was loaded, two of the six MK-106s in the SUU-21 had not been pinned. That error was compounded when these two technicians did not check the loaded munitions to ensure they were safed before electrical power was applied. Then the man in the cockpit didn't check all the cockpit switches before pressing the bomb button. He simply selected the right inboard station on the DCU-94; if he had checked more closely, he'd have discovered that the centerline station was also selected.

The way the DCU-94 is designed, the centerline station takes priority over all other stations. So when the technician in the cockpit pressed the bomb button, the firing voltage went to the centerline station. Naturally, the right inboard station showed zero voltage. The first time he pressed the button, the firing signal went to station 1 of the centerline SUU-21. It was safety-pinned, so nothing happened. But the second pulse went to the second station, which wasn't pinned. It released the MK-106.

No sense blaming the DCU-94—it had its priorities right. From the look of things, it was the only player in this incident that did know its priorities.

SHARED RESPONSIBILITY

Munitions storage workers were building up MK-106 practice bombs. Eight of the bombs were found to still have their spotting charges when they were removed from their shipping containers. So the workers inspected all of the MK-106s in that shipment. Three others had spotting charges.



This unit had received the shipment from another wing. But the other wing hadn't disassembled or crated the bombs. Workers from a third wing who were TDY at the other wing's location had done the job. About 400 MK-4 MOD 3 signal cartridges needed to be removed from the MK-106s before crating. The TDY unit assigned a munitions specialist to count the cartridges, inspect them, and place them inside a cartridge box. The specialist was sure the cartridge count had been the same as the MK-106 count. Afterwards, the host wing's munitions workers inspected, banded, and palletized the containers.

The problem here seems to have been a breakdown in supervision because of the transfer of responsibility between the TDY unit and the host unit. One person's mistake in counting could then slip through without being caught. Maybe it would have been corrected if both units had recognized they were responsible for the results.

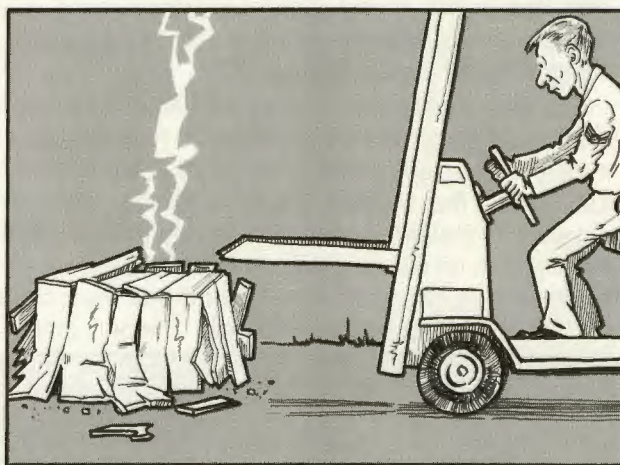
SNAFUZE

A storage and handling crew delivered a pallet of FMU-54/B fuzes to the inspection section. The pallet was loaded on a forklift. When they got to the inspection section, the driver headed for the loading dock to unload his pallet. An airman from the in-

spection section came out and spotted for the forklift driver.

The driver set the pallet of fuzes onto the dock. The inspection section worker loosened the tiedown strap, unhooked it, and told the driver to back out. Turning his head to check behind him, the driver began backing away from the loading dock. The pavement was broken and uneven, so the driver had to apply some extra power to get moving. Once the forklift started moving, it lunged to the rear.

Suddenly, there was a loud crash. The forklift driver turned around and saw the pallet of fuzes lying



on its side on the ground. The storage and handling crew chief, who was on the loading dock when it happened, also heard the crash. He had the area evacuated and notified munitions control. The fuzes were safely cleaned up, but the loss was over \$10,000.

It turned out that the airman from inspection section had never had any training on how to spot for the forklift. He stood on the wrong side during the operation. When he removed the tiedown, he didn't see that the tiedown's ratchet end was still wrapped around the cage of the forklift. As the forklift backed away, the hook end of the tiedown strap caught on the edge of the pallet; since the tiedown was still connected to the forklift, it pulled the pallet off the dock.

After the fact, it seems obvious that someone who hasn't been trained shouldn't do the spotting for munitions handling. The corollary, of course, is to take the time to train the people who are going to be regularly involved in these kinds of operations. As a side note, fixing the rough pavement might prevent a future mishap.

Are any of these factors present on your base or in your shop? If you address them now, we won't have to address them later.

WEAPONS WORDS

A HIGH-COST JETTISON

An A-10 was flying a weapons delivery sortie, loaded with TERs on stations 4 and 8 and a LAU-88 carrying a TGM-65 on station 3. Each of the TERs held three BDU-33s. Before the first bomb pass, the pilot selected stations 4 and 8. But station 4 didn't show a Station Select light or a Ready light, so the pilot deselected it. After he made three passes and used up the bombs on station 8, the pilot again tried to select station 4. Again, no lights. He pressed the light test button on the weapons station panel: one Ready light illuminated on station 4. The pilot went through dry on his fourth pass.

The pilot decided to try using the selective jettison mode to drop bombs from station 4. First, he safed the entire weapons panel. Then he selected nose/tail fuzing, set the release mode to Stores Jettison, reselected station 4, and armed the Master Arm switch. Still, no Ready lights. But on this pass he got a release: the empty TER on station 8 and the loaded LAU-88 on station 3 both jettisoned. The only station

that didn't jettison was the one he had selected—station 4.

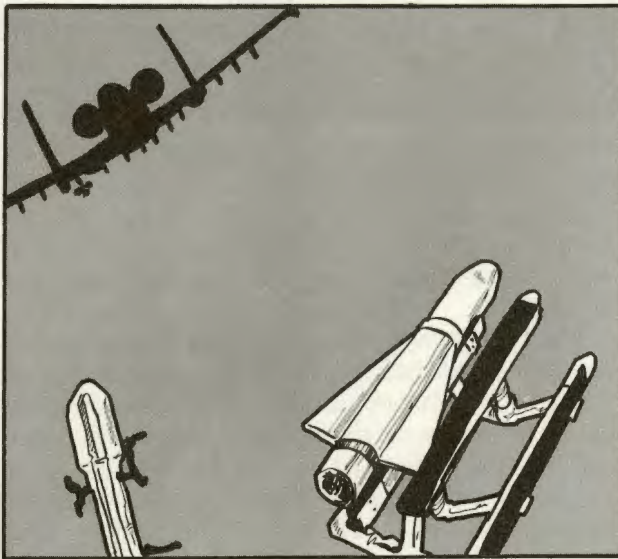
Later, on the ground, the problem with station 4 was identified. The TER cable was improperly seated. Station 4 also had a slow burning ejection cartridge in the MAU-40 bomb rack; that's why the TER hadn't jettisoned with the other stations. Why did all the stations try to jettison their racks? As best we can figure, the pilot must have hit the External Stores Jettison button—the "panic button"—instead of the selective jettison button. Perhaps in his concern over getting a release, the pilot didn't devote enough attention to which button he was pressing. If so, we might ask, How important was it to get those BDUs to release, anyway? In retrospect, it sure wasn't worth what it cost.

THE PRICE OF HURRYING

Forty-five minutes before midnight, a weapons load crew chief, working alone, decided to reposition a TGM-65B missile on a MHU-85M trailer platform. The missile had been preloaded onto the center station of a LAU-88. When the crew chief backed his MJ-4 away from the trailer, the TGM-65B was caught by a cargo strap and was pulled from the MJ-4 forks together with the pin that secures the MHU-114E adapter to the forks. The whole unit—missile, launcher, and adapter—tipped and fell to the ground.

We know that at least two people are required to move TGM-65 missiles. But when it's late and we're tired, we tend to get impatient and rush things. Then, eventually, the odds catch up with us, and we learn that haste really does make waste.

We also discovered afterwards that the wrong pin was used to secure the MHU-114E adapter to the forks. That's why the pin came out so easily.



PASS IT ALONG...



nine people are waiting

the drill drones on



While practicing basic fighter maneuvers, an F-15 pilot noticed that the Master Caution, Right Boost Pump, and Emergency Boost On lights were lit. The pilot decided to head for home. On his way, in straight and level flight, he tried to engage the autopilot. When he selected altitude hold, the aircraft porpoised up and down with increasing intensity. He disengaged the autopilot and the porpoising stopped. Several minutes later, all three axes of the control augmentation system (CAS) dropped off the line, and the red light in the gear handle came on.

A bit mystified by now, the pilot reset the CAS. Five minutes later as the pilot began his descent into the landing pattern, the pitch and roll CAS channels dropped off line again. He reset them again, but this time they dropped off in 30 seconds. So the pilot turned off the pitch and roll CAS and did a controllability check. When he put the gear handle down, the red light in the handle stayed on, and the gear remained up.

The pilot used the checklist procedures for emergency gear extension, and the gear came down properly. The red light in the handle went out. He then completed his controllability check, flew a straight-in approach, and landed without any further problems. During landing roll the Master Caution

light again came on, this time accompanied by the Boost System Malfunction light. The pilot stopped straight ahead on the runway, shut down the engines, climbed out of the airplane, and turned it over to the tow team.

The cause of these peculiar indications was an electrical fire in the wire bundle in the right main wheel well. About a month before, the airplane had been through phase inspection. That's probably when six rivets were replaced in an outer panel in line with the wire bundle. Apparently, when the rivets were drilled out, whoever did it failed to use a depth gage. The drill hit the wire bundle and stripped the insulation off of several wires. The airplane flew six times afterwards with no problems; but on this the seventh flight the bare wires contacted each other, causing arcing, damage to the fuel transfer pump, and a small electrical fire.

If the wires were damaged during phase inspection, as it appears, then supervisory and quality control inspections also failed to discover the damage to the wire bundle. Maybe the inspectors need to be a little more suspicious when somebody has done some drilling. They might discover that not everyone knows how, or is willing, to use a depth gage.

INSTRUCTOR PILOTS SHOULD KNOW BETTER



An F-4 backseater was scheduled to fly an orientation mission with an instructor pilot. The crew chief helped the new backseater strap in. Then the aircrew started up, taxied out, and took off. After they

were airborne, the backseater felt air blowing on his left elbow. He looked at the canopy rail on the left side and saw that it was up about a half inch from the sill. That's where the breeze was coming from. As he looked further back over his left shoulder along the sill, he spotted the bag used for storing the seat pins trapped between the canopy rail and sill.

The instructor pilot slowed the airplane below 250 knots, declared an emergency, and dumped fuel. The backseater rotated the command selector valve to vertical. They noticed that the Master Caution light was out, but the Canopy Unlocked light was on. The instructor flew a straight-in approach and landed. After the aircrew stopped the airplane and shut down the engines, egress technicians inspected the canopies and ejection seats. Then the aircrew opened their canopies and deplaned.

Two of the rear cockpit seat pins were still installed in the ejection seat. The pin bag had not been stowed by either the backseater or the crew chief. The crew chief's tech data calls for removing the seat-mounted canopy initiator pin and the face curtain pin when directed by the aircrew or after the aircrew member has strapped in. The aircrew checklist requires checking that the pins have been removed during the rear cockpit interior check and again in the before-taxiing check.

After starting engines the aircrew had cycled the canopies to comply with a local regulation. Both aircrew members confirmed the proper down-and-locked indications. The canopies were open for taxi until after the airplane took the runway for takeoff. When the backseater lowered his canopy, he was concerned about the other pretakeoff checks. This time the aircrew did not confirm that the canopies were down and locked. During taxi the pin bag had fallen onto the left canopy sill, and the canopy now closed on it. The right side locked, but the left side didn't. Fortunately, the right side locking mechanism, together with pneumatic down-pressure, kept the canopy from being blown off.

Well, obviously the backseater and the crew chief made mistakes and didn't follow their tech data. But don't you feel that the instructor pilot could have done more to prevent the problem? Since it was an orientation flight for a new backseater, common sense would seem to call for checking that the new guy was properly strapped in to his ejection seat. And it certainly was the instructor's responsibility to confirm that the canopies were down and locked before takeoff. There weren't any innocent parties in this incident, but instructor pilots should know better.

TAC TALLY



CLASS A MISHAPS
AIRCREW FATALITIES
TOTAL EJECTIONS
SUCCESSFUL EJECTIONS

FEB	THRU FEB	
	1983	1982
2	6	6
1	3	4
1	2	6
1	2	6

FEB	THRU FEB	
	1983	1982
1	3	1
2	3	1
2	3	0
2	2	0

FEB	THRU FEB	
	1983	1982
0	0	0
0	0	0
0	0	0
0	0	0

TAC'S TOP 5 thru JANUARY '83



TAC FTR/RECCE	
class A mishap-free months	
40	49 TFW
39	355 TTW
27	354 TFW
22	67 TRW
22	363 TFW

TAC AIR DEFENSE	
class A mishap-free months	
121	57 FIS
74	5 FIS
71	48 FIS
30	318 FIS
21	87 FIS

TAC-GAINED FTR/RECCE	
class A mishap-free months	
130	188 TFG (ANG)
122	138 TFG (ANG)
121	917 TFG (AFR)
118	116 TFW (ANG)
108	434 TFW (AFR)

TAC-GAINED AIR DEFENSE	
class A mishap-free months	
108	102 FIW
104	177 FIG
70	125 FIG
53	119 FIG & 142 FIG
40	120 FIG

TAC/GAINED Other Units	
class A mishap-free months	
163	182 TASG (ANG)
156	193 ECG (ANG)
147	110 TASG (ANG)
143	USAF TAWC
135	84 FITS

CLASS A MISHAP COMPARISON RATE

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

TAC	1983	6.9	5.3										
	1982	7.8	5.7										
ANG	1983	9.1	7.1										
	1982	0.0	2.7										
AFR	1983	0.0	0.0										
	1982	0.0	0.0										

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

FLEAGLE

