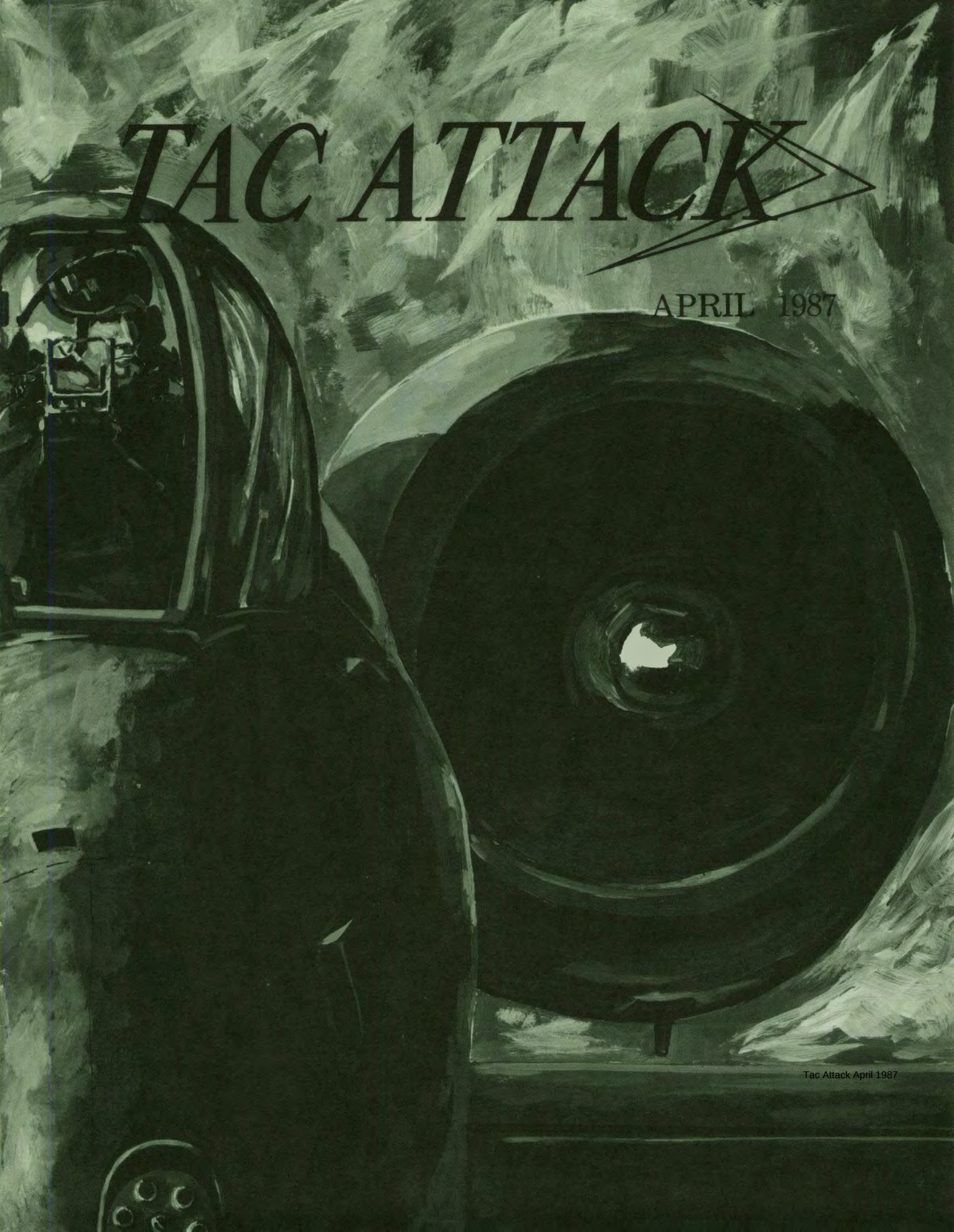
TAC ATTACK

APRIL 1987



ANGLE OF ATTACK

Not long ago I was asked who did the writing for me. I didn't know whether to be flattered or insulted. There's no one to blame but me; so if you have different ideas, opinions or even support our position regarding the smart way to fly, let me hear from you.

Speaking of hearing from people—I just returned from a Chiefs of Safety conference at one of our numbered air forces and I heard plenty. In fact, I honestly thought I was sitting in a room filled with tactical fighter squadron commanders talking tactics. It was a far cry from the style of meetings that was the norm a few years back.

This group didn't talk about why we couldn't do something; they had more lucrative targets to discuss. For example, they had some better ideas and smarter ways to do the job and set about getting the regs and policy guidance in line with making it all happen. It was a shot in the arm for me to just sit there and listen to them—eager, aggressive, determined to do the job better than ever before and I'm confident they will.

We also discussed one thing each of us had in common when we were told "You are going to be the Chief of Safety." Shock. Sheer, clear shock. "The pits," we said, "no one cares." That may have been the old story, but there is a new book in town; and the author has four stars on his shoulders. It tells of a new image for safety and specifies qualifications and leadership traits that reflect a safety officer's most valuable asset: credibility. Well, the new SE's have rolled in. They are sure of their targets and themselves. As a result, a real sense of pride is emerging and confidence that we can train realistically and preserve lives doing it.

Of course, it's a team effort. I've always been proud of the TAC team and the professional way we do our jobs. But lately, I've sensed a growing wave of pride within our ranks. Our people are gaining confidence in their Chiefs of Safety. Safety guys have bridged the credibility gap and that's a very positive angle of attack.

Edsel J. DeVille

EDSEL J. DE VILLE, Colonel, USAF
Chief of Safety

TAC ATTACK

DEPARTMENT OF THE AIR FORCE

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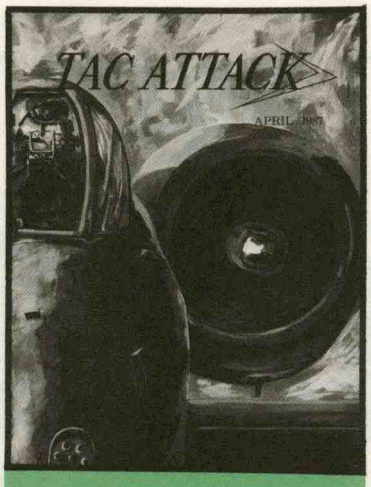
FEATURES

DEPARTMENTS

VOLUME 27 NUMBER 04



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F-16 NOSE

Maj Jeff Riemer
Maj Terry Tomeny
F-16 Combined Test Force
Edwards AFB, California

You are 500 pounds above bingo and decide to do one more engagement without AB prior to RTB. You split for a neutral setup, turn in and the fight's on. After the merge, you slice back and get a tally; he is high and is just coming back down, so you start up and try to deny him turning room. You pass again and this time you go high. Just as you are passing 70-degrees nose high, the low speed warning horn sounds (approximately 170 knots) and you devote your attention to recovering the aircraft.

Since you have just flown the new nose high recovery training maneuvers (or horn awareness and recovery training series), you unload by releasing aft stick, roll smoothly to the nearest horizon and use minimum aft stick pressure to get the nose moving to the horizon. Once the nose is safely below the horizon, you unload and let the aircraft accelerate past 200 knots. As you roll upright towards the bandit's last position, you are bingo and it's time to RTB. You did well. You successfully flew the aircraft out of a nose high, low airspeed condition, learned something and avoided a potential departure or deep stall. There were a lot of things you could have done wrong and not been so lucky. This article will discuss those common recovery errors and look at the factors that may cause a departure.

Let's say you are in a B model with a centerline tank, MAU-12s on stations 3 and 7 and a single AIM-9L on station 1. With the nose high and airspeed decreasing through 170 knots, there are several things you can do to mess up your recovery and cause the aircraft to depart.

DELAYED RECOVERY

First, you could allow your attention to be diverted into the cockpit to check airspeed, attitude and AOA which will delay your recovery and could run you out of airspeed with the aircraft still very nose high. With the pitch attitude constant (zero pitch rate) and no airspeed, the aircraft is content to settle back towards mother earth, with the horizontal tails trying to limit AOA.

HIGH RECOVERY

With no airflow to work with, however, they are ineffective and you basically turn into a falling leaf. If the AOA increases past 29 degrees, you no longer have a vote and the next thing you would see (if you were looking) would be the AOA gauge at 32 degrees and pegged or minus 5 degrees and pegged if you are on your back. Guess what? You have just departed controlled flight. What you should have done when you heard the horn was unload the aircraft by releasing aft stick while you looked for the nearest horizon. With the aircraft unloaded you could have rolled smoothly to that horizon, which would have minimized airspeed loss and started the nose down. As long as you get the nose moving toward the horizon prior to running out of airspeed, you will probably be O.K.

ABRUPT INPUTS

Not so fast. It is important to get the nose moving to the horizon, but the unload and smooth roll to get it there are also important. If you are in too much of a hurry to get the nose down and roll without unloading or roll too quickly, you can also botch the recovery. Quick unloaded rolls at slow airspeed tend to produce nose slice and also detract from the tail's ability to limit AOA since they are split commanding roll. For you aero majors, there are two things that are increasing AOA at this point—roll coupling and kinematic coupling. Roll coupling is an increase in AOA due to roll. As the aircraft rolls, the weight in the fuselage is trying to move away from the relative wind (roll axis). Just like a tetherball gets further from the pole the harder you hit it. Kinematic coupling is an exchange between sideslip and AOA that takes place as the aircraft is rolled. Ten degrees of sideslip turns into 10 degrees of AOA after 90 degrees of roll. Certain types of external loadings, like centerline or asymmetric stores, cause sideslip to build faster. In the cockpit, if you feel buffet and side force in-

F-16 NOSE HIGH RECOVERY

creasing as you roll, then you are rolling too quickly. A smooth roll to wings level inverted and then smoothly stopping your roll before you pull the nose down is important.

TOO MUCH PITCH RATE

After all that you may think the hard part is over, but you can still mess up the recovery. Again, don't try to rush it. If you jerk back on the stick too quickly trying to get the nose below the horizon, you may generate such a high pitch rate that the AOA limiter will not be able to stop the AOA from increasing as it approaches the limiter and it will shoot right past. Remember, you are slow and the horizontal tail is less effective. What you want to do once you are on your back is let the nose move toward the horizon at a controlled rate. Since the aircraft is seeking 1G, the nose should be moving toward the horizon by itself. If the nose is moving very slowly or not moving at all, apply the minimum aft stick pressure necessary to help the nose down. If it starts to pendulum down very quickly, a little forward stick to keep pitch rate under control will help the AOA limiter do its job.

RECOVERY TO WINGS LEVEL

You are almost out of the woods. If you get the nose below the horizon and are too eager to roll upright, you can still mess up the recovery. About the time the nose is just getting to the horizon you will be at the slowest airspeed during the recovery. Rolling upright at low airspeed will require a lot of control deflection, which will generate a lot of sideslip, the centerline tank will throw in its two cents and off you go. What you want to do once the nose is below the horizon is let the airplane accelerate. You need some airflow for the tail to be effective again. Once you've accelerated past 200 knots with the nose below the horizon, you can smoothly roll the aircraft upright. The nose may be very low at this point, however, so consider a straight through split "S" type pull. This is actually the easiest and most natural way to recover, but it will take a few thousand more feet. It also eliminates the need for another maneuver (roll upright).

Well, that was a lot of detail to say, "When recovering from nose high, slow airspeed situations in the F-16, use finesse." If you fail to act until you're completely out of airspeed, or try to rush the recovery with loaded abrupt inputs, your nose high recovery maneuver may develop into a departure.

Next month we'll talk about the factors that turn departures into deep stalls, what a deep stall is and how to recover from one.

The F-16 Combined Test Force has prepared a briefing discussing the new TAC F-16 Nose High Recovery Maneuvers and F-16 departures and deep stalls. If F-16 units would like to see this briefing, they may request it by message to 6510 TESTW/TEVF, Edwards AFB, CA 93523-5000, or by calling Autovon 527-3112/2555.

AIRCREW OF DISTINCTION

Maj David R. Lukens
318 FIS
McChord AFB, Washington

Major David Lukens had just taken off in his F-15A from McChord AFB, Washington, when he realized that his landing gear had not fully retracted. Staying below 250 knots, he cycled the gear according to established procedures but was unable to get all three fully up and locked.

Major Lukens then turned out of traffic and climbed to dump fuel. After talking to the SOF and dumping down to an appropriate landing weight, he returned for a straight-in, full-stop landing. On final, all appeared normal with the gear indicating full down and safe. After touchdown, he perceived the gear to be collapsing. In full afterburner, he got the F-15 airborne again, barely preventing the external fuel tank from contacting the runway. The runway supervisory officer reported that the left main gear appeared to have collapsed outboard.

As Major Lukens climbed out and entered the instrument pattern, another F-15 was scrambled for a chase. The chase rejoined and reported that the left main tire and strut cylinder had fallen completely out of the main gear support and the tire was hanging only by the scissors linkage. After consulting with the SOF and McDonnell Douglas engineers, Major Lukens decided to make a straight-in approach with no barrier arrestment.

Major Lukens touched the aircraft down in the first 1000 feet on the right side with the dangling left main tire toward the centerline. The aircraft rolled about 3000 feet before the left wheel was allowed to touch down. Almost immediately, the tire and a portion of the strut separated from the aircraft. Major Lukens used pulser braking on the right main tire, nosewheel steering, ailerons and rudder to keep the aircraft tracking straight down the runway. As the left wing dropped, the external fuel tank on that side exploded under the wing. Major Lukens was able to stop the aircraft with 3500 feet remaining. He shut both engines off and emergency ground egressed as flames surrounded the left wing fuel tank.

Major Lukens' skillful use of all available means of directional control kept the aircraft from skidding off the runway and prevented major damage to the aircraft. His coolness under pressure, quick thinking and precise execution during both the initial go-around and the subsequent landing saved a valuable TAC aircraft.

TAC tips

INTERESTING ITEMS,
MISHAPS WITH MORALS,
FOR THE TAC AIRCREWMAN

Tac tips

Blown away by your buddy

A four-ship of A-10s was fragged to drop live MK-82 air retards on tactical targets. The flight had been thoroughly briefed by the squadron weapons officer and the flight leader on all delivery and frag avoidance parameters as well as the spacing needed in case the high drag option failed. The frag avoidance criteria were no closer than 30 seconds within 3000 feet of the other flight member's bomb burst.

For the actual deliveries, the four-ship split into separate two-ship elements on different ranges. The mishap element had completed two level deliveries and planned to do the last two as low-angle, high-drag (LAHD) pop attacks. During their maneuvering for the first LAHD pass, number four lost his situational awareness and got within 15 seconds of his leader's blast and 1000 feet below the bomb's frag envelope. This placed the aircraft well within the bomb frag pattern and a left, climbing escape maneuver wasn't sufficient to prevent the inevitable. He suffered serious airframe, flight control and hydraulic damage but was able to land his jet at the nearest runway.

The ideal for any weapons delivery is to be on time, on parameters and on top of the situation. Why push your luck by shortchanging yourself on minimum altitudes and spacing for live bomb deliveries? If you're not where you should be, knock it off and set up for another try. Of course, you need to know whether or not your position/timing is right to make that happen. If you don't, and you're approaching the target area, a KIO call is your only option. Don't give the bad guys a freebie by letting someone else in your flight shoot you down.

You don't need the hassle

Two F-111s were cleared onto a range for night low level terrain following operations and weapons deliveries. After descending to low altitude, the flight was questioned by the range controller several times about their intentions and other subjects the crew considered extraneous to controlling the flight. An investigation highlighted some problems in proper range coordination and flight clearance, but the most serious hazard revealed was the excessive communications permitted during a critical phase of flight.

How could it have been handled differently? The problem could have been avoided if the range controller had limited transmission to the minimum required for range entry/exit and control of the flight. The KISS (Keep It Short and Simple) rule should always apply in the use of radios. When the aircrews sensed that transmissions from the range controller were starting to interfere with crew coordination during low-level flight, they should have called "Knock it off" within the flight, terminated the low-level phase of the mission and only resumed when conditions permitted. Excessive radio transmissions from inside or outside the flight can be a hazard to safety during any flying environment; at night they can be especially treacherous. Day or night, don't wait until you land to clear up a hazardous situation. Call "Knock-it-off" to get everyone's attention and sort the problem out then before the situation becomes a mishap instead of a HATR.

Watch your switches

An F-16 pilot was sitting in EOR awaiting takeoff clearance when his aircraft started jettisoning flares onto the ramp. He immediately taxied away from the burning flares but not quickly enough to prevent the right UHF antenna and ventral fin from being damaged. The inadvertent flare jettison had two links in its chain. First, at some unknown time, the flare jettison switch had been moved to the jettison position and neither the crew chief nor the pilot noticed it. Second, the pilot moved the flare arm switch to the arm position while lifting the switch guard. When he realized what was happening, he gangloaded all chaff/flare switches to the off position; but it was too late.

TAC Regulation 55-16 states: "The chaff/flare system will not be armed unless in an approved area with an intent to dispense chaff or flares." There shouldn't be any need to move chaff/flare switches out of the Off/Safe position while you're on the ground. If you do, you're just asking for trouble. In the F-16 particularly, there is no tie-in with the weight-on-wheels switch to prevent actuation of flares on the ground.

Make jettison and arming switches an integral part of your crosscheck prior to every entry and exit of the cockpit—even though you've never found them in the wrong position (yet).

AN UMBRELLA CALLED

Maj Stub Henderson
57 FWW Flight Safety
Nellis AFB, Nevada

Looking back at all classes of mishaps for the last couple of years, you'll notice that most of them were due to human error. Whether the mishap was caused by someone in operations or maintenance, I believe that most of the problems were a result of errors in judgment. On many occasions, an individual was striving to get the job done under "an umbrella called mission."

What's that you ask? Well, I'm talking about a barrier that protects or partially hides a pilot or maintenance person from criticism just like a real umbrella protects its user from getting wet. This barrier is most commonly referred to as "the mission." It is formed by the perception that mission accomplishment excuses any means used to get a job done.

For example, what happens if a pilot disregards flight discipline by exceeding a non-supersonic or low altitude overflight restriction in order to get his air-to-air kill or bombs on target? Is he praised for achieving the flight's primary goal, leaving flight discipline violations undetected? If he is,

that praise is informal acceptance of the pilot's improper actions. Unfortunately, I believe the pilot is hiding behind the belief that achieving the primary goal justifies the means he used to get the job done.

Here's a more specific example: An F-15 pilot was demonstrating the best method of ridge crossing when he misjudged his aircraft's ability and hit the ground. The mishap board discovered that the pilot was always very aggressive at low altitude. This individual was attempting to be the best pilot he possibly could; however, in his zeal, he disregarded several low-altitude rules and guidelines. He was hiding behind a belief that the most daring pilot or most aggressive ridge crossing is the mission. He misunderstood that the real mission is to fly, fight and return to fly another day using the rules and guidance learned through years of both peacetime and combat experience.

Maintenance personnel may also be tempted to seek the protection of the mission umbrella. These individuals are motivated, like all of us, toward mission accomplishment. They are frequently faced with the difficult task of doing more with less and may sometimes be tempted to take shortcuts. For example, a maintenance officer may start the shift by briefing his troops on the upcoming day's duties. He begins with a quick safety briefing, indicating that he wants technicians to follow their TOs exactly; performing every step required. Supervisors are to check all work and shift supervisors must get involved in the flight-line maintenance. Unsafe behavior will not be tolerated. This maintenance officer has just set forth an excellent example of quality maintenance. Once the safety briefing is covered, however, the details of the day's scheduled activities are then briefed.

Two extra lines have been added to the day's flying schedule at the request of Operations. The maintenance officer agreed to this because two additional aircraft were scheduled to come out of phase inspection and the wash rack, but they didn't. Now he's short of airplanes, so he doesn't need any ground aborts or code 3 writeups because an MTD will result. He is also short of people because three folks are out for base detail, two have dental appointments and one called in sick; so he briefs that everyone must double up duties and hustle for quick aircraft turns. They will hold code 2 flyable writeups until the end of the day's flying. A lot of the people in that room may walk out the door and begin the day's duties with the mindset that shortcuts are OK today in order to get the job done.

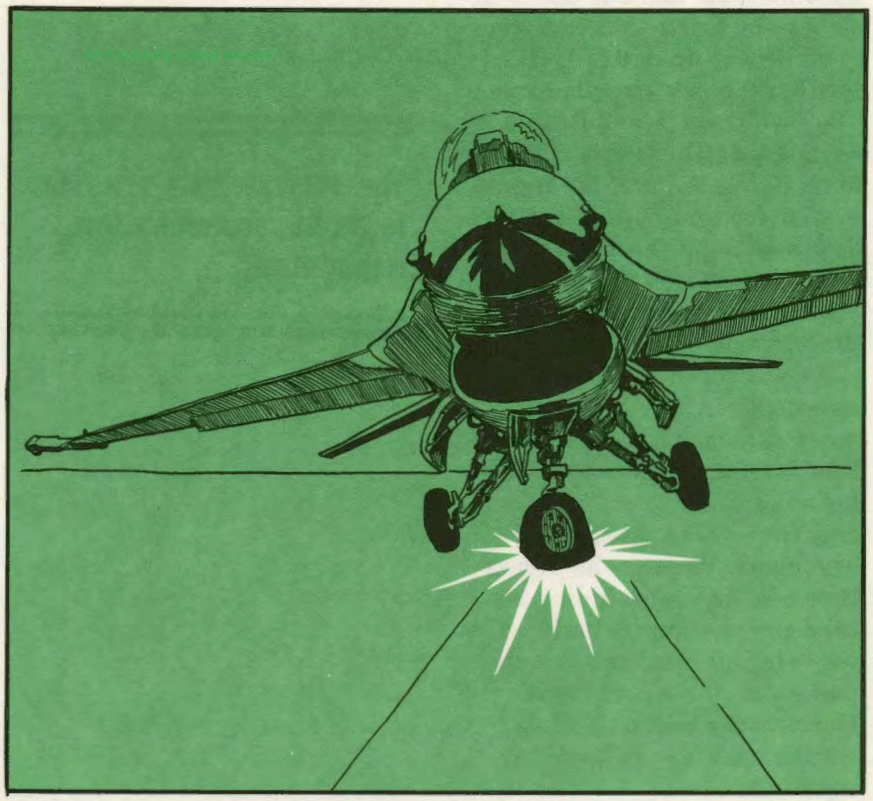
As a supervisor, the maintenance officer may have seriously damaged the value of his first briefing emphasizing safe behavior and correct TO procedures by his subsequent comments. Whether he knows it or not, he is also hiding behind the mission umbrella. The way aircraft are fixed is as important as the repair itself. Here's a more specific illustration that may help clarify my point.

The real mission is to fly, fight and return to fly another day.

The way aircraft are fixed is as important as the repair itself.

AN UMBRELLA CALLED MISSION

As an F-16 slows to taxi speed after landing, the nose gear steering suddenly drives full right. The airplane nearly tips over, balancing momentarily on its wingtip and nosewheel before banging back down on all three gear. This jet has had a history of nose gear steering problems. Apparently, an electrician repaired the original malfunction in a hurry because the unit needed an FMC jet quickly to meet local goals. In the worker's haste to fix the aircraft, he misrouted a wire harness. Flight-line supervisors were also in a rush, so the error went undetected. But this error alone didn't cause the landing incident. After the hasty initial repair, the aircraft was reported FMC and released for flight. Shortly after that, the aircraft ground aborted for steering problems. After QA was called out to investigate the problem, a new electrician made the necessary repairs. He rerouted the wire harness by removing a wire connector, routed the wire correctly and resoldered the connector. In the unit's zeal to get the aircraft back to FMC status, however, a large amount of solder left on the steering connector was not noticed until a short between solder connections caused the near disaster during landing roll. Again, the underlying reason this occurred was an attitude that the mission is to fix aircraft quickly, no matter what.

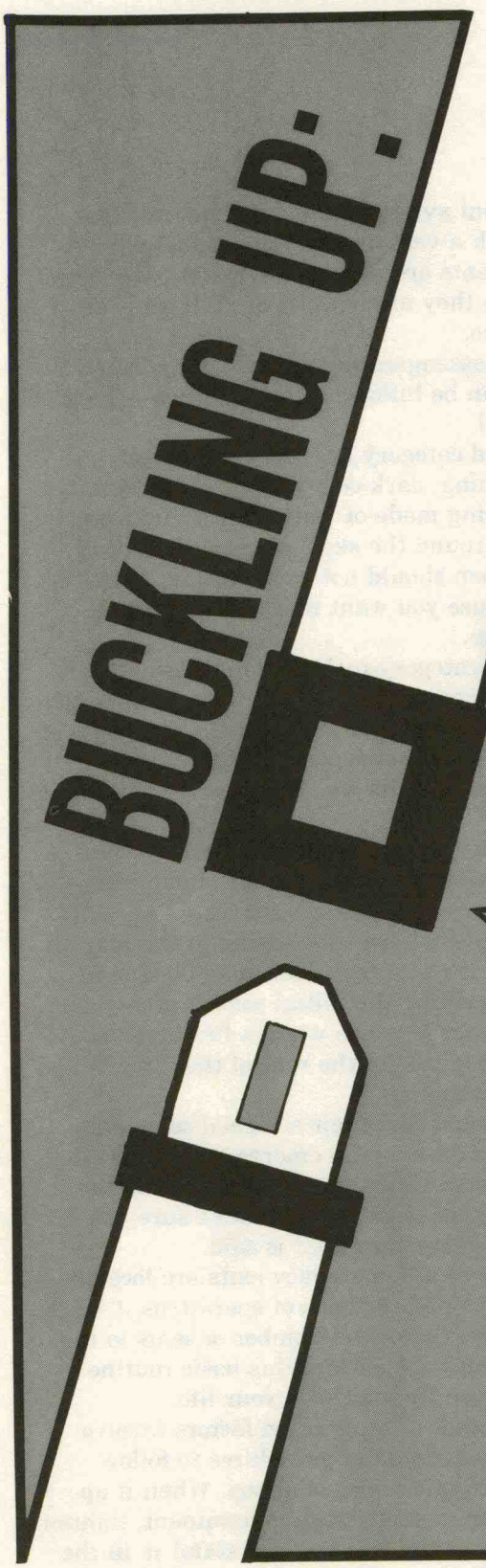


In both of the above examples, people accepted unsafe behavior because they misunderstood what the mission was. If you are a supervisor, ask yourself if you've been sending the wrong message. Do your people, whether they're crew chiefs or aircrews, understand what the mission really is? Your workers' perceptions, whether they accurately reflect your attitude or not, will certainly be demonstrated in the way the mission is performed. An incorrect understanding of the mission will also be reflected in the way the unit's pilots perform, the maintenance ground abort rate, and eventually, the unit's overall mishap rate.

My point is simple. Whether you're an IP or wingman, maintenance officer, flight-line supervisor, crew chief or specialist, don't sacrifice regulations or TO compliance behind the excuse of mission. The **way** you get the job done is as important as the job itself. Don't let yourself get caught using an "umbrella called mission."

BUCKLING UP:

A NEW LOOK



SSgt Steve Schultz
TAC Ground Safety

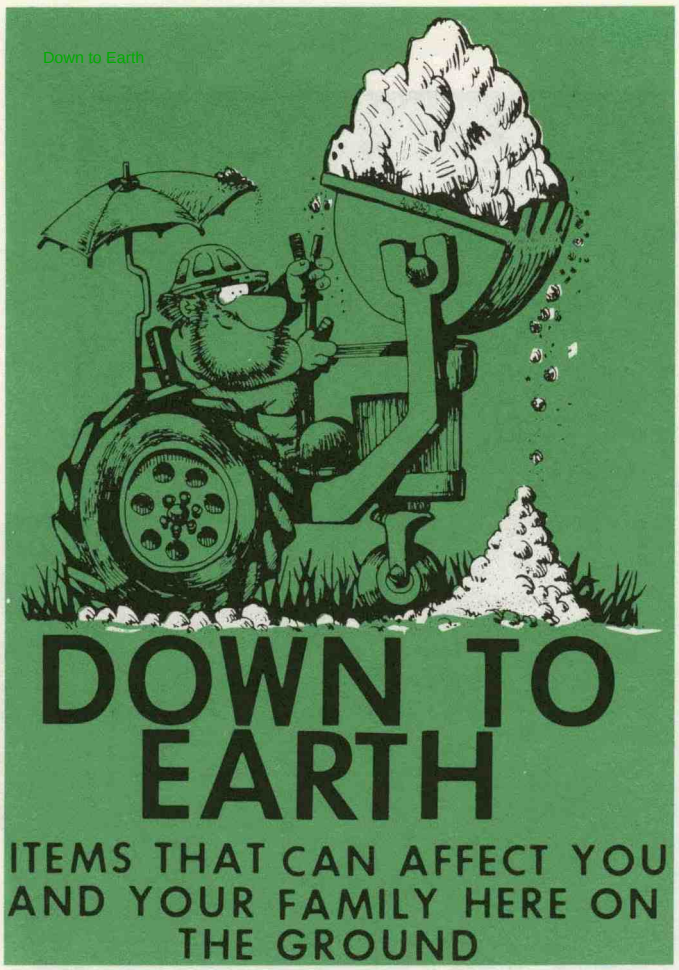
Two recent additions to AFR 127-7, USAF Traffic Safety Program, affect each and every one of us on a daily basis. The regulation now requires everyone operating or riding in any motor vehicle on Air Force property and Air Force military personnel who are operators or passengers in any motor vehicle off-base to wear manufacturer installed occupant restraints. Additionally, the regulation also requires Air Force military personnel to wear an approved helmet and eye protection when operating or riding a motorcycle off base.

Of course, the old requirements still exist:

1. Each operator and passenger in a government motor vehicle or anyone in a private vehicle being used for government business must use occupant restraints while the vehicle is being operated on or off a DOD installation.

2. All military and civilian personnel must wear a properly fastened (under the chin) protective helmet and eye protection devices when operating or riding a motorcycle on an Air Force installation or while on government business off the installation.

The reasoning behind these changes is very simple: seat belts and helmets are proven life-savers. In these days of belt-tightening budgets, we all need to eliminate unnecessary risks and prevent the needless loss of life and resources. Your actions could be as simple and painless as buckling up or properly wearing a helmet. Who knows? The life you save might be your own.



Expert: How to survive an airline accident

Sgt Kathy H. Bell
Aeronautical Systems Division
Public Affairs
Wright-Patterson AFB, Ohio

Are you prepared to survive an airline crash? Greg Jarrells, an escape systems and emergency egress engineer with the support systems engineering division at ASD, thinks so. He says that there are methods and means that every airline passenger should bone up on to better his or her odds at being one of the survivors in an aircraft accident rather than a victim.

Mr. Jarrells received his training at the Air Force Mishap Investigation School and the Crash Survival Instructor School. He has also studied many aircraft accidents and interviewed survivors from some of those crashes. He developed a briefing titled "Just in case . . . how to survive a commercial aviation accident." He says that even though a vast majority of commercial aviation accidents are survivable, many passengers die because they are not prepared. Here is some of his advice.

Airline passengers should dress for survival. Clothing can be lumped into categories—the good and the bad.

In the bad category are fuzzy and loosely woven clothing, dark colors (dark colors absorb heat), clothing made of leather (it shrinks and constricts around the skin) or synthetics (they melt). Women should not wear dresses, skirts or shorts because you want to limit the amount of exposed skin.

The good category includes long-sleeved shirts and long pants made of light-colored wool or cotton. The ideal garment is one involving layers of clothing in which each piece is tightly woven, light in color and fits well—not excessively tight or loose.

Airline passengers may wonder where they should sit on the aircraft, but Mr. Jarrells says there is no one safe place to sit.

Most people believe that sitting in the rear of the aircraft is the safest. That may be true in terms of surviving the initial impact of a crash. But then, what happens when a fire breaks out in the bathroom or in the rear of the aircraft and people are trapped?

People should find their assigned seats and immediately draw up an emergency escape plan or route. Listen to the emergency briefing the flight attendant is giving and make sure you understand everything that is said.

Know where all emergency exits are located and the types and methods of operations it takes to open them. Count the number of seats to the exits. Getting yourself into this basic routine every time you fly may save your life.

The two other aircraft crash factors involve impact preparation and procedures to follow when the aircraft comes to a stop. When it appears that an aircraft crash is imminent, tighten your lapbelt as tight as you can stand it in the bony portion of your lower abdomen, remove dentures or partials from your mouth, take off eye-

glasses, get rid of sharp items such as pens or pencils in your pockets and assume a brace position.

When the aircraft comes to a stop, put your escape plan into action and don't panic. Never depend on the flight attendants to lead you safely out of the aircraft—depend on yourself.

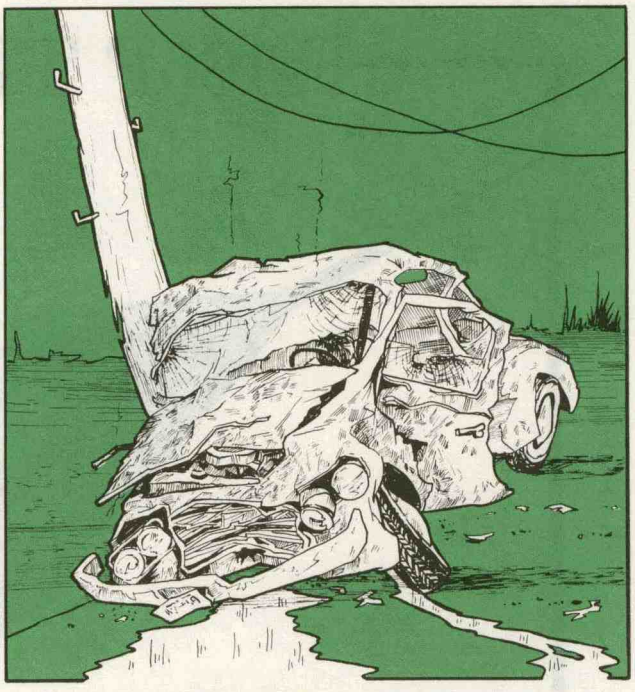
Observe the environment before exiting the aircraft, don't just blindly jump out. It would not do you any good to jump into a blazing fire. And, whatever you do, don't try to take items with you that you brought on board. Items are replaceable, lives are not.

—Adapted from *Air Force News Service*

A seat belt can't do all the work

A young airman was driving down a highway. He was wearing his seat belt and wasn't drinking.

He was going about 5 miles over the posted speed limit of 45 mph when he failed to stop for a red light at a busy intersection. Witnesses said he never attempted to stop. Another car was coming through, and the two cars hit.

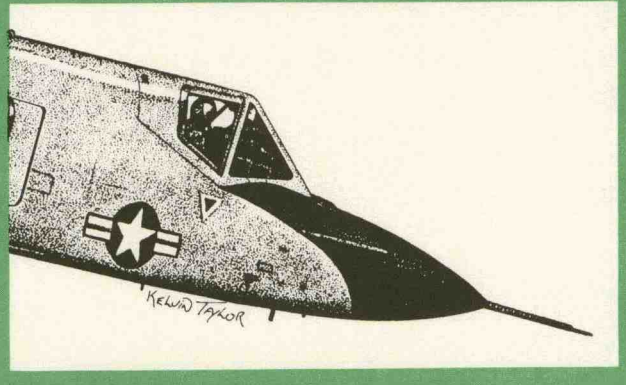


The young airman's car was hit on the driver's door and part of the right front quarter panel. The car then began to skid broadside and hit a utility pole on the passenger door. He died from head injuries even though he was wearing his seat belt.

The driver of the other car received minor injuries.

It's DOD policy to wear seat belts on and off base because they save lives and prevent serious injury. But seat belts can't do all the work. You must stay alert to driving conditions.

HEADS UP

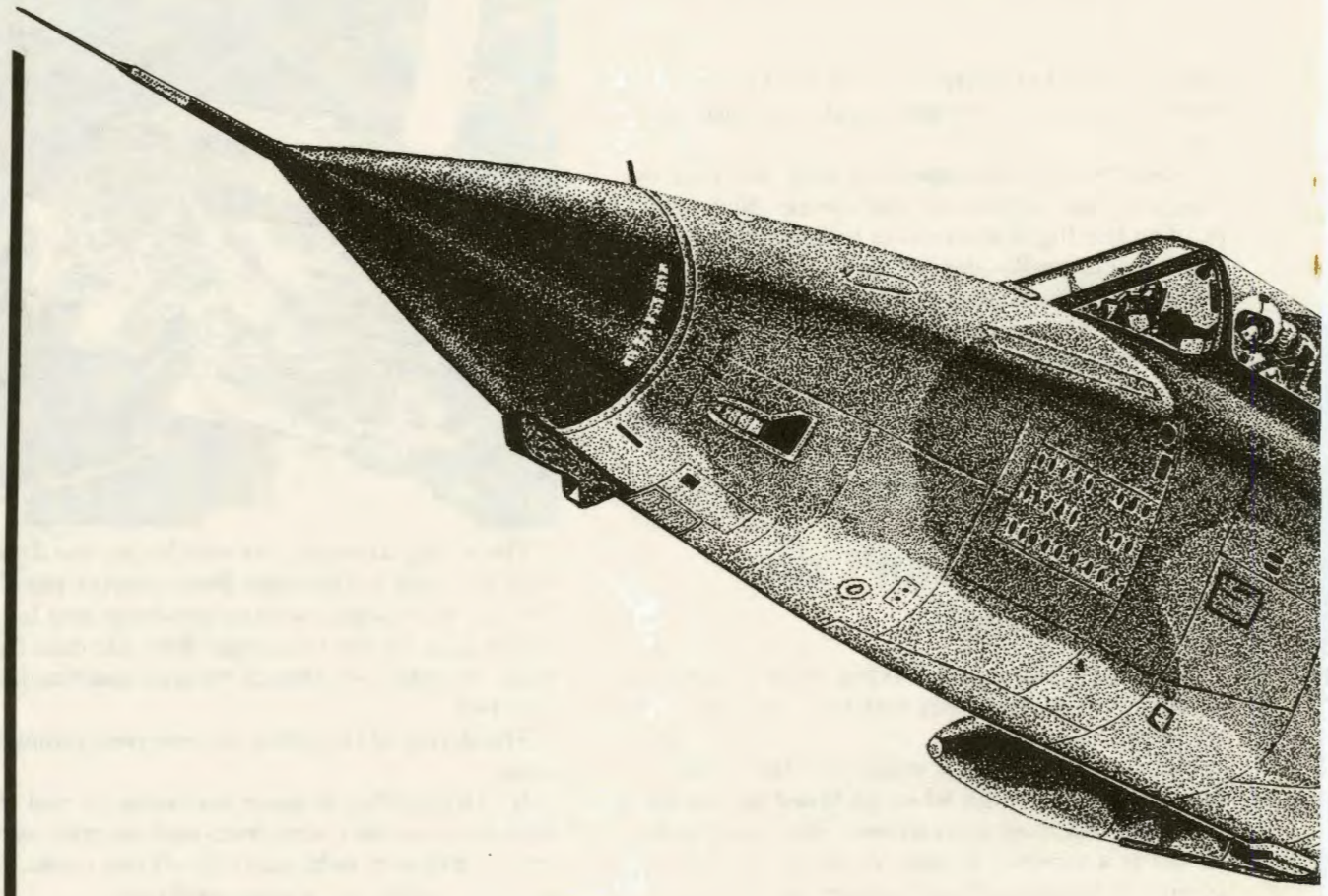


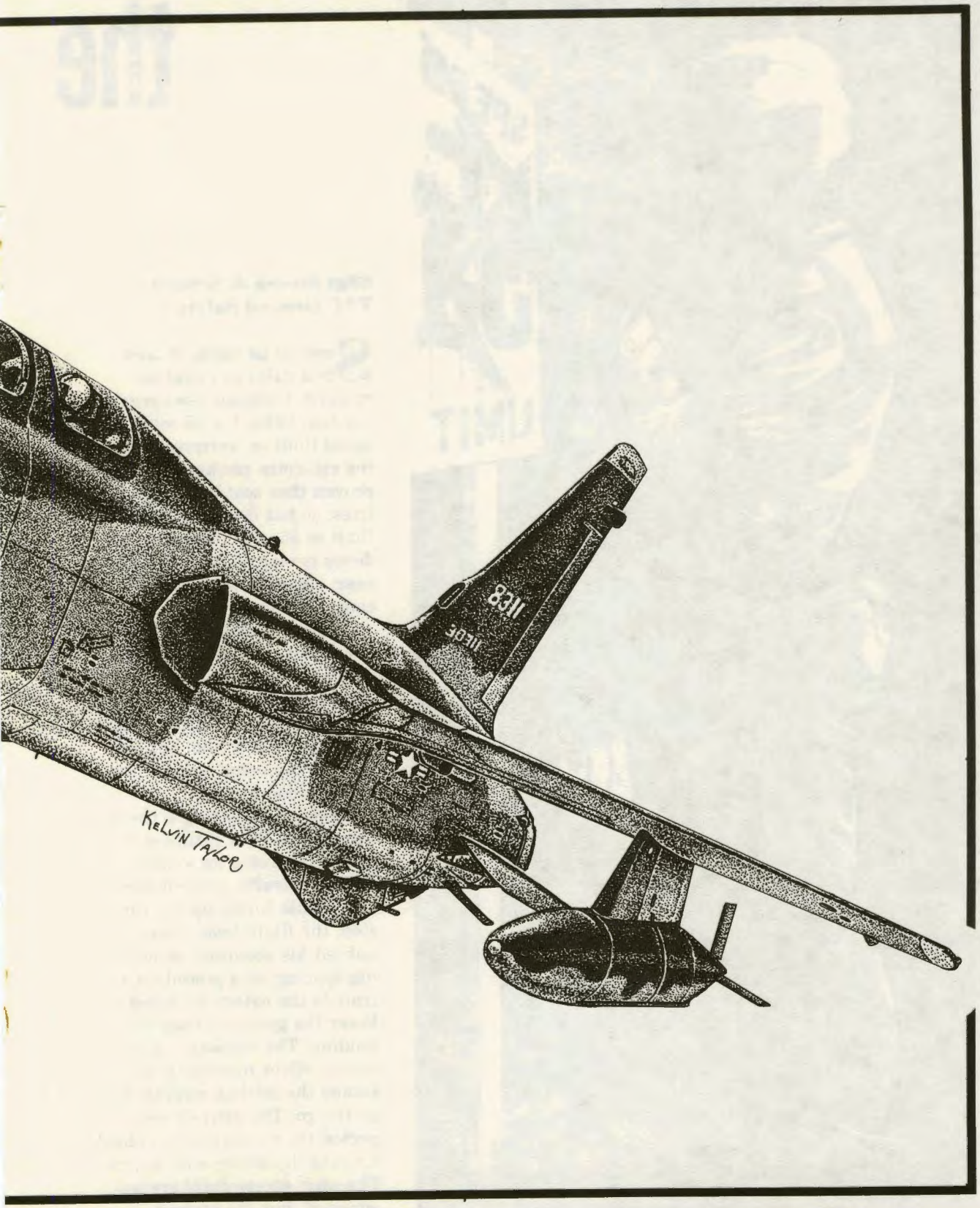
Next month, in the

MAY

issue of *TAC Attack*, you will see Sgt Kelvin Taylor's stipple drawing of the F-106 DELTA DART IN THE CENTER.

F-105F THUNDERCHIEF




KELVIN TAYLOR

the

SSgt Steven J. Schultz
TAC Ground Safety

Some of us think of laws and rules as moral restraints. Consider laws regarding seat belts, the 55 mph speed limit or warnings governing cigarette smoking. It's been proven that seat belts save lives; so has dropping the speed limit to 55 mph. And the evidence is more conclusive than ever: cigarette smoking does cause cancer.

It's human nature to figure it's okay to disobey a law or a rule as long as we're prudent in selecting which ones to disregard. Of course, it's not really okay to break a rule; but let me tell you about some folks who decided to do so.

A pilot was leading a three-ship flight. They returned to the home drome for visual overhead traffic pattern practice. While lining up for a full stop, the flight lead channelized his attention on achieving spacing on a preceding aircraft to the extent he failed to lower the gear and flaps for landing. The runway supervisory officer incorrectly assumed the mishap aircraft was on the go. The aircraft impacted the runway and skidded into the departure-end overrun. The pilot successfully ground egressed, but the aircraft

good, the bad, the law

Tech data violations are a leading cause of TAC mishaps.

caught fire. Total loss: $2.8 million.

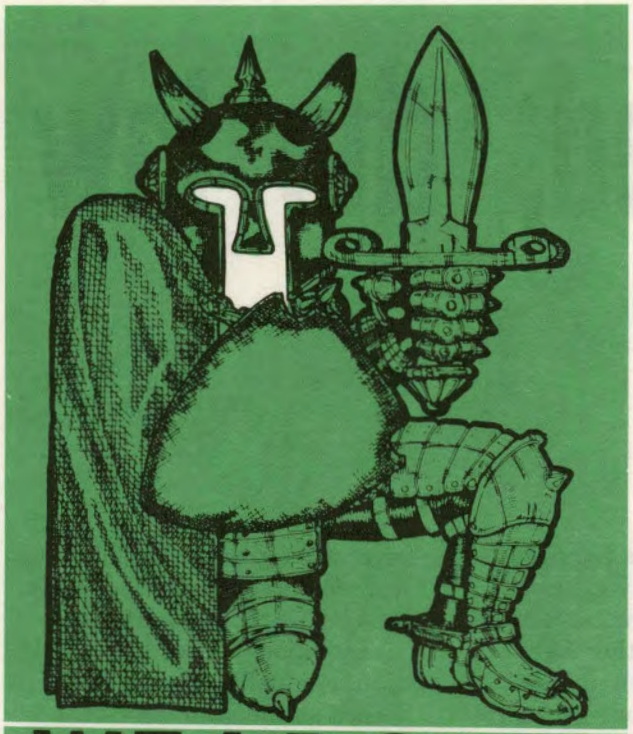
In another incident, an airman attempted to service an aircraft tire using a widely accepted shortcut that didn't include an integral piece of servicing equipment. The airman had the correct job guide at the aircraft and it was opened to the proper page for the task. It is very apparent, however, that he completely disregarded steps in the job guide. He connected a high pressure nitrogen cart servicing hose to the tire valve stem in an unauthorized configuration and over-regulated the servicing pressure on the nitrogen cart with no visible concern for the job guide instructions. He positioned himself incorrectly at the tire and opened the servicing valve. The wheel assembly was then pressurized over four times its required limit and suddenly exploded. Half of the split rim struck the airman and the other half passed through the aircraft strut. Total loss: one airman (one can't put a dollar value on a human life) and nearly $70,000 in damages to the aircraft and other equipment. There's more . . .

Another crew chief was assigned as an aircraft tow team supervisor. He did a hasty walkaround check of the aircraft and entered the main landing gear well to check the hydraulic brake pressure. Upon exiting the gear well, the airman noticed a ground power unit (Dash 60) sitting near the left horizontal stabilizer but figured the stab would pass over the top of the Dash 60 (an extreme violation of tech data and AFOSH Standard guidance). Shortly after the tow began, a startling crunch was heard as the stab struck the Dash 60 and tipped it over. Total loss: $12,389 in damages to the aircraft stab and $54 to the Dash 60. (Can't assess the dollar value to damaged pride and professionalism.)

Not following tech data willfully is not making a mistake; it's committing a crime.

An explosives ordnance disposal (EOD) NCO knew it was against the rules but decided to safe an unexpended 30mm round and keep it for a souvenir. He secured the round in a vise and used an electric drill on the shell to make a hole for dumping the powder out. Friction from the drill bit generated heat, causing the powder to burn and the round to fire. Total loss: an NCO and $838 in property damage.

In each of these incidents, the person involved willingly violated tech data, rules and regulations. Tech data violations are a leading cause of TAC mishaps. Each of us must decide to play it safe or take chances. Not following tech data willfully is not making a mistake; it's committing a crime. And when that happens, we all lose.



WEAPONS WORDS

Close tolerance, close call

During a local operational readiness exercise, an F-4G was scheduled for a suppression mission on its second flight of the day. During the turn, a CATM-88 (HARM) missile was loaded on the inboard station. Weapons loading was still in progress when the aircrew arrived at the jet. In fact, the aircraft launch was delayed 15 minutes while the weapons crew finished the load.

Nothing unusual occurred during the flight; however, at approximately 75 knots during landing roll, the missile fell off the launcher and severely damaged a tire.

Investigation revealed that the launcher detent guide rail on the CATM-88 was bowed about 1/16-inch to the right. The only way the missile would lock on the rail was with pressure applied to align the hole in the guide rail with the launcher detent. Impact marks on the right side of the guide rail suggested that force had been used several times in the past to align it with the locking detent. The mishap load crew said they had no trouble loading the missile. When they released the locking handle, they assumed the missile was locked on. It wasn't. The pressure that the load crew experienced to speed up the missile load probably contributed to this incident, but the mishap sequence actually began when earlier load crews forced the locking mechanism and didn't report the problem. These overlooked warning signs cost $30,000 and loss of a training missile. It could have caused loss of aircraft control on the runway. Just think! All of this damage over only 1/16 of an inch. It shows you how important small tolerances can be.

A touchy situation

Put yourself in this situation. It's two days after a local exercise and everything's back to normal. You're walking on base and notice a strange looking object lying in the grass. You assume it's a UXO (unexploded ordnance). What would **you** do now? Take a minute and run

through in your mind the steps you would follow with any object that you suspect to be a UXO.

Now—compare your plan with the way these folks handled the problem. An individual came across an unexploded M-18 green smoke grenade, with safing pin and spoon missing. He reported the UXO to the law enforcement desk who in turn notified EOD.

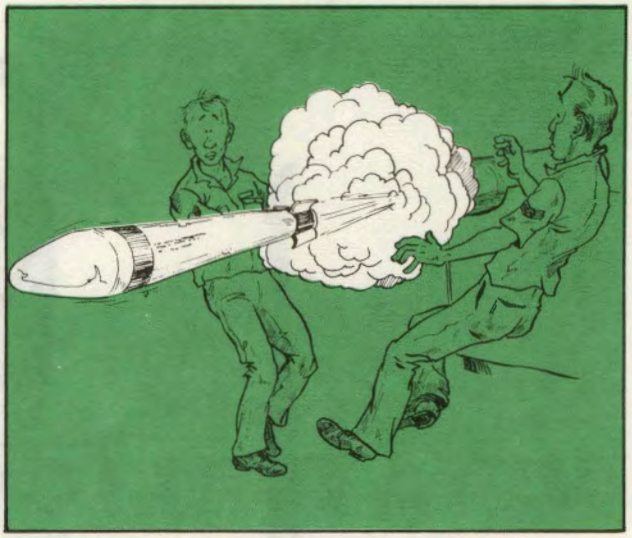
Before EOD's arrival, the person who reported the UXO spotted a security police truck and flagged him down. The SSgt in the truck, a security supervisor, then reported the situation to Central Security Control (CSC). A security flight chief at CSC told the security policeman over the radio to kick the UXO to see if it would ignite. The security policeman on the scene went beyond that by picking up the grenade and throwing it against the ground once and against a tree twice. He was unsuccessful in getting it to detonate, but the fuse assembly broke off the grenade. He then picked up the pieces and put them in the bed of his patrol vehicle for disposal.

When EOD arrived at the reported site, there was no UXO to be found. The individual who initially reported it informed EOD that a security policeman had placed the grenade in the back of his patrol vehicle. Through CSC, EOD was finally able to locate the patrolman with the UXO rattling around in the back of his truck. The grenade and fuse assembly were quickly safed. Fortunately no one was hurt.

If your plan matched this story or you're unsure of what to do with any kind of unexploded ordnance, training or real, check your local OIs on UXO handling or get in touch with your EOD or disaster preparedness personnel.

Up close and personal

An A-10 returned from a mission with a hung MK-66, 2.75-inch rocket. QA personnel impounded the launcher with the rocket still inside, and it was downloaded and transported to the munitions storage area along with 3 other



launchers. Job Control failed to notify the weapons storage area of the QA impoundment, and the load crew failed to notice the impoundment tag. A continuous grounding cable was attached to the launcher, and the crew chief proceeded to remove the hung rocket while another crew member assisted. A third crew member had connected the tester to the first launcher. As the crew chief touched the contact paddle to release the rocket, it ignited, skimming the hood of a storage area truck before coming apart. The crew chief received both second- and third-degree burns as well as abdominal injuries from the rocket blast and couldn't return to work for 90 days. The other two crew members also required first aid.

The cause of this mishap was listed as a poorly constructed local tester. Wires and insulation were frayed which allowed current to pass through the trailer. The serious injuries could have been avoided if the rocket had been removed from the launcher before it was brought to the storage area. In addition, the crew had placed themselves in an unsafe situation by standing behind the launcher with a rocket in it. There were several causes of this mishap. Elimination of even one element could have stopped the mishap sequence. This chain reaction was costly and could have been deadly.

OVER G,

don't lose your head

Capt John Caudill
94 TFS, 1 TFW
Langley AFB, Virginia

As you know (or should), 1986 was the worst year for pilot-caused crashes in the F-15 Eagle's history. Our losses were mostly the result of midair collisions that could and should have been avoided. We certainly can't afford to continue such a trend. Each fighter lost in peacetime training is one less we'll have around to take into combat.

I'm sure everyone in your unit is on the lookout for questionable practices that might lead to midairs. That's great; but to save valuable assets and avoid ROE constraints in the future, we've got to get back to the basics.

The air-to-air arena is one of the most demanding and dynamic scenarios a fighter pilot can face. Personal pride and skill, along with a complex flying environment, play major roles in any engagement. Of the many areas that can potentially get us in trouble, there's one that I think needs to be reemphasized.

"Over G, Over G"—that warning call inside the Eagle cockpit from Betty is sometimes heard at the most inopportune moment; like when you see a belly entry, square a corner for that perfect shot and—over-G. Your instinctive reaction may be to take the shot and then look inside the cockpit at the G meter. Eagle jocks can call up the actual percentage of over-G compared to the maximum allowable on the vertical situation display (VSD).

"Ah," you say, "only 104 percent —continue." Wrong! When you suspect or know an over-G has occurred, get your eyes out, clear your flight path and "Knock it off." Once you've done that, then handle the over-G.

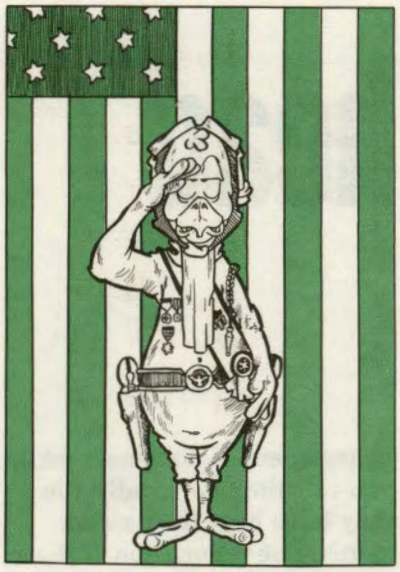
I've seen and heard too many cases of pilots who were all set to evaluate any over-G situation before they dealt with the bigger picture of the immediate air engagement. They already had the VSD set up so that they could check the over-G percentage as soon as Betty blared her warning. After they analyzed the VSD, **then** they decided whether to continue the engagement or knock it off. Sticking your cranium inside the cockpit in the middle of an engagement is not smart while you calculate how badly you may have bent the jet and stores. The temptation is there; but as disciplined professionals, we can't tolerate it. The potential for yet another midair is increased if you don't follow basic, common sense rules.

I have never met a pilot who always had 100 percent situational awareness. No one can be sure in a 4v4 where all the players are, and that makes a midair even more likely when you allow your eyeballs and brain to wander into the cockpit to ponder the G meter stuff.

Check it out in your own flying operation. The next time you're reviewing your flight's videotapes during a mission debrief, notice if an over-G was properly handled; i.e., eyes out, flight path cleared and a "Knock it off" called.

Let's not forget what the mission of TAC is—readiness. That means being ready with the maximum number of jets and trained personnel to destroy enemy equipment and personnel if the need should arise. Every jet we lose in peacetime simply means one more fighter pilot who can't strap on some high tech iron and go looking for the bad guys.

Fly aggressively, fly smart and keep your eyes out!



FLEAGLE SALUTES

Captain Dale L. Vis, 306 TFS, 31 TFW, Homestead AFB, Fla., was in the bombing pattern at 2000 feet AGL and 400 KIAS when his F-16 Falcon ingested a large turkey buzzard, causing catastrophic engine damage. He immediately zoomed the aircraft to exchange airspeed for altitude as the seriousness of the engine's internal damage increased. As he climbed, Captain Vis performed the appropriate critical action emergency procedures. Although the engine continued to produce enough thrust to maintain an altitude of 4500 feet, dislodged compressor blades had damaged the oil reservoir and the engine was rapidly losing oil pressure. Captain Vis turned towards an auxiliary airfield located 5 miles away and lowered the landing gear and hook when he was within gliding distance of the runway. Less than three minutes elapsed from the birdstrike until a flawless landing and barrier engagement brought the aircraft safely to a stop. Captain Vis's quick reactions and outstanding airmanship prevented the loss of a valuable combat aircraft.

Captain Gerald F. Mays, 355 TTW, Davis-Monthan AFB, N.M., was completing the base turn of an overhead pattern when his A-10 experienced a sudden, unexpected flameout of the number two engine. At 400 feet, descending in a left 45-degree bank turn, the aircraft was in the marginal range for single-engine controllability. That was compounded by a LAU-88 and AGM-65 Maverick training missile mounted on the same side as the failed engine. Captain Mays immediately countered the differential thrust due to the failed engine and was able to get the aircraft into a slight climb. Recognizing that he was not in a favorable position to complete a safe landing, Captain Mays went around while he climbed to a safe maneuvering altitude. After considering the danger to populated areas, he performed a tear drop approach to the opposite runway and completed a successful single-engine landing. Captain Mays' outstanding airmanship in a critical flight regime saved a valuable TAC combat aircraft.

SSgt David S. Gunderman, SSgt Michael A. Stossel, Sgt Richard R. Hetcel, Jr., and **SrA Jeffery R. Pierce,** 57 FIS, Keflavik, Iceland, prevented a serious ground mishap by quickly reacting to a hazardous situation. With winds of 35 to 40 knots and gusting over 45 knots, a civilian contractor's large storage trailer was swept out from behind a hangar and headed toward the 57 FIS engine shop where Sergeants Gunderman, Stossel and Hetcel were. The three sergeants responded and immediately started after the trailer. SrA Pierce also saw the moving trailer from inside his office and exited through a window to chase the trailer. Another blast of wind turned the runaway trailer onto its final course toward the left wing of a running P-3 Orion aircraft. All four of the men finally caught up with the trailer and stopped it approximately 50 feet from the P-3's running engines.

SSgt Eric V. Wray, 4507 CAMS, 507 TAIRCW, Shaw AFB, SC, established his squadron's egress shop and weapons safety program in support of the squadron's conversion to the T-37 aircraft. To do this, he wrote the maintenance operating instruction for safe storage/handling of egress explosive items and he designed the weapons safety self-inspection checklist and lesson plans for the weapons and egress seat safety courses. As instructor for the weapons safety and egress courses, SSgt Wray has dedicated many hours of his off-duty time to assist shop personnel and ensure established safety procedures are followed. He also coordinated the explosive storage license to ensure it was obtained in minimum time. This enabled the egress shop to support the immediate preparation of the T-37B aircraft for its new FAC role, despite a 24-month to

7-month compressed conversion schedule. His diligence enabled the shop to be arranged in a manner that emphasizes safety by isolating the maintenance area from visitor traffic.

Capt Michael F. McCann, an OV-10 stan eval flight examiner in the 549 TASTG, Patrick AFB, Fla., had just raised his Bronco's landing gear handle during a functional check flight when he noticed an unusual aft stick force. An effort to trim out the unusual force had no effect, and the aircraft abruptly pitched nose down from 200 feet. As he descended through 150 feet, Capt McCann realized that his elevator was jammed and managed to regain elevator control with a hard, two-handed pull. After declaring an emergency, he climbed to perform a controllability check; but the stick jammed again when he attempted to use trim. Capt McCann once again regained elevator control and completed the controllability check. Although stick forces remained high and elevator authority was limited, he was able to land the aircraft without further incident. Postflight investigation revealed a loose trim actuator which was driving against the elevator control linkage. Capt McCann's quick reactions and superior airmanship saved a valuable combat aircraft.

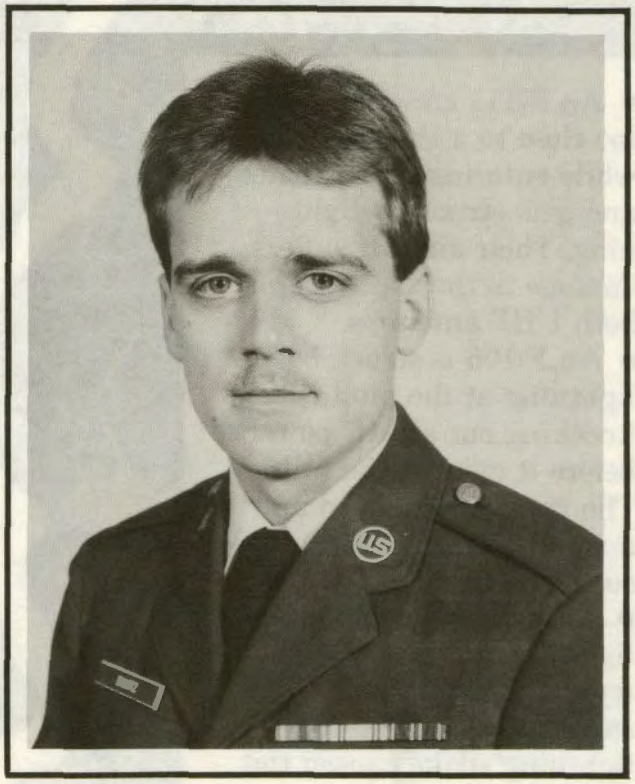
TAC OUTSTANDING ACHIEVEMENT IN SAFETY AWARD

Both engines of an F-15A were being started using a jet fuel starter (JFS); but the power turbine seal in the JFS failed, allowing oil to leak into the JFS exhaust. After normal JFS shutdown, the oil ignited and created a fire. The crew chief directed the pilot to shut down both engines and emergency egress the aircraft.

SSgt James L. Swartz was working on another F-15, some distance away, when he heard the two engines wind down and saw the pilot rapidly leaving the aircraft. He assumed a JFS or AMAD fire and ran to help.

Sergeant Swartz moved a fire extinguisher in place and put the fire out. When fire department personnel arrived, Sergeant Swartz prevented them from spraying directly into the engines because that would have caused more damage. Later, Sergeant Swartz conducted a training session for fire department personnel on JFS and AMAD fires in the F-15 and how to properly suppress them.

Because of Sergeant Swartz' rapid response, there was no heat damage to the aircraft; and his quick thinking and action prevented this serious emergency from becoming a major mishap. His initiative in conducting a training session on proper JFS/AMAD fire suppression techniques reflects a "make it happen right" attitude that serves as an example for others to follow.



SSgt James L. Swartz
116 CAMS, 116 TFW (ANG)
Dobbins AFB, Georgia

AVOIDING BAD WEATHER

- An F-111 crew swings too close to a thunderstorm while entering an IR route and gets struck by lightning. Their aircraft suffers damage to the radome and both UHF antennas.
- An F-106 is struck by lightning at the pitot tube, knocking out all AC power before it exits at the tail. The radar is damaged and a small portion of the tail section knocked off.
- An F-15 is struck by lightning at FL330 while trying to avoid thunderstorms in the area. The lightning strike caused the centerline fuel tank to explode which resulted in engine, hydraulic and fuel problems.

It's that time of year again and those are just a few of the surprises that aircrews have experienced in the past from springtime weather hazards. Thunderstorms, lightning, hail, high winds, microbursts and wind shear remain just as great a reality in spring and summer months today as they ever have. We may grow a little calloused to the potential for twisted pitot booms, shredded fiber glass and other damage that always lurks in the vicinity of thunderstorms, but the threat is still there and every bit as potent.

Heads Up

What can you do to avoid such problems? First, be aware of the weather problems that you might encounter on any given day. If you're a newcomer to your base, ask the weather folks for a brief rundown on the kinds of weather phenomena that are most common to your area. Awareness of what's facing you out there is half the battle.

Mission Planning

A lot of unnecessary weather problems during flight can be

prevented during your mission planning for the sortie. Preflight planning should include a thorough weather briefing with special consideration of thunderstorm activity. Pay close attention for specific information on where thunderstorms are already located or are most likely to occur. Get a look at a current satellite photo or other graphic portrayals of thunderstorm activity to help with your planning. That information is invaluable in deciding whether or not the low-level route or working area you've been scheduled for is your best option for that day. Why court danger from thunderstorms if you can go somewhere else to accomplish the necessary training?

Pay particular attention to the freezing level and then try to avoid it. The most probable area for lightning strikes and static damage is within ±5000 feet of that altitude.

Airborne

We all know not to penetrate a thunderstorm. In fact, AFR 60-16 says "There is no peacetime mission that requires such penetration." That's exactly what it means. But let's use our heads. You certainly don't have to penetrate a thunderstorm to get in trouble, so avoidance should be your primary rule of thumb. Don't try to take off or land with a thunderstorm sitting right off the end of the runway or in the immediate area. It's also not wise to fly approaches at an airfield where thunderstorms are kicking out lightning, hail, heavy rain and wind shear. That kind of flying practice you don't need.

There's nothing magic about the corridor boundaries on a low-level route or the black line drawn on your cross-country chart. If a thunderstorm decides to share the airspace you'd planned to use, deviate from your planned route and let the air traffic control folks know as soon as possible. Use your airborne radar and PIREPs to help you give thunderstorms a wide berth. Don't try to pick your way through a line of them. Go around if possible on the upwind (non-anvil) side to minimize your exposure.

It's not only in or near thunderstorms that you can get into trouble. Thick cirrus clouds from decaying thunderstorms can also be one of the most likely places for a lightning strike to occur. Avoid the thicker regions of cirrus cloud decks that were once associated with thunderstorms. Even though you may not see obvious vertical thunderstorm development or visible lightning, the possibility of being zapped is still there. You don't even have to be in clouds or precipitation. A bolt from "out of the blue" can get you as far as 25 miles from the nearest cloud. The best idea is to stay well away from Thor's hammer.

Don't rely on ARTCCs to keep you out of harm's way. Centers have only a limited capability to detect weather. Controlling aircraft is always their first priority, so aircrews should not depend on them to provide accurate weather information.

Don't hesitate to contact the nearest pilot-to-metro service (PMSV) facility while you're airborne to update your weather briefing. Air Weather Service (AWS) forecasters are not permitted to vector aircraft, but they can provide essential information to enable you to make critical real-time decisions for weather avoidance. Their weather radars are designed for optimum detection of precipitation and thunderstorms, including intensity of cells, movement and tops; plus, the forecasters are trained and instructed to provide this type of assistance to airborne aircraft on a first priority basis over all other peacetime station duties. Whenever possible, time permitting and a PMSV/weather radar facility within UHF range, contact the AWS forecaster and use this valuable service. A map showing location of all pilot-to-metro service and weather and radar facilities is contained in the DOD Flight Information Handbook.

Occasionally, despite all your best efforts, you're going to find a big fat cell at dead 12 o'clock for 40 miles. Don't wait until 20 miles to start working a deviation. No matter how hard you "wish," if it's dead ahead at 40, it'll be in the same place at 20 miles, just bigger; so work the problem early. Of course, if you're IMC to start with, you'll have to think even further ahead and use everything/everyone available to avoid the thunderstorms. But like we said in the beginning, knowing what's out there is half the battle. You won't be sorry you did.

Sunshine robs your eyes of visual purple, a chemical you need for good night vision. If you spend the day outside, without a good pair of sunglasses, don't expect your night vision to be up to speed.

Spring cleaning tip: Don't mix bleach and ammonia. They produce fumes that can be highly irritating as well as deadly. Many liquid cleaners contain ammonia; so read the label first. If you are unsure, don't mix it.

Lead poisoning. If you're planning to remove that old paint, keep in mind that old paint may be more than 50 percent lead. If you use a heat gun to remove the paint, keep everyone away from the dust, chips, fumes and debris. Lead dust coats furniture, walls, floors and toys. Many young children have become very ill with lead poisoning when a well-intentioned parent took action to remove the lead paint.

Ever worry about the **kids wandering off on a camping trip?** There's a one-pound transmitter on the market that attaches to a child's belt and sends a constant beep to a portable monitor up to 500 feet away. If the child crawls into something and interrupts the beep, an alarm goes off. It will also sound an alarm if someone tries to remove the belt.

Wallpaper—a life-or-death decision. A new wallpaper is now available (wherever wallpaper is sold) that can give an early warning of a fire. It works with an ionization smoke detector and emits a colorless, odorless, harmless gas when the wall reaches 300°F. The gas sets off the smoke detector earlier than it would ordinarily. The wallpaper is especially useful in sensing smoldering fires within walls that are caused by faulty wiring.

A **tornado watch** is an alert message sent to areas where tornadoes could *develop.* A **tornado warning** means a tornado has been *sighted* by an observer or detected on radar. During a **watch,** be alert to changing weather conditions. During a **warning,** stay tuned to the radio and keep away from windows, doors and outside walls. A good shelter is a place like the bathroom, a closet or some other room located near the interior of your home. A basement, if you have one, is best. In an office building, move to an interior hallway on a lower floor or go to the designated shelter area. Don't seek shelter in a building with a wide, free-span roof. Don't stay in a mobile home—get out and seek more substantial shelter. Outside, lie flat in a ditch or seek shelter if there's time. In a car, get out and lie flat in a ditch.

Please keep off the grass. Some people are allergic to the pesticides and herbicides that chemical lawn companies use to make our lives easier (better?). Many of the affected people are allergic to very weak solutions. Children, elderly people, asthmatics and people with chronic lung and heart conditions are especially susceptible. The chemical ingredients causing most health concerns fall into a generic category called *organophosphates.* All the chemicals used are readily absorbed into the body, especially organophosphates, which can even penetrate leather shoes. Everyone seems to agree that you should avoid walking on a recently-treated lawn. The controversy is how long you must keep off the grass. The Council on Hazardous Materials recommends avoiding contact for 7–10 days. Many communities are adopting regulations that re-

quire posting warning signs, so check local restrictions before you sign a contract. Other precautions you should take—

—Make sure the company only sprays on calm days and that windows in your home and car are closed.

—Remove all toys, pet food dishes, barbecue grills, utensils and garden tools and cover firewood with plastic—remember the chemicals are easily absorbed.

—Treat only infested areas.

—Warn neighbors at least a day in advance.

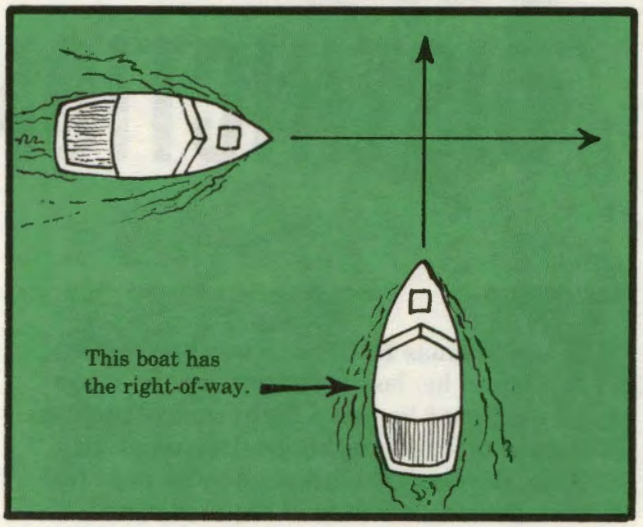
—Whether required or not, post warning signs for people to keep their kids and pets off your grass.

—If it doesn't rain, water your lawn to ensure penetration of the chemicals into the soil.

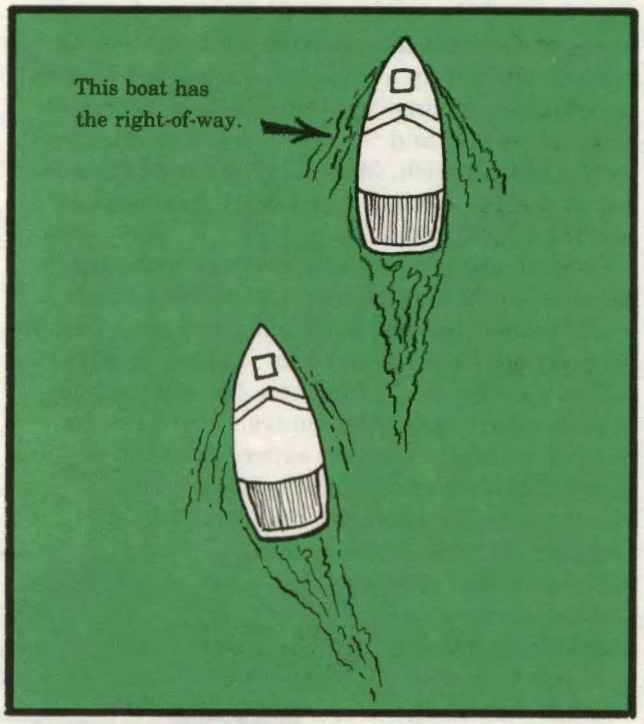
—To avoid having to take these precautions in the first place, consider nontoxic alternatives first.

Easter egg reminder. Easter Sunday falls on April 19th this year. We want to give a heads-up that unrefrigerated Easter eggs could cause food poisoning, according to a report in the *Journal of the American Medical Association.* Normally, unbroken eggs are protected from spoilage for weeks—even without refrigeration—by several properties unique to an egg (the cutical, shell membranes and antibacterial properties of their protein). But these properties are destroyed by heat—when eggs are hard-boiled—and by mild acid—the vinegar that's required for use with most dyes. If you take advantage of already-dyed eggs that are being sold in many grocery stores, don't buy them if they aren't refrigerated. Suggest to the management that they be refrigerated. How long can an egg sit out before it has to be refrigerated? Use this basic rule that protects food from contamination: keep hot foods hot, put the rest in the refrigerator immediately.

Boating Rules of the Road. When two boats approach head-on, each must go to the right and pass left side to left side.



When boats cross at right angles, the boat on the right has the right-of-way.



When overtaking or passing, the boat being overtaken has the right-of-way. Rowboats and sailboats under sail always have the right-of-way over power boats.

AIRCREW OF DISTINCTION

Maj Thomas H. Goyette
120 TFS, 140 TFW (ANG)
Buckley ANGB, Colorado

Major Thomas H. Goyette was just pulling off from his last strafe pass on the range when he realized he had a flight control problem. During the off-range rejoin, he discovered his A-7D had developed an uncommanded near full aft stick position which soon required considerable force on his part to keep the aircraft level. Pushing with both hands and at times using his knees to help hold the stick foward, he disconnected the automatic flight control system to try and correct his problem. Immediately his aircraft pitched up and rolled, then dived steeply. Inverted and diving, with no effective aileron or elevator control and the ejection handle blocked by the full aft stick, Major Goyette used the rudder to roll the aircraft and finally recovered at less than 1000 feet AGL.

Controllability checks on the way home indicated he could maintain control of the aircraft using rudder, but the stick remained near its full aft position. He configured for landing and maintained a speed of 210 knots for his approach to provide adequate rudder control. Just prior to touchdown Major Goyette experienced the beginning of another uncontrolled pitchup. He reacted quickly, however, and brought the aircraft back under control for a successful landing and departure-end barrier engagement.

Major Goyette's aircraft knowledge, experience and coolness during an extremely physical and emotionally taxing emergency situation resulted in the save of a valuable TAC resource.

TAC TALLY

TAC		
FEB	THRU FEB	
	1987	1986
CLASS A MISHAPS	1	3	8
AIRCREW FATALITIES	0	3	4
TOTAL EJECTIONS	1	3	7
SUCCESSFUL EJECTIONS	1	3	7

ANG		
FEB	THRU FEB	
	1987	1986
CLASS A MISHAPS	0	0	1
AIRCREW FATALITIES	0	0	0
TOTAL EJECTIONS	0	0	2
SUCCESSFUL EJECTIONS	0	0	2

AFR		
FEB	THRU FEB	
	1987	1986
CLASS A MISHAPS	0	1	0
AIRCREW FATALITIES	0	1	0
TOTAL EJECTIONS	0	0	0
SUCCESSFUL EJECTIONS	0	0	0

TAC'S TOP 5 thru FEB 1987

1st AF	
class A mishap-free months	
183	84 FITS
78	318 FIS
24	325 TTW
13	57 FIS
13	5 FIS

9th AF	
class A mishap-free months	
48	33 TFW
21	507 TAIRCW
18	1 TFW
12	31 TFW
7	354 TFW

12th AF	
class A mishap-free months	
70	USAFSO
46	366 TFW
30	355 TTW
28	27 TFW
28	479 TTW

ANG	
class A mishap-free months	
211	182 TASG
195	110 TASG
170	138 TFG
152	177 FIG
147	114 TFG

AFR	
class A mishap-free months	
78	482 TFW
77	301 TFW
68	924 TFG
56	906 TFG
52	442 TFW

DRU's	
class A mishap-free months	
191	USAFTAWC
125	28 AD
4	USAFTFWC

CLASS A MISHAP COMPARISON RATE

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

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
TAC	1987	3.5	2.8										
	1986	4.8	6.8	5.4	4.4	4.1	3.7	3.6	3.2	3.4	3.9	3.9	3.8
ANG	1987	0.0	0.0										
	1986	4.3	2.4	3.1	2.3	2.7	3.0	2.5	2.2	2.4	2.6	3.2	3.0
AFR	1987	23.1	12.1										
	1986	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	4.6	4.2	3.9

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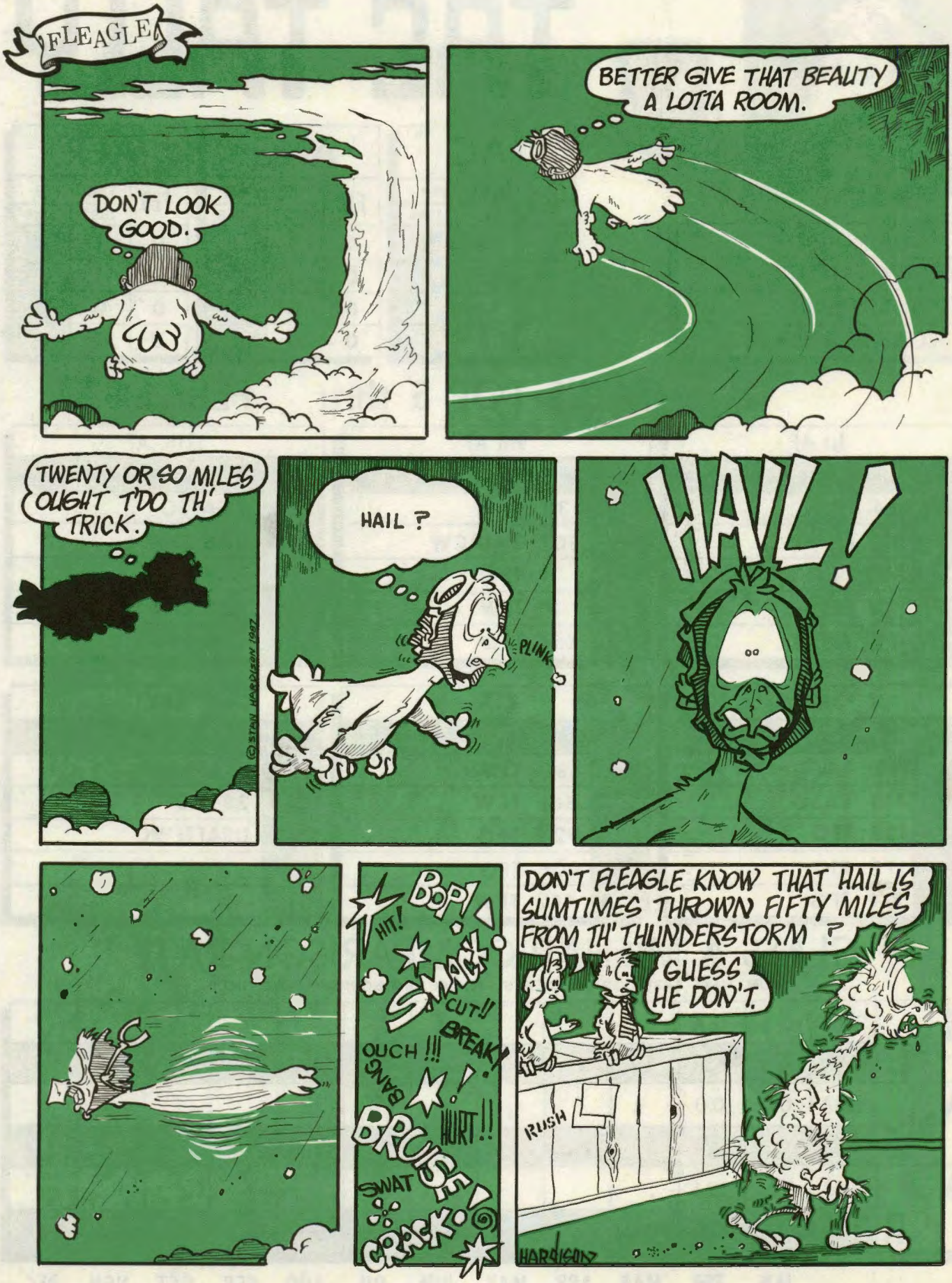
FLEAGLE
DON'T LOOK GOOD.
BETTER GIVE THAT BEAUTY A LOTTA ROOM.
TWENTY OR SO MILES OUGHT T'DO TH' TRICK.
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HAIL ?
PLINK
HAIL!
BOP!
HIT!
SMACK!
CUT!!
BREAK!
OUCH !!!
BANG
HURT!!
BRUISE!
SWAT
CRACK!
DON'T FLEAGLE KNOW THAT HAIL IS SUMTIMES THROWN FIFTY MILES FROM TH' THUNDERSTORM ?
GUESS HE DON'T.
RUSH
HARDISON