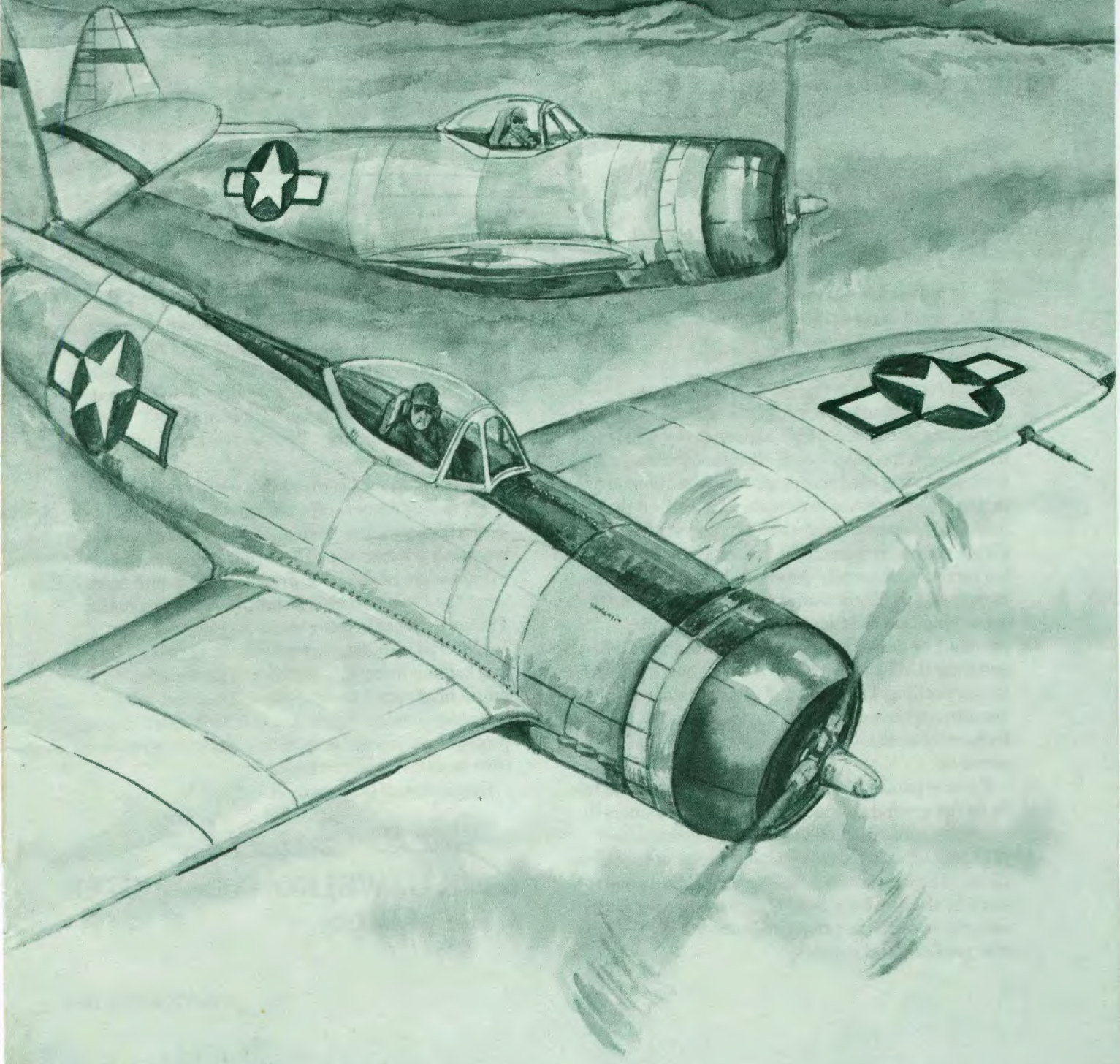


TAC ATTACK

SEPTEMBER 1988



ANGLE OF ATTACK



Let me list for you some cause factors that were present in recent TAF flight mishaps:

- inflight supervision
- pilot technique
- improper emergency procedures

You may find yourself thinking, "A mishap caused by something like that couldn't happen in our unit, could it? No, we're too good!" Well, all of those mishaps could have been averted. I recently heard a gentleman use a most accurate phrase to explain what caused those mishaps – *excessive professional courtesy*. That is, giving your wingman credit for being better or knowing more than he really deserves. In practical terms, it means that the flight leader allows the wingman to do something that he knows the wingman really shouldn't be doing. Instead of correcting him and ensuring that he returns to what we know is correct, we say nothing. I'm sure all of you can remember instances when you've seen that happen. The result is frequently a mishap with the loss of aircraft and aircrews.

If you expand that concept and relate it to what we do on the ground, how many of you senior leaders in operations, maintenance, and support areas allow your people to do things you know are wrong, but you think, "They're old heads so there must be a good reason why they're doing something improper or not in accordance with the proper tech order?" Again, **excessive professional courtesy**.

With September, we're approaching the end of another fiscal year and a vast amount of leaves are taken in the August and September time frame. As you prepare to go out for a flying mission, ask yourself, "How current is my wingman or the WSO in number Two? Has he just come back from leave?" If so, his proficiency is probably down and certainly merits your consideration.

There's another big event that occurs in late August or early September – **the kids go back to school**. While it's a welcome change, the kids' return to school is a much greater transition in our lifestyles than many people realize. Our priorities must shift from what they've been throughout the summer months. The activities of helping the kids readjust to the school environment, shopping for clothes/supplies and helping them with homework all require a commitment of your time and effort. That time must come from somewhere. Watch that you don't shortcut your professional job and responsibilities in order to make time to do those other things.

Happy Labor Day, pardner.

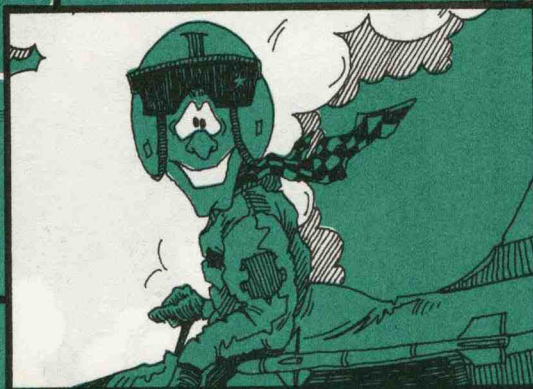
Jack Gawelko
JACK GAWELKO, Colonel, USAF
Chief of Safety

TAC ATTACK

DEPARTMENT OF THE AIR FORCE



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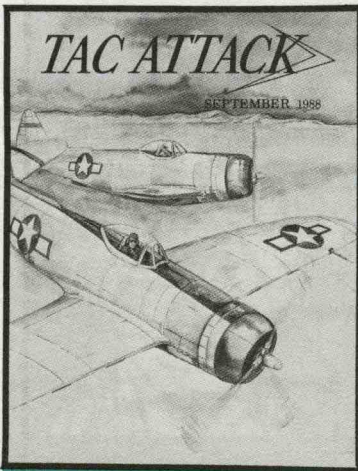
TACSP 127-1

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Lt Col Scott Wales
ANG/AFRES Advisor
TAC Office of Safety

Survival! The word implies a desperate battle against overwhelming odds and a threat to your very existence. History is full of extraordinary feats that tell us much about this basic human imperative: Peary's march to the North Pole, Hilary's conquest of Mt. Everest, and the experiences of our American prisoners of war come to

mind as examples of man's will to survive and prevail over the worst treatment by his fellowman or the elements. All of these men succeeded because they had a will to survive and a plan to make it happen. They survived because of skill, training and prudence. Each one avoided unnecessary risk whenever possible.



Two of the enemies are complacency and lack of situational awareness; both are real killers.

Unfortunately, our ability to survive is much reduced when the threat is not perceived or clearly understood.

In day-to-day operations, our goals are not so clear, and the threats to our existence not as readily apparent. Because of this, we often ignore real threats to our own daily survival. Two of the enemies are complacency and lack of situational awareness; both are *real killers*. Unfortunately, our ability to survive is much reduced when the



LIVE TO FLY, FLY TO LIVE

threat is not perceived or clearly understood. We may fail to see the ground (or water) and our wingmen as potential threats because of our familiarity with them as friends. However, familiarity can breed complacency, and the results may be catastrophic. Unplanned and unexpected events can rapidly overwhelm us when we do not have a survival plan. The margin for error or indecision is small; a few seconds may literally mean the difference between life and death.

Several recent mishaps give clear evidence of the effects of complacency and/or a lack of situational awareness.

— An IP became disoriented and flew into the water during a night intercept mission. When he overshoot on his first pass, the flight lead (also an IP) made no comment. The mishap pilot's last pass was also poorly executed and resulted in a high, close and fast approach followed by a hard turn to correct the errors. The leader issued several unacknowledged warnings on that pass. Both the aircraft and pilot were lost.

— An experienced senior pilot became engrossed in a gun tracking exercise, and didn't notice until seconds prior to flameout that his external wing tank fuel had not transferred. He didn't note the cockpit warnings which might have

alerted him to the problem. He ejected successfully.

— An experienced pilot had a fire in his aircraft on takeoff. He delayed ejection for undetermined reasons, despite several warnings over the radio. His late ejection decision placed him outside the envelope and he was fatally injured. He had taken off in an aircraft seen leaking substantial quantities of fuel from the centerline tank.

These mishaps occurred because **no one took charge**. None of the mishaps involved complex or demanding missions and all might have been prevented with timely decisions and appropriate action. In each case, opportunities to stop the mishap sequence were not taken. Complacency and lack of situational awareness were the common elements in each mishap.

The ultimate responsibility for our personal awareness and survival still rests with you and me - the aircrew.

Most of us think we are invulnerable — accidents happen

only to "weak sticks." This is the worst form of complacency, and the results are quite predictable. The problem is how to keep our awareness high enough to defeat complacency and lack of situational awareness in order to prevent mishaps. The ultimate responsibility for our personal awareness and survival still rests with you and me — the aircrew.

"Flying to live" promotes not only our combat capabilities, it also engages our most powerful motivator self-preservation.

Here's a phrase I feel sums it up: *"You must fly to live, as well as live to fly."* Flying is an inherently risky business, and each of us accepts that degree of risk. Life at its best involves risks for worthwhile goals. Our goal is obvious — to maintain combat capability. You'll be no threat to an adversary if you're dead and your aircraft is a "smoking hole" before the war starts. "Flying to live" promotes not only our combat capabilities, it also engages our most powerful motivator — self-



We need to be aware of our own physiological limitations as well as those of the aircraft.

In addition to the examples which supervisors must provide, we must all teach and practice respect for the realities and threats involved in flying. This includes a healthy respect for the threats posed by the ground and your wingmen as well as the basic laws of airmanship and aerodynamics. We need to be aware of our own physiological limitations as well as those of the aircraft. Are you prepared to handle these problems when they occur?

Sometimes the decision to survive is as simple as paying attention to the little hairs standing up on the back of your neck, and then “knocking it off.” In short, you’ve got to fly as if your life depended on it because – it does. Overcoming the enemy – the “wily Hun,” good old *terra firma*, or your wingie – is the key to winning the war and ensuring your own survival. Statisticians don’t usually call an accident a disaster until the death toll reaches one hundred. Let’s face it – if it’s *your* death, it’s a disaster. Decide to survive – it’s *your* life. ➤

preservation. Planning and training will allow us to attain our goals, and avoid the risks which could mean failure.

How do we instill this awareness in our aircrews? The most reliable discipline is self-imposed, that which we’ve internalized and made a part of our everyday lives. Fear can be a powerful motivator, but, in excess, can lead to hesitation and indecision. Bad decisions, when airborne, may ultimately bring death.

Supervisors are part of the key to reducing the incidence of compla-

ency. The problem is that training and lectures on safety are weak motivators; this is especially true when we see leaders who routinely ignore these same guidelines. Individual behavior is influenced more by imitation than by exhortation. We generally do as our leaders do, not as they say we should do. Thus, leadership discipline is the key to any safety program. Such leadership was not evident in any of the mishaps described above. If leaders do not set the example, they can’t expect much from their subordinates.

TAC tips

INTERESTING ITEMS, MISHAPS WITH MORALS, FOR THE TAC AIRCREWMAN

Needle in a haystack

A beautiful VFR day. Visibility over 7 miles, good distinct horizon and the sky was cloudless. Why, it's clear and a million! A flight of F-4s tooled along at 4,100 feet MSL under radar control for a practice formation approach.

Approach Control gave a heads-up call, "Traffic, 12 o'clock, 3 miles, altitude readout 3,600." Shortly thereafter, as the flight members searched for the reported aircraft, Approach reported, "Clear of previously reported traffic." At the same instant, lead spotted a white, single-engine civilian aircraft at his 1230 on a collision course. With 150 knots of overtake, the F-4s took evasive action and subsequently missed the private plane by less than 100 feet. No evasive action was taken by the civilian pilot.

Where could all of this have been avoided? Were the aircrews lulled into a false sense of security because they were under IFR control and following radar vectors? AFR 60-16 reminds us that, during the IFR portion of a sortie, we are only separated from other IFR traffic which is operating within controlled airspace. "See and avoid" is *always* critical when weather condi-

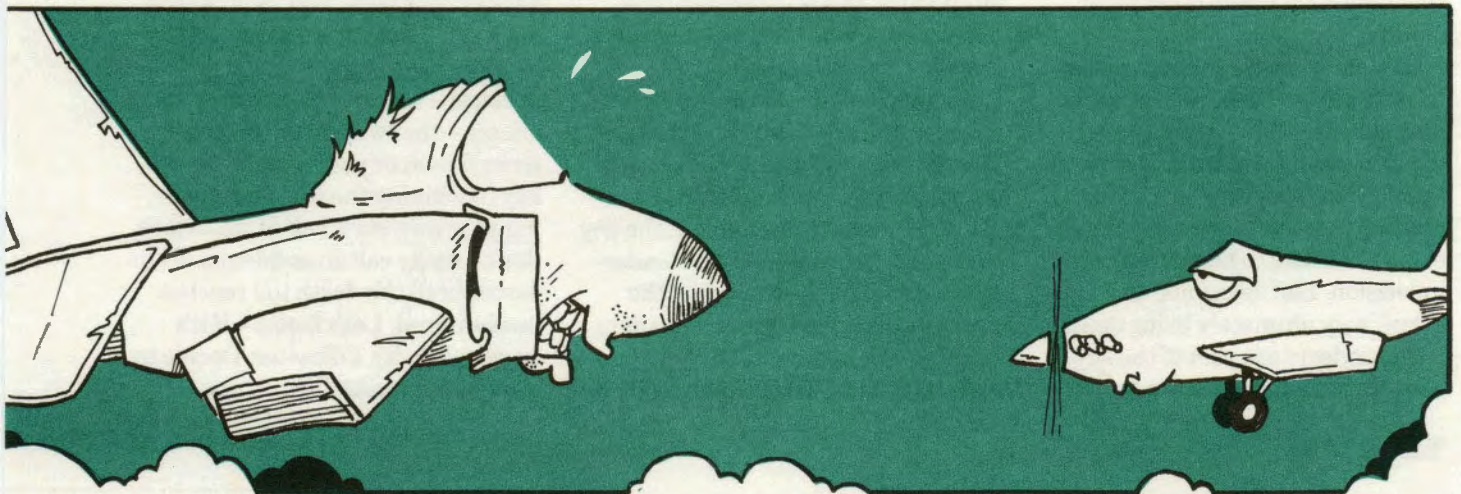
tions permit it.

The approach controller's information was misleading when he reported that the conflicting traffic was cleared. Advisory calls are just that, advisory – intended to make us aware of potential conflict and help us to get our eyes on the bogie.

Where was the civilian aircraft in the F-4 crews' field of view before it was reported? Should the aircrews have been able to see it first? Sometimes an aircraft's paint scheme, planform, relative position and heading will make it nearly impossible to see. Most times, however, adequate clearing and lookout will enable us to pick up traffic in sufficient time to avoid it without resorting to last-ditch maneuvers.

All of this is to remind us that see and avoid is essential from the minute we release brakes in the chocks until we shut down after landing. Keeping your head on a swivel is vital whether you're looking for the Hun in the sun, the other Falcon in the pattern or a Cessna on the airway.

A healthy attitude of caution and skepticism, part of situational awareness, is always in order to ensure that someone else doesn't give you bad info that can lead you into a collision with the ground or someone else.



Unbinding the strongman

“Roll out, you pig!” shouted a somewhat concerned OV-10 pilot as he unsuccessfully tried rolling out of the left turn from downwind to base leg on a rocket pass at a nearby range. The more he forced the stick to the right, the more resistance he felt. Meanwhile, the aircraft continued rolling left. As the bank increased through 60 degrees, the pilot stomped hard on the right rudder and managed to coax the Bronco back to level flight. Whew!!

After climbing straight ahead to a comfortably high altitude, the pilot began checking the aircraft's flyability. This time the ailerons worked just fine in both directions. Hmmmm. Must've been wake turbulence from one of the preceding aircraft.

What would you do at this point?

This troop decided to descend back down, rejoin his workmates and continue the mission. Anything wrong with that picture?

Here is some wisdom from the School of Hard Knocks that's contained in the 55-series book – *If a flight control malfunction is experienced (including an uncommanded flight control input which apparently returns to normal), terminate the mission immediately and land as soon as practical.*

As it turned out, a bolt in the linkage of the right aileron's trim tab had backed out. At the moment the pilot applied right stick to roll out of the left turn, the bolt caught on the outboard flap and prevented the right aileron from coming up. The binding aileron was finally freed when the strongman used enough stick pressure to shear the bolt.

This fellow got off lucky . . . but you can't count on that.

Which way is up ?

We all know not to fly when our ears and sinuses are plugged up from a cold, flu or sinus problems. When sickness does catch us, we're always anxious to get off DNIF and back in the



air as soon as possible. But before we do, we need to make sure we're just as airworthy as our jet.

One aircrew member ran into some unexpected physical problems when he thought everything was in fine running order. The F-15 pilot had been off DNIF status from a cold for seven days and didn't notice any further aches or pains. During a formation climbout, he noticed pressure building up in his ears as the flight passed 4,000 feet. One ear cleared itself, but the other wouldn't even when he tried to valsalva.

The real problem came as he looked over at his leader and suddenly had the sensation of rolling right and pushing over. Realizing his disorientation, the pilot got on the gauges and tried to regain his bearings. The feeling of disorientation continued until he passed 7,000 feet and the ear block finally cleared.

The F-15 driver had fallen victim to vertigo caused by the pressure in his blocked ear. Ear blocks are not only uncomfortable, but they can get us into insidious "attitude" problems. Be aware of your physical condition and knock it off if you're not 100 percent. If you get as far as wheels-in-the-well, stop your climb as soon as possible if you can't relieve ear pressure.

limits, basics, para

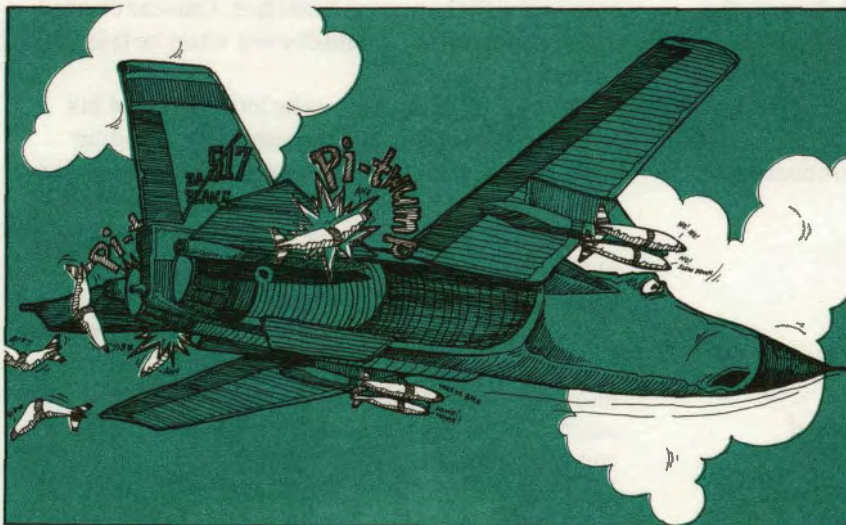
Colonel Frank B. Campbell
Commandant, USAF Fighter
Weapons School
Nellis AFB, NV

A recent commander's fighter safety crosstell message described two incidents of bomb-to-aircraft collision. Both events were a result of releasing the munition above the maximum delivery air-speed. Fortunately, the aircrews survived to tell their stories. There are some lessons here for all of us to master. These lessons extend well beyond the safety corner of the "Big Picture" and encompass our train-

ing, weapons, and tactics programs as well. Accordingly, the word deserves attention in the *FWR*. — **LIMITATIONS.** There are limitations for everything we do in the flying business. There are limitations both in peacetime and in war. How long? How high? How slow? How fast? What "G" on the aircraft? How much dive? How much bank? Where to fly? Supersonic? Subsonic? What distance between air-

The limitations, whatever they may be for your aircraft, were not randomly selected.

Most often they were flight tested to the limit of an "envelope."



craft? The limitations, whatever they may be for your aircraft, were not randomly selected. Most often they were flight tested to the limit of an "envelope." If you stretch your envelope, be advised you're taking your life in your own hands. Know **your** personal limits. Know your aircraft specific limits. Know your weapons limits. Fly within all these limits!

meters, & simplicity



BOMBS ON TARGET. Bombs on Target. Focusing simply on Bombs on Target muddles our judgment and clouds the issue. This cannot be our point of concentration at the expense of the basics. "If I fly the CCIP dot to the target, then I'll get that good score no matter what the parameters." If any hint of this way of thinking has entered into your habit patterns, then perhaps you had better do some rethinking. Why not strive for exact parameters, even when using the CCIP? **KEEP IT SIMPLE.** The complexity of today's "realistic" training scenarios should occasionally force us to fall back and regroup. We

shouldn't wait for the next Class A mishap to regroup. Where do we find common ground to do this regrouping? We find it in the basics. Conquer a complex task by breaking it down into its simplest elements. One of those elements is basic bombing. Our space-age airplanes cannot transcend the laws of old-age physics. **LIMITS, BASICS, PARAMETERS, and SIMPLICITY.** Each of these

and **MORE** need to be clearly in focus on your "**Big Picture.**" We emphasize these at the Fighter Weapons School and demand a rigor and discipline all strive to achieve. In the final analysis, we are all weapons officers; we must all concern ourselves with the **BASICS.** Get these down pat and **BOMBS ON TARGET** will naturally follow.

Conquer a complex task by breaking it down into its simplest elements.

(Reprinted by permission, "Fightergram," USAF Fighter Weapons Review, Spring '88.)
Editor's Note: The basic premise of

this article can and should be applied to flying your aircraft. Our thanks to Colonel Frank Campbell for allowing us to use his thoughts.



TAC FLIGHT SAFETY AWARD OF THE QUARTER

Captain Harvey D. Johnson's insight, motivation, and professional expertise as a Squadron Assigned Flight Safety Officer (SAFSO) and an F-16 instructor pilot have significantly enhanced flight safety in his squadron as well as the 56th Tactical Training Wing. The success of his efforts toward flight safety is directly reflected in his squadron's record of no operations-related Class A or B mishaps during his time as SAFSO.

In the 63 TFTS, Capt Johnson provided detailed guidance and functional training to the Additional Duty Flight Safety Officer. Their effective working relationship produced a unit program consistently evaluated as excellent during both higher headquarters and local inspections. He also developed a comprehensive read file to ensure an efficient flow of information between the commander and unit flying safety officers. Vital safety information, including magazines and mishaps reports, is effectively disseminated within the squadron to keep everyone abreast of current F-16 safety issues. His development of a comprehensive deployment book provides a single-source reference for use at deployed locations; and comprehensive deployment briefings set the tone for professional operations at unfamiliar locations.

As SAFSO and functional check

flight pilot, Capt Johnson's frequent interface with the aircraft maintenance unit and Maintenance Flying Safety Officer (MFSO) have significantly enhanced his unit's operations/maintenance relationship. Emphasis on the material deficiency reporting system significantly improved unit submissions associated with reportable mishap investigations.

At the wing level, Capt Johnson set the example for other unit SAFSOs. He assembled three unique mishap investigation kits containing items critical for initial response to a major aircraft mishap. To enhance training for future mishap investigation board members, Capt Johnson assembled all board recorders during a recent actual major mishap investigation, providing valuable "real time" experience. He also developed comprehensive flight safety inspection checklists to further improve the quality of spot and annual inspections.

Capt Johnson's work as an investigating officer during a recent F-16 Class A mishap was incisive and highlighted safety issues pertinent to F-16 pilots worldwide. His investigations of unit reportable mishaps have included sound recommendations to prevent future mishaps and resulted in changes to the F-16 Dash One and numerous maintenance publications.



Capt Harvey D. Johnson
63 TFTS, 56 TTW
MacDill AFB, Florida

Capt Johnson's outstanding efforts have made "Combat Flight Safety" an integral part of 56 TTW operations. His dynamic programs and innovative ideas have made lasting contributions to safe mission accomplishment and earned him recognition through the TAC Flight Safety Award of the Quarter.



AIRCREW OF DISTINCTION

Second Lieutenant William L. Mourafetis, a student pilot with less than 60 hours in the F-16, was flying as number four on a syllabus surface attack mission. At 1000 feet above the ground on the downwind leg of the pop pattern, his aircraft entered an abrupt uncommanded right roll. While countering the roll, Lt Mourafetis called "knock-it-off," slowly returned the aircraft to wings level, and began a shallow climb. With no warning or caution lights displayed in the cockpit, he observed that the right leading edge flap had failed to the full up position. Passing this information to his instructor, who was providing assistance from a chase position, Lt Mourafetis continued to climb to safer altitude as he proceeded toward home base.

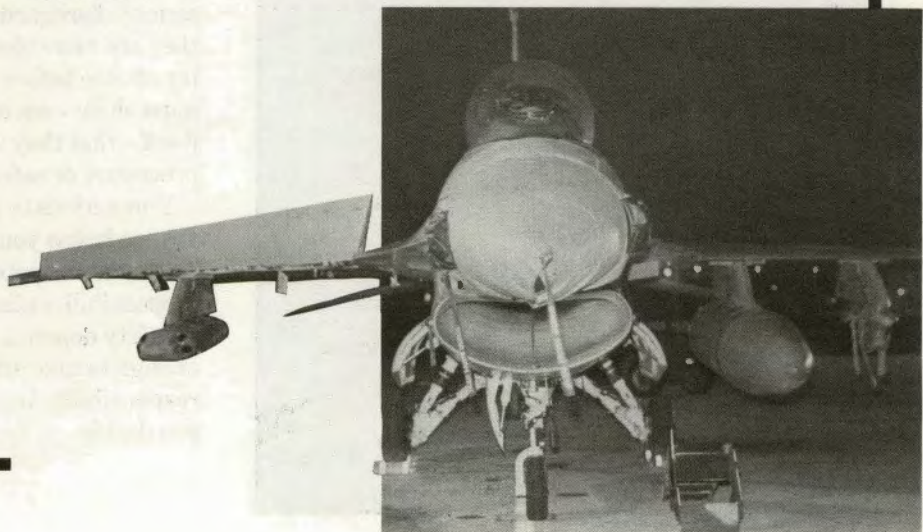
Despite full roll trim to counter the failed leading edge flap, constant stick pressure was required to maintain level flight, making pilot fatigue a significant complicating factor. In order to reduce his aircraft's gross weight before attempting a landing, Lt Mourafetis proceeded to the controlled jettison area to jettison his external wing tanks. When he depressed the emergency jettison button, only the right wing tank departed the aircraft. Fortunately, the remaining tank on the left wing reduced the stick pressure necessary to maintain level flight. Lt

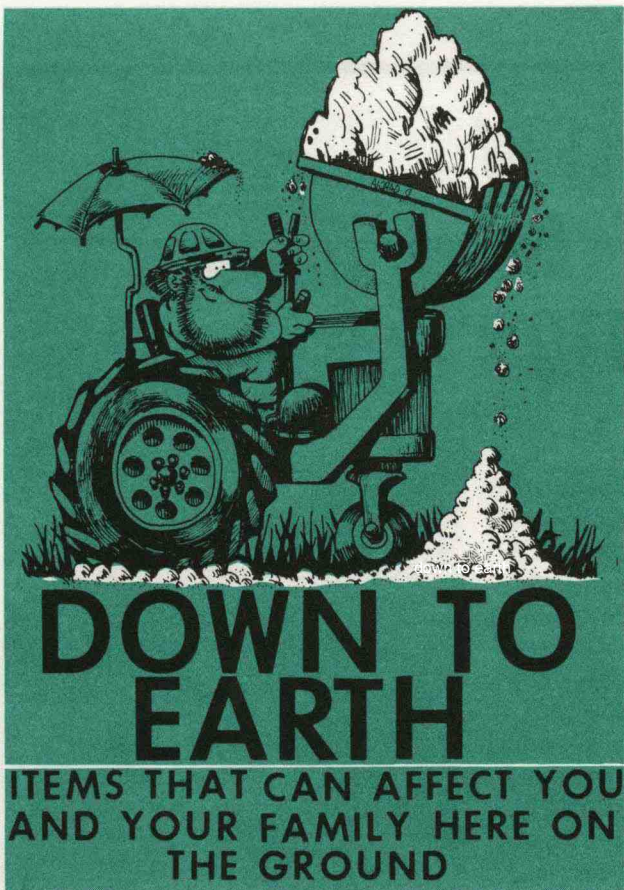
Mourafetis performed a controllability check and determined that an approach speed of 210 KIAS was required to maintain sufficient roll control for the approach to landing. He flew a 6-8 degree AOA approach and touched down at slightly less than 200 KIAS. After touchdown, the right rolling tendency became almost uncontrollable and he had to force the nose of the aircraft to the runway in order to maintain directional control. He was able to keep the aircraft on the prepared surface and engage the departure end arrestment cable.

Lt Mourafetis' careful analysis of this critical inflight emergency and his demonstration of superb airmanship averted possible loss of a valuable combat aircraft. His careful decision-making and outstanding performance earned him recognition as the TAC Aircrew of Distinction.



2d Lt William L. Mourafetis
75 TFTS, 56 TTW
MacDill AFB, FL



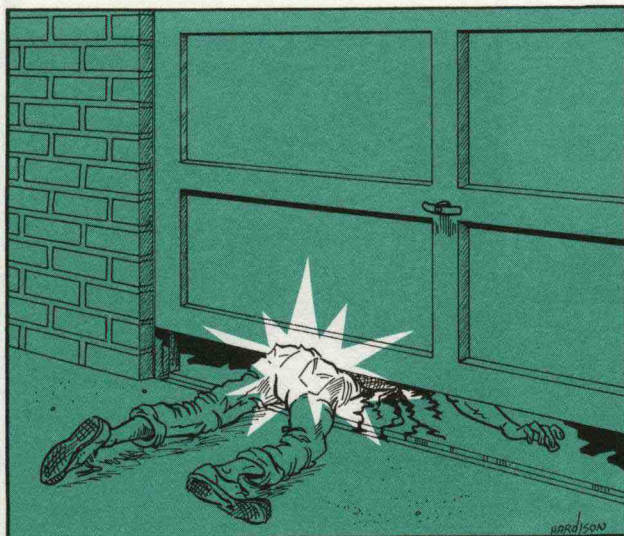


DOWN TO EARTH

ITEMS THAT CAN AFFECT YOU AND YOUR FAMILY HERE ON THE GROUND

Dangerous game

Children play a dangerous game when they activate a garage door opener and then try to race under the door before it closes. According to the Consumer Product Safety Commission (CPSC), in a recent five-year period 31 children younger than 12 have died playing with garage doors. Even doors with automatic reverse mechanisms have failed to operate correctly and



have fatally injured children.

The CPSC recommends that parents place all garage door activators out of the reach of children, lock up remote control units, and test the automatic reverse mechanism to be sure it will operate properly if the door hits an obstruction.

Caring

MSgt Gary R. Reniker
442 TFW/SEW
Richards-Gebaur AFB, MO

If you knew a member of your family was doing something that would get him or her killed, wouldn't you try to stop them? Last year more than 200 members of the Air Force family were killed in accidents. In many of those mishaps, somebody knew of the unsafe practice, but no one said or did anything to prevent it.

Lack of caring kills. And it will go on killing as long as airmen and leaders don't care enough to take action against violations of established procedures and disregard for safe practices.

To witness an unsafe act and fail to take action is a violation of the special trust and responsibility every airman shares for the welfare of fellow airmen. As members of the Air Force family, *we are our brothers' keepers*.

Getting away with taking shortcuts or ignoring established procedures is a deadly trap. Every time airmen disregard a procedure and nothing happens, they are more likely to do it again, and it's just a matter of time before they pay the price in full. Leaders must show – not once, but every time a hazard shows itself – that they will not tolerate a violation of a procedure or safety practice.

Your actions to get the job done directly affect the airmen below you. To ignore a situation that you clearly see as potentially dangerous disregards the responsibility placed on you as an Air Force member.

Safety depends on caring leaders. You either care enough to take action or you let it slide. It's your responsibility because your people will do whatever you decide.

The missing mowing ingredient

One of our TAC members was doing some much-needed work around his house, including sharpening and balancing the blades on a secondhand power mower he had bought a couple of years earlier. Unfortunately, his preventive maintenance on the mower didn't include replacing the rear trailing foot guard, the emergency stop handle and the cylinder head guard, which were all missing.

This fellow then began to mow his yard in tennis shoes because the combat boots he normally wore were wet. About an hour later he remembered an appointment he needed to make somewhere else in town so he started walking quickly toward the garage, pushing the still-running mower.

As he neared the house, the low-set mower hit a soft spot in the ground and almost came to a complete stop. The abrupt stop caused the mower's rear to raise up and allowed the man's foot to come to contact with the rotating mower blades, severing four toes.

It's never wise to operate a power mower or any other piece of powered equipment without the manufacturer-installed safety features. If you've got something that fits that description, get the necessary replacement parts so your equipment is in a mechanically safe condition for your use. When considering the proper footwear for mowing, ask yourself: what will stand between the mower and my foot if



the unexpected occurs? Safety-toed shoes or sturdy boots should always be worn for mowing. Finally, never leave a mower running unattended or when you're just moving it around from point A to point B. Take care to ensure that the only thing cut in your yard this summer is the grass – not you.

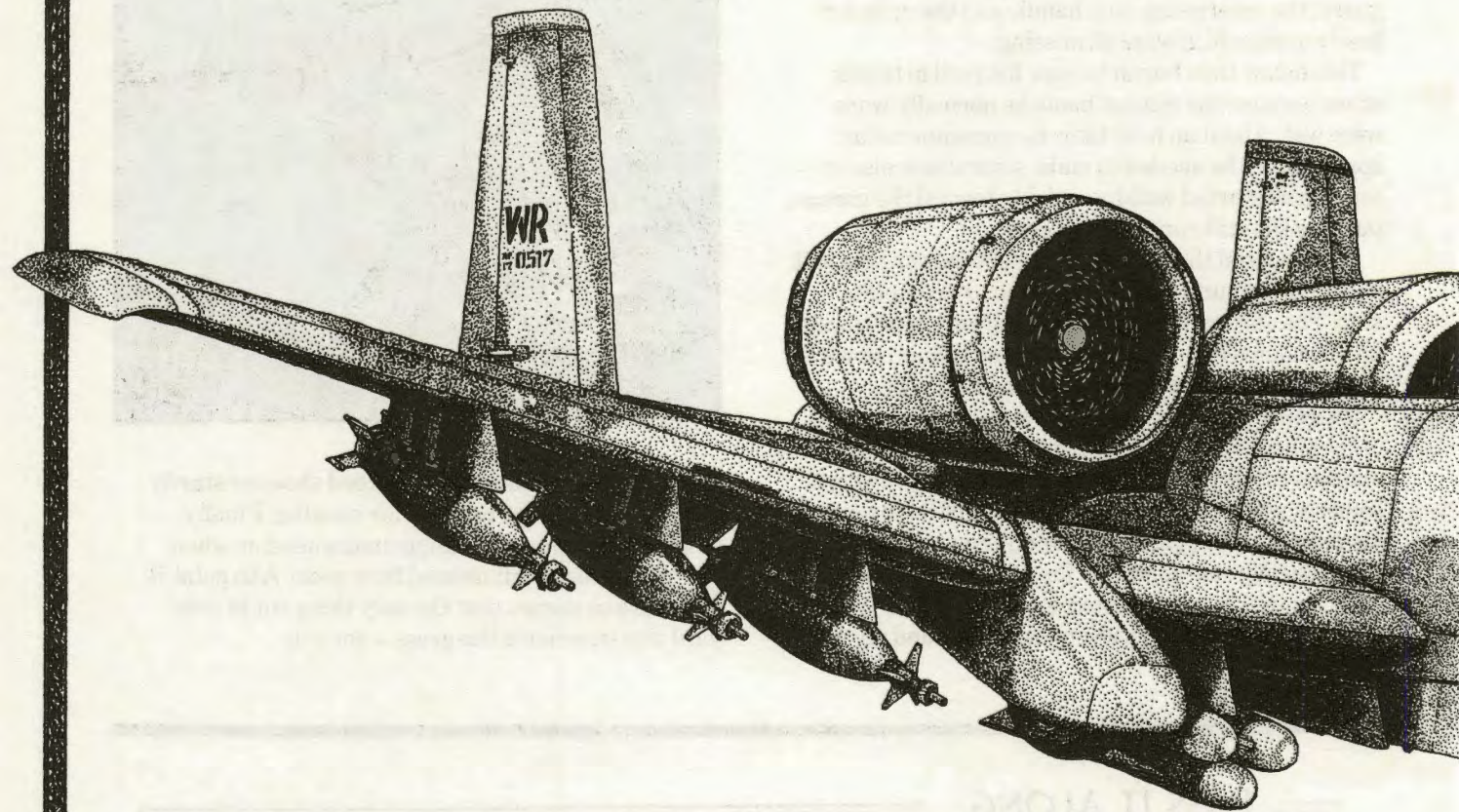
PASS IT ALONG...



nine people are waiting

The missing missing
ingredient

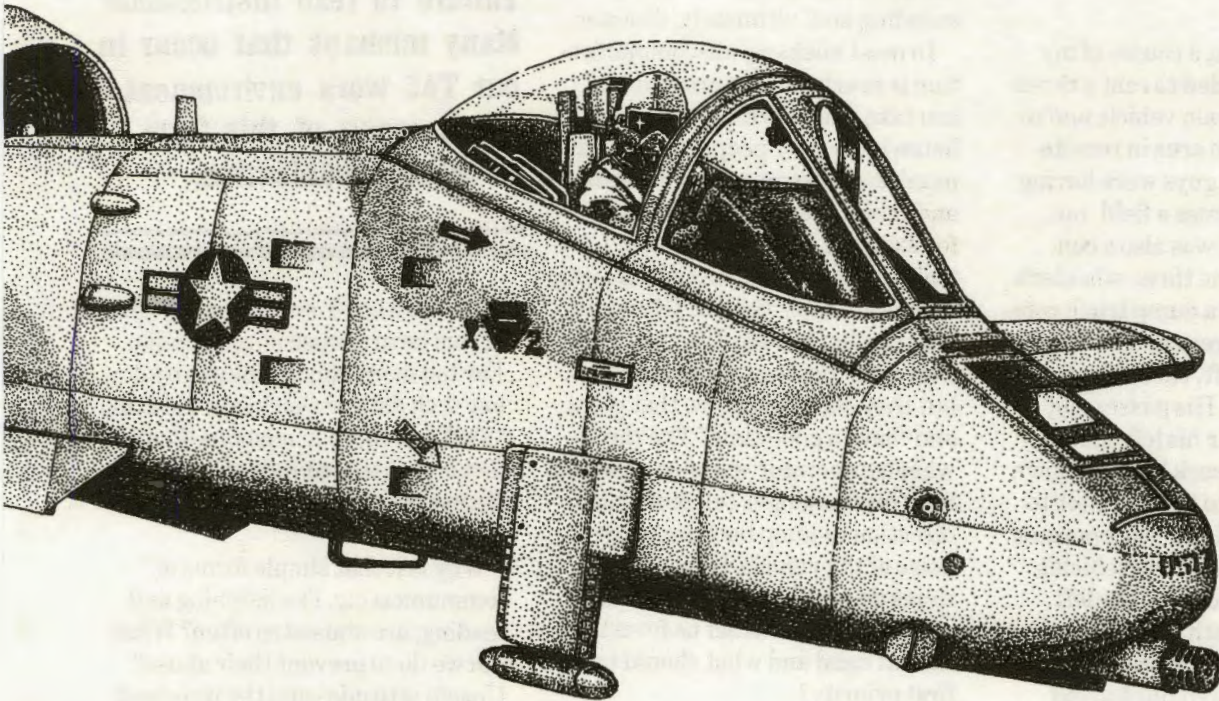
On his way to work, the 27-year-old...
...the...
...the...
...the...
...the...
...the...
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...the...
...the...



nine people are waiting

A-10 THUNDERBOLT II

MISCOMMUNICATION



DISASTER:

FLIRTING WITH

MISCOMMUNICATION

TSgt Mary Rowe
TAC Ground Safety

Sometime ago, a couple of my friends decided to rent a three-wheeled, all-terrain vehicle and to go joyriding in an area in remote Alaska. The two guys were having big fun riding across a field but, unfortunately, it was also a construction site. The three-wheeler's driver didn't see a dump truck coming from his left rear and he swerved sharply to the left, cutting across the truck's path. His passenger, looking back over his left shoulder and seeing the truck bearing down on them, yelled to the operator to jump off to the right. The operator didn't hear him over the vehicle's noise and jumped off to the left, directly in the path of the oncoming truck. The truck driver didn't have time to react and couldn't avoid striking both the vehicle and the operator. My friend was lucky; he lived, but was badly beaten up internally and both of his legs were broken.

My point in describing this mishap scenario concerns communicating. We are reminded of its importance throughout our service in the

Air Force. My contention is that miscommunicating, in many mishap scenarios, is the key to misunderstanding and, ultimately, disaster.

In most mishaps, miscommunication is nearly always present and can take many forms. Failure to listen is one way people fail to communicate. Take my young friends and their three-wheeler incident, for example. They had received training on the proper and *safe* way to operate their vehicle. Of course, the training included the fact that they were *not* to carry passengers, but they chose to ignore that point and "have a good time." The three-wheeler operator was also unable to hear his passenger tell him which direction to jump because of the noise of the vehicle. How many times do we let the "noise" of our surroundings distract us from the task at hand and what should be our first priority?

Failure to read instructions is another form of miscommunication. Do you know someone that buys an item which requires assembly and then spends twice longer than normal putting it together because he didn't take time to read the directions in the first place? Similarly, many mishaps that occur in our

"Failure to read instructions"
Many mishaps that occur in
our TAC work environment
are a result of this form
of miscommunication.

TAC work environment are a result of this form of miscommunication. Far too many times "failure to follow tech data or checklists" is identified as a cause in mishaps. The sad fact is that those kinds of causes can always be avoided if we only make the effort.

Why is it that simple forms of communicating, like listening and reading, are abused so often? What can we do to prevent their abuse? Unsafe attitudes and the incorrect assumptions people make are many times the reasons for their abuse. Some folks may feel "nothing's going to happen to me" and assume that bad things will always occur to someone else. In many instances, folks assuming they know all the steps in a procedure without consulting the necessary tech data is



another reason.

Being aware that people might have these attitudes and make such assumptions about their abilities is the first step to preventing such simple forms of miscommunication. During training sessions, let your people know that you care about them, their job performance and their well-being, both on and off duty. Mention the types of attitudes and assumptions that can ulti-

Incorrect attitudes and assumptions are often the reasons for communication abuse.

mately lead to trouble. That's what the "We Care About You" program is all about – conveying your sincere interest in your folks to them. Discuss some real-life situations in which incorrect attitudes and assumptions got in the way and mishaps occurred as a result. Proper communication requires effort from both sides – those of us who are trying to communicate and those to whom we're trying to relate the message. ➤

LIVING IN THE PAST



Mr. Cal Faile
TAC Ground Safety

“I’ve been doing it this way for ten years; why should I change now?”

Have you ever heard this before? I suspect many of us have. It is sometimes the answer received when procedures, conditions or individual actions are considered, or determined, to be wrong.

Change is very difficult for some people. We all have a tendency to get established in our ways. We tend to do things in the way which is most comfortable to us as individuals. Sometimes we even accomplish a task in a way we know is wrong and, when nothing bad happens, we convince ourselves that it was okay. We may even continue to do it the wrong way until something bad happens to *change* our way of thinking, i.e., a broken leg, a lost eye, a destroyed aircraft, and so forth.

Looking back at our past can help us do a better job of looking forward into the future, especially in planning for progressive improvements and change. Operations, procedures, directives, tech data, missions and people are subject to changes which can affect the outcome of any given task. If we are not willing to accept change, we are destined to live in the past and to repeat the same mistakes. Today’s achievements and the fact that we are fortunate, I believe, to have the greatest nation on earth, support the fact that we are willing to accept and adapt to change. Great achievements in this country are based on change. Great inventions have been created because of a need to

find a better way (change). True professionals recognize the need for change and readily accept it as the way to improve the Air Force, Tactical Air Command and to ensure mission success.

While change can certainly be beneficial and enhance mission accomplishment, the safe and successful accomplishment of tasks requires strict adherence to procedures and written guidance. Deviation or change from recognized procedures or guidance is not justified unless it is determined through proper analysis that the requirements are wrong. In this case, proper channels must be followed to submit a change for approval. This ensures that everyone in the review chain has an opportunity to analyze, evaluate and recommend necessary action on the proposal for a change. On the other hand, working with a requirement that is known to be wrong often breeds contempt for the entire directive in which it is contained. Quite often, procedures are overlooked or disregarded altogether until someone gets hurt or property is damaged.

Change for the sake of change, however, is not the answer. We need constantly to be on the lookout for changes that will increase productivity, operational capabilities and mission effectiveness as well as those which will reduce unnecessary loss of human and material resources both on and off the job. In today’s world, living in the past could cost us our future, but you and I can make the difference. With a positive approach to change, we can continue to ensure a successful future by learning from, but not living in, the past. ➤

TAC WEAPONS SAFETY AWARD OF THE QUARTER

TSgt Jack L. Stevens spearheads an aggressive safety program in the 405 TTW's Armament Systems Branch. He has established a strong program geared to decreasing mishaps through continuous training sessions and recurring inspections. The result – the branch has experienced 14 months of mishap-free operations. TSgt Stevens also initiated a program which emphasizes job knowledge and performance. He constantly monitors explosive operations in the Armament Systems Branch and takes prompt action to eliminate unfavorable trends. As part of his branch's self-inspection program, TSgt Stevens aggressively compiled and instituted portions of weapons safety programs from several publications which identify common weapons deficiencies in armament systems shops. His observations and recommendations have resulted in significant improvements in the unit's safety program.

During this quarter, more than three hundred explosive weapons suspension items were safely processed through the Armament Systems Branch for repair, modification and inspection. TSgt

Stevens accomplished this by ensuring technicians used technical manuals diligently. He performed spot checks to preclude explosive mishaps during flight line and shop operations.

TSgt Stevens directly influenced the relocation of a new solvent vat in the Armament Systems Branch. Prior to moving the vat, he discovered several safety hazards that were not identified by civil engineering planners. TSgt Stevens took the initiative to iden-

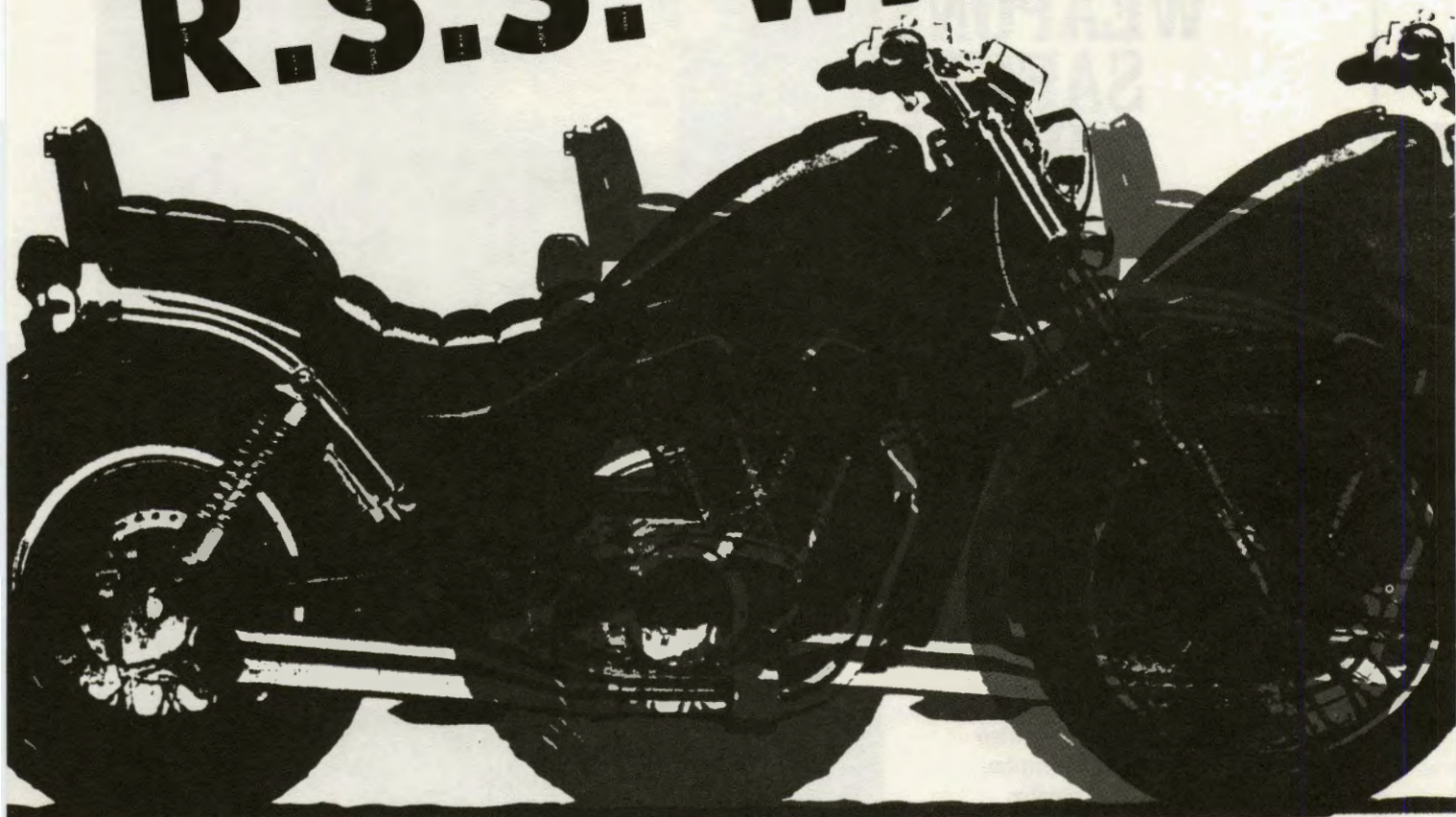
tify and implement major improvements in the solvent tank design. Due to his diligence, the civil engineers have now incorporated consideration for these safety deficiencies into the contracting phase of their shop development process.

TSgt Stevens' outstanding professionalism and leadership in unit weapons safety have earned him recognition through the TAC Weapons Safety Award of the Quarter. ➤



TSgt Jack L. Stevens
405 EMS, 405 TTW
Luke AFB, AZ

R.S.S. WHAT?



Mr. William R. Miller
836 AD/SEG
Davis-Monthan AFB, AZ

How many of you can decipher the abbreviation RSS? No, it's not a new TAC organization symbol! RSS is the abbreviation for Riding Street Skills and is also the title of the motorcycle course that I recently enrolled in at Davis-Monthan. Boy, did I ever get an education!

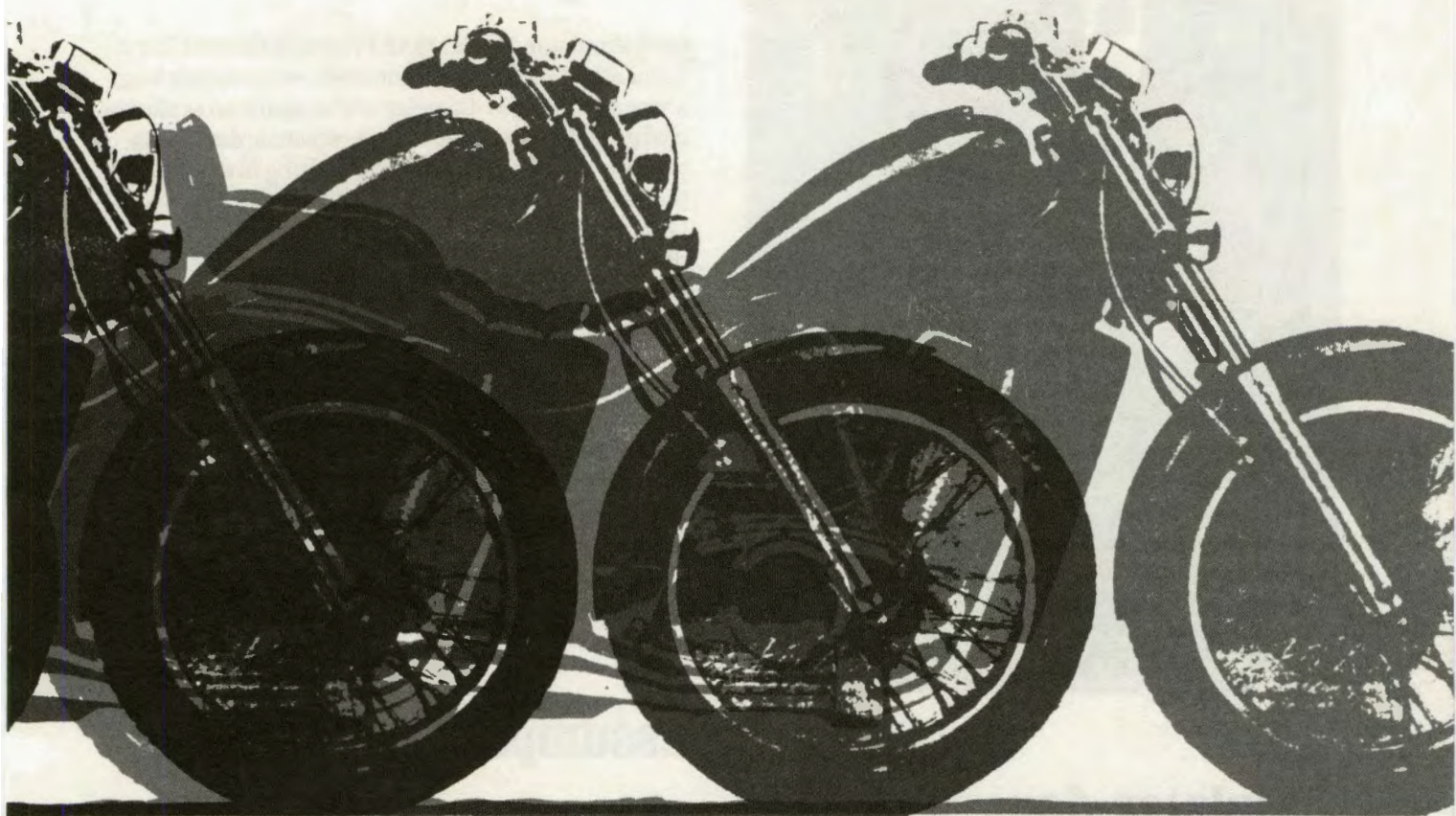
Not being an avid fan of two-wheel vehicles, and never having owned or operated one, why would a safety investigator/inspector enroll in a base two-wheel course that is mandatory for all operators of motorcycles on the installation? Empathy was the reason. I

decided that by enrolling and participating in the day-to-day schedule of the instructor, as well as the student, I could get some real knowledge of the program for which our office is responsible. As

There is not one thing I can think of that is more demanding and requires as much attention and coordination as driving a two-wheel vehicle.

an added benefit, I could get a feel for operating a motorcycle, enough to make me "dangerous" when determining the *real* causes of motorcycle mishaps that I would investigate in the future.

Let me start by saying that this course was no piece of cake! It is Motorcycle Safety Foundation sanctioned and, in order to pass, one must attend every session, pass a written knowledge test, and perform up to standards on rigorous riding skill evaluations (the real got'cha). After the first day out on the range going through numerous riding exercises from tight turning to braking maneuvers, I was beginning to wonder what I had gotten myself into. There is not one thing I can



think of that is more demanding and requires as much attention and coordination as driving a two-wheel vehicle. I found that out when braking for the first time. On a motorcycle, you must use all of your extremities. To brake, you use your right foot to brake the rear tire, your right hand to brake the front tire and control the throttle, your left foot to downshift gears, and your left hand to hold in the clutch. That wouldn't be too hard, except for the fact that you have to do it all at the same time, without losing control of your bike or stalling its engine. The first time I tried this I kept thinking, "God help me if the instructors ask me to perform the 2,411 things it takes to operate a motorcycle just

The instructor's goal is to mold an inexperienced rider into one who has developed the basic skills, and has the necessary knowledge to operate a motorcycle responsibly.

around one square block!"

So how did this novice rider do? I accomplished my objectives and passed, just barely. How? Through the exceptional instruction that was provided from the knowledge and ability of the

experienced instructors. These guys know what they're talking about, and it shows. But, more importantly, what they know is passed on to the students through true-to-life examples and practical exercises. You perform, they don't. The instructor's goal is to mold an inexperienced rider into one who has developed the basic skills, and has the necessary knowledge to operate a motorcycle responsibly. I can't argue with their success in meeting that challenge, as over 250 students complete motorcycle training each year at Davis-Monthan. That's 250 students out on the road that are not a hazard to themselves or other motorists. Make that 251. Thanks guys, we appreciate your efforts. ➤



WEAPONS WORDS

Simulator danger

MSgt Gary R. Reniker, USAFR
442 TFW/SEW
Richards-Gebaur AFB, MO

To instill a sense of realism and urgency in our training for combat, the Air Force uses simulators to provide sound effects during simulated airfield attacks and terrorist attacks. The most commonly



used simulator, the M115A2 Projectile Ground Burst Simulator (GBS), is approximately seven inches long, about 2.5 inches in diameter and contains an explosive charge of 0.141 pounds. This pyrotechnic device can produce very serious injuries resulting in severe burns if used in close proximity to people. Also, the GBS's high concussion level could permanently damage eardrums and possibly cause internal injuries to the head and lungs. Recent U.S. Army tests revealed that the 15-year fragment hazard, as indicated on the warning label, was inaccurate. A new separation distance for personnel protection is 35 meters (approximately 115 feet).

Only properly trained and qualified personnel are authorized to handle and initiate ground burst simulators. To ensure everyone is familiar with the hazards, exercise procedures and training plans must identify proper use and safe separation of GBSs. Be aware of the potential danger. Let's make it *real*, but *safe*.

Assumption, assumptions

A load crew was sent out to remove and replace an AF-16 central interface unit (CIU) in order to correct a malfunction. After the CIU was replaced, they prepared to do a functional check on the system. One crew member dearmed stations 3 and 7. The other crew member *assumed* the entire aircraft had been dearmed and the required confidence check was performed. Afterward, the crew discovered that the centerline carts had been f'ired.

When it concerns following tech data, dealing with explosives, and getting a job done right the first time – don't *assume* anything.

That wasn't supposed to happen

A load crew member had begun visual inspection of AMK-82's prior to loading them on an aircraft. After completing the inspection of the first bomb, he unpinned the chocks and pushed the bomb toward the

edge of the trailer to facilitate inspection of the next one. With no rail extenders attached or pins installed in the rail, the chocks rolled down the rail and the MK-82 fell to the ground, damaging a fin and two fuzes.

When maneuvering munitions, care must be taken to ensure their stability. The effect of this mishap was minor; however, a MK-82 detonation on a crowded flight line would be devastating.

Ruptured 370 gallon tank

A weapons crew was dispatched with an MHU-83 jammer to download an AGM-65 missile from the right inboard pylon of an F-4 aircraft. In order to remove the missile, the jammer table was positioned under the external tank with the forks pointing inboard.

During *routine* load crew training and day-to-day operations, the F-4s were usually configured with a fuel tank on the centerline rather than on the outboard pylons. Therefore, the boom forks were usually positioned toward the center of the aircraft in order not to conflict with the centerline tank. In this incident, the crew realized that there was very little room between the table and the outboard tank, but this was the *routine* jammer position. As all of the load crew members were concentrating on the position of the forks under the AGM-65, they didn't notice how close

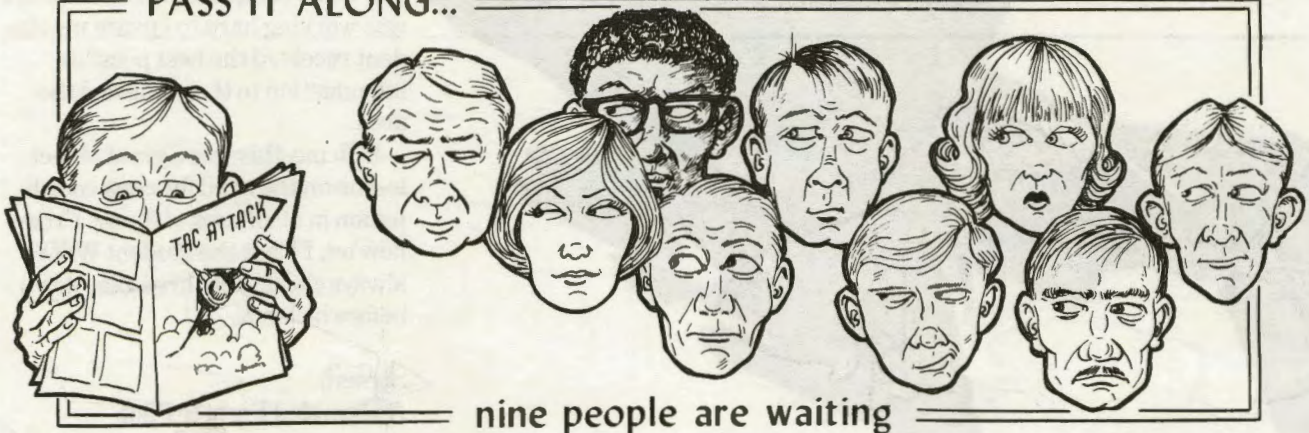


the table was to the tank. When the boom was moved further, the table caused a 3-4 inch tear in the tank's nose cone and a subsequent fuel spill.

"Routine" is an insidious word that can really set us up for complacency. When we've done a job over a long period of time or several times on a particular day, we begin to think that we don't need to use tech data, to check for anything out of the ordinary or simply to *think*.

Supervisors should evaluate each situation as a new one and decide on the best course of action to safely perform that specific task. Next time you hear someone say "That's a routine job," check again. They're probably getting ready to overlook something that's going to sneak up and bite them where it hurts.

PASS IT ALONG...



1 IN A MILLION: THERE I WAS

Anonymous

This is a story about habit pattern interference – how it caught me, and how it can catch you, too.

The Scenario:

The Instructor Pilot – Fifteen-and-a-half years of continuous flying; eight sorties in the last two weeks; experienced.

The WSO – First flight in the F-4 and the first flight since graduating from Mather; inexperienced, slightly airsick.

The Mission – Transition mission profile, concluding with normal, simulated single-engine and no-flap/no-slat touch-and-goes.

The Action:

We pick up the mission in the visual pattern after just completing a simulated single-engine touch-and-go. The WSO is feeling the first stages of airsickness and I'm trying to divert his mind off his feeling sick by keeping him busy (habit pattern

interference #1). I talk about the difference between the upcoming no-flap and the single-engine approach we'd just flown. I often fly no-flap patterns from the overhead with RTU pilots, but today I'm going to do it from a straight-in to demonstrate the Dash One procedure (habit pattern interference #2). We reach base and are cleared for our straight-in. As I roll out on base and prepare to configure, I'm told that I'm to sequence behind an F-4 preparing to turn base for a normal pattern full stop. Instead of lowering the gear, I answer Tower, and become concerned with pattern spacing (habit pattern interference

#3). While watching the traffic, I continue instructing the WSO on how the aircraft will buffet more on final approach than our previous patterns, the importance of maintaining 230 knots until on final, then establishing final approach air-speed. I call "gear down" at five miles while watching the F-4 in the last part of the final turn (normal habit, but was the gear down?...had we done our landing checks?). I continue talking about the buffet, altitudes crossing known references, then I hear the call, "F-4 ON FINAL, GO AROUND. IT APPEARS YOUR GEAR IS NOT DOWN." Oh, #*%&%#!

The Conclusion

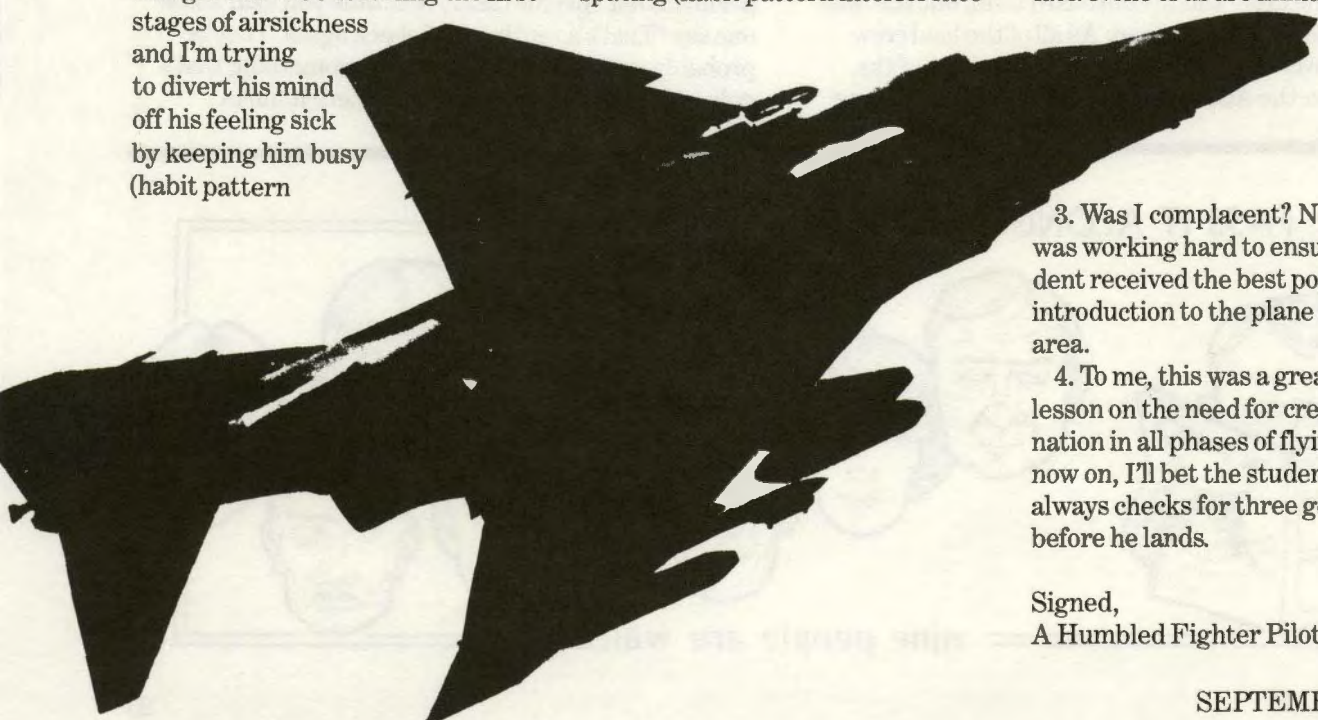
Well, this story has a somewhat happy ending. I didn't land gear up, the system appeared to work – this time – although it was Tower that caught it, not mobile or me. However, there is a valuable lesson to be learned from this without bending a jet to prove it.

- 1. It scared the heck out of me.
- 2. Habit pattern interference can hit anyone, anytime – AND you may not know it has happened until too late. None of us are immune.

3. Was I complacent? No. In fact, I was working hard to ensure my student received the best possible introduction to the plane and the area.

4. To me, this was a great object lesson on the need for crew coordination in all phases of flying. From now on, I'll bet the student WSO always checks for three gear down before he lands.

Signed,
A Humbled Fighter Pilot





TAC GROUND SAFETY AWARD OF THE QUARTER

Sgt Dwight D. Fricke's professionalism and dedication to his squadron's safety program resulted in a 66 percent reduction in reportable mishaps – an exceptional achievement in a squadron of over 500 personnel in a totally industrial working environment. His ingenuity in developing innovative safety programs have made his squadron a leader among wing units.

In support of the 1987 Ninth Air Force Safety Day, he developed a suggestion program which allowed personnel to make suggestions on how each individual could improve safety in his or her work area. The winner received a 3-day pass. This program was further adopted by the entire maintenance complex with a winner selected in each squadron.

To promote the "We Care About You" program, SSgt Fricke developed a motorcycle registration and verification-of-training log which tracks all motorcycle owners and their training status. He also developed a travel safety checklist which must be reviewed prior to all leaves and TDYs. SSgt Fricke also developed a home safety checklist which was sent to all squadron personnel along with a personal letter from the unit commander. He developed a designated drivers program that is managed by squadron personnel; and he also worked with squadron administrators to identify individuals with a high mishap

potential. To further educate his unit's personnel on off-duty safety, he developed a mishap information file which is maintained in each shop. He distributes mishap cross-tells for review by everyone and these efforts have contributed to reduced mishap rates in the unit.

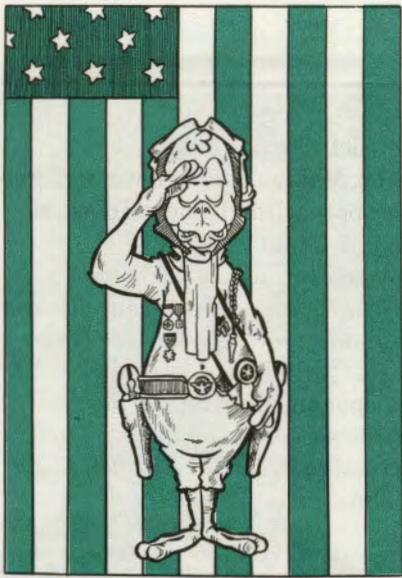
SSgt Fricke visits over 20 shops each week and administers no-notice spot checks to high potential areas. He publishes monthly safety newsletters updating information on potential hazards.

SSgt Fricke's efforts enabled his squadron to lead the maintenance complex in safety achievements and set the standard for ground safety NCOs across the entire wing. His outstanding achievements and dedication to safe mission accomplishment have earned him recognition through the TAC Ground Safety Award of the Quarter.



SSgt Dwight D. Fricke
363 EMS, 363 TFW
Shaw AFB SC





FLEAGLE SALUTES

First Lieutenant John Kromberg and Captain Mark Helwig, 91 TRS, 67 TRW, Bergstrom AFB, TX, had just taken off from a deployed airfield when their RF-4C's left main gear indicated unsafe. Lt Kromberg lowered the gear handle and the gear extended normally. While dumping fuel in order to return for landing, the aircraft lost total utility hydraulic pressure, leaving them without normal flap extension, nose gear steering, normal braking and anti-skid. After extending the flaps with the emergency system and coordinating for an approach-end arrestment, they experienced severe flight control inputs for several seconds before Lt Kromberg regained positive control of the aircraft.

As the crew flew the approach, they were notified the BAK-13 was slack, so they went missed approach and into a holding pattern. While holding, they noticed the centerline fuel tank had failed to transfer. With a critical fuel

state and the approach-end barrier declared inactive, they were forced to land opposite direction. With visibility deteriorated to two miles and no published approach, the crew circled for a visual approach.

After the cable engagement, the left engine auto-accelerated, yawing the aircraft to the right. Lt Kromberg pulled his emergency brake handle, but it broke off in his hand. Capt Helwig quickly pulled the rear emergency brake handle, enabling them to safely stop the aircraft. The outstanding crew coordination and airmanship demonstrated by Lt Kromberg and Capt Helwig averted the loss of a valuable TAC aircraft and earned them a Fleagle Salute.

Maj Jack R. Beauchamp, 1 TF75, 325 TTW, Tyndall AFB, FL, was number two in a flight of F-15s. During the formation takeoff, his flight lead saw the right main wheel separate from Maj Beauchamp's aircraft. On the advice of his leader, Maj Beauchamp continued the wing takeoff and climbed out, leaving the gear extended. After reaching a safe orbit altitude, further inspection of the aircraft confirmed that the brake stack was still intact despite the loss of the right wheel. During consultations with the SOF and McDonnell Douglas, it was recommended that an approach-end barrier engagement had the highest probability of minimizing further damage to the aircraft. Maj Beauchamp reduced his aircraft's gross weight and completed a smooth approach and landing; touching down early enough to use his functional brake to slow the aircraft prior to engaging the cable.

By using full left stick, he was able to reduce the weight on the exposed brake stack and avoid cutting the cable as the aircraft passed over it. He continued to maintain complete control of the aircraft by using power to control rollback after the barrier engagement was made. Maj Beauchamp's outstanding performance in minimizing damage to both the aircraft and barrier have earned him a Fleagle Salute.

TSgt Albert Murphy, Jr., 56 AGS, 56 TTW, MacDill AFB, FL, was working as a weapons expeditor when he spotted an object lying on the flight line ramp. He picked up the object to prevent potential foreign object damage (FOD) and SSgt Walter M. Render, a weapons crew chief, identified it as an F-16 engine chip detector. Realizing the potential hazard of this situation, TSgt Murphy notified the Maintenance Operations Center who in turn notified the end-of-runway crew to inspect all departing aircraft for missing chip detectors prior to flight. The aircraft was identified, a chip detector was reinstalled and the aircraft was launched without further incident. The actions of TSgt Murphy and SSgt Render prevented a potentially disastrous situation and earned them a Fleagle Salute.

TSgt Paul H. Lane, squadron safety NCO for the 405 CRS, 405 TTW, Luke AFB, AZ, begins his comprehensive safety program with a very effective newcomers presentation which highlights the

hazards of the Luke duty environment, as well as driving, weather and other dangers of the local community and the surrounding recreational areas. To complement his inspections and briefings, he condenses excerpts from local, national, and Air Force publications to keep the squadron informed on changes in laws, Air Force safety policies, and mishaps, through a squadron "Safety Flash" newsletter. He also inspects all 17 squadron duty sections at least monthly to identify and eliminate safety hazards. The impact of TSgt Lane's program has been only four reportable mishaps, on or off duty, among a 291-person maintenance squadron for an entire calendar year. TSgt Lane's aggressive involvement in ensuring safe accomplishment of the unit's mission has earned him a F'leagle Salute.

.....

Capt Gerald B. Evans and 1Lt Randall R. Pratt, 523 TFS, 27 TFW, Cannon AFB, NM, were egressing a Red Flag target area at 300 feet AGL and 600 knots in their F-111D when both crew members noticed a faint smoke smell, followed by smoke pouring out of the pilot's instrument panel. Blinded by the thick, acrid smoke and burning sensation in his eyes, Capt Evans began a wings-level climb while Lt Pratt assured him they were clear of terrain. Smoke continued to burn both crew members' eyes, making it extremely difficult to see.

After slowing the aircraft and shutting down suspected electrical equipment, the crew was able to see just well enough to read cockpit instruments, level off at 11,000 feet and turn to a nearby

unfamiliar auxiliary field. Still unable to see outside the cockpit, Capt Evans used the TACAN and limited knowledge of the airfield orientation to maneuver for a landing. With the smoke clearing as they lowered the gear for landing, but no approach assistance or published airfield information available, the crew was able to bring their aircraft to a safe stop on the auxiliary field and have earned a F'leagle Salute.

.....

Maj Michael A. Lauritzen and 2d Lt David L. Cooper, 435 TFTS, 479 TTW, Holloman AFB, New Mexico, were number two in a flight of four AT-38s for a dissimilar air combat training mission against four F-15s. Upon entering the area, the flight leader, Capt William M. Sipher, directed the flight to deploy into tactical formation and begin the G-warmup/awareness exercise. As Two approached six Gs on the second G-awareness turn, the aircraft entered a violent snap roll to the left. Maj Lauritzen immediately unloaded the aircraft and applied opposite aileron to keep the aircraft from going out of control. Once he had recovered the aircraft, he noticed that a portion of the left wing was missing. Confirming the loss of two feet of their wingtip from a chase position, Capt Sipher further assisted the mishap crew by arranging the necessary clearance and coordination with home base.

Following completion of the necessary emergency procedures and controllability check, Maj Lauritzen determined that, using the auxiliary flap mode, full flaps and full right aileron deflection would produce a near normal touchdown speed. Using full aile-

ron deflection to counter wing drop, Maj Lauritzen flew a straight-in approach and touched down at approximately 150 KIAS for an uneventful landing.

The superior airmanship and outstanding crew coordination demonstrated by Maj Lauritzen, Lt Cooper and Capt Sipher resulted in the successful recovery of their aircraft and earned them a F'leagle Salute.

.....

SMSGt Philip Yare, 27 AGS, 27 TFW, Cannon AFB, NM, has demonstrated a commitment to excellence and safety which has earned him the respect and admiration of his co-workers. He organized and supervised several evacuation exercises, including aircraft removals and area searches, to familiarize his people with potential "real world" emergencies. One example of his commitment to safety occurred during a recent F-111D mishap. Familiar with the importance of eyewitness accounts, SMSGt Yare isolated and instructed eyewitnesses to write detailed accounts of what they saw while it was fresh in their minds. The resulting information was extremely helpful to the mishap investigators in completing the investigation process. Another example of his quick thinking occurred when a defective aircraft fuel hose ruptured and soaked an airman in fuel. SMSGt Yare's decisiveness in attending to the immediate needs of the airman as well as the potentially dangerous fuel spill situation prevented any further complications with the airman or the mishap aircraft. SMSGt Yare's outstanding professionalism and safety-mindedness have earned him a F'leagle Salute.

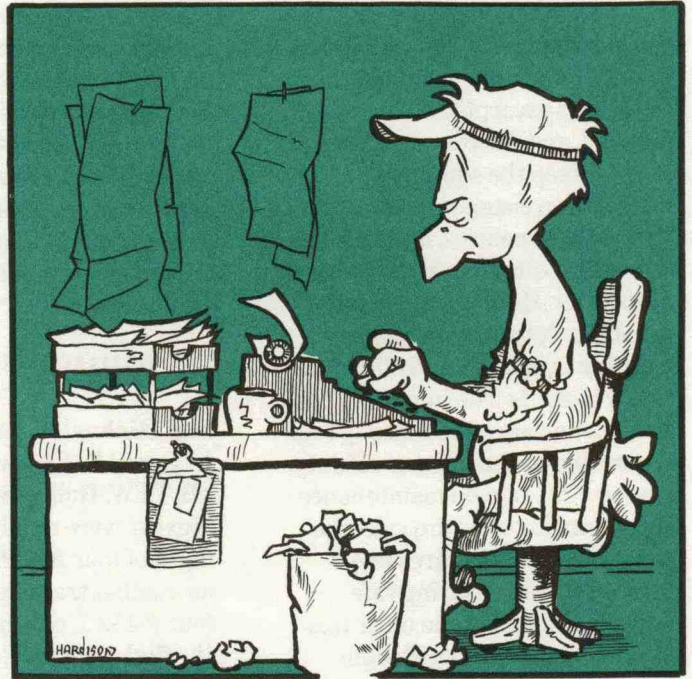
LETTER TO THE EDITOR

Here's a comment on "Getting Out: Have a Plan" (*TAC Attack*, Sept 87). Excellent article. Some 23 years and 4000 flying hours ago when starting in this business, I also did one of the very smartest things of my career: I did enough skydiving to prove to myself that:

- a. parachutes really work
- b. landing via parachute is survivable and honorable
- c. if/when I get in a situation rapidly approaching the edge of the ejection envelope, there isn't the slightest hesitation in my actions.

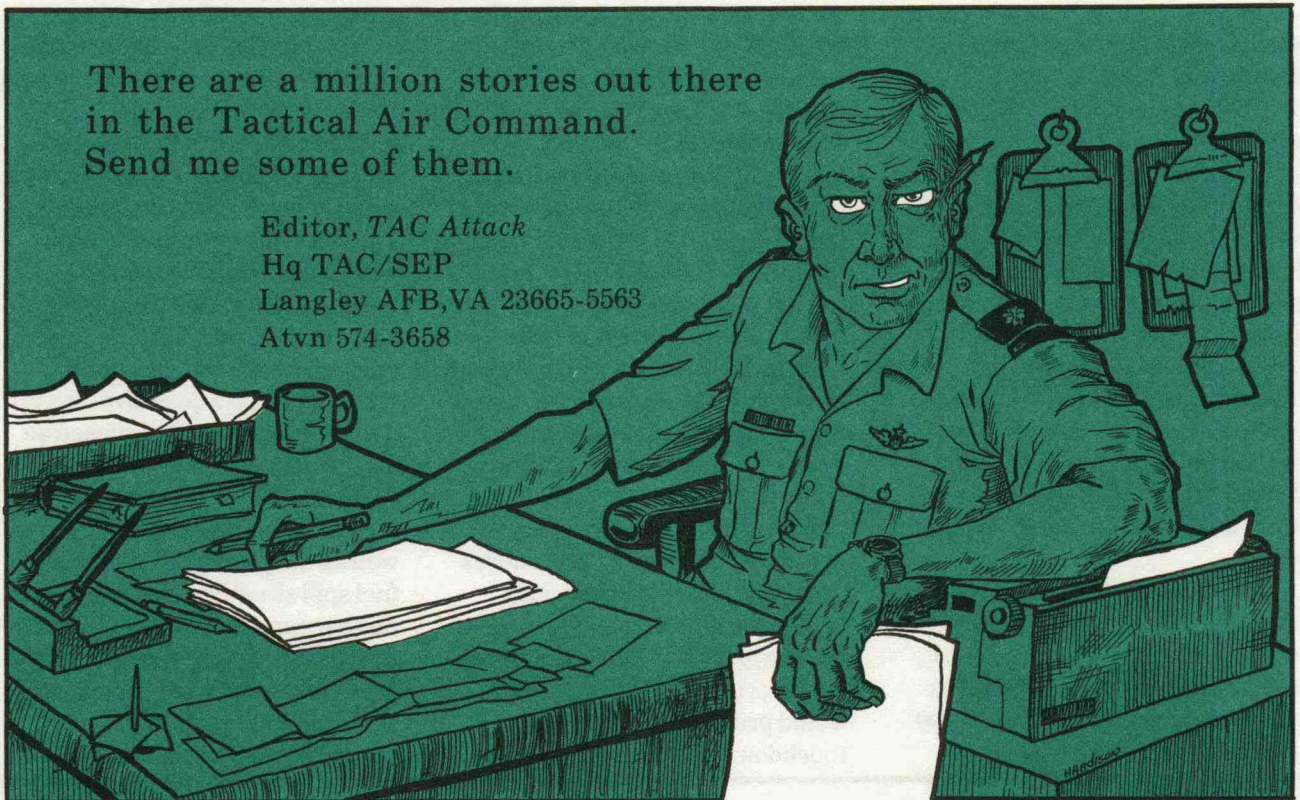
I've been a "hero" and brought many sick/battle-damaged birds back, and every time I *knew* that if I saw any of the "get-out-now" warning signs, that I'm gone instantly, without that last-second hesitation about doing something new for the first time. I'd already done everything earlier on my terms. All my energies, every time, were concentrated totally on the aircraft and the situation.

James V. Mardis (Lt Col, USAF, Ret.)
Beavercreek, Ohio



There are a million stories out there
in the Tactical Air Command.
Send me some of them.

Editor, *TAC Attack*
Hq TAC/SEP
Langley AFB, VA 23665-5563
Atvn 574-3658





TAC TALLY

Total			TAC			ANG			AFR		
JUL	THRU FY 88	JUL FY 87	JUL	THRU FY 88	JUL FY 87	JUL	THRU FY 88	JUL FY 87	JUL	THRU FY 88	JUL FY 87
2	28	30	1	18	19	1	7	7	0	3	4
1	15	26	0	11	17	1	3	5	0	1	4
1/0	14/0	21/1	1/0	13/0	13/1	0/0	0/0	7/0	0/0	1/0	1/0
0/0	0/5	0/7	0/0	0/4	0/2	0/0	0/1	0/2	0/0	0/0	0/3

CLASS A MISHAPS
AIRCREW FATALITIES
* IN THE ENVELOPE EJECTIONS
* OUT OF ENVELOPE EJECTIONS

*(SUCCESSFUL/UNSUCCESSFUL)

TAC'S TOP 5 thru JUL 1988

1st AF	
CLASS A MISHAP-FREE MONTHS	
95	318 FIS
42	325 TTW
30	57 FIS
9	48 FIS

9th AF	
CLASS A MISHAP-FREE MONTHS	
65	33 TFW
38	507 TAIRCW
24	354 TFW
18	23 TFW
13	1 TFW

12th AF	
CLASS A MISHAP-FREE MONTHS	
41	58 TTW
34	35 TTW
28	474 TFW
26	388 TFW
20	37 TFW

ANG	
CLASS A MISHAP-FREE MONTHS	
212	110 TASG
187	138 TFG
169	177 FIG
164	114 TFG
128	155 TRG

AFR	
CLASS A MISHAP-FREE MONTHS	
95	482 TFW
85	924 TFG
73	906 TFG
47	507 TFG
34	917 TFW

DRUs	
CLASS A MISHAP-FREE MONTHS	
142	28 AD
12	USAFTAWC
4	USAFTFWC

CLASS A MISHAP COMPARISON RATE

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

	FY 88	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TAC	FY 88	6.4	3.4	3.0	2.7	2.6	3.3	3.0	3.1	3.3	3.2		
	FY 87	7.5	5.8	5.1	4.7	4.2	3.7	3.3	2.9	2.9	3.1	2.8	2.9
ANG	FY 88	0.0	0.0	0.0	0.0	0.9	2.2	2.5	2.7	2.9	3.1		
	FY 87	4.0	6.6	4.7	3.5	2.8	4.5	3.8	3.3	3.4	3.0	2.7	2.5
AFR	FY 88	0.0	10.6	7.7	5.9	9.5	7.9	6.7	5.8	7.7	6.9		
	FY 87	21.8	11.7	8.5	12.6	10.2	8.3	7.0	12.2	10.8	9.6	8.5	7.8
Total	FY 88	4.3	2.9	2.4	2.2	2.5	3.2	3.1	3.1	3.4	3.3		
	FY 87	7.3	6.3	5.2	4.8	4.1	4.1	3.6	3.4	3.4	3.4	3.1	3.0

Fleagle

IF I WERE ASKED TO
REWRITE TH' RULES AND
REGULATIONS OF FLIGHT I KNOW
I COULD DO A BETTER JOB.

FER INSTANCE,
I WOULD ALLOW
ONLY ONE AIRCRAFT
IN TH' SKY AT A
TIME. THAT WOULD
WIPE OUT
MID-AIRS

RUNWAYS WOULD BE TWENTY-THREE
MILES LONG AND FIVE MILES WIDE,
SO TH' PILOT WOULD ALWAYS HAVE
ENOUGH LANDING SPACE.

NOBODY WOULD LEAVE
TH' GROUND 'TIL EVERY STATE
IN TH' UNION HAD BEEN
STORM FREE FER THIRTY-
SIX HOURS.

ALL PILOTS WOULD
BE REQUIRED TO
MAINTAIN A HOME
OR APARTMENT AT
EVERY MAJOR AIR-
PORT OR BASE...

THIS WOULD ELIMINATE
"GET-HOME-ITIS."

WHAT TH' HECK IS
THAT COMING
STRAIGHT AT ME ?

SP
LAT

I WOULD ALSO
HAVE EVERY BIRD
ON THE FACE OF THE EARTH
GROUNDED...

HARDISON