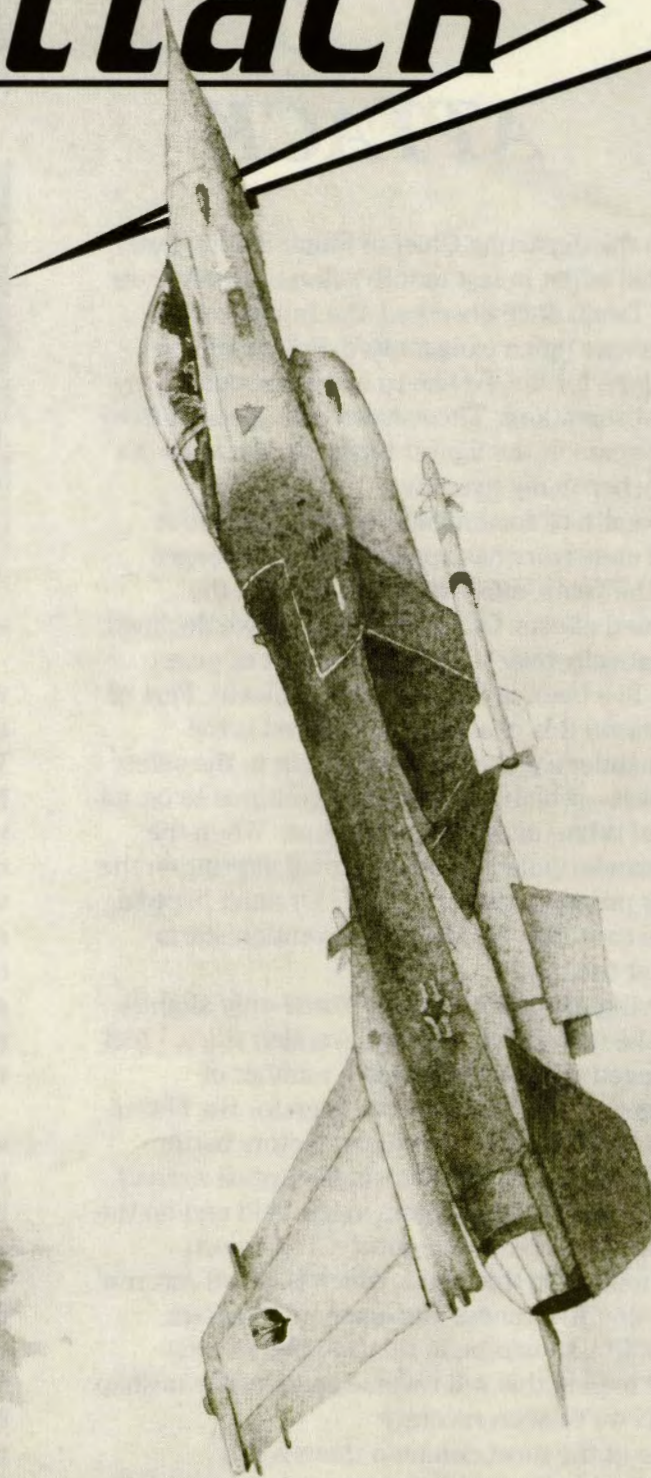


TAC Attack

AUGUST 1991



Morrison '91

ANGLE OF ATTACK

As the departing Chief of Flight Safety, I was bid adieu in last month's issue. However, as Mark Twain once observed, the reports of my demise are much exaggerated. Before they do blow taps for me, I'd like to make a couple of my own observations. These have been gleaned from many years in the fighter business. For what it's worth, here's my two bits.

A wealth of accumulated knowledge about aerial endeavors has appeared in these pages over the years, much of which has had the intended effects. Our mishap rates have declined dramatically over the past twenty or so years since I've been involved in the business. Part of the reason this change has occurred is the commander's personal involvement in the safety business—which is, and should continue to be, an area of prime interest in the future. When the commander puts his own personal imprint on the safety program, things happen! Or don't happen, as the case may be. Mishap prevention starts right at the top.

Having arrived in the Air Force only slightly past the era of iron men and wooden ships, I feel privileged to have witnessed a number of changes; most of which have been for the better. We are still fighting the human factors battle which will constitute the single largest area of endeavor for safety officers in the field and on the staff for the foreseeable future. TAC's own contribution to this effort, which is called Aircrew Attention Awareness Management Program (AAAMP), should be in the field before long. We're hoping this will reverse some of the mishap trends we've seen recently.

One of the most common themes I've witnessed is the trend to rely much more heavily on technology as a panacea for human failings. Despite being a "wind in the wires" kind of guy at heart, I can see that in many ways these improvements have resulted in important savings in both men and machines. However, they can't help us if we don't turn them on. High tech



equipment won't work any other way.

Despite the many technological innovations, we've had a series of mishaps lately that tell me that we're ignoring some rather basic precepts. What's the remedy? Do we get more "cosmic"? No! Whenever we have a rash of accidents, the fix we usually espouse is "return to the basics." It's these basics of airmanship that will help us most when the chips are down. We need to aviate, navigate, and communicate, in that order. Some of the messages I read tell me that we aren't always doing that. We also need to periodically review our training programs to ensure that what we're doing conforms to "real world" principles.

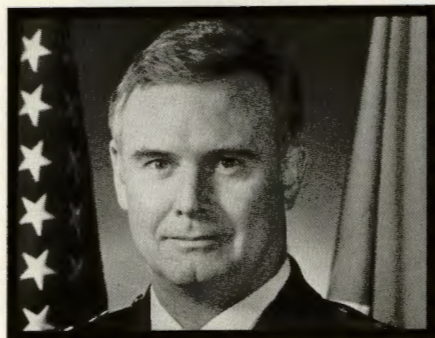
The lessons learned in Desert Storm have shown us that it's not always necessary to spend your whole mission at one hundred feet and below. Other lessons abound as a result of that conflict, and we are still in the process of digesting them. I'll be gone before those have been passed on to the future aces of the next conflict. However, most of you should be able to take advantage of these lessons and incorporate them in your bag of tricks. It's been a real pleasure for me to work with and for you folks out there, and I'm really going to miss "slipping the surly bonds" and tipping the occasional brew with you guys as well. Keep 'em flying and check six!

A handwritten signature in black ink, reading "Terry A. Markle".

TERRY A. MARKLE, Col, USAF
Chief, Flight Safety Division

TAC Attack

DEPARTMENT OF THE AIR FORCE



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AUGUST 1991

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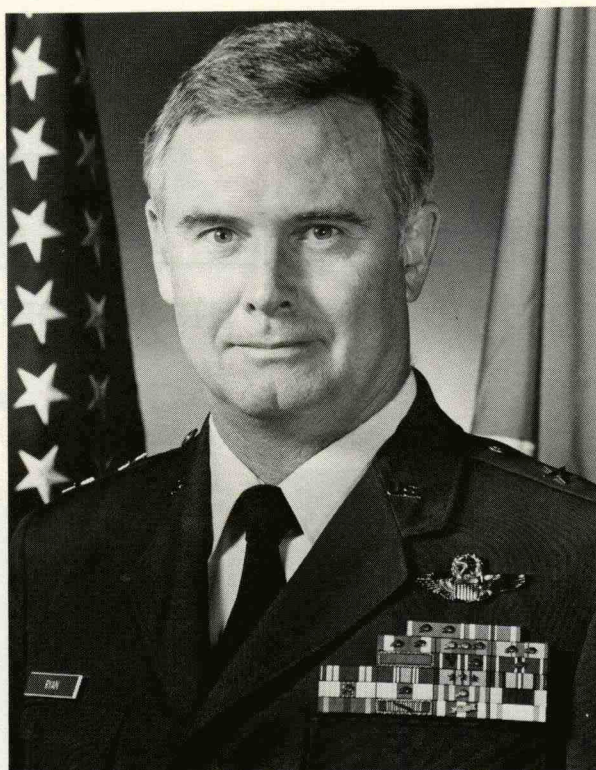
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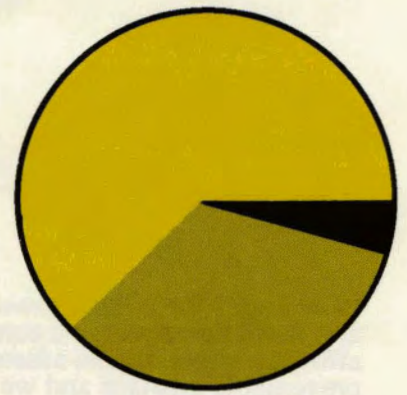
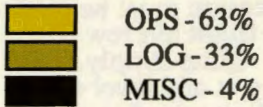
AIRCREW ATTENTION AWARENESS

Maj Gen Michael E. Ryan
HQ TAC/DO
 (Joint Staff, Deputy Director, J-5, as of 31 July 1991)

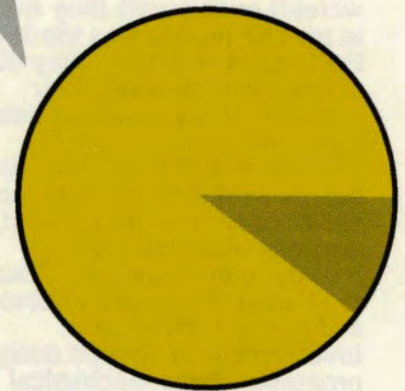
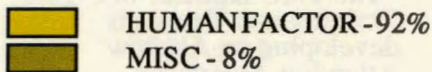
When Orville and Wilbur first slipped the surly bonds, they were probably not distracted by the waves crashing on the North Carolina shore or the unsteady sputtering of their home-built engine. In all likelihood, their foremost thoughts were on the first premise of safe flight--maintaining aircraft control. That focus is no less important today approaching a 4 v many merge or half way from the IP to target with the RWR scope filled with bad stuff. Keeping priorities in order in training and in combat will save a great deal of money in lost jets and a great deal of sorrow from lost aircrews.

A trend in the last couple of years has been an increase in human factor involvement in fatal mishaps. In most of these cases, the pilots were paying attention to something that distracted them from the most important task of flying the aircraft. The commonly heard buzz word these days is "loss of situational awareness." In fact, loss of SA is just one of the elements of the broader category of unrecognized spatial disorientation. Figure 1 illustrates the involvement of human factors in Class A mishaps. Of all Class A mishaps, 63% fall in the Ops category. Human factors account for 92% of these. When looking at the human factor accidents, 125 were attributed to spatial disorientation. Of these, 96% involved unrecognized spatial disorientation. This is the real killer: in 85% of these, the end result was an aircrew fatality.

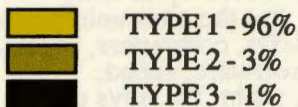
TAF CLASS A MISHAPS FY85 - FY91 (270)



OPS FACTOR MISHAPS FY85 - FY91 (170)



SPATIAL DISORIENTATION FY85 - FY91 (125)



TYPE 1: UNRECOGNIZED - THE KIND THAT KILLS
 TYPE2: RECOGNIZED AND RECOVERABLE
 TYPE3: RECOGNIZED, BUT UNRECOVERABLE

AIRCREW ATTENTION AWARENESS

In an era of force drawdown and fiscal constraint, we cannot afford to lose valuable assets in preventable mishaps and we can never afford fatalities. Most of these mishaps could (with 20-20 hindsight) have been prevented by proper aircrew attention awareness. That's right--in most cases the crews weren't even aware they were in trouble until it was too late. For whatever reason, they did not properly manage their attention either inside or outside the cockpit.

Attention inside the cockpit begins with the hardware we use as operators. In the past, cockpits often lacked user friendly configurations. Thanks to Human Engineering factors and operational aircrew involvement in cockpit design programs, these mechanical problems are slowly being put behind us. We have modified existing cockpits and are engineering future cockpits to overcome old pitfalls. Just as cockpit layout can be a distraction, so can software. Although software is generally easier to change than hardware, it, too, is an iterative process to assure it is user friendly and not a distraction that channelizes attention. Within this hardware and software framework, each type of aircraft has a set of its own environmental factors that impact on our ability to manage cockpit duties. Attention outside the cockpit is driven by a variety of demands--mission, speed, altitude, weather, lightning, threat, etc. The point is that there are lots of demands on the aircrew's attention both inside and outside the cockpit. Proper prioritization of those demands on attention to fit the situation is absolutely essential

to accomplish the mission and provide the needed margin for safety. Lack of attention awareness kills. It is really nothing new, but the continued failure of pilots to properly apportion their attention in modern fighters has made this subject topical for both supervisors and individual aircrews.

Supervisors from MAJCOM headquarters through squadron level must make sure the demands we put on aircrews are not so complex or diverse that we are setting them up for a task management overload. At HQ level, that means close scrutiny of the force DOCs, special capabilities and GCC events. At the unit level, it means that supervisors must make sure the tactics and techniques are sound and simple. At the flight level,

Lack of attention awareness kills. It is really nothing new, but the continued failure of pilots to properly apportion their attention in modern fighters has made this subject topical for both supervisors and individual aircrews.

special attention must be paid to individual flight aircrew workload. Quite simply, overtasking at any level can lead to task overload in the air. For the individual aircrew, task management requires a proper and continued evaluation of mission priorities. It requires discipline, concentration, knowledge and practice. In short, it requires great attention. In our business, the penalties for a lapse are usually severe. There is an old flight safety poster with a biplane sticking out of a tree. It claims that "Aviation in itself is not inherently dangerous, but it is terribly unforgiving of any inattention."

The TAC Director of Fighter Training and Tactics is developing an Aircrew Attention Awareness Management Program (AAAMP) to train aircrews in this subject from formal (schoolhouse) training through continuation training in operational squadrons. Although we touch on the subject in lots of training areas, we have not treated aircrew attention awareness as a package deal. The intent of AAAMP is to focus on ways to avoid task overload and tailor it to individual aircraft. You'll see much more on the subject in the months to come.

Well, the principles haven't really changed since Orville and Wilbur cranked up at Kitty Hawk. . .but the parameters sure have. HUDs, computers, radars, RWRs, software, speed, weather, night; the boys didn't have those distractions to cope with. We do and we need to manage them with appropriate attention.



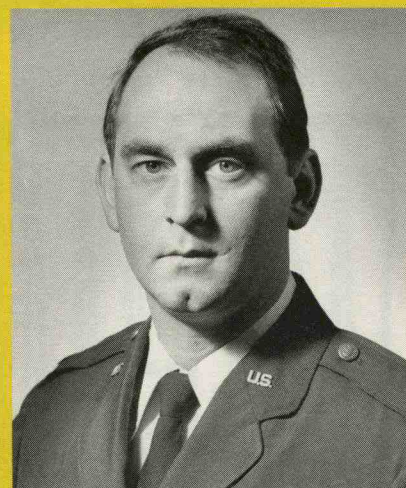
Aircrew of Distinction Award

Lieutenant Daniel A. O'Connor departed Springfield-Beckley Airport, Ohio, on a training mission as number three in a flight of three A-7 aircraft en route to the start point for a low level navigation route and then to the air-to-ground range at Jefferson Proving Ground, Indiana. Approximately three minutes after takeoff, while passing 8,000' MSL on climbout, the flight leader sent the flight to tactical formation. As Lieutenant O'Connor initiated the maneuver to tactical formation, he heard a loud banging noise accompanied by intense vibration, followed immediately thereafter by illumination of the engine hot light. The fuel flow indicator began fluctuating in the 200-300 pounds per hour region. Analyzing the situation, Lt O'Connor immediately retarded the throttle and turned toward Wright-Patterson AFB, approximately five miles east.

Even with the throttle set at idle, the engine noise, vibration,

fuel flow fluctuations and overheat persisted. He informed his flight leader of the problem and called Wright-Patterson tower on Guard frequency. Lead notified local approach control of the need to deviate from the flight clearance and set up in a chase position on the emergency aircraft. Lt O'Connor continued his descent with the power set at idle and informed the control tower of his intent to land opposite direction on runway 05L. While approaching the airfield, Lt O'Connor delayed landing gear extension in order to use the speedbrake to dissipate altitude.

Approximately three miles from the runway threshold, with the landing assured, he configured the aircraft for landing. Touchdown occurred approximately 2,500' down the runway, at a slightly higher than normal speed, beyond the approach end cable. However, Lt O'Connor completed the landing, slowed the aircraft without engaging the departure end cable, and cleared the



Lt Daniel A. O'Connor
62 TFS, 178 TFG
Springfield OH

runway. With the emergency crews on hand, he shut the engine down and exited the aircraft. Subsequent analysis of the aircraft revealed catastrophic failure in the 11th stage compressor section causing further damage to the low pressure turbine section and nozzles. Portions of the turbine section contained indications of extreme heat with metallic residue welded to some turbine components.

This condition reduced available thrust to less than that required for continued flight. Lt O'Connor's early recognition of a serious engine problem combined with an accurate assessment of his aircraft's glide capability and the availability of a suitable landing field prevented the loss of this aircraft and potential injury to individuals on the ground. Lt O'Connor's quick reactions, expert airmanship, systems knowledge, and stamina earned him the TAC Aircrew of Distinction Award.

HIGH & LOWS OF TAC HEROES

TSgt Kevin Brown
HQ TAC/SEG

DESERT STORM!

What a rush! Tension was high and stress was too. Every day there was something to do. You had to do it right, do it fast, and do it now. The tour was short, but the hours were long. Leisure hours were few and far between, with no place to go and nothing to do. The only real goals were to do your job and make it home. You were good! So you endured and made it safely through. It was like traveling 65 mph everyday.

Homecoming was great, but now it's old. You're back in the old saddle, same environment and old routine. The two-week vacation is winding down. It's time to put your feet back on the ground. You can't travel 65 mph in a 15 mph zone. We realize it can be difficult to readjust to your old way of life, and you may need some help in doing so. **We in the TAC family care about you!** It's important that we help each other make a safe adjustment. You had limited liberties and freedoms while you were there. Now, you're home and the sky's the limit. It'll be easy to take unnecessary risks . . . Drinking too much and then getting behind the wheel . . . Driving while fatigued . . . Overexerting yourself in pickup games and

activities . . . Relaxing your guard while doing odd jobs around the house, or on the car . . . Even on the job, you may be tempted to cut corners and take shortcuts, safety being out of sight and out of mind.

Doing it the safe way may seem a little boring, and boredom can breed complacency. That's it! That's when mishaps happen and ruin it all. It could be as small as a cut or as large as a fatality. Don't let it happen! During this readjustment period, commanders, supervisors, and subordinates alike need to stay alert and be sensitive to these issues. Let's look out for each other. If you see someone taking undue risks or chances, don't play that uninterested, uninvolved, uncaring bystander routine. There should be a sense of commitment among all of us. Let's be our brother's keeper for a change, and prove heroes don't have to suffer without a cause. It may take 3 to 6 months before things are back to normal. It will definitely take a small sacrifice on your part to watch out for one another. Is it worth it? Are you worth it? Of course! **I think every one of you are!** Be safe and not sorry!



HELP US HELP YOU

For those of you who missed our masthead, there has been a change here at TAC Attack. Lt Col "Hap" Tucker PCS'd to USAF and Lt Col "Nellie" Beard (it's a requirement that TAC Attack editors have parenthesized names) is in the chair with stubby pencil in hand. To Hap and his family, Godspeed, safe traveling, and thanks for a job well done.

Now to the matter at hand--we need your help. We're asking each and every TAC Attack reader to complete a survey and forward it to us. The survey is very important to us because it's one of the few ways we can keep in touch with you. Help us determine how successful, or unsuccessful, our efforts have been.

We know you don't have much time to spare, but please squeeze out a few minutes from your busy schedule to fill out the survey form. We've included two forms

with each copy of the magazine because most of you have to share your copy with at least nine other people. Obviously, we encourage local reproduction of our form so everyone can let us know what they think.

The form includes some questions about you. We're not trying to invade your privacy; we just want to know more clearly who it is we're communicating with. By knowing you, we will be better able to tailor the magazine to your interests. Please, no names or Social Security numbers.

The rest of the form lets you sound off to us. Tell us what you honestly think about the way we're doing our job. Don't worry about hurting our feelings. Nobody's performance report is hinging on your answers, so be as honest and accurate as you can. The back of the form has more space for remarks and suggestions. We will read each

survey and consider each serious suggestion; after all, it really is your magazine. We are relying on your inputs.

When you're finished, fold and tape (no staples please) the survey so that the address shows. Send it to us through your official mail channels.

We'll analyze the responses we get. Then we'll make editorial changes based on the survey results. In past years, your feedback and suggestions have resulted in several changes to the magazine: some features were dropped and others were added or expanded. So we do listen to you.

This is your chance to sit on our editorial board and have your opinions heard. Please take the time to let us know what you honestly think. Help us do a better job serving you.

Editor
Lt Col "Nellie" Beard

TAC Attack

Survey

1. What is your rank or grade and time in service?

2. What is your job?

- a. pilot
- b. WSO
- c. other aircrew member
- d. aircraft maintenance
- e. weapons
- f. flight medicine
- g. air traffic control
- h. life support, survival
- i. safety
- j. other (specify) _____

3. What is your age?

- a. under 21
- b. 21-25
- c. 26-30
- d. 31-35
- e. 36-40
- f. over 40

4. Your sex?

- a. male
- b. female

5. How much formal education have you had?

- a. didn't finish high school
- b. high school
- c. some college, but no degree
- d. associate's degree
- e. bachelor's degree
- f. master's degree or higher

6. How often do you read *TAC Attack*?

- a. every month
- b. almost every month (at least six a year)
- c. occasionally (from three to five a year)
- d. rarely (once or twice a year)

7. How often do you read these regular departments? Answer with corresponding letter.

- R - rarely
- O - occasionally
- N - never
- F - frequently
- A - always

Fleagle _____

Angle of Attack _____

TAC Tips _____

Chock Talk _____

Down to Earth _____

Short Shots _____

TAC Safety Awards _____

Weapons Words _____

Aircrew of Distinction _____

Other Awards _____

Phys Bizz _____

TAC Tally _____

Been There, Done That _____

8. What kinds of articles should we print more of?

- a. _____
- b. _____
- c. _____
- d. _____

9. What kinds of articles should we print less of?

- a. _____
- b. _____
- c. _____
- d. _____

10. Of the stories we printed last year, what was your favorite?

11. What story in the last year did you like the least?

12. Overall, do you think *TAC Attack* is-

- a. interesting and useful
- b. interesting, but not useful
- c. useful, but not interesting
- d. of no value at all

13. Has a *TAC Attack* article ever saved your life or kept you from doing something dangerous? If so, briefly describe the situation.

14. How does *TAC Attack* compare to other safety magazines?

- a. better than most
- b. about the same as most
- c. worse than most
- d. don't read any others

15. How do you like our layout and design?

- a. excellent
- b. good
- c. fair
- d. poor
- e. terrible

16. What magazines or newspapers do you regularly read?

- a. _____
- b. _____
- c. _____

17. What changes would you make to *TAC Attack* if you could?

- a. _____
- b. _____
- c. _____
- d. _____

18. Other comments:



1. What is your rank or grade and how long have you been in service?

2. When is your next flight scheduled?

a. Pilot

b. WSO

c. Other service member

d. Other (specify)

3. Flight schedule

a. No flight schedule

b. No flight schedule

c. Regular

d. Other (specify)

4. When is your age?

a. Under 21

b. 21-25

c. 26-30

d. 31-35

e. 36-40

f. Over 41

5. Your sex?

a. Male

b. Female

6. How much formal education?

a. High school or less

b. High school

c. Some college, but no degree

d. Associate's degree

e. Bachelor's degree

f. Master's degree or higher

7. How often do you read TAC Attack?

a. Every month

b. About every month (at least 4 times a year)

c. Occasionally (less than 4 times a year)

d. Rarely (once or twice a year)

FOLD

FOLD

CUT

Official Business

Editor, TAC Attack
HQ TAC / SET
Langley AFB VA 23665-5563

TAC tips

A-10 LASTE: Got-Ya!

Capt Marty Ogorzalek
57 FWW/SEF
Nellis AFB NV

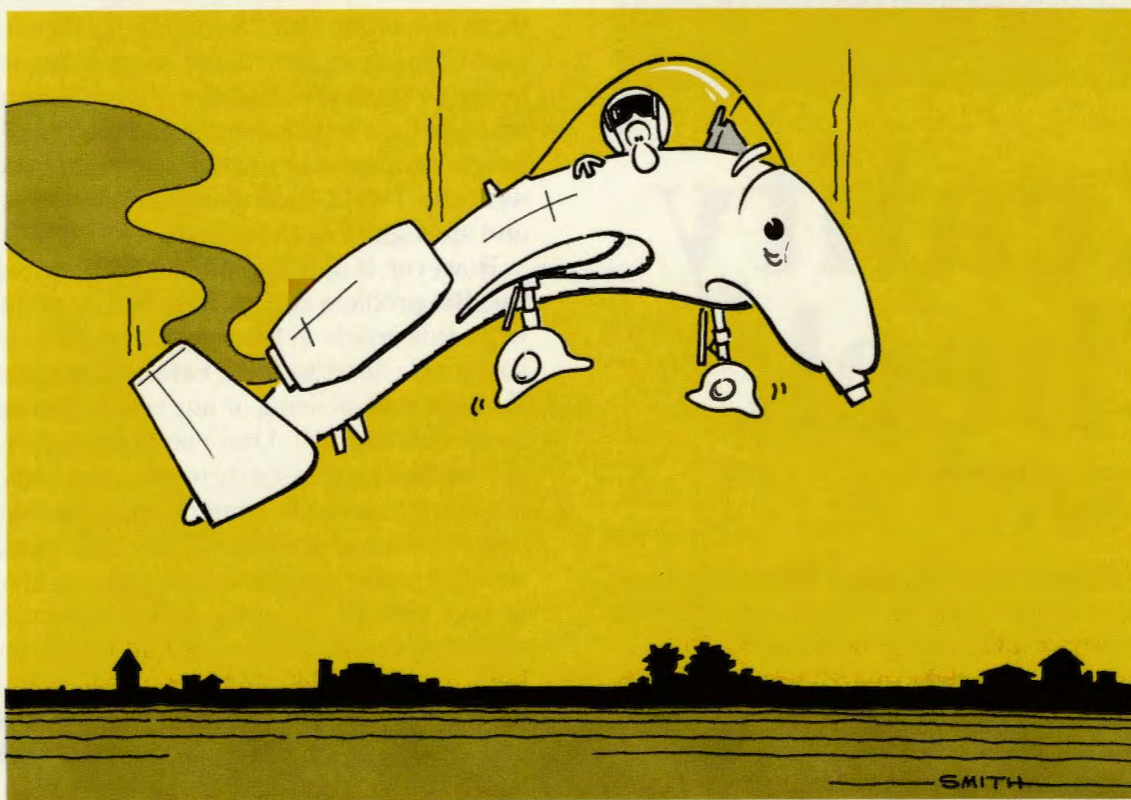
Recently an A-10 pilot was making a VFR overhead full stop and flying the airspeed in the HUD for final approach speed. He made several power reductions on final while attempting to capture his computed final approach airspeed. Approaching the overrun, the aircraft started feeling very mushy and the pilot instinctively added full power and went around.

On downwind he realized what had happened. He had been flying his milliradian depression setting in the HUD rather than the digital KCAS. This was why several power reductions apparently did not slow the aircraft down.

On landing he also discovered that a hasty preflight left the peak performance/stall warning

tone volume knobs full down, therefore, precluding any aural warning of an approaching stall.

So fellow Hog-drivers, there are those who have, and those who . . . Just remember — the LASTE HUD presentation is different. A-10's modified with LASTE have some different HUD symbology, and some pre-LASTE symbology is moved slightly. The overall HUD presentation is wider than the non-LASTE HUD picture — making your crosscheck different. The mil setting has been moved up and to the left, close to where the airspeed used to be displayed. Don't leave the round gauges out of your crosscheck, and don't let this "Got-Ya" happen to you!



DOWN TO EARTH



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

Reality Check

SSgt Joseph Solomon
HQ TAC/SEEA

It was a blistering hot summer day in July. I had just completed a long hard day on the job with a little overtime added for good measure. The overtime pushed me right up to 3 minutes before I had to be at my part-time job. Knowing these people are merciless when you're even a few minutes late, I rushed to my car and jumped in. It

I could just make it if I cut through base housing and ignored the 15 mph speed limit. The race was on!

was only a five-to-eight minute trip, and I had to make it in less than three. I could just make it if I cut through base housing and ignored the 15 mph speed limit. The race was on! As I saw my goal in sight, I floored it. All of a sudden, I heard someone screaming and yelling at the top of their lungs. Wait a minute, the screams were coming from in front of me, not behind. It was a concerned parent telling me to slow down. As I removed my foot from the gas pedal, her words caused me to take a reality check. Filled with shame for what might have happened, I looked into my rear view mirror to see the same scene repeated with a different driver. My mind was filled with a thousand "what ifs." What if I had hit someone's kid? What if I had killed somebody? What if it were one of my kids? Suddenly, getting to that part-time job on time didn't seem so important. I began to think about all the drivers that speed through base housing areas and the possible needless injuries or deaths that could occur. The next day, I went back to the scene of the crime and apologized to the parent.

However, it didn't seem like it was enough. You see, the problem still existed. So I decided to write this article in hope that it might touch someone's heart to think before they speed through base housing or any residential area. Since that incident, I have stopped numerous drivers from speeding through my neighborhood. Something has to be done; it can't be allowed to just continue as is. Some of you may think it's a security police responsibility, and you shouldn't be concerned. If it were your kid in front of a speeding car, I think you would feel differently. Let's work together and stop passing the buck. Summer is here and the responsibility is on us to take a **REALITY CHECK** and **"BEWARE OF KIDS"**!

Thunderstorms are Underrated Killers

MSgt Gary Reniker
442 TFW
Richards-Gebaur AFB MO

I was watching a TV news interview with one of three golfers who were struck by a lightning bolt, and I was amazed by the sheer brute force that he described. The golfer explained how a rapidly approaching thunderstorm caught him and his two partners out in the open on a golf course.

A lightning bolt struck an umbrella that one of his golf partners was holding. The powerful force of the lightning strike knocked all three of the golfers to the ground.

A thunderstorm is one of the most underrated killers. Lightning kills about 125 Americans per year and injures more than 500.

He estimated he was knocked unconscious for approximately five minutes and awoke to find one of his golf partners 25 feet away. The second partner, who was holding the umbrella, had his pants knocked down to his ankles and had difficulty breathing.

All that was left of the umbrella was the steel framework, which looked like a tangled communications antenna. The fabric of the umbrella was completely incinerated.

This incident should remind all of us that it's that time of the year again. During the summer months, we should all gear up to recognize the dangers associated with thunderstorms.

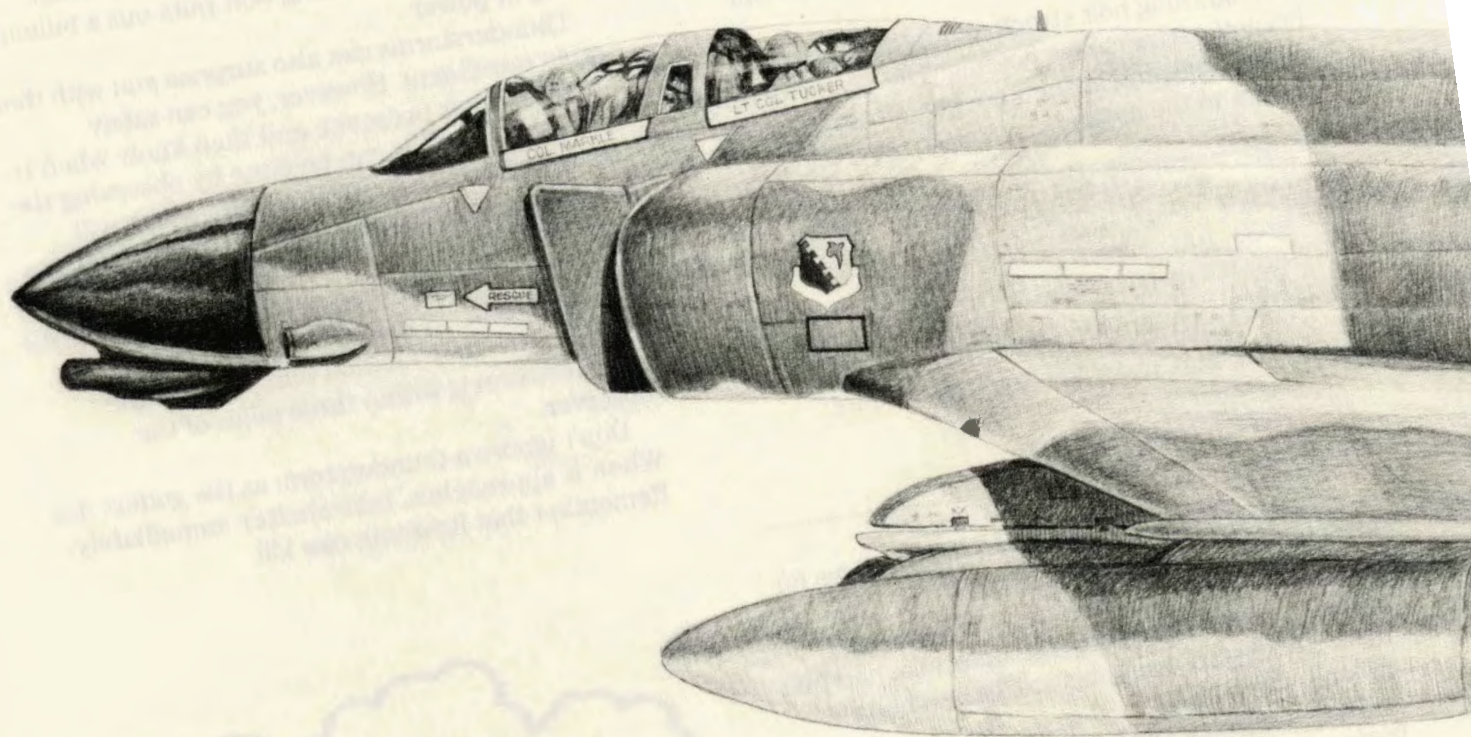
A thunderstorm is one of the most underrated killers. Lightning kills about 125 Americans per year and injures more than 500. Your average run-of-the-mill lightning bolt puts out a billion watts of power.

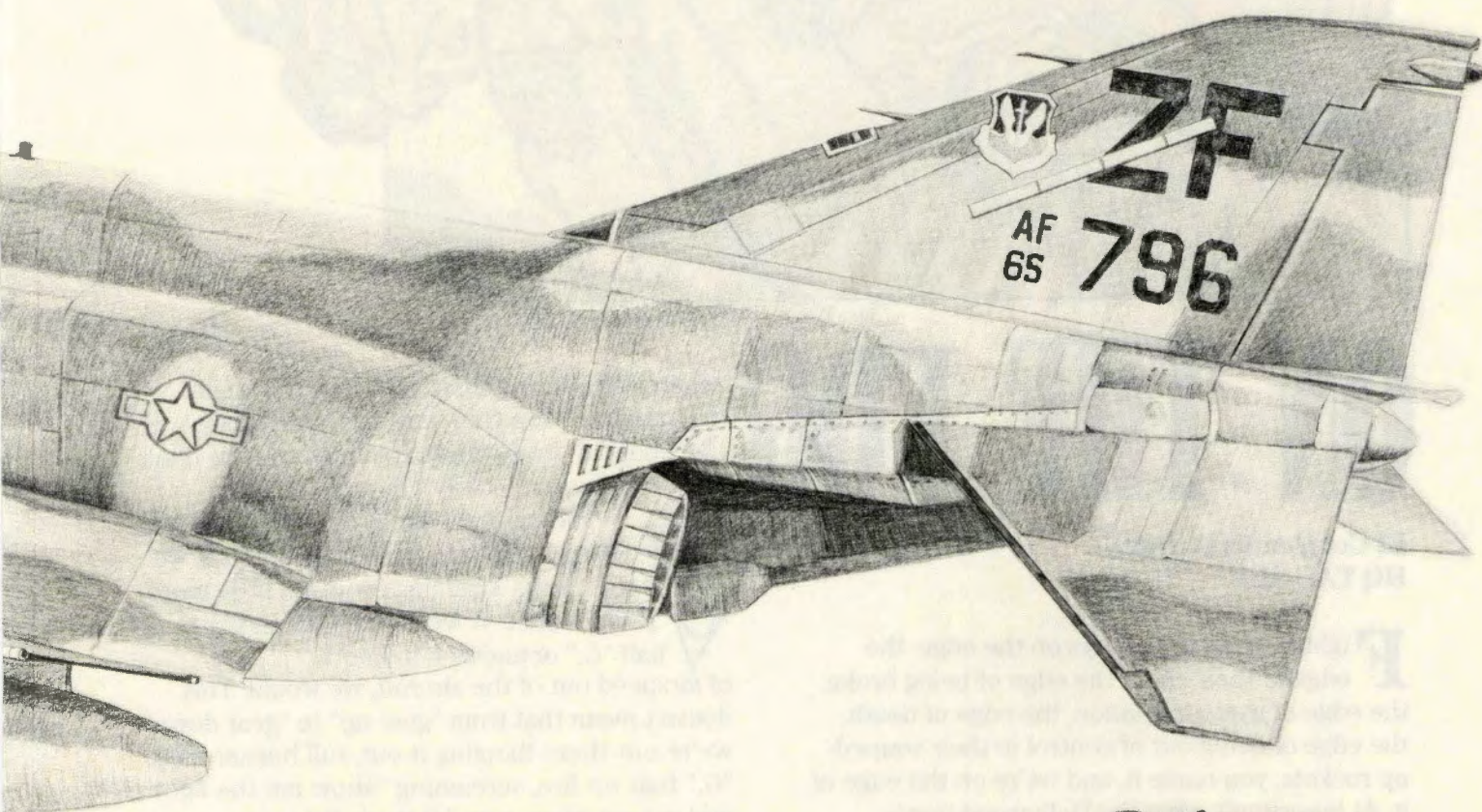
Thunderstorms can also surprise you with their rapid movement. However, you can safely monitor their presence and then know when to take shelter. This can be done by observing the thunderstorm's electrical activity which will generally reveal its distance and intensity. When the time between the lightning flash and the thunder report is 15 seconds or less, consider the thunderstorm "in the near vicinity" and take shelter. This time method tells you that the thunderstorm is within three miles of the observer.

Don't ignore a thunderstorm as the golfers did. When it approaches, take shelter immediately. Remember that lightning **can** kill.



**Farewell to Col Terry Markle,
Chief of the Flight Safety Division,
and to Lt Col "Hap" Tucker,
Editor of TAC Attack.**





Bailey '91-

Been There,



ON THE EDGE

Lt Col Dennis L. Day
HQ TAC/SEF

Fighter pilots are always on the edge: the edge of their chair, the edge of being broke, the edge of insubordination, the edge of death, the edge of being out of control in their souped-up rockets; you name it, and we're on the edge of it. At least that's what the Hollywood movie crowd would have us believe. Fortunately, this is not always the case. Some of us are rather laid back and relaxed (some are not), and we do tend to keep an extra dollar around just in case we lose the bet on the range or the last round at the bar. All things considered though, it seems that

when we're sitting there on a Saturday night watching "Top Gun" with the in-laws, we spend a lot of time explaining why we don't do things the way "Tom did it."

They're right about one thing though; when we strap on the jet for a 1 v ?, we are always straining for just a little more performance. If we could coax another half "G," or another 15 knots

of airspeed out of the aircraft, we would. This doesn't mean that from "gear up" to "gear down" we're out there hanging it out, full burner, max "G," hair on fire, screaming "show me the fight and get out of my way." If that's the way you are all the time, then you are probably on the edge of destruction. Find a Doc and the edge of a couch. No, most of us take a more controlled approach to reaching our end. But when we are "max performing" the aircraft, we're very close to the "edge of the envelope"; we must be aware of our

Done That

limitations and the limitations of the jet if we are going to be as good as the "I'm cool" image Hollywood has spent millions of dollars to develop.

Case in point. The mission was briefed as a 2 v 2 ACT. Briefing, ground ops and departure were accomplished without incident. The flight split up for the planned engagements. On the mishap engagement, the elements met at the merge 180 out (sound familiar?). The mishap element, Red 1 (the mishap aircraft) and 2 were the strikers, and split approximately 1 to 1.5 NM, with Red 2 back about 20 degrees. At the merge, Blue 1 and 2 were line abreast, 5000' apart, approximately 1000' below the mishap aircraft. Blue 1 pressed the attack on the trailer with his wingman; Blue 2 collapsed to a 4,000' cover position. Red 1 saw the threat and directed a left turn for Red 2 as he broke hard right; in effect, executing a cross turn. Through a series of several turns the fight broke down to two 1 v 1's separated by approximately 2.5 to 3 miles apart (this really sounds familiar).

Now to the mishap element, Red 1 and Blue 2. Red 1 and Blue 2 passed each other with about 3,000' lateral separation. Blue 2 had a slight altitude and airspeed advantage. As they passed, each turned toward the other ultimately ending up across the circle from each other. Both pilots lost altitude and airspeed as they tried to gain the advantage (30 more knots, one more "G," just another 5 degrees per second turn rate). As they spiraled down, Blue 2 was able to maintain the slight energy advantage he had enjoyed at the beginning of the engagement. He began to sense an energy loss, however, and reduced his bank angle, unloaded to gain airspeed, and climbed approximately 3000'. Red 1 interpreted this as Blue 2 losing sight and began to pull to Blue 2's six; but his energy was low, approximately 220 KCAS. Red 1 intended to unload to gain energy and then do a vertical maneuver much like an Immelman to meet Blue 2 across the circle. He rolled wings level, engaged burner and

accelerated to 250 KCAS and started it over the top. As the aircraft reached 110 degrees inverted, the indicated airspeed decreased to zero; and the aircraft departed controlled flight (been there, done that). The aircraft then settled into an upright deep stall. The mishap pilot then made several attempts to recover the aircraft from the stalled condition, all of which were unsuccessful. Perceiving himself to be out of control below 10,000', the pilot did the right thing and ejected.

Certainly the mishap pilot did not intend to put his aircraft out of control. He obviously thought he could make it over the top and be in a position of advantage, or he would not have initiated the over-the-top maneuver. For whatever reason, something went astray in his plan. Poor execution or poor planning caused him to exceed the limits of the airframe and go over the much talked about "edge." Since 1985, the TAF has lost over 15 aircraft due to departure from controlled flight. Think about it for a moment, almost an entire squadron of jets. The cost in dollars is more than we want to publish. The cost in lives is more than we can bear.

The image that Hollywood has built for the fighter pilot is one of cool bravado. Their story paints us as individuals who live every moment on the very edge of life. The point of this series is to learn something from the past. Most of us have at one time or another been in a position we would just as soon not see again. If we can remember that learning experience, we may be able to pass it on and save someone else the necessity of going over the edge. In the heat of a full blown 4 v 4 engagement, it's easy to get caught up in the excitement and attempt to do something we are not really ready for. The image would say you can do it, that's the way "Tom does it." Just think, the next time you visit the in-laws and are sitting there on Saturday night watching "Top Gun," you could really explain what happens when you do it the way "Tom does it."

Outstanding Individual Safety Achievement Award



Aircraft F-16A 79-391 from the 174 TFW blew a nose tire on takeoff roll and veered off of the runway at an air base in Saudi Arabia. As the aircraft caught fire, the pilot ejected. The pilot, stunned but alive, landed about 130 feet behind the stricken aircraft. Master Sergeant George F. Frey, Jr., Technical Sergeant Stephen M. Witt, Staff Sergeant Andrew Vallance, and Sergeant Erik Van Kampen, without regard for their own personal safety and despite the danger posed by hydrazine, live AIM-9 missiles, 515 rounds of 20mm HEI ammunition, and burning JP-8 aircraft fuel, ran to rescue the injured pilot. Unable to see due to the choking black smoke, they followed the parachute risers until reaching the pilot. Grabbing the pilot by his harness, they proceeded to drag him to safety. Sergeants Frey, Witt, Vallance and Van Kampen's immediate and selfless response to this emergency situation earned them the TAC Outstanding Individual Safety Achievement Award.

These individuals were part of the 4404 TFW(P) during Operation DESERT STORM; therefore, photographs are not available.

**MSgt George F. Frey, Jr.
TSgt Stephen M. Witt
36 TFW/MA
APO NY 09191**

**SSgt Andrew Vallance
Sgt Erik Van Kampen
20 TFW/LGS
APO NY 09194**

TAC Attack

Survey

1. What is your rank or grade and time in service?

2. What is your job?

- a. pilot
- b. WSO
- c. other aircrew member
- d. aircraft maintenance
- e. weapons
- f. flight medicine
- g. air traffic control
- h. life support, survival
- i. safety
- j. other (specify) _____

3. What is your age?

- a. under 21
- b. 21-25
- c. 26-30
- d. 31-35
- e. 36-40
- f. over 40

4. Your sex?

- a. male
- b. female

5. How much formal education have you had?

- a. didn't finish high school
- b. high school
- c. some college, but no degree
- d. associate's degree
- e. bachelor's degree
- f. master's degree or higher

6. How often do you read TAC Attack?

- a. every month
- b. almost every month (at least six a year)
- c. occasionally (from three to five a year)
- d. rarely (once or twice a year)

7. How often do you read these regular departments? Answer with corresponding letter.

- R - rarely
- O - occasionally
- N - never
- F - frequently
- A - always

- Fleagle _____
- Angle of Attack _____
- TAC Tips _____
- Chock Talk _____
- Down to Earth _____
- Short Shots _____
- TAC Safety Awards _____
- Weapons Words _____
- Aircrew of Distinction _____
- Other Awards _____
- Phys Bizz _____
- TAC Tally _____
- Been There, Done That _____

8. What kinds of articles should we print more of?

- a. _____
- b. _____
- c. _____
- d. _____

9. What kinds of articles should we print less of?

- a. _____
- b. _____
- c. _____
- d. _____

10. Of the stories we printed last year, what was your favorite?

11. What story in the last year did you like the least?

12. Overall, do you think TAC Attack is-

- a. interesting and useful
- b. interesting, but not useful
- c. useful, but not interesting
- d. of no value at all

13. Has a TAC Attack article ever saved your life or kept you from doing something dangerous? If so, briefly describe the situation.

14. How does TAC Attack compare to other safety magazines?

- a. better than most
- b. about the same as most
- c. worse than most
- d. don't read any others

15. How do you like our layout and design?

- a. excellent
- b. good
- c. fair
- d. poor
- e. terrible

16. What magazines or newspapers do you regularly read?

- a. _____
- b. _____
- c. _____

17. What changes would you make to TAC Attack if you could?

- a. _____
- b. _____
- c. _____
- d. _____

18. Other comments:



1. How often do you read the
TAC Attack?
a. daily
b. weekly
c. monthly
d. not at all

2. How often do you read the
TAC Attack?
a. daily
b. weekly
c. monthly
d. not at all

3. How often do you read the
TAC Attack?
a. daily
b. weekly
c. monthly
d. not at all

4. How often do you read the
TAC Attack?
a. daily
b. weekly
c. monthly
d. not at all

5. How often do you read the
TAC Attack?
a. daily
b. weekly
c. monthly
d. not at all

6. How often do you read the
TAC Attack?
a. daily
b. weekly
c. monthly
d. not at all

FOLD

7. How often do you read the
TAC Attack?
a. daily
b. weekly
c. monthly
d. not at all

8. How often do you read the
TAC Attack?
a. daily
b. weekly
c. monthly
d. not at all

9. How often do you read the
TAC Attack?
a. daily
b. weekly
c. monthly
d. not at all

10. How often do you read the
TAC Attack?
a. daily
b. weekly
c. monthly
d. not at all

11. How often do you read the
TAC Attack?
a. daily
b. weekly
c. monthly
d. not at all

12. How often do you read the
TAC Attack?
a. daily
b. weekly
c. monthly
d. not at all

CUT

FOLD

13. How often do you read the
TAC Attack?
a. daily
b. weekly
c. monthly
d. not at all

14. How often do you read the
TAC Attack?
a. daily
b. weekly
c. monthly
d. not at all

15. How often do you read the
TAC Attack?
a. daily
b. weekly
c. monthly
d. not at all

Official Business

Editor, TAC Attack
HQ TAC / SET
Langley AFB VA 23665-5563

MAN, IT'S HOT ENUFF TO BAKE BREAD IN TH' SHADE.

YOU AIN'T SEEN HOT, FLEAGLE.



HERE WE GO WITH ANOTHER WILD YARN.

DID I EVER TELL YOU 'BOUT TH' TIME I WUZ FLYIN' OUT OF CUBA IN TH' EARLY THIRTIES?



© STAN HARDISON 1991

HARDISON

WHEN I GOT TO TH' STATES THERE WEREN'T A RUNWAY COOL ENUFF TO LAND ON.



SO I SAW THIS COOL LOOKIN' LAKE AND HEADED FOR IT.

YOU LANDED IN A LAKE?



THERE WEREN'T NO ROOM.

BOATS?

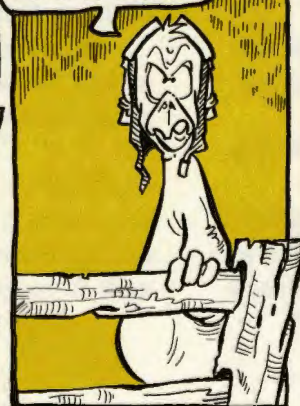


NO, TH' LAKE WUZ COVERED WITH BOILED AN' COOKED FISH.

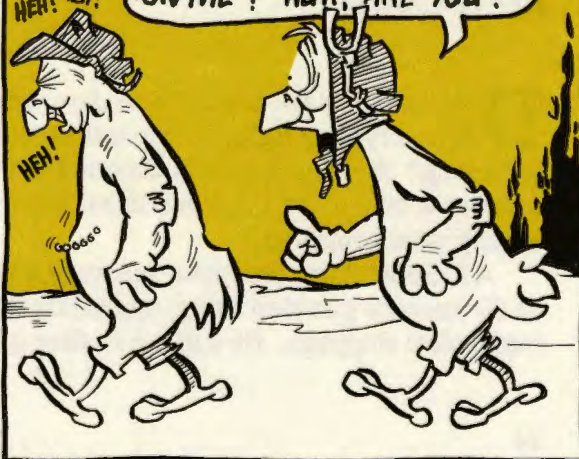
OH.



WAIT A DANG MINUTE. WE AIN'T NEVER HAD WEATHER HOT ENUFF TO BOIL A LAKE.



THAT DIDN'T REALLY HAPPEN, DID IT? TELL ME TH' TRUTH, MR. TALON, ARE YOU PICKIN' ON ME? HUH, ARE YOU?





AMMUNITION COOK-OFF

Maj Jonny Hepler
HQ TAC/SEW

Did you ever have one of those days where you did everything right, but the results still came out wrong? A recent situation occurred this summer at one of our US desert units where that is exactly what happened.

A Combat Arms Instructor observed a student's M-60 machine gun stop firing, apparently due to a mechanical stoppage. He had the student step back

away from the weapon so he could assess the cause of the malfunction.

Following prescribed procedures, the instructor locked the bolt to the rear to see if ammunition or spent brass would eject from the chamber; it did not. TAC Combat Arms Lesson Plans for the M-60 tell us that firing 150 rounds in 2 minutes may cause a "hot" gun-- i.e., the barrel could be hot enough to cook off a round in the chamber and to wait 30 seconds before checking the weapon.



The instructor did it right and determined the gun was "cold" and raised the cover on the weapon to further investigate the problem. Using a flashlight, he looked into the chamber; and discovered a live round jammed against a spent cartridge case which had not been extracted from the chamber. While he was looking into the weapon, the round detonated and a piece of the brass cartridge case hit the instructor in the forehead. The resulting wound required nine stitches. He was also treated for powder burns around his eyes. Fortunately, he was wearing protective glasses which prevented fragments from entering his eyes.

Air Force Tech Orders 11W1-12-8-41 and -52 provide a little more information about hot gun conditions and some of the variables involved in determining a "hot" gun situation. Some of the other considerations besides the number of rounds fired in a two-minute time span are:

- The total number of rounds fired through the gun that day.
- Is it the initial or a subsequent firing sequence?
- Weather conditions.

If the instructor had determined the gun was "hot," he would not have raised the cover on the weapon nor looked down into the chamber. He would have turned the ejection port towards the ground, kept the barrel pointed down range, placed sand bags around the weapon and waited fifteen minutes before checking out the weapon.

As we said earlier, he performed all of the prescribed procedures correctly. However, if he had considered some of the other variables mentioned above, he probably would have determined he had a potential "hot" gun rather than taking the actions prescribed for a "cold" gun situation.

In this instance, it would have saved him from experiencing the "mother of all headaches." Be aware, summer heat can cause other explosives to be more sensitive than normal--not just "hot" guns.

USAF DIRECTOR OF NUCLEAR SURETY OUTSTANDING ACHIEVEMENT AWARD

The Director of Nuclear Surety Outstanding Achievement Award is presented to an individual for outstanding nuclear surety contributions or achievements.

Selection is based on major command nominations and nuclear surety data available to the AFISC Nuclear Surety Directorate. Major Kelley is the first Tactical Air Command individual to receive this award, which was established in 1982.

In her role as Tactical Air Command's Nuclear Surety Officer, Major Kelley **"revitalized a virtually nonexistent nuclear surety program and significantly improved the Tactical Air Command's operational capability."** As TAC's safety member of the Intermediate Range Nuclear Forces Treaty Working Group, Major Kelley authored the safety annex for the Ground Launched Cruise Missile drawdown and directed explosives site planning for missile dismantling operations allowing full compliance with all of the treaty requirements in a timely fashion.

**CONGRATULATIONS MAJOR KELLEY --
JOB WELL DONE!**



**Major Martha J. M. Kelley
58 TTW
Luke AFB AZ**

USAF NUCLEAR SURETY PLAQUE

The NUCLEAR SURETY plaque is awarded each year to an organization below MAJCOM level for outstanding achievement in, or contribution to, nuclear surety. The TAC recipient for 1990 is:

**347 TFW
Moody AFB GA**



SPECIAL RECOGNITION

Congratulations to the 71st Tactical Fighter Squadron, Langley AFB. It was the first F-15 squadron to achieve 100,000 incident-free flying hours. The squadron surpassed the milestone while flying a Desert Shield mission in Saudia Arabia.

Lt Col Pip Pope, 71 TFS commander at that time, is shown accepting the 100,000 hour flying excellence award from McDonnell Aircraft Company officials.



Capt Andy Parrish
310 TFTS
Luke AFB AZ

I should have known it was going to be a bad day since it was Monday ... and my thirtieth birthday. I was a brand new F-16 LANTIRN instructor on one of my first daytime back seat sorties. The "student" in the front seat was one of our own instructors upgrading to LANTIRN and an experienced F-16 pilot. As we entered one of the ranges near Luke, we could hear our flight lead 8 miles ahead coordinating with an A-10 flight lead. The A-10s were just finishing strafe and would depart at 5500' MSL or above. We would remain at 500' AGL (2000' MSL) for a level delivery. As we approached 6 mile final, the A-10 flight lead gave a position report indicating he was behind us. At 5 miles, while on AUTO Terrain Following Radar (TFR), the aircraft started to climb. Since we were over flat terrain, the front seater made a comment to the effect of: "What the ...?" Shortly thereafter, the TFR commanded an obstacle warning or G-limit fly-up of approximately 5 G's. I looked around the front seat just in time to see an A-10 very close, head-on, and slightly above our nose. My reaction was to grab a fist full of stick, paddle off the front seater, and pull. After a second, the front seater asked if I had the aircraft; and after finding my voice, I said that I did. The A-10 pilot said we passed in front of his nose, low to high, very close!! My front seater was wearing a masked

TOO CLOSE

visor, part of the F-16 vision restricting device, and didn't see a thing. The left Multi-function Display (MFD) had ground map radar for our radar laydown, and the right MFD had the air-to-ground page of the Stores Management System (SMS). How did this happen? What can we all learn from it? The first lesson and the most basic to fighter pilots is: Don't assume anything. I assumed that if the flight lead called clear of the range that his wingman was with him. If I had been more suspicious of the wingman's position, I would have jumped on the aircraft fly-up earlier, knowing that the A-10 was causing it.

The second question is simple; will your TFR see an A-10 head-on, 3500' above you? You better believe it!! In NORM your TFR scan is +10 degrees and -20 degrees of level; therefore, at 4 miles, the TFR is looking 4000' above your altitude. Only information from the center scan is displayed on the TFR scope, and only this information is used to provide

I looked around the front seat just in time to see an A-10 very close, head-on, and slightly above our nose.

up and down commands to the FLCs. Terrain seen in the outer bars is only used to generate "Terrain ->" cautions in the HUD. Remember that this scan pattern shifts into the turn based on turn rate, 1 bar per degree of turn up to 4°/sec. Also, it shifts down 5 degrees when in the weather mode or by half the dive angle when descending. If you haven't seen an aircraft on your TFR scope before, it looks like a single short vertical line above the terrain. It can be anywhere above that terrain depending on the angle from you to the target.

Now that we've reviewed the basics of the TFR, how can we apply it? First of all, use the

FOR COMFORT

If the jet is climbing and you suspect it's for an aircraft on your nose, don't let the TFR fly-up continue.

basics of the TFR scope. If you've got your SMS set up correctly, Display Management Switch over to the TFR page even on the IP to TGT run. That way if you are using ground map on the radar, you still have the TFR page to look at if the TFR is commanding an unexpected climb or descent. Bring it into your crosscheck during low altitude navigation. Since depth perception in the Forward Looking Infrared Radar (FLIR) is difficult, the TFR page can give you information as to what the terrain ahead looks like and how far away it is. You can even anticipate the TFR climb over ridges by watching the terrain hit the zero

command line in the TFR scope telling it to command a climb. If the aircraft starts to climb in auto unexpectedly (or the box rise in manual), your mind should go through a short checklist. Is it terrain? If it isn't, then is it weather of some sort? If it isn't, these two then get nervous because it's probably another aircraft. Birds normally only cause an obstacle warning fly-up that terminates in less than one second because they aren't seen until in close and then are gone. If you now look at the E2 scope and see a return as previously described, then not only does the TFR see an aircraft, but it is on your nose (in your center scan)!

Getting back to my story, the A-10 was on our nose and the obstacle fly-up did put us on nearly a perfect collision course because what it thought was non-moving terrain was actually moving at 250-300 knots. This head-on, look-up situation is the one that's going to get you. In most other intercept geometries that you can come up with (tail

aspect, look down, level, beam), the TFR fly-up isn't going to make things worse. What do you do about it? If the jet is climbing and you suspect it's for an aircraft on your nose, don't let the TFR fly-up continue. Day or night, get your eyes out of the cockpit and look on your nose, level to high. If able, also get into an ACM mode to help you sanitize. *With good Situational Awareness (SA)*, use the paddle switch to terminate the climb/fly-up and check left or right to get the target off your nose. Odds are if this guy got through your A-A search and is showing up high on your E-scope, this course of action is your best bet. If you are not sure that it's for an aircraft or have cleared visually, always honor the fly-up!! I have had several similar occurrences with light aircraft showing up on the E2 scope (TFR page) and causing a climb or simply being displayed as a "Terrain ->." With disciplined air-to-air radar search, visual lookout, and proper TFR scope interpretation you should be able to prevent being surprised the way I was that day.

If what I've said is common knowledge to you Aardvark and Strike Eagle guys, then good; make sure you pass it on to your new people. If you are a Viper driver new to LANTIRN, or even an experienced LANTIRN IP, being knowledgeable on TFR operations is essential to keeping night, low altitude, single seat flying safe. The LANTIRN navigation pod has an excellent safety record, let's keep it that way. ➤

Outstanding Unit Safety Achievement Award

Master Sergeant Charles R. Gentry and Staff Sergeant Clark A. Keysor have worked extraordinarily hard to make Wideband Maintenance the safest shop in the 71 TCS. Sgt Gentry's outstanding leadership greatly contributed to the "Outstanding" rating Wideband Maintenance received during the August 1990 Unit Effectiveness Inspection. He developed and implemented guidelines for shop safety programs that have been adopted by the entire squadron. Sgt Keysor's contributions to the safety program have also been outstanding. His continuous inspection program has resulted in Wideband's "Spotless" safety management record. Together they have built a very detailed safety management program providing comprehensive, easy to follow information for use by anyone in the unit. The shop storage areas, tool boards, cabinets, vehicles, and safety boards are all inspected and maintained in an outstanding manner. This has

resulted in "Zero" reportable mishaps—an outstanding record. Not only is the shop the safest in the squadron, but also the cleanest and best organized. Wideband Maintenance is



**MSgt Charles R. Gentry
SSgt Clark A. Keysor
Wideband Maintenance Shop
71 TCS
MacDill AFB FL**



maintained in such a safe and exact manner that the program and facilities serve as a model for the entire wing. The 507th Tactical Air Control Wing's safety inspectors suggested the program be adopted throughout the wing. Sgts Gentry and Keysor's attention to detail led to the discovery of a faulty circuit breaker in their equipment. This problem was corrected in minimal time with all hazard reporting procedures and danger tag applications quickly and accurately initiated. These actions avoided the probability of a serious mishap occurring and the damage to property and loss of life. Sgts Gentry and Keysor imparted a strong attitude toward safety in all shop personnel. The Wideband Maintenance Shop is undoubtedly the most well-informed shop on safety matters in the squadron. Sgt Gentry and Sgt Keysor, through their efforts and supervision, earned the Wideband Maintenance Shop the TAC Outstanding Unit Safety Achievement Award.



TAC TALLY

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

* (SUCCESSFUL/UNSUCCESSFUL)

TOTAL			TAC			ANG			AFR		
JUN	THRU JUN		JUN	THRU JUN		JUN	THRU JUN		JUN	THRU JUN	
	FY91	FY90		FY91	FY90		FY91	FY90		FY91	FY90
1	20	21	0	9	13	1	11	5	0	0	3
0	5	11	0	1	5	0	4	4	0	0	2
1/0	15/1	15/0	0/0	5/0	7/0	1/0	10/1	6/0	0/0	0/0	2/0
0/0	0/2	1/1	0/0	0/0	1/1	0/0	0/2	0/0	0/0	0/0	0/0

CLASS A MISHAP COMPARISON RATE

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

TAC	FY 91	0.0	0.0	0.7	1.8	2.2	2.2	2.2	1.9	1.7			
	FY 90	1.8	2.8	2.7	3.0	2.4	2.7	2.8	2.9	2.8	2.7	2.8	3.2
ANG	FY 91	3.8	2.0	1.3	3.9	3.2	4.0	5.2	5.0	2.2			
	FY 90	0.0	0.0	1.6	1.2	0.9	0.8	1.3	2.2	2.4	2.2	2.0	2.2
AFR	FY 91	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
	FY 90	20.4	11.2	8.2	5.9	4.7	7.7	6.4	5.5	4.8	4.4	4.0	3.6
TOTAL	FY 91	1.2	0.6	0.8	2.3	2.4	2.6	2.9	2.7	2.5			
	FY 90	2.4	2.5	2.7	2.6	2.1	2.4	2.6	2.9	2.8	2.7	2.6	3.0
MONTH		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP

TAC'S TOP 5 thru JUNE 1991

1st AF			9th AF			12th AF		
"COMMAND-CONTROLLED CLASS A MISHAP-FREE MONTHS"								
140	48	FIS	48	1	TFW	50	479	TTW
65	57	FIS	27	56	TTW	42	355	TTW
25	325	TTW	19	31	TFW	41	366	TFW
			18	33	TFW	36	27	TFW
			14	23	TFW	22	49	TFW
ANG			AFRES			DRUs		
"COMMAND-CONTROLLED CLASS A MISHAP-FREE MONTHS"								
461	119	FIG	159	301	TFW	177	552	AWACW
437	147	FIG	122	482	TFW	68	28	AD
247	110	TASG	119	924	TFG	47		USAFTAWC
221	138	TFG	107	906	TFG	39		USAFTFWC
194	112	TFG	82	507	TFG			

DON'T JUST THINK IT,
LIVE IT

SAFETY

THIS...



NOT THIS...

