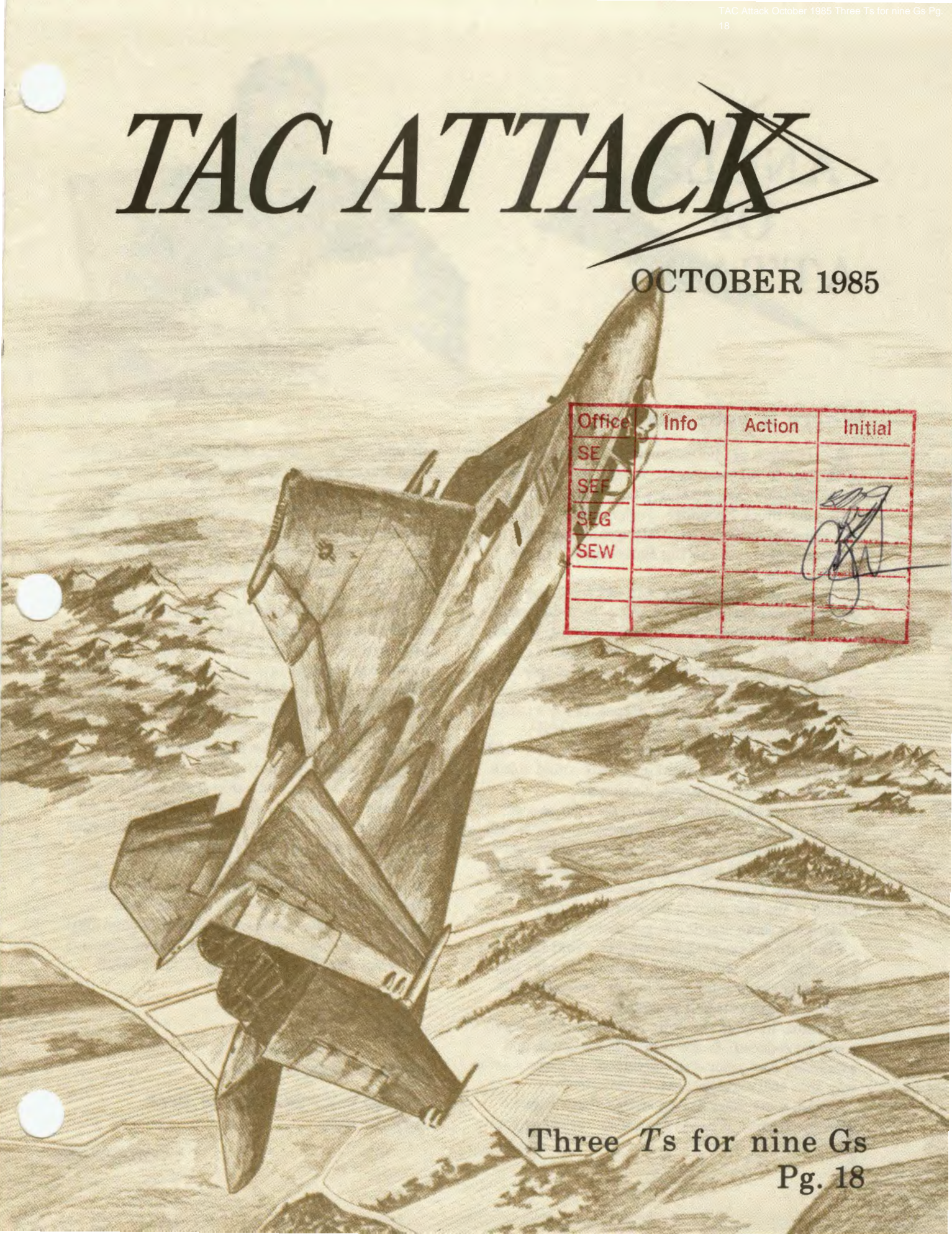


TAC ATTACK

OCTOBER 1985



Office	Info	Action	Initial
SE			
SEF			
SEG			
SEW			

Three Ts for nine Gs
Pg. 18

ANGLE OF ATTACK



Where is your next accident?

Accurately predicting anyone's next accident in time to take action to prevent it would be far more lucrative than picking a sure winner on the New York Stock Exchange. Perhaps there is more commonality between preventing mishaps and picking winners on the Big Board than is immediately obvious.

Contact your local broker and ask for a buy or sell recommendation. If he is good, he'll do extensive research rather than use a dart board. He will want to know a lot about you: your objective, acceptable risk, amount to invest, area of interest, etc. Then he'll research the market: performance history, up and down cycles, corporate leadership, company resources, state of R and D, world economic and political pressures, etc. I'm sure that a hard working, quiet speaking, "bull" could think of even more factors worth looking at.

Each of us should be similarly attuned to our environments. If we're doing our homework as we expect our brokers to, we will pick up indicators that could predict our next mishap—flight, ground, or weapons. Forewarned is forearmed and anticipation is the best way to prevent accidents.

Here are some starting suggestions:

First, do a personal inventory: What does your job entail? How well trained are you? Is your job personally rewarding? How is your personal life? What are your external pressures?

Second, look at the job: Are there risks which could be reduced? Is the tech data adequate and available? Are supervisors involved? Is there a safer way that still accomplishes the mission?

Third, visit your safety office for a short history lesson: What is the safety record of your

unit and similar units at other bases? Are there cycles where mishap rates are higher, such as summer or winter? If you have new equipment, what is happening in units with similar but older equipment (yours will be old like theirs soon)? How long has it been since your unit's last mishap? What are the trends? What kinds of help can the safety office give your unit?

Fourth, what are the external pressures which you can't control but must accommodate: Are you preparing for Red Flag, an ORI or an overseas deployment? Are you entering a poor weather or night period? Has Personnel traded some of the experienced old heads for young, eager (but yet untrained) replacements?

Finally, especially for supervisors: How are your resources (spare parts, tools, facilities, people)? How well does your leadership team work together? Are there external pressures from which you can shield your subordinates? Are some factors beyond your control and can you bring them to the attention of higher echelons?

We can make a difference. We can affect the safety record of our unit—but it takes work. Resolve to do your homework. Research your job, not as if you could profit from the knowledge, but as if your life depended on it . . . **IT DOES!**

HAROLD E. WATSON, Colonel, USAF
Chief of Safety

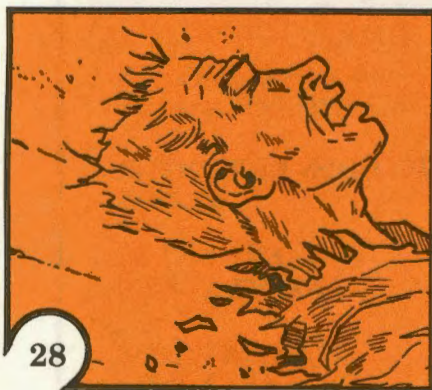
FEATURES

- 4 A Message from the TAC Commander**
TAC is in its best shape ever.
- 12 Fire Prevention**
The three main causes of fire in the home.
- 16 IN THE CENTER**
F-5E Tiger II.
- 18 Three Ts for Nine Gs**
A flight lead's guide in technique, training and technology.
- 21 Mobility**
Mobility means more than just dragging a bag through a processing line.
- 28 Black Powder**
Re-enact the battle, not the mishap.
- 30 F-4 Emergency Situation Training**
What'cha gonna do now, Ace?



DEPARTMENTS

- 7** Aircrew of Distinction
- 8** TAC Tips
- 11,27** Safety Awards
- 14** Weapons Words
- 22** Down to Earth
- 23** Short Shots
- 24** Chock Talk



TACRP 127-1

TAC Attack is not directive in nature. Recommendations are intended to comply with existing directives. Opinions expressed are those of the authors and not necessarily the positions of TAC or USAF. Mishap information does not identify the persons, places or units involved and may not be construed as incriminating under Article 31 of the UCMJ. Photos and artwork are representative and not necessarily of the people or equipment involved.

Contributions are encouraged, as are comments and criticism. We reserve the right to edit all manuscripts for readability and good taste. Write the Editor, TAC Attack, HQ TAC/SEP, Langley AFB, VA 23665-5001; or call AUTOVON 432-3658.

Distribution F(X) is controlled by TAC/SEP through the PDO, based on a ratio of 1 copy per 10 persons assigned. DOD units other than USAF have no fixed ratio; requests will be considered individually.

Subscriptions for readers outside DOD are available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. All correspondence on subscription service should be directed to the superintendent, not to TAC/SEP.



HON VERNE ORR
SECRETARY OF THE
AIR FORCE

GEN ROBERT D. RUSS
COMMANDER



COL HAL WATSON
CHIEF OF SAFETY

MAJ DON RIGHTMYER
EDITOR

MARTY DILLER
WRITER-EDITOR

STAN HARDISON
ART EDITOR

SRA KELVIN TAYLOR
STAFF ARTIST

TAC Attack (ISSN 0494-3880) is published monthly by HQ TAC/SEP, Langley AFB, VA. POSTMASTER: Send address changes to *TAC Attack*, TAC/SEP, Langley AFB, VA 23665-5001. Second-class postage paid at Hampton, Virginia, and additional mailing offices.

Shortly after General Robert D. Russ assumed command of TAC, he began to spread the word on the status of the command. He has carried the same message to his audiences on every occasion: TAC is in its best shape ever. He emphasized that, while some areas may be stronger than others, the men and women of TAC have many reasons to be proud. General Russ has reminded every group that, regardless of what job they perform, our mission in TAC is to be ready to go to war and win. At every aircrew meeting, the new TAC commander has emphasized his dedication to continuing realistic training as a key contributor to TAC's readiness posture.

In order to put his thoughts into the correct perspective, General Russ has often expanded on his views of how TAC must train like it will fight. He has continually reminded our aviators to emphasize flying safety in training exactly the same as they would when in war.

To expand on this philosophy, General Russ offers his thoughts and answers some *TAC Attack* questions relating to tactical aviation and safety.



General Robert D. Russ
Commander

Over the past few years, we have steadily reduced our accident rate, while we have continued to train realistically. Each member of the Tactical Air Command team can take pride in this trend. Our TAC goal for 1985 is to have less than 20 Class A flight mishaps, and we're headed in the right direction. Our TAC fighter-attack accident rate is down from 4.5 in 1984 to 2.5 so far in 1985. So for this year, we have had 12 accidents as compared to 16 this time last year. Unfortunately, our TAC-gained ANG rate is double 1984: 9 mishaps vice 4 for the same period last year.

In both the active and reserve forces, the majority of our recent losses appear to have been

A MESSAGE FROM THE TAC COMMANDER

preventable. The area where we can improve the most is in the ops-related mishaps. Many of our fatalities occur off-range during the "routine" portion of the mission. Unexpected difficulties can crop up during any part of a sortie, and it's during those seemingly less taxing parts of the flight where we continue to have problems. I know we can make some progress in those seemingly simple parts of the mission. We need to plan, brief and execute the routine portions with the same degree of attention to detail and professional pride as we do the employment portions. Whether they're scrambling during an air defense alert, at the merge in a 2 v 2 or delivering a Maverick missile on a tactical range, every TAC pilot that I know has stepped up to the fighting responsibilities that go along with emphasizing tactical airpower. It's equally important that all fighter pilots approach flying safety with the same sense of responsibility. Flying safety has to become a cultural thing in TAC.

General Russ, we are continually reminded of the importance of safety in our peacetime operations and training. How do

you feel that applies to our war-time mission?

Flying safety has to become a cultural thing in TAC.

Occasionally, I hear a comment about a "peacetime safety rule." My answer to that is we don't have two safety programs—one for peacetime and one for war—we only have one. During a war,

our job is to put as much firepower as possible on the enemy as often as we can. We will do that with high sortie rates and highly trained professionals, both on the ground and in the air. A FODed engine or a sloppy preflight that misses an aircraft or munition problem can remove vital war-making assets from the fight just as surely as a MIG or SAM might. If an aircrew doesn't return from a combat sortie because they run into the ground, we lose both the jet and the crew to fly follow-on sorties.





A MESSAGE FROM THE TAC COMMANDER

During our wartime mission, each of us will face threats to our health and well-being that we simply don't encounter during normal day-to-day operations. Those new threats will consume much of our attention; so sound, safe procedures must be ingrained in us now before we hit the combat zone. True combat losses will happen, but those safety-related losses that occur during war must be avoided. In combat or in peacetime, we can't afford those kinds of preventable losses.

It sometimes seems that we "reinvent the wheel" in our safety programs and mishap prevention efforts because our experienced people get reassigned or retire. How can we counter this?

The best way is to insure we have good communication. If you and I don't learn from the past, we're going to make the same mistakes and be forced to relearn old lessons over and over again. That's like paying for something twice. There are many ways we can improve our communication. The best ways are to talk to each other about our flying experiences, read the flying incidents and accidents thoroughly, document the errors we observe in our procedures and change our manuals and procedures after we learn from the errors. This should insure we have the best and most up-to-date procedures—whether we're practicing air defense, inter-

diction or any of TAC's demanding missions. Then we need to insure our crews have the discipline to follow the procedures. Most accidents uncover areas where aircrew discipline broke down.

Being ready in TAC means training like we expect to fight.

What role do you feel safety plays in our readiness to perform the TAC mission?

Being ready in TAC means training like we expect to fight. However, if we lose lots of aircraft in peacetime training, we most certainly would lose them during a war. Therefore, we need to learn how to do the demanding wartime missions safely. If we don't, we will have to change our training accordingly. Some of you recall the days when we had no DACT—in fact, had no ACT or ACM—and our air-to-air training was restricted to intercepts above 5,000 feet. It would be disastrous to our readiness if we were to return to those days. Therefore, we must insure that we train safely while we train like we will fight. This should insure that in a war, we will not lose additional airplanes in combat over and above those to enemy action.

What areas of safety need our

immediate attention during the next couple of years?

First, *all* areas of safety (flying, weapons and ground) need our attention *all* the time. In our flying operations, my major concern is coping with GLC (G-induced loss of consciousness) and spatial misorientation incidents. Neither of those is an unavoidable mishap cause, and we must learn to keep them from claiming lives and aircraft. We are not doing a good job of that today and we must improve.

In weapons safety, we're doing better but we can improve. To make training scenarios more realistic, we have increased the use of munitions, but we also expose more of our personnel and facilities to explosive hazards. We are managing the risks associated with the realistic training today, but we need to change inadequate procedures and program construction funds to correct facility problems.

In ground safety, two areas need attention: First, we need to tighten up our tech order discipline and insure better supervision in all our work centers and on the flight line. Second, while our vehicle accident rate is about the same as last year, we need to put more effort toward bringing that down in the months ahead. And we need to work hard to improve safety awareness in our people toward off-duty activities. The Air Force can't afford to lose its professionals in on- or off-duty mishaps. ➤

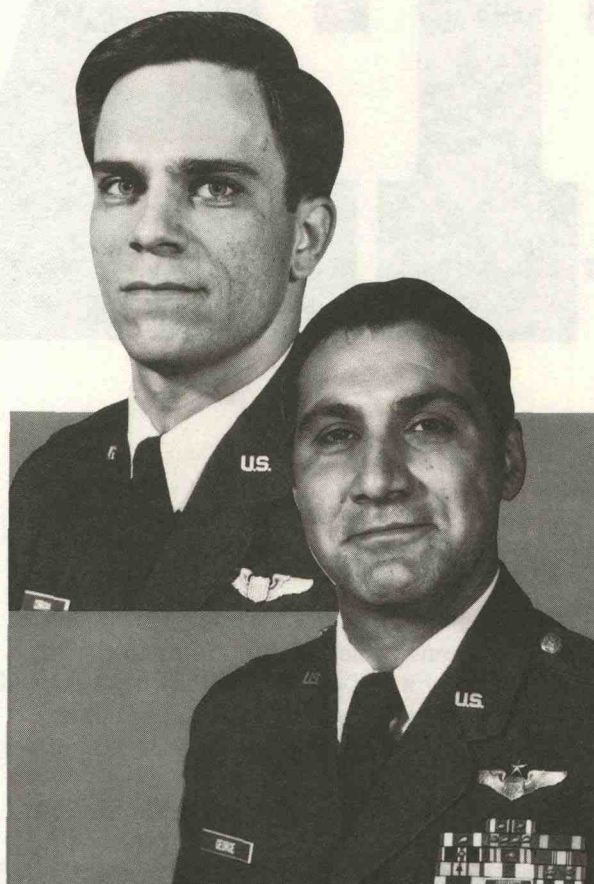
AIRCREW OF DISTINCTION



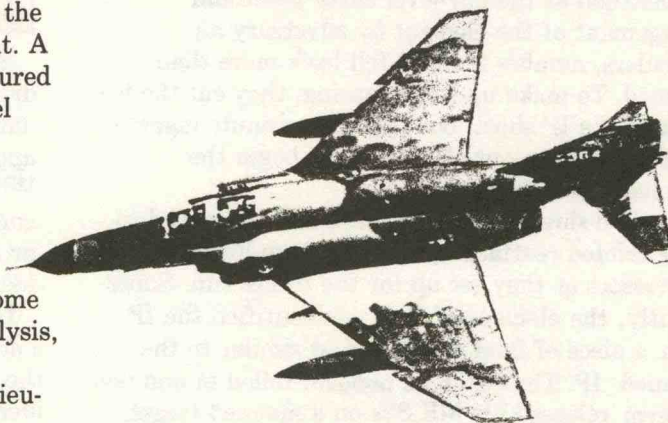
1ST LT TIMOTHY CORRIGAN, aircraft commander, and MAJ WILLIAM GEORGE, instructor weapon systems officer, were flying their F-4E on 5 March 1985 as number two during a deployment sortie when their aircraft experienced total utility hydraulic failure. Having taken off only ten minutes before, the crew returned to the base and held to the south while they accomplished checklist procedures. When they attempted to lower the landing gear from the front cockpit with the emergency pneumatic system, the left main gear remained up and locked. Activation of the emergency system from the rear cockpit didn't produce any different results.

The crew obtained technical assistance by phone patch from both their home base SOF and the F-4 systems manager at Ogden ALC, Utah. All further attempts to get the gear fully down were unsuccessful due to a pneumatic line failure in the gear well, so the crew prepared to land with only the nose and right main gear down. After burning down fuel, Lieutenant Corrigan and Major George set up for a no-flap approach end barrier engagement. Lieutenant Corrigan flew the aircraft to a touchdown on centerline, short of the barrier. He gently lowered the left wing and wing tank to the runway and made a perfect barrier engagement. A fire erupted when the external wing tank ruptured upon contact with the runway and residual fuel ignited. The crew shut down the engines and performed an emergency ground egress on the right side of the aircraft.

Lieutenant Corrigan's flawless approach and landing limited the damage to the aircraft, allowing it to be repaired and flown back to home station within a week. Through their calm analysis, use of technical assistance, superior crew coordination and excellent aircraft handling, Lieutenant Corrigan and Major George recovered a valuable combat aircraft with minimal damage. ➤



Maj William M. George
1st Lt Timothy T. Corrigan
334 TFS, 4 TFW
Seymour Johnson AFB, North Carolina



TAC

tips

INTEREST ITEMS,

Wrongo mundo

Ordnance on target—that's what counts. Makes no difference whether it's a Lima in the lips for a bad guy or a MK-82 through the front door of a hardened command post. To get the ordnance where it counts, you've first got to be in the proper position.

Some Phantom II drivers had a problem with that small detail. Two, two-ship elements of F-4s were fragged to drop MK-82 inerts in a coordinated attack on a tactical range. The first element's leader ground aborted, so they reformed the flight into a three-ship vic formation. After inflight refueling and rendezvous with the other members of the strike package, the three-ship entered the low level and screamed for the target. Due to lead's acceleration at the low-level entry point and engagement of the element by adversary air defenders, number 2 and 3 fell back more than planned. To make up some spacing, they cut the leg prior to the IP short, but their last minute maneuvering left them out of position to begin the planned attack from the IP.

The two-ship element fell back and regrouped to their briefed reattack option and were hit by F-5 Aggressors as they set up for the target run. Subsequently, the element of F-4s misidentified the IP with a piece of land which looked similar to the planned IP. The two F-4s popped, rolled in and one of them released his MK-82s on a manned target, narrowly missing a vehicle and injuring two people at the site from flying debris.



While the F-4 drivers thought they were dropping on their assigned targets, range tracking data showed that the misidentified butte was approximately 5 miles north of the intended IP. While the wrong IP very closely resembled the correct one, the crews didn't have sufficient timing or DR references to ensure positive location and identification of their target during the reattack.

The manned site was supposed to be marked with a strobe light to identify it, but that doesn't change the responsibility of the aircrews to positively identify the target before dropping ordnance on it. During peacetime, dropping bombs in the wrong place can mean serious injury or damage. During

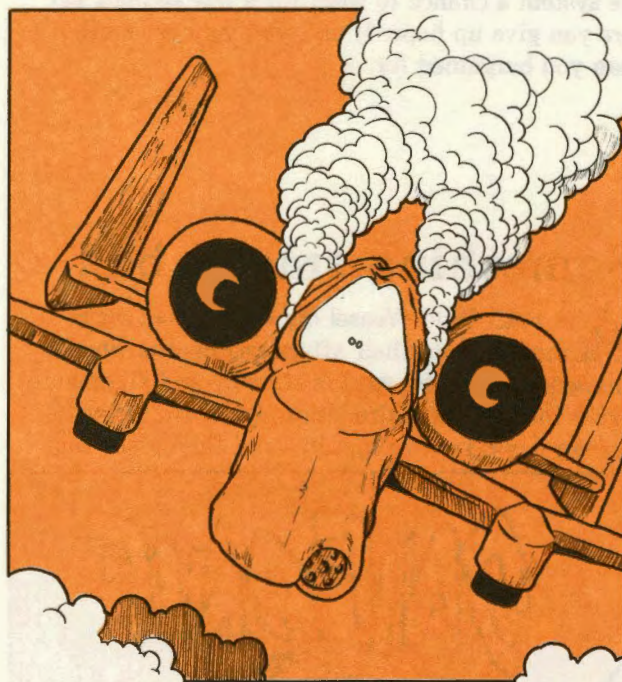
MISHAPS WITH MORALS, FOR THE TAC AIRCREWMAN

wartime, putting your ordnance in the wrong place can mean killing friendly forces and not getting your munitions to the spot where they're needed most. Fully plan your weapons deliveries and insure that you've taken a good look at the available photographs of your target area. Pick ingress routes and IPs specifically with ease of identification in mind and look for any landmarks that might be confusing or misleading.

In peacetime, if you are not sure, go to the dump target or bring home the iron.

Too much of a good thing

A Warthog driver had just taken off for a CAS mission when he realized that the cockpit was a bit cool for his warm-blooded nature. He turned the cockpit heat up a little bit in the Auto mode but nothing happened; so he moved the air conditioner control switch to manual hot. Almost immediately, warm air started to pour out; so he returned the switch to Auto and attempted to moderate the temperature through the normal control knob. Unfortunately, the temperature got even hotter; so he placed the bleed air switch off, with no result. Then, what appeared to be smoke or condensation started to fill the cockpit and didn't



go away until the throttles were placed to idle during landing.

Maintenance checks of the air conditioning system showed that the air conditioner control switch wouldn't function properly when placed in the Auto position, but that may not have been the total problem. The A-10 flight manual doesn't address operation of the air conditioner control switch in as much detail as the maintenance TO does. The aircrew Dash One states that it only takes 30 seconds to go from full hot to full cold. Maintenance tech data, on the other hand, cautions

that the manual switch should not be held in the hot position for extended periods because high temperatures will nearly always result. It says that short, two-second pulses, separated by ten-second intervals, should be used to allow the temperature to stabilize. The flight manual doesn't mention that.

Until the word can be put out in a more permanent fashion, A-10 aircrews should take note. Give the system a chance to work for a few seconds before you give up hope. If not, you may get more than you bargained for.

Something smells bad

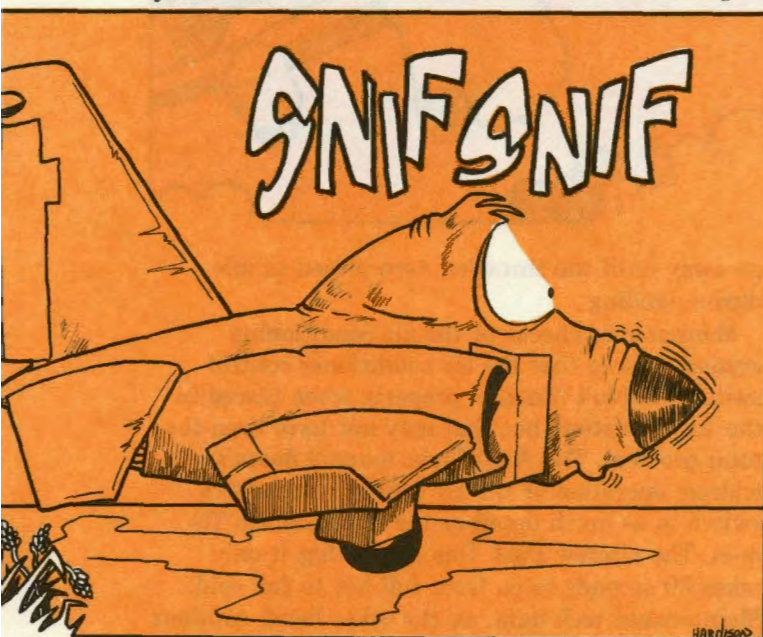
An F-4G Wild Weasel crew was about eight minutes into their after-start checks when a mis-sequence of the Arnie's standby and alignment lights indicated a malfunction. After shutting the system down for two minutes and then restarting

the alignment process, the EWO began to notice a peculiar smell in his mask (no jokes, please). Five to ten seconds later a small amount of smoke began to appear around his left console area. The EWO told the pilot what was happening as smoke began to pour into the cockpit. He quickly turned on 100-percent oxygen as the pilot shut down the engines and both crewmembers eggressed. Unfortunately, the EWO breathed in some of the fumes before he went to 100-percent oxygen. He was OK but things could have been much worse.

Another recent incident with an F-15 Eagle shows the serious effects that can occur from breathing in noxious fumes while airborne. The flight of two Eagles had just entered the working area at 31,000 feet when one pilot's airflow increased so much that he couldn't hear the radio. At the same time, he realized that he was experiencing his personal hypoxia symptoms and becoming disoriented. He immediately gangloaded his oxygen regulator and began a descent as he headed for home. He gradually became more disoriented and was unable to maintain formation with his leader. After landing, the pilot continued to feel ill for about 90 minutes.

The smoke was discovered to be the result of an engine oil bearing failure. With hindsight, the pilot realized that he had smelled smoke shortly after starting engines, but thought it was due to the exhausts of departing aircraft. Due to the small quantity of smoke present, he was unable to see it and he gradually became used to the faint odor. He didn't realize the problem until he had breathed the bad air long enough to get physical symptoms.

Whether or not you've ever had smoke or strange fumes in the cockpit, the possibility is always there the instant you start an engine or turn any electrical equipment on. The Dash One for every aircraft in TAC lists the first step of action for smoke and fumes as going to 100-percent oxygen. Think about any unusual odors you find in the cockpit and investigate to insure they aren't part of a more serious problem. Make 100-percent oxygen a natural part of your reaction.





TAC Safety Awards

TAC Individual Safety Award

As NCOIC squadron safety, MSGT HANK H. COLLINSWORTH has developed an outstanding safety program for the 347th Aircraft Generation Squadron. His results: the 850-person squadron received an excellent rating on their recent annual management and facilities inspection, the highest rating received in the past three years; and reportable 1984-85 mishap rates have improved 50 percent over 1983.

Sergeant Collinsworth closely monitors all areas of the flight line and maintenance sections, ensuring everyone uses tech orders. And he keeps everyone in the squadron informed of current safety crosstell and other vital safety information.

Sergeant Collinsworth is also the squadron's weapons safety NCO and has improved the mishap rate to reflect zero personnel-caused mishaps within the past 12 months.



MSgt Hank H. Collinsworth
347 AGS, 347 TFW
Moody AFB, Georgia

TAC Crew Chief Safety Award

SSGT JEFFERY W. MCCrackEN had just completed an end-of-runway inspection on an F-4G. As the aircraft took the runway and proceeded through its run-up checks, he noticed that the left flap had dropped to the full down position while the right flap remained in the takeoff position. Having previous experience on the F-4, he determined that the flap actuator had failed and the pilot was totally unaware of the situation. That assumption was correct: the aircrew stated that all cockpit indications were normal.

Sergeant McCracken recognized the immediate danger the aircraft and crew were in and called the tower to have the aircrew abort. After a short wait, Sergeant McCracken became concerned that the aircrew had not been contacted; so he received clearance from the tower, entered the active runway and stopped the aircraft from taking off.

The aircraft returned to the transient parking ramp; the left flap actuator had failed internally.



SSgt Jeffery W. McCracken
27 EMS, 27 TFW
Cannon AFB, New Mexico

FIRE PREVENTION WRONG

In TAC, the number one reason for a fire in the home is unattended cooking.



The number two reason in TAC: children playing with fire.



Nationwide, the number one cause of fire deaths is careless smoking.



RIGHT

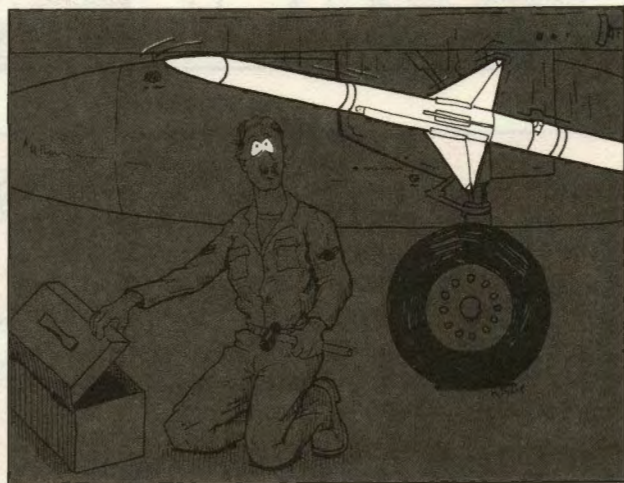


WEAPONS WORDS

Strict attention

The wing was in the middle of a locally generated ORI and the load crews were really smoking through the ICTs. One weapons load crew had already completed upload and download of the air-to-air missiles on three F-15s. On the fourth aircraft, an AIM-7 was placed on station 4 and AIM-9s were put on stations 2A and 2B. After the upload was successfully accomplished, one load member (Larry) began dearming the AIM-7 Sparrow while another weaponeer (Curly) started on the AIM-9s. A third fellow (Moe) parked the jammer and started sealing the cart breeches on remaining aircraft stations. Larry, working on the AIM-7, had cleared the breeches when Curly came over to get something out of the tool tray lying directly under station 4. As Larry looked to see what Curly was doing, he inadvertently pulled the LAU launcher pin and opened the launcher manual release. The 500-pound missile fell off the missile station, hitting Curly on the head and arm, then striking the ground. Needless to say, neither Curly nor the missile fared very well.

The press of time and tasks during ICTs, hot pit refueling, alert scrambles and other activities may seem to lead us into unsafe actions. Haste can make waste if we let it but it doesn't have to. The key is to be aware of where you can make a bad move and then avoid those problem areas. Avoid obvious things like putting a tool box underneath a munition (bomb or missile) that *could* fall on you. But, most importantly, pay attention to what you're doing. The specific task you're doing at the moment is the most important thing you can do at that time.



Would you let go?

Do you feel you got your money's worth when an item does exactly what you bought it to do? We in the Air Force are particularly concerned that an aircraft, a part or a tool do what we paid good money for them to do. One hundred-percent reliability is a goal we always desire.

Sometimes a part's reliability can cause a problem. A load crew found out the hard way when they tried to download a captive AIM-9 missile. When the crew arrived at the jet, they noticed that the rail nose fairing was already open, the umbilical cable from the missile to the aircraft was disconnected and the shorting plug installed. O.K., let's get on with the job and get it finished.

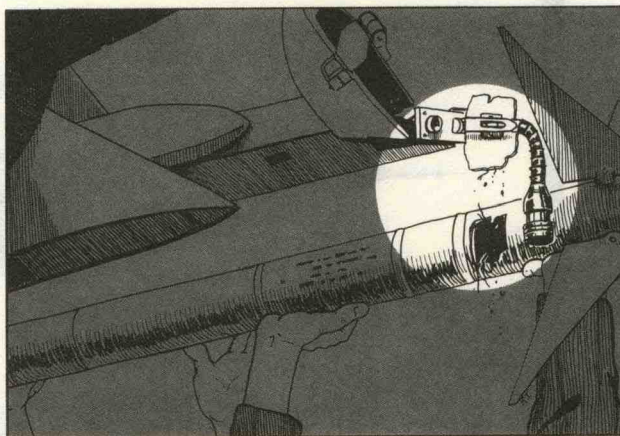
As the members of the load crew began to take



the missile off the rail, part reliability reared its trustworthy head. The umbilical cord block retainer, which is designed to keep the umbilical on the airplane when the missile fires, does the same thing on the ground. As the crew took the missile off, the block retainer kept the umbilical—just like the book said. It sheared the umbilical cord off, and the missile had to go back to depot for several thousand dollars of repair work.

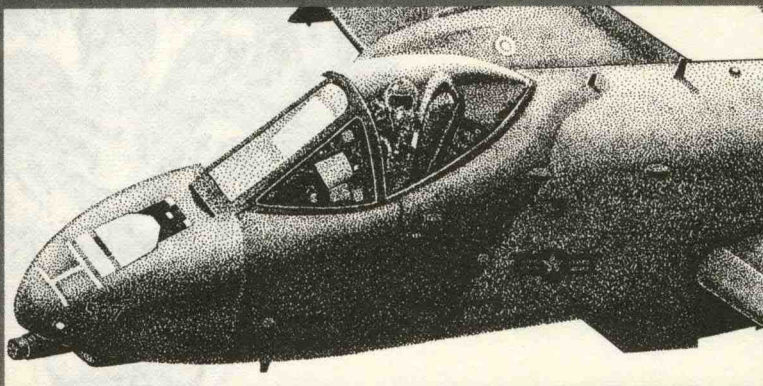
Lest you get the wrong idea, the problem here wasn't with the retainer block but with the load crew. They failed to follow the tech data for removing the missile which included disconnecting the block from the retainer. When you put something on an aircraft, make sure it's on to stay and fastened securely all around. When you get ready to take it off, just the opposite is true—

unhook, unsnap, unscrew and undo everything the TO says before you try to take the panel, munition or part off.

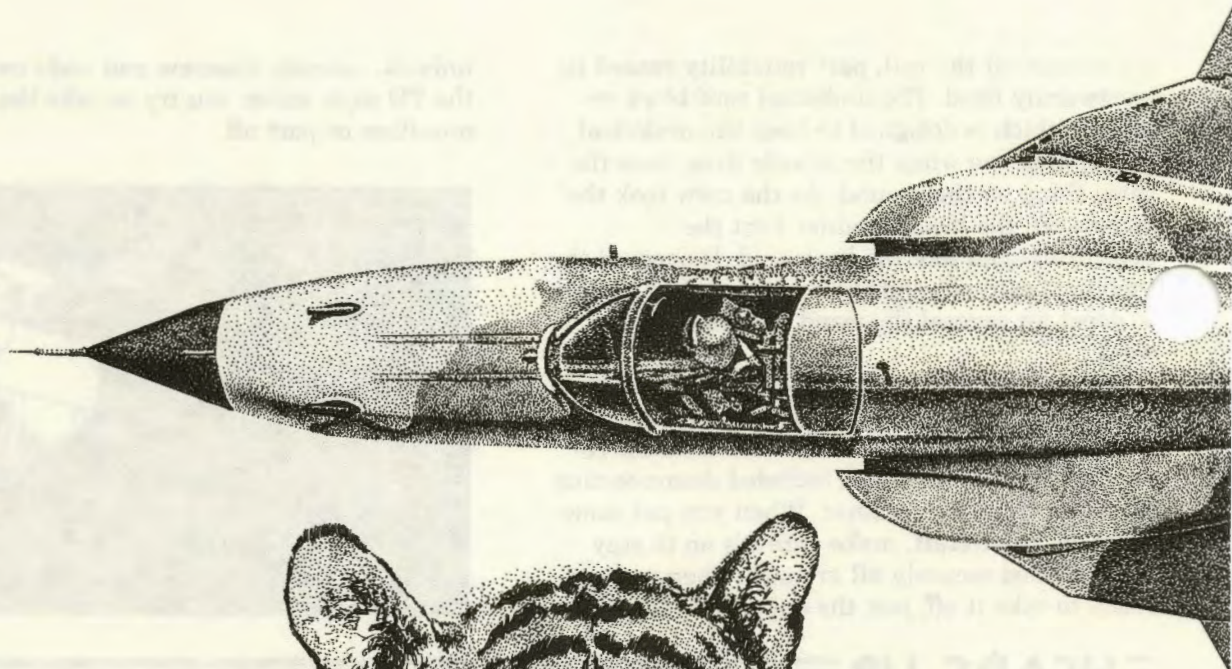


HEADS UP

Next month, in the **NOVEMBER** issue of *TAC Attack*, you can look forward to seeing SrA Kelvin Taylor's stipple rendition of the A-10 **IN THE CENTER**.



F-5E TIGER II







THREE

Major Geof McCarthy
USAF Hospital
Misawa, Japan

Stress, visual illusions, G-awareness/tolerance—seems like we need a masters degree in human factors to brief missions nowadays. Take G-tolerance for example: we're supposed to brief it, but how?

Well, here's one idea—a quickie, KISS checklist for flight leads, schedulers and squadron supervisors to use in planning and briefing. This method takes advantage of an ancient rule of medicine: most diseases have only three main characteristics. So if you can remember just three key *T* words (in the right order), you will be way ahead of the game next time a heavy ACM phase starts. Using them will help you review the method, predict you and your wingman's tolerance and use the jet most effectively. They are **TECHNIQUE**, **TRAINING** and **TECHNOLOGY**, and here are the key points in each category.

TECHNIQUE—The Method.

1) **EARLY.** However good or bad your grunt is, the overall effect is much better if you're straining *before* the Gs start. Once all that blood has escaped downhill, no amount of muscle effort or G-suit pressure will get it back up north.

Ts FOR NINE Gs

the flight lead's guide

2) **STRAIN.** Tighten down on the gut, leg and chest muscles, and hold it. Try not to let up on the gut and legs between moves, unless maybe you're extending at one G or less, then get down on it again before the next move.

3) **BREATHE.** Relax only your chest muscles for a quick breath and try for that ideal three-second timing. It takes some coordination to refill your chest with oxygen (and blood) while keeping your lower body muscles strain going.

4) **DON'T STOP.** Like survival school, PME and blood tests, it feels so good when it's over. But don't let up on the strain until the G is really down to one, not just down to three or four Gs.

5) **"NORMAL VISUAL CUES."** Mentioned to condemn only, this is a quote from a GLC accident report. If you rely on gray-out to avoid GLC, chances are you're also the type to volunteer for embassy guard duty in Lebanon, a wrestling match with Hulk Hogan or a date with Jabba The Hut. Any visual warning before GLC is fleeting (about .3 seconds at 5 Gs per second); and even if you unload, you will probably lose consciousness anyway. Unlearn this suicidal idea and strain early enough and hard

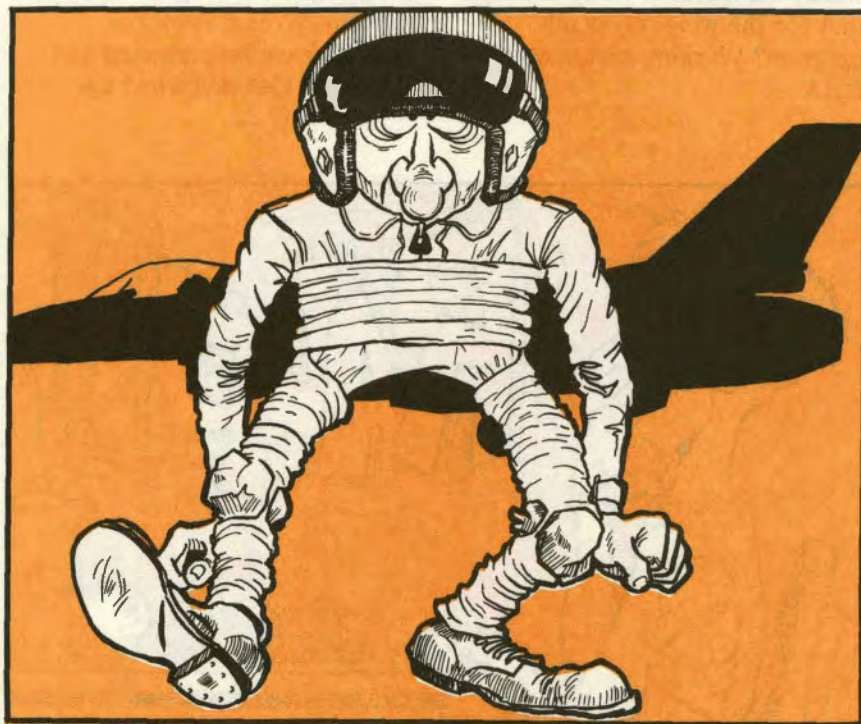
enough to avoid any light loss.

TRAINING—Are you really better than the jet today?

1) **BFM/ACM.** The best way to stay in shape for pulling Gs is pulling Gs—three times a week like any other athletic activity. So take this authoritative, learned article to your squadron scheduler, have him clean the tanks, TERs, travel pods and

other trash off the jets and line up some more DACT. Conversely, if you have been pounding the mud the last few weeks, you will need to brief G tolerance a lot more thoroughly.

2) **CENTRIFUGE.** The best part-task trainer for demonstrating, practicing and evaluating your technique. But the short exposure doesn't fully build the reflex habit of straining before



THREE Ts FOR NINE Gs

pulling. Remind your wingman. By the way, has he been to the centrifuge? He has? Good. Have him brief this.

3) **EXERCISE.** No amount of muscle conditioning can increase your natural, relaxed G tolerance, but it sure will make up for not flying ACM as often as you'd like, will help you to strain easier and longer and will help delay fatigue during the flight.

4) **FATIGUE.** Consider things that adversely affect G tolerance today, like what were you and your wingy doing last night, how tough was this morning's first go, who skipped breakfast, etc.?

5) **LIFE STYLE.** Use this one for reviewing long-term factors. Were either of you sick last week? On leave? Is he on a crash diet for the weight control program? Working nights on his MBA?

TECHNOLOGY—*Since these engineering items together are less effective than a good strain, they are last.*

1) **EARLY.** Sound familiar? Your G-suit helps a lot more if it is inflated *before* the G comes on. Even the new High Flow Only Valve will take better than a second to fill up the suit, so try *preloading* the suit with the test button. Can you find it without looking?

2) **TEST THE SUIT.** You do hold it for the whole three seconds at the end of the runway checks, don't you? How about testing it at the fence check, and between engagements?

3) **FIT.** Tight. We all know somebody who has a better way of fitting it to pump the blood back up. Wrong. All those theories have been studied and discarded. Get it cinched up

every 60 days, zip up the side zippers, hook it up, test it; but above all, don't rely on it to keep you awake. Its real function is to give you something to strain against, not to pump blood into your brain.

4) **THE RECLINED SEAT.** Nobody has lost consciousness lying back in the world's most comfortable ejection seat, on offense, looking through the HUD, logging his fifth kill as the designers envisioned. All the victims of GLC have been looking back at the bandit or the target. Hence, the "intern's $\frac{2}{3}$ rule":

Defensively, I go $\frac{2}{3}$ of offensive G at $\frac{2}{3}$ the onset rate, just for the wife and kiddies. Recommend this cautious, gray-haired, broken-down, old fighter pilot's defensive method to your aggressive young wingman.

5) **THE TAPE.** An extra T word—it won't help you today, but assessing your technique in the debrief will build good habits and make GLC less likely tomorrow. Run hot mike for ACM; turn the interphone volume down if all that obscene panting embarrasses you.

Take a minute or two during the brief to review the technique, analyze your training state and consider the technology. The well-briefed, highly trained fighter pilot really is as capable as his jet. ➤

Major McCarthy is an F-16 pilot-physician with 3,200 hours; 2,200 in the F-100, 500 in the A-10, 300 in the F-16 and a victim of both USAF centrifuges.



Mobility



Capt John Adams
964 AWACS
Tinker AFB, Oklahoma

MO·BIL·I·TY—(noun) 1. Capable of moving or of being moved from place to place. 2. Moving quickly from one state to another.

My squadron recently had a mobility exercise (Ugh!) in which five of our ten crews were picked to man the alert facility. Five out of ten means 50-percent chance of not going. **FINGERS CROSSED.** Three of the five would spend one night; the other two, two nights. **WORST CASE.** My luck—I drew the latter. Oh well, two nights in the alert facility. **NO SWEAT.** After all, I was well prepared. The week before had been spent checking all required items: shot record, passport, **LES**, dog tags, badge and ID card. I was ready for anything. **WRONG, CREWDOG BREATH.**

Those sneaky Russians. Right in the middle of a boringly routine exercise my crew was placed on real-world alert for a contingency deployment. **PANIC.** The day before payday, less than \$20 cash, no checks. No **TDY** orders—no advance per diem. No civilian clothes either. Can't wear bags off base; can't use plastic money on base. **STARVE.** A quick call to my wife would bring cash, checks and clothing. It would also bring a score of questions. Would I need summer or winter clothing? Would I be back for my daughter's birthday? What bills needed to be paid? How long would I be gone? Should she go visit her mother? What about the car parked at the squadron?

Would it hail while I was gone? **WHO KNOWS?** Of course, none of this could be discussed over the phone since the third man hears everything.

Lesson learned: Mobility means more than just dragging a bag through a processing line. More than keeping items current. It means being ready—**ANYTIME**, to move—**ANYWHERE.** It means packing your bag with more than just the essentials but also the nice-to-have stuff. It means being financially prepared for unexpected expenses. It means having a supportive spouse fully capable to function in your absence. It means having a game plan that covers all "what ifs" while you are away.

Being ready means having not only your bags and shot records up to speed but also having your home affairs in order. When your mind is at ease about family matters on the home front, your energies and attention can focus on thinking smart and flying smart during the deployment.

The next day I was released from alert and returned to normal duty. As I threw my mobility bag back into the closet, I thought, *I won't need this again for awhile, or will I?*

Be ready. It is our profession. ➤

DOWN TO EARTH

ITEMS THAT CAN AFFECT YOU AND YOUR FAMILY HERE ON

Walking on airplanes

If fixing airplanes is what you do for a living, then you've had occasion to walk on one. This fella did, and probably wished he hadn't.

He was repairing the comm system in the rear seat of an F-4E. As he left the cockpit, he stepped onto the right intake ramp, slipped, lost his balance and fell to the ground, feet first. Both of his heels were fractured. Ouch!

Now, if walking on an aircraft is what you have to do to get to your job, make it part of your job to learn the hazards of climbing and standing on the aircraft, proper placement and use of workstands and platforms and the boots . . . You see, the person who fell from the F-4 in this story was wearing military-issue boots, but they didn't have *nonslip* soles.

Moving during school-term not all bad

Dennis Hinkamp
Utah State Univesity

During the average lifetime, a person moves about 12 times. Three of those moves take place during childhood. Air Force children may move more often.

"Many parents may experience unnecessary guilt and anxiety about moving children, especially when the children are school age," says Dr. Glen O. Jenson, head of the Department of Family and Human Development at Utah State Uni-

versity. Many families undergo considerable inconvenience to avoid moving during the school year even though there are some advantages to moving then.

School is the primary source for children to make new friends. If you move during the summer, your child will be faced with unfamiliar surroundings and a limited chance of making friends. When school does start in the fall, your child will be faced with an unfamiliar situation at a time when teachers are least able to help.

Dr. Jenson says that if you move during the school year, your child will move more easily from one social situation to another. Your child will be able to get more attention from the whole class and the teacher.

The curriculum in most schools is flexible enough to allow for a mid-year transfer with a minimum of academic discomfort. This is particularly true during the elementary and junior high school years.

"In general," Dr. Jenson says, "the key to a smooth move with children is not so much the timing, but the feeling of involvement the children experience." He suggests a few guidelines for moving:

- Let the children help. Although it is tempting to want to get children, especially preschoolers, out of the way when you are packing, most researchers agree that the extra bother is worth tolerating to let the child feel involved.
- Discuss the move. As soon as you know about the move, start preparing the children by having them discuss it with you. Allow children ample

THE GROUND The ground



time to air their feelings and concerns.

- Visit the new area. If possible, visit the new neighborhood to alleviate some of the fears your child may have about moving. If visits are not possible, try to obtain books, pamphlets, photographs and maps about the new area. The local chamber of commerce or travel council may be able to help.

- Pack, don't discard. It may be tempting to use a move as an opportunity to throw things out. You should be sensitive, though, that an old

stuffed animal or rusty tricycle may have a special meaning to your child. Allow children to take things with them that will help them feel at home in the new area.

- Be positive. If parents are optimistic and enthusiastic, children will probably feel the same. Parental time is at a premium, but it is important to openly discuss fears and expectations concerning the moves as they develop.

—Courtesy Family News



Warning to homeowners: Overloading circuits and improper use of extension cords cause about 20 home fires a day nationwide according to the Consumer Product Safety Commission (CPSC). The CPSC also reports that 74,000 fires a year

are started by extension cords, by either overloading or improper splicing of the cord, causing 80 deaths, 260 injuries and \$74 million property damage.

Safer kerosene heaters. The Consumer Products Safety Commission says that multistage kerosene heaters (they have two burning chambers) cut nitrogen dioxide and carbon dioxide pollutants by 50-90 percent. Add-on catalytic devices only reduce the pollutants by 10-60 percent.

Where's the fat? Dr. Ulf Smith of the University of Gotesburg, Sweden, has just analyzed the results of two long-term studies on heart disease and has come to the conclusion that it's not how fat you are that increases your risk of heart attack and stroke but where the fat is. A person with a fat stomach is at a higher risk than a person with fat thighs, hips or back. Let's hear it for the hips!

CHOCK TALK

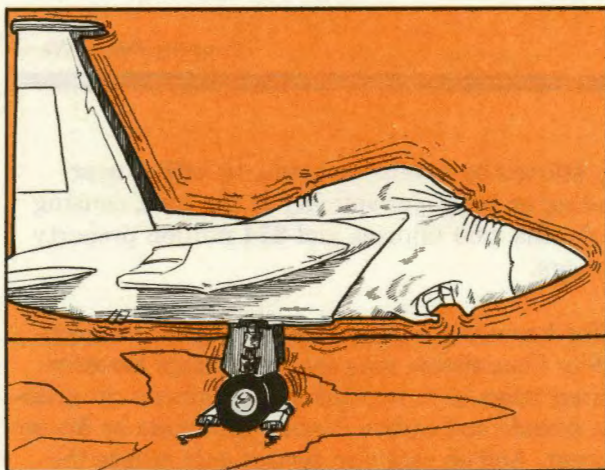
chock talk

incidents and

INCIDENTS AND

And away we go!

When the F-15 pilot started the number 2 engine, it accelerated normally through idle, stabilized momentarily and then continued to accelerate higher. He immediately placed the throttle back to Off without any engine response; so he pushed the right engine fire button, placed the



Master Switch to Off and cycled both generator switches. Finally, the engine began to wind down and shut off without further incident.

What had gone awry? Inspection revealed that the right torque shaft was disconnected from the unified control power lever spline. Whew! Basically, the engine had received an afterphase run earlier and the throttle connection had been visually checked. Later, a fuel leak developed near where the throttle was found disconnected. Some seals

were replaced in the fuel line, but none of the work was written up in the 781. Another uneventful engine run was made and then the bolts for the fuel line were safety wired. Apparently, the throttle torque shaft was undone at that time to facilitate the safety wiring and never reconnected.

If the fuel leak and other related work had been properly documented, a follow-up inspection by a production inspector would have been required. If you don't leave a proper record of what you've done, no one can double-check adequately to insure that you haven't forgotten something.

A tight squizz

Watch out for the tendency to fall into a rut. No, I don't mean a spot in the road needing repair but the tendency to become lax when things seem to fall into a consistent routine. It's just about then that taking things for granted will bite you.

Some maintenance troops were working around the F-15 ramp as several Eagles recovered from their sorties for a quick turn and relaunch. As one of the birds was marshalled into its parking spot by the crew chief, the left external fuel tank was scraped beyond repair on an empty munitions trailer that had been prepositioned. The wing usually flew with only centerline tanks, so they

INCIDENTALS WITH A MAINTENANCE SLANT

weren't accustomed to the room necessary for their aircraft to clear surrounding obstacles. No excuse. That's exactly the time when you've got to be most cautious—when you're going to do something a bit different than you're normally used to.

The pilot was ultimately responsible for his aircraft and ensuring taxi clearance, but the crew chief also had a responsibility to check and make sure that the parking spot was free of power carts, ladders, vehicles and anything else that might get in the way. Working together, we can keep both our jets and reputations ding-free.

Flying forms

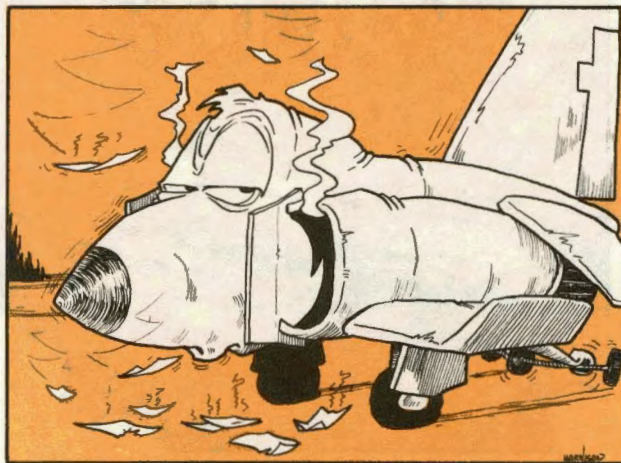
A place for everything and everything in its place. You've never heard that before, right? There's a multitude of unattached objects around when you're launching an airplane, and each of them has a proper place: either in the cockpit, secured on the jet or completely away from the grasp of engine intakes.

An F-4G crew was on a cross-country when they stopped at an en-route base for a quick "gas and go." After engine shutdown, the crew left the aircraft forms inside the nose gun bay while they got a bite to eat at base ops.

After refueling the Phantom, the transient alert

crew wedged the aircraft forms between the fuselage and the ALQ-131 pod. The crew didn't notice where the forms were when they returned and apparently forgot all about them (out of sight, out of mind?). The EOR crew also missed the forms during their last chance inspection of the bird.

When the F-4 began its takeoff roll, the forms finally came loose and flew down the intake, causing a compressor stall. The crew aborted the



takeoff and took the departure-end cable. Fortunately, the ingestion of the forms didn't cause engine damage, but the results could have been much worse. The Air Force recently lost a T-38 due to the same cause.

An aircraft's 781 forms are a vital tool for ensuring proper maintenance and aircrew knowledge of the jet's condition. Why not establish a

CHOCK TALK

consistent place to put the forms for aircrew review and maintenance reference such as the pilot's seat rather than every convenient nook and cranny that you can find.

A crack way up there

It all started innocently enough as the F-16 pilot noticed a small crack less than 3 inches long appear just above the right canopy rail. It appeared to be on the outside and very shallow, so the pilot notified his leader of the problem and kept an eye on the crack as they continued on toward their destination. A little later the crack had grown to



10 inches, so the Falcon driver decided to go into the nearest divert base.

Lots of things can cause a windscreen to crack, but the problem on this one had a different twist from the usual. Close inspection revealed a craze pattern similar to a star fracture on a car windshield. Wipe marks around the crack indicated that an "aggressive" (or strong) solvent had been used

on the canopy at some time in the past. Improper solvent was the catalyst for the crack which grew in flight due to the much colder temperatures.

When it comes to cleaning canopies and wind-screens, just any old solvent won't do. Inflight stresses will make an unnoticed problem suddenly become very obvious. The proper use of solvents and staying current with periodic canopy waxes are vital parts of keeping our windscreens clean and in one piece.

A phantom bite

The F-4's right engine was started, and the pilot had cycled the right generator switch to On after checking with the crew chief. Meanwhile, the assistant crew chief was removing the air hose from the starter inlet duct located near the right aux air door. The air hose pull chain had become lodged in the aux door; so, thinking that the generator was already on line, the assistant reached up into the door to free it. Unfortunately, just as he did that, the generator cycled on; and the aux air door closed on his hand, injuring several fingers.

This incident could have been avoided if the assistant crew chief had heeded warnings in the TO about danger areas, such as aux air doors on the F-4. The same thing applies to all aircraft. Like any piece of machinery, they are inherently dangerous to work around. Don't let the Phantom or any other airframe bite you when you can avoid it with a little care.

The crew chief should have checked closely to ensure that his partner was well clear when the aircraft commander challenged him with "Aux air doors clear?" Questions from the crew such as "Flight controls clear," "Fore and aft areas clear," and various others that are used on every sortie are not intended just to pass the time of day, but to communicate the need for the crew chief to check something that only he can do properly.

TAC Special Achievement in Safety Award



TSgt Richard C. Pavek



Mrs. Alice G. Ireton

**831 CSG
George AFB, California**

TSGT RICHARD C. PAVEK and MRS. ALICE G. IRETON were working at the officers' club when a gas line broke. The gas ignited, spreading a wall of fire from the gas line to the overhead grease traps. They both reacted quickly and precisely.

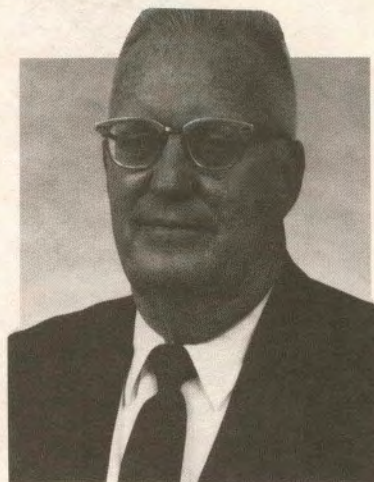
Sergeant Pavek pulled the fire alarm and alerted the 200 dining room and lounge patrons to the dan-

ger. Mrs. Ireton turned off all the gas and pulled the overhead spray system. Then they both grabbed fire extinguishers and put out the fire.

The quick thinking and actions of Sergeant Pavek and Mrs. Ireton kept damage to a minimum with no injuries to club employees or patrons.

Director of Aerospace Safety Special Achievement Award

The Director of Aerospace Safety Special Achievement Award for 1984 is presented to Mr. Robert Guthrie, Chief of Ground Safety, 366th Tactical Fighter Wing, Mountain Home Air Force Base, Idaho, in recognition of his outstanding contributions to the mishap prevention programs of the Tactical Air Command and the United States Air Force.



Mr. Robert Guthrie

BLAC

Re-enact th

2d Lt Bob Flinn
Chief, Weapons Safety
347 TFW
Moody AFB, Georgia

He was a private in the 28th Massachusetts Volunteer Infantry Regiment, Company A. It had been a long day. The entire company was weary from preparing for the upcoming battle. Wanting to relax and enjoy some comradery, the young soldier decided to visit a friend. His friend had left for a while, but someone else invited him in to wait for the friend to return. He decided to enjoy a smoke while he waited. It happened as he placed the cigarette in the ashtray . . . FLASH! The young soldier felt the terrible pain as the smell of black powder and burning flesh filled the room.

The young man was rushed to the medics who treated him for serious burns on his left hand. He was placed on limited duty for the next two weeks. For him, there would be no big battle because his friend, who had been reloading cartridges in preparation for the battle, had scraped some excess black powder into the ashtray and left it.

The year was 1985 and the location was a private home. The young airman is a Civil War enthusiast who, along with his



BLACK POWDER

It's the battle, not the mishap



friend, participates in re-enactments of Civil War battles. Both reload their own blank cartridges with black powder which gives a puff of smoke and adds to the realism. On the evening of the mishap, the young airman was unaware of the loose powder his friend left in the ashtray. He found out the hard way.

Whether it's the thrill of re-enacting a Civil War battle or a fascination with back-to-basics hunting, the use of black powder is increasing. If you are a "muzzle-stuffer" or reload your own cartridges, there are a few things you should always remember when using black powder and smokeless propellants.

First, and most important, both are explosives. Black powder is the more hazardous of the two. It can be detonated by static sparks, fire or percussion. It doesn't have to be confined in order to explode. A pile of powder on the ground when ignited will explode with as much force as the same amount of powder in a gun barrel. A similar pile of smokeless propellant on the ground when ignited will only burn very fast. Smokeless pro-

pellants must be confined, as in a gun barrel, to produce an explosive effect. The mishap described resulted from only 100 grains of powder—about a heaping teaspoonful. Imagine what could have happened with a pound or two.

Second, a few guidelines to follow while working with black powder and propellants:

- Follow the manufacturer's instructions for use and storage.
- Wear safety goggles or a face shield.
- Ensure adequate lighting in the work area.
- Ensure there are no sources of flames, heat, or sparks (including static electricity) in the area where loading is accomplished. Loading should be accomplished on a nonporous, nonsparking conductive material, such as stainless steel or for-mica.
- Limit quantities to the minimum essential during loading. Keep the rest properly stored. Don't scrape excess into an ashtray or anything that resembles an ashtray.
- Practice good housekeeping habits. In case of a spill, stop

operations until the explosives are cleaned up. Put salvaged propellant into a metal container full of water. Mark the container **SCRAP EXPLOSIVES**. Dispose of it in accordance with manufacturer's recommendations.

Finally a few words about how much explosives can be stored in a private residence (National Fire Code 495, Chapter 10): Up to 20 pounds (9.1 kg) of smokeless propellant and up to 5 pounds (2.3 kg) of black powder can be stored. Both have to be in original containers; the black powder container must also be enclosed in a wooden box or cabinet with walls at least one inch (25.4mm) thick. If smokeless propellants are stored with black powder, the black powder limit (5 pounds) applies to the combined weight of both. Many communities, including military installations, have more restrictive regulations. Before storing any powder in your on- or off-base home, check with local authorities.

They probably had black powder mishaps in the Civil War. Use it properly—mishaps don't need to be re-enacted. ➤



EMERGENCY SITUATION TRAINING

Maj John Cornett
TAC/DOVF

SITUATION: You are leading a two-ship, low-level, tactical formation sortie at 300 to 500 feet AGL when your wingman advises that you have smoke trailing your aircraft. There are no unusual cockpit indications. What now?

OPTIONS:

- A.** Advise your inexperienced wingman that this is normal for low-level, high-speed operation and press on.
- B.** Discount an engine fire because the new fire detect system is almost foolproof.
- C.** Immediately pull both throttles to idle and investigate the smoke.
- D.** Climb to a safe altitude and press the fire test button and have your wingman look you over. If any fire/overheat light fails to come on, proceed as though that light is lit.

DISCUSSION: If you choose Option A, do not pass go and report immediately to common sense training. If you think Option B is your best bet, grab the nearest Dash One and read the information on the new Engine Fire/Overheat Detector System. Option C would not be the best thing to do at 300 feet, which leads us to Option D (obviously the right answer since this is an Air Force test and it is the longest answer). Get some altitude between you and terra firma and then press the fire/overheat test button. With the new detector system it is possible for a light to illuminate with a fire and then go out when the light is burned through. This can happen quickly and the pilot could easily miss the light in a situation such as this where attention is mostly focused outside the cockpit. If this is the case, follow the procedure in the checklist.

TAC TALLY



CLASS A MISHAPS
AIRCREW FATALITIES
TOTAL EJECTIONS
SUCCESSFUL EJECTIONS

TAC		
AUG	THRU 1985	AUG 1984
2	13	16
1	8	13
0	9	12
0	7	9

ANG		
AUG	THRU 1985	AUG 1984
1	10	4
0	6	2
1	7	3
1	7	3

AFR		
AUG	THRU 1985	AUG 1984
0	0	1
0	0	0
0	0	2
0	0	2

TAC'S TOP 5 thru AUG 85



TAC FTR/RECCE	
class A mishap-free months	
37	405 TTW (F-15, F-5) Luke AFB, AZ
30	33 TFW (F-15) Eglin AFB, FL
28	366 TFW (EF/F-111) Mtn. Home AFB, ID
27	49 TFW (F-15) Holloman AFB, NM
24	67 TRW (RF-4) Bergstrom AFB, TX

TAC AIR DEFENSE	
class A mishap-free months	
151	57 FIS (F-4) Keflavik, Iceland
104	5 FIS (F-15) Minot AFB, ND
101	48 FIS (F-15) Langley AFB, VA
60	318 FIS (F-15) McChord AFB, WA
51	87 FIS (F-106) KI Sawyer AFB, MI

TAC-GAINED FTR/RECCE	
class A mishap-free months	
152	138 TFG ANG(A-7) Tulsa, OK
151	917 TFG AFR(A-10) Barksdale AFB, LA
129	114 TFG ANG(A-7) Sioux Falls, SD
118	183 TFG ANG(F-4) Springfield, IL
115	180 TFG ANG(A-7) Toledo, OH

TAC-GAINED AIR DEFENSE	
class A mishap-free months	
134	177 FIG ANG(F-106) Atlantic City, NJ
100	125 FIG ANG(F-106) Jacksonville, FL
83	119 FIG ANG(F-4) Fargo, ND
67	107 FIG ANG(F-4) Niagara Falls, NY
59	147 FIG ANG(F-4) Ellington AFB, TX

TAC-GAINED Other Units	
class A mishap-free months	
193	182 TASG ANG(OA-37) Peoria, IL
177	110 TASG ANG(OA-37) Battle Creek, MI
173	USAFTAWC (many fighters) Eglin AFB, FL
165	84 FITS (T-33) Castle AFB, CA
107	552 AWACW (E-3, EC-130) Tinker AFB, OK

CLASS A MISHAP COMPARISON RATE

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

TAC	1985	3.2	3.4	2.7	2.4	2.9	2.7	2.5	2.6				
	1984	3.4	4.3	3.3	2.5	2.9	3.8	3.3	3.2				
ANG	1985	4.8	4.8	3.0	4.5	4.2	4.9	5.4	5.2				
	1984	0.0	2.3	1.5	2.2	2.6	2.1	1.8	2.1				
AFR	1985	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
	1984	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0				

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

FLEAGLE

LISTEN UP, KID. I KNOW THAT YA'DON'T HAVE TH'EXPERIENCE YET, BUT IF YA'PAY ATTENTION YOU CAN GET THIS LANDING RIGHT TH' FIRST TIME.

YES SIR.



TIGER 42
FLIGHT INITIAL

RED MAN CLEARED
FOR TAKE OFF

STING 15 REQUEST
CLOSED

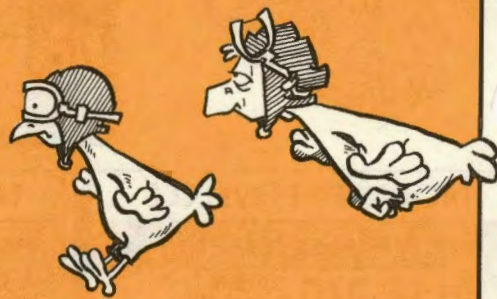


WATCH YOUR AIR SPEED.
OK, KID, LOOKIN' GOOD.

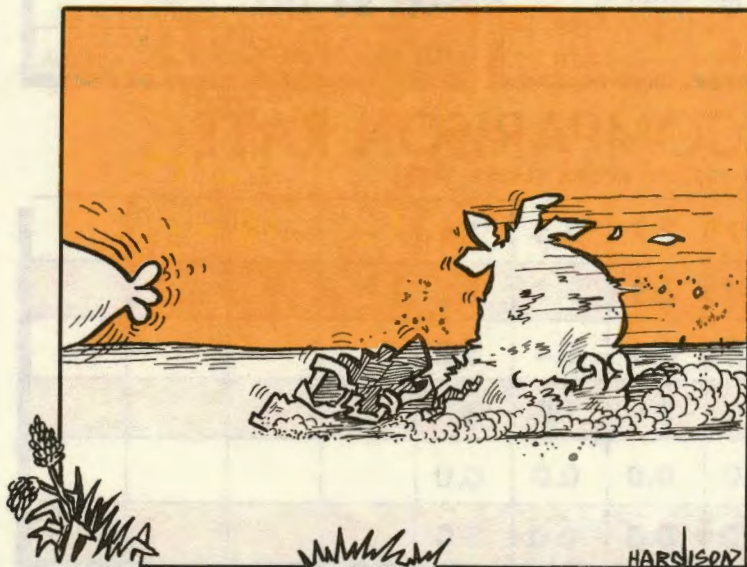
FLEAGLE 2 BASE
GEAR DOWN, FULL STOP



©STAN HARRISON 1985



SIR, WUZ I S'POSE TO DO
THAT TOO? MY LAST IP TOLD
ME TO ALWAYS RECHECK
TH'GEAR ON FINAL.



HARRISON