TAC ATTACK

OCTOBER 1981

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READINESS IS OUR PROFESSION

TACTICAL AIR COMMAND

GENERAL W. L. CREECH
COMMANDER

LT GENERAL THOMAS H. McMULLEN
VICE COMMANDER

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Angle of Attack

The Urge To Show Off

Seventy-two years ago this month, on the 26th of October 1909, Lt Frank E. Humphreys became the first Army officer to solo in the Army's first airplane. Imagine what he felt like: he must have wanted very much to show off his new-found skill to all his friends and family.

Since the beginning, the temptation to show what we can do has been with us. Remember the old barnstorming days? But it wasn't long before we took action to prevent unauthorized flybys, airshows, and demonstrations in the military. The reason wasn't to take the fun out of flying, but to eliminate unnecessary risks. No one can justify the loss of an airplane and the death of the aircrew members for the sake of a personal flyby.

The Air Force recognizes the need for controlled demonstrations; that's why we have the Thunderbirds and other demonstration pilots. They train specifically for the job, and their routines take hours of planning and practice. The unauthorized flyby, on the other hand, is an impromptu, ad-lib routine flown by a pilot who hasn't practiced it. It is dangerous and in no way worth the risk to the aircrew or people on the ground.

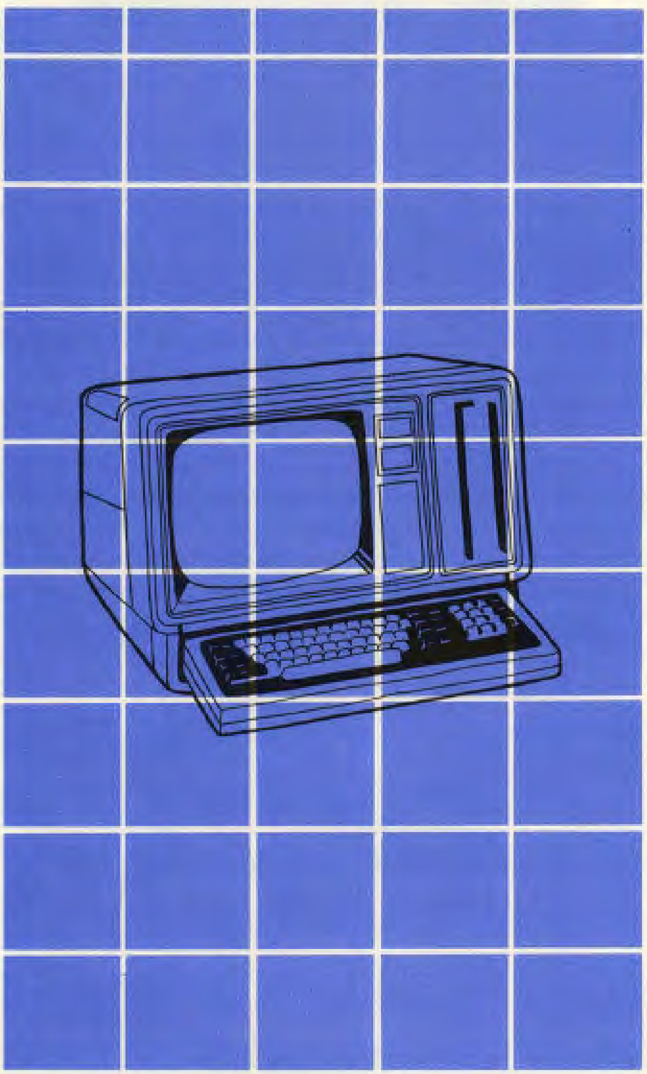
That's no slur against the average pilot. It isn't that he's not capable of the routine; it's that he's not prepared for it. A demonstration pilot can't fly high-threat tactics safely without training. The average pilot can't fly demonstrations safely without special training.

When we're good at what we do, we're understandably proud of it. But our being good at our jobs includes being self-disciplined and professional. So, if you're an aircrew member and you want to show your family and friends what your flying is like, take them to see the Thunderbirds and explain how you employ similar maneuvers. That's the only way to treat them to an airshow, professionally.

Richard K. Ely

RICHARD K. ELY, Colonel, USAF
Chief of Safety

THE MICROS ARE COMING!



By Lt Col Bob Carter
and
1Lt Mike Nunley
TAC/DOZ(A)

Don't throw away your E6B computer and plotter, but the microcomputer revolution is changing the complexion of flight planning and lots of other functions very fast. To meet the increasing demand for automation from the field units, the TAC Office of Data Automation (TAC/AD) and Deputy Chief of Staff for Operations (TAC/DO) are taking steps to provide small computers to tactical wings and squadrons, starting early in 1982, to perform a variety of functions.

Operations requirements that are intended to be satisfied by the computer systems include the following:

Flight Planning (Route Navigation): This function will allow aircrew members to select takeoff and landing parameters, turn points, altitudes, and airspeeds; and the microcomputer will compute time, distance, and fuel consumption, while considering the aircraft configuration and drag input by the aircrew. The system will print a flight plan (AF Form 70) for the aircrew member to carry during the mission. This function will eliminate the time consuming task of "curve-reading" from the DASH-1 T.O.'s. Algorithms for A-7, A-10, F-4E, and F-111 aircraft have been demonstrated using various systems at Myrtle Beach AFB (354th TFW), England AFB (23d TFW), Seymour Johnson AFB (4th TFW), Nellis AFB (474th TFW), Clark AB (3d TFW), Ramstein AB (86th

TFW), and Lakenheath (48th TFW), and have been shown to be very accurate and real time-savers. We are working to acquire digitizer boards for the systems, which will allow turnpoints to be read directly into the system from standard navigational charts by means of an electronic cursor or designator. This reduces coordinate entry errors and errors on converting from one coordinate system to another (e.g. lat/long to UTM). The system may also be used to preplan missions for future use, which may be recalled later as required. It will be extremely useful during surge operations, freeing the aircrews from the mundane tasks associated with mission planning and allowing them more time to discuss tactics, study the target, or review the threat.

Weapons Delivery Planning: This function will calculate and display conventional and special weapons delivery parameters, such as pipper-placement, fuze settings, and minimum altitudes, and produce a weapons delivery card. The capability essentially automates the DASH 34 T.O.'s (conventional) and the DASH 25 T.O.'s (nuclear) for that portion that is unclassified. Standard configuration loads (SCL's) may be maintained by the system, together with the resulting drag and aircraft center of gravity used in weapons delivery and flight planning calculations. As with the flight planning capability, the real value of this function will be proven during surge operations when unfamiliar loads are required and planning time is at a premium.

Aircrew Training Management: Basically the system will be configured to assist unit personnel in monitoring the proficiency level and training requirements of assigned aircrews. The system will be standard enough to produce a report to higher headquarters if required, but flexible enough to per-

THE MICROS ARE COMING!

Lt Col Carter and 1Lt Nunley are this month's FLEAGLE T-SHIRT winners

mit units to build their own data bases and obtain unique reports. The 354th TFW at Myrtle Beach AFB and the 425th TFTS at Williams AFB have developed several programs in this area that are very helpful in managing our most important resource, the aircrew member.

Unit-Unique Requirements: The capability will exist for units to design and program their own functions using the BASIC programming language. The list of possibilities is limited only by the imagination of unit personnel, and may include such things as tracking "TOP-GUN" competition, monitoring life-support equipment inspection dates, tracking weapons "footprints," maintaining stan-eval question banks, or any of several other functions. A small computer technical center will be established at HQ TAC/AD to act as a clearing house for shared software, and provide assistance when required.

Managing Use of the Computers: We are developing management procedures for configuration control of the systems that will permit as much flexibility for the user as possible, while retaining the controls that are necessary. Software to be used on the small computers will fit into one of three categories: standard, validated, or unit-unique. Standard software is acquired by HQ TAC from professional sources and provided to those units to which it applies. An example of standard software might be a flight planning program for the F-4. The program will have been verified at HQ TAC to insure its accuracy, and will be made available to all F-4 units. The second type of software, validated, is created at a unit, sent to HQ TAC where it will be checked for accuracy and completeness, then redistributed to units which request it. Validation is required for flight-safety-related software programs. The program would be validated, listed in AD's catalogue of programs, and redistributed to requesting units. The primary difference between "standard" and "validated" software is its source. Although unit-unique software for programs not related to safety of flight will not require validation, TAC/AD will publish minimum documentation standards.

System Configuration: Although we won't know the exact configuration of the hardware or the brand name until contract award in October '81, the following list generically describes what hardware tactical units can expect to receive. There will be a stand-alone, 64 kilobyte microprocessor, with a visual display, and a keyboard for data entry. The memory capacity will be increased to 850K bytes by the addition of floppy disc drives. Hard copies will be obtained from a 132-character line printer. The systems will be able to communicate via telephone lines using a telephone coupler. We are working on the acquisition of the digitizer boards and a color graphics enhancement. The system will not be ruggedized, but it will be small enough to allow for easy movement and will operate on 110/220V, 50-60 Hz. The 23d TFW at England AFB, Louisiana, recently used a small commercial-grade computer very successfully in a deployment to Cold Lake, Canada.

Delivery Dates: We expect system deliveries to begin in January 1982. An implementation team of two or three persons from HQ TAC will be present when the systems are delivered to a particular base to assist with setup and user orientation. Implementation is expected to take about 3 or 4 days per base, and total implementation will take about 4 months, so that all systems should be installed and functional by May 1982. We expect the small computers to be a real asset to our tactical units. The automated capability they provide will simplify and reduce many of the time-consuming processes of the tactical squadron's manual mission planning. →

Here is an example of how you could work a typical weapons delivery problem on a microcomputer. You call up that function and answer the questions in order:

WHAT IS THE TARGET ALTITUDE AND TEMPERATURE (ALT, TEMP)? 3100,30
WHAT BOMB AND RACK IS USED? PRESS: 1
(1) FOR A BDU-33A/B ON A TER.
(2) FOR A BDU-33A/B PN A SUU-20.
(3) FOR A BDU-3/B ON A SUU-20.
(4) FOR A MK-82 ON A TER.
(5) FOR MK-82 ON A PYLON.
(6) FOR A MK-84 ON A PYLON.
(7) FOR A FINNED BLU-52 ON A TER.
(8) FOR A FINNED BLU-52 ON A PYLON.
PRESS (1) FOR SINGLES OR (2) FOR RIPPLE RELEASE: 2
WHAT IS THE AIRCRAFT GROSS WEIGHT? 34000
WHAT IS THE PLANNED DIVE ANGLE? 20
WHAT IS THE PLANNED RELEASE ALTITUDE (AGL)? 1000
HOW HIGH ABOVE RELEASE ATTITUDE DO YOU INTEND TO ROLL OUT AND START TRACKING? 1000
WHAT IS THE TRACK AIRSPEED IN KCAS? 280
HOW MANY BOMBS RELEASED PER STRING? 3
DO YOU WANT TO INPUT THE RIPPLE INTERVAL TO GET STRENGTH LENGTH OR INPUT STRING LENGTH TO GET THE INTERVAL SETTING?
PRESS: (1) TO INPUT INTERVAL OR (2) TO INPUT STRING LENGTH: 2
WHAT IS THE DESIRED PATTERN LENGTH? 100
DO YOU WANT TO USE KCAS OR KTAS FOR RELEASE?
TYPE IN 'CAS' OR 'TAS' A COMMA AND THEN THE AIRSPEED (XXX,XXX): CAS, 320

COMPUTED SOLUTION:
REL DIVE ANGLE: 20 DEG
CAS: 320 KTS
TAS: 350 KTS
REL ALT(AGL) FIRST BOMB: 1000 FT
REL ALT(AGL) LAST BOMB: 904 FT
CENTER STRING DEP MILS: 90 MILS
ZERO SIGHT LINE AOA: 37 MILS
TOTAL DEPRESSION: 127 MILS
BOMB RANGE, FIRST BOMB: 2093 FT
BOMB RANGE, LAST BOMB: 1930 FT
INTERVAL SETTING: .24 SECS
DISTANCE BETWEEN BOMBS: 49 FT
FIRST BOMB TIME OF FLT: 3.89 SECS
LAST BOMB TIME OF FLT: 3.58 SECS
CROSSWIND CORRECTION: 6.57 FT/KT
MIL OFFSET CORRECTION: 2.83 MILS/KT
HEAD/TAIL CORRECTION: 1.23 MILS/KT
INIT PIPPER PLACEMENT: 39 MILS
ATM OFF DISTANCE: 621 FT
DO YOU WISH TO EXAMINE PIPPER TRACKING, YES OR NO? YES

FEET ABOVE RELEASE	IPP
1000	39
900	38
800	36
700	35
600	32
500	29
400	26
300	21
200	15
100	8
0	0

DO YOU WANT TO REVIEW THIS EVENT, YES OR NO? NO
DO YOU WANT TO EXAMINE ANOTHER EVENT, YES OR NO? NO
PROGRAM TERMINATED

TAC TIPS

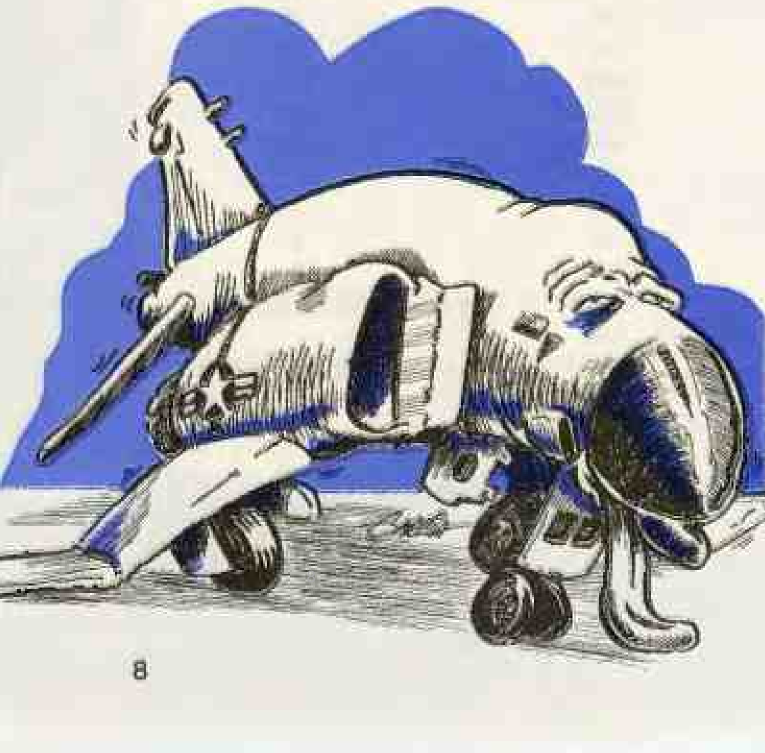
...interest items, mishaps with morals, for the TAC aircrewman

It takes less time to do a thing right than it does to explain why you did it wrong.

—Longfellow

Mach Tuck Returns

Another old gremlin has returned to haunt the F-4 fleet. This time it's *mach tuck*. That's an instantaneous increase in G-loading caused by a change in the aerodynamic center when the aircraft decelerates from supersonic to subsonic. Changing the aerodynamic center is like moving the fulcrum on a seesaw. A little bit of force can suddenly become a lot. On the newer F-4s, the problem can be compounded by slat extension at the same time.



A typical case occurred overseas recently on a BFM (basic fighter maneuvers) flight. The pilot was inexperienced in the F-4. He was defending against an attack by his leader and had succeeded in forcing lead to reposition. As lead repositioned, the wingman began a short extension maneuver to gain airspeed. He accelerated to supersonic speed and then began a 6-G pitchup into lead with throttles at idle and speedbrakes extended. His backseater said, "Watch the G," as they decelerated. Just then, simultaneous mach tuck and slat extension increased the G-load. The meter in the front cockpit showed 9G, and the rear cockpit showed 9.5G. They called, "Knock it off," and returned home after doing a controllability check. On the ground, they turned it over to maintenance to find out how much damage was done.

This was only the second time this pilot had experienced mach tuck. The first time was the day before when it was demonstrated to him. He learned one of those "valuable lessons," but the poor, aching airplane paid the price.

Close Encounters of an Avian Kind

By Capt Ronald O. Barker
336 TFS, Seymour Johnson AFB, NC

Due to a close encounter of an avian kind, I recently lost a friend and the Air Force a jet. Over the last five years, there have been numerous articles in various safety magazines alerting us to the hazards of beak-to-beak rejoins with birds. We have been taught to avoid bird migration routes in the spring and fall, limit low-level flying activity during feeding periods around the dusk hours, and have been horrified with the physics of $E = \frac{1}{2}MV^2$. A duck with a 2-foot wing span is only 2 mils at 1,000 feet and about 20 mils at 100 feet. If you are traveling at 500 knots, he covers those 1,000 feet in 1.18 seconds. You probably will not see him until he is inside those last 100 feet (0.0118 seconds). My bird strike left the radome looking like a giant broken slinky. The important thing is to have a plan for when the strike occurs. Just saying "Oh bullfeathers" won't solve the problem. Crew coordination is very important. Have it well briefed as to who will do what and for how long after the strike has occurred. Fly with your visor(s) down. The visor(s) is to protect you from not only the sun, but also from bird feathers. Fly the aircraft up to a safe altitude, out of the bird low-level structure, and determine your condition and what condition your aircraft is in, i.e., the engine, communication equipment, canopies, and aircraft integrity. Declare an emergency, join up with your wingman, and fly a straight-in approach. Flying a mission profile that avoids the bird is the desired goal. Sometimes having a plan won't help you when the damage is catastrophic, as in the case of my friend. But having a plan readily available in the event of a non-catastrophic bird strike will help you to return home.

No Time to Relax

The mission was difficult. The two A-7s were to take off fully loaded and head for the gunnery range. They were to be intercepted by a flight of Navy A-4s at medium altitude and again tapped by a flight of F-4 aircraft at low altitude. Then they were to continue to the tactics range at low altitude and attack targets there in a simulated high threat scenario.

The upgrading pilot planned, briefed, and led the mission, while the instructor pilot acted as a wingman. The mission had gone well up to the low altitude portion. The flight had successfully defended themselves against the A-4s at medium altitude. As they descended to low altitude, the upgrading leader was attacked by an F-4. He defended himself using the planned maneuvers under the instructor's supervision. The F-4 broke off the attack and was climbing away from them, so the instructor called for a 45-degree right turn for navigation. During the turn, the instructor thought the upgrading leader might be getting too low; he told leader to bring it up. Unknown to both of them at the time, the upgrading pilot had struck some desert vegetation with his right wing tip. They continued with the mission and didn't discover the damage until they were in the landing pattern, where the instructor pilot joined in close formation. The upgrader landed out of a straight-in without any problems.

Why did he hit? is the question. On this difficult mission, task saturation would be suspect as a cause. But you'd think his task loading would have just decreased, since the F-4 had broken off the attack. The navigation turn shouldn't have been that demanding. But something distracted him so that he descended low enough to hit desert brush, which is only 8 to 10 feet tall. Maybe it was an optical illusion caused by the terrain. Or maybe he just relaxed too much, too soon when the F-4 pulled off. A mission that intense could lead us to subconsciously want to take a break when there's any lessening of pressure.

At any rate, it's something else to guard against—a letdown when the adrenalin quits flowing.

TAC TIPS

F-5 Won't Rotate

The F-5 pilot was on the wing for a formation takeoff. The lead aircraft rotated and took off at 156 knots. The wingman was unable to rotate and take off with lead; he ended up aborting at 185 knots.

It turned out there were two contributing factors. First, the takeoff data used by the pilots in this squadron was misleading. It was based on the aircraft that happened to have the most aft center of gravity (CG) of all those in the squadron. The aircraft involved had a centerline tank, which caused a more forward CG. The difference in CG meant that the pilot calculated a trim setting that was one unit too low for his actual aircraft.

The other part of the problem was pilot technique. When he reached takeoff speed, the pilot pumped the stick instead of holding it full aft. The last half inch of stick travel can change the takeoff speed by 9 knots. If the pilot had held the stick full aft, the difference in CG would have increased his takeoff speed, but not prevented rotation. They took the bird off the next day using the same trim setting and CG. With full aft stick applied, it broke ground at 165 knots.

Surprise Ejection

An old problem in the F-4 has returned, and it almost cost the life of a backseater in another command. On the taxiway after landing, the WSO (weapon systems officer) in the back seat opened his canopy and was immediately ejected. Fortunately, the ejection seat and parachute worked perfectly. The parachute opened in time, and the WSO escaped with bruises and abrasions.

A film pack caused the ejection. A radar scope film pack was found in the rear cockpit afterwards. Scrapes and dents on the film pack matched the cam roller assembly on the canopy. Dents on the other side of the film pack matched scrapes on the guard around the linkage between the "banana links" and the initiator on the seat. Another dent matched the torque tube operating lever.

The film pack evidently had gotten lodged between the torque tube lever and the cam roller sometime during flight, probably on a negative-G maneuver. When the canopy opened, the cam roller forced the film pack to press against the torque tube lever. The film pack moved the torque tube interrupter links forward, rotating the torque tube. That raised the linkage to the initiator on the seat and started the ejection sequence.

We recall a couple of similar incidents happened in Southeast Asia. In those cases, the mechanism was jammed by flashlights. Those backseaters weren't as lucky; they didn't survive the ejection. Since then, most backseaters are conscientious about checking all the articles they've brought into the cockpit before opening the canopy. If anything is missing, they leave the canopy down until someone can check the ejection seat linkage.

It's not that this WSO wasn't conscientious. He didn't check for a film pack because he didn't bring one. Someone else almost did him in. The ever-present *person or persons unknown* left it and didn't report it as potential FOD (foreign object damage). We know at least one backseater who'd like to meet that *person unknown.*

Aircrew of Distinction

Capt Frank O. Bjoring
436 TFTS/479 TTW
Holloman AFB, NM

Capt Edward P. Rosenthal
436 TFTS/479 TTW
Holloman AFB, NM

On 30 April 1981, Capt Frank O. Bjoring and Capt Edward P. Rosenthal, both fighter lead-in course instructor pilots, were in an AT-38B, leading a formation takeoff for a surface attack sortie. The takeoff was normal until they pulled the throttle back out of afterburner. Five seconds later, they heard a loud bang and then felt the airframe vibrate. At 600 feet above the ground, the right engine flamed out. Captain Bjoring, who was flying in the front seat, pushed the left throttle back into afterburner and pulled the right throttle to idle. Their wingman could not see any external indications of fire, but noticed debris coming from the right engine exhaust. Captain Bjoring declared an emergency, climbed straight ahead until reaching a safe ejection altitude, and then entered a wide downwind for a straight-in approach. Captain Rosenthal, in the back seat, confirmed the checklist items and reviewed the procedures for single-engine landing and single-engine go-around. With limited thrust available due to the high density altitude, Captain Bjoring planned to jettison the SUU-20 bomb dispenser if thrust became critical during the approach. He delayed lowering the gear until established on short final. Captain Bjoring flew the approach as planned while Captain Rosenthal closely monitored airspeed and sink rate on final. Immediately after touchdown, Captain Bjoring lowered full flaps; aerodynamic and wheel braking were then sufficient to stop the aircraft on the remaining runway length.

Later investigation showed that components of the first-stage turbine had failed causing severe damage to the right engine, including shrapnel damage to the engine case and boat tail. The emergency could have resulted in loss of the aircraft or possible loss of life if not for the timely and proper actions by Captain Bjoring and Captain Rosenthal. Their actions qualify them as the Tactical Air Command Aircrew of Distinction.

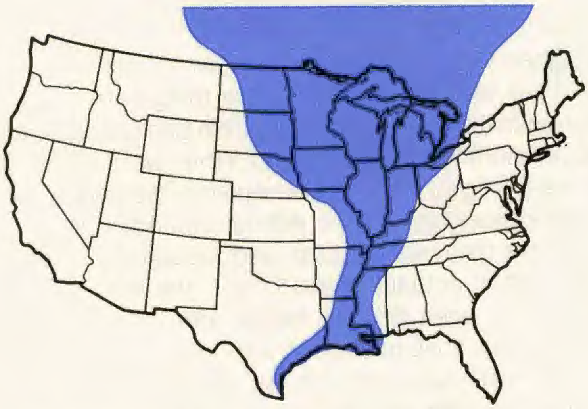
The Big Deployment

It's about to begin—the western hemisphere's largest airborne deployment. Right now, the members of the individual units are marshalling at staging areas, taking care of all those last minute details before they receive the launch order. Weather is critical. It'll be watched closely; and when it's just right, the first units will take off. In a short period of time, the whole force will be airborne—20 million birds heading south.

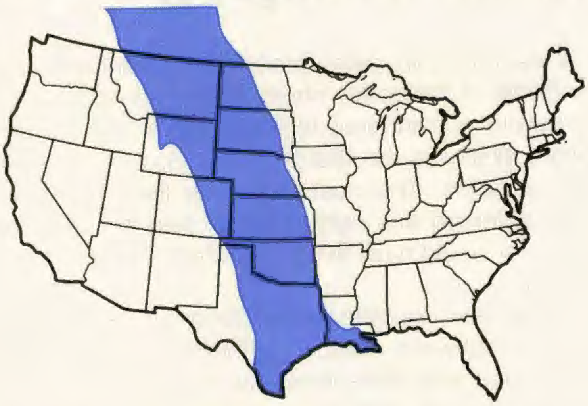
Our problem is that those 20 million deploying birds will be flying right through our airspace. Every year, TAC's birdstrike rate in October is higher by far than any other month. The migrating birds add to the already present hazard from local resident birds. And all of the birds operate in that same lower altitude regime in which we now spend so much of our time. If you're in the tactical flying business, it's worth your while to learn about birds now, before you meet one later—up close and personal.

The birds assemble in staging areas (probably mobility processing) before they launch. When the winds, pressure, and temperature are correct they begin. Usually the small songbirds go first, followed by the ducks, geese, and cranes later. (If your unit has an increase in small bird strikes, beware—the big ones are sure to follow.) They all head south along four *flyways,* or air routes:

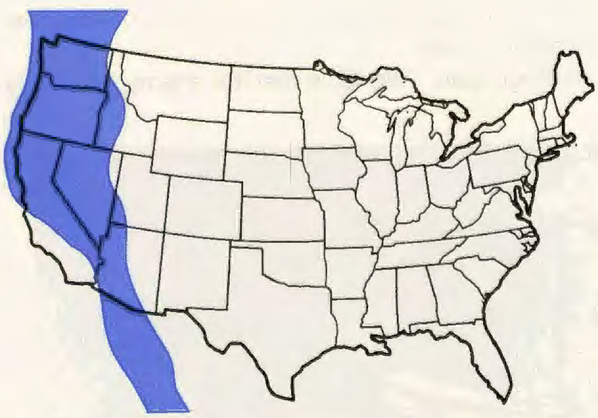
1. The Atlantic Flyway follows the East Coast. It includes Chesapeake Bay, the Back Bay area in Virginia, Currituck Sound, and the Lake Mattamuskeet area in North Carolina.



2. The Mississippi Flyway includes the Mississippi River valley and the marshes along the Gulf of Mexico in Louisiana and Texas.



3. The Central Flyway runs along the Missouri river and across the middle U.S. to the Gulf Coast of Texas.



4. The Pacific Flyway includes the Lake Tahoe area and the central valley of California, continuing down into Mexico.

When we consider all the flyways together, we find very few TAC and TAC-gained bases that aren't on a flyway. And even those that aren't on a flyway may have their training areas near one. Some bases are not only on the flyway, but also in the middle of the winter nesting grounds for some species. There the birds don't just pass through, they stay.

The birds that are just passing through usually fly a little higher than the nesting birds, which are looking for food. Most migrating birds fly between 1,500 feet and 6,000 feet above the ground. A few fly higher (probably trying to stretch their fuel). If they come upon a mountain, they often will go over it instead of around it.

The birds aren't affected by the amount of cloud cover, as long as the ceiling is high enough. They also don't mind migrating at night. The busiest times for migration are just before and after sunrise and sunset and from 2 hours before to 2 hours after midnight. Ducks, geese, and small birds migrate mostly at night; birds of prey and soaring birds prefer the daytime.

Once they begin, some flocks press on non-stop to their final destination. Others make the trip in short hops with several stops en route. So, the flyways are active from late September through November. By December, most of the deployment is complete, and the birds are settled in their winter nesting grounds.

Winter Nesting Grounds.

Of course, in late February the TDY is over and they begin to redeploy. The return in spring is much slower, as the birds work their way north. Because it's spread over a longer period, the migration isn't as dense; and birdstrikes aren't as common as during the fall.

But anytime the birds mobilize and deploy, we should be aware of them. They may not have filed a flight plan or an altitude reservation, but they're coming through anyway. And the airspace they're coming through is the airspace we're flying in. ➝

In the Workshop

Before you begin your next project, think about what you'll need to do it right. Make sure you have on hand the tools to do the job. Use good quality tools and keep them sharp. Check all your electrical connections to be sure ahead of time that you can properly ground the equipment that needs it.

When we don't take time to plan our projects, we end up with problems. We do things like using a screwdriver as a chisel or pry. We use dull tools and apply extra force to do the job. When we don't have a three-pronged electrical receptacle, we end up jury-rigging our connections without grounding them.

A little time taken to plan and prepare for a project pays off. It actually saves time in the long run. The right tool does the job better and faster than the wrong tool. If we don't have time to plan a project, we really don't have time for the project. And we sure can't afford the time lost to injury when we rush it.

War on the Highway

This month, we celebrate the 200th anniversary of the Battle of Yorktown, where the British Army under Cornwallis surrendered to Washington. The Revolutionary War was the first of nine U.S. wars in those two centuries. The cost in human lives has been high. Jefferson was right when he said that the Tree of Liberty would have to be nourished by the blood of martyrs.

But an even greater bloodletting has taken place on our highways without furthering the cause of Liberty one whit. More Americans have died in motor vehicle crashes than in all of our wars. Almost as many people are killed on the highway each year as died in the entire Vietnam war. Every year, more than 50,000 Americans die and 2,000,000 more are injured in motor vehicle accidents. These crashes cost $50 billion a year.

As Pogo said, "We have met the enemy, and he is us."

Give an Unusual Gift

Have you started thinking about Christmas gifts yet? The U.S. Consumer Product Safety Commission offers an unusual suggestion: Give a smoke detector.

Every year, 6,000 people die and 300,000 are injured in home fires. Many injuries and deaths are caused by smoke, not flames. And many of the deadly fires happen at night, while the victims are asleep. Often toxic gases spread before flames become visible, and those sleeping never wake up.

A smoke detector won't prevent fires or put them out. But it may give you and your loved ones time to get out. Give a smoke detector this Christmas. And put yourself on top of the list.

The Who is You

By MSgt Raymond C. Chisholm
347 TFW Safety

Who is "safety"? How many times have you asked, or been asked, this question? A dozen, a hundred, maybe even a thousand times if you have been in the Air Force long enough. How did you answer the question, or did you even know the answer? The responses to this question have been numerous, and at times even colorful, i.e., "those guys" at base or wing headquarters, the inspectors, the black hats, and even some descriptions best left out of print.

But really, who is "safety"? Is it the flight safety officers, the weapons safety officers and NCOs, or how about the people with the AFSC 241XO?

We safety folks are often referred to as the resident experts on everything from OSHA to how to fly an aircraft, how to load bombs, and even how to ride a motorcycle. There are about 525 of us 241XOs Air Force-wide, combined with a sprinkling of flight officers and weapons safety people.

At last count there were about 564,000 people in the Air Force. This means there is one safety person for about every 1,000 Air Force members. We "safety folks" know we are good, but are we really that great?

If we safety guys and gals are the "who" in safety, that means we are the direct line supervisors responsible for the health, welfare, and safety of 1,000 people. Our span of control, as the teenagers would say, is "out of sight." We know we're great, but isn't that piling it on just a little bit?

Okay, so who is safety you ask. Well, here is the revelation: The real "who" in safety is spelled Y-O-U! You—the wing commander, you—the squadron commander, you—the branch chief, you—the supervisor, and most important of all, YOU—the individual. When a base, unit, or shop safety program is really meaningful and effective, then you have done your job. Take your bows; you earned them. How about that weak safety program—whose fault is that? You guessed it; you, me, everybody, we all get to share the blame.

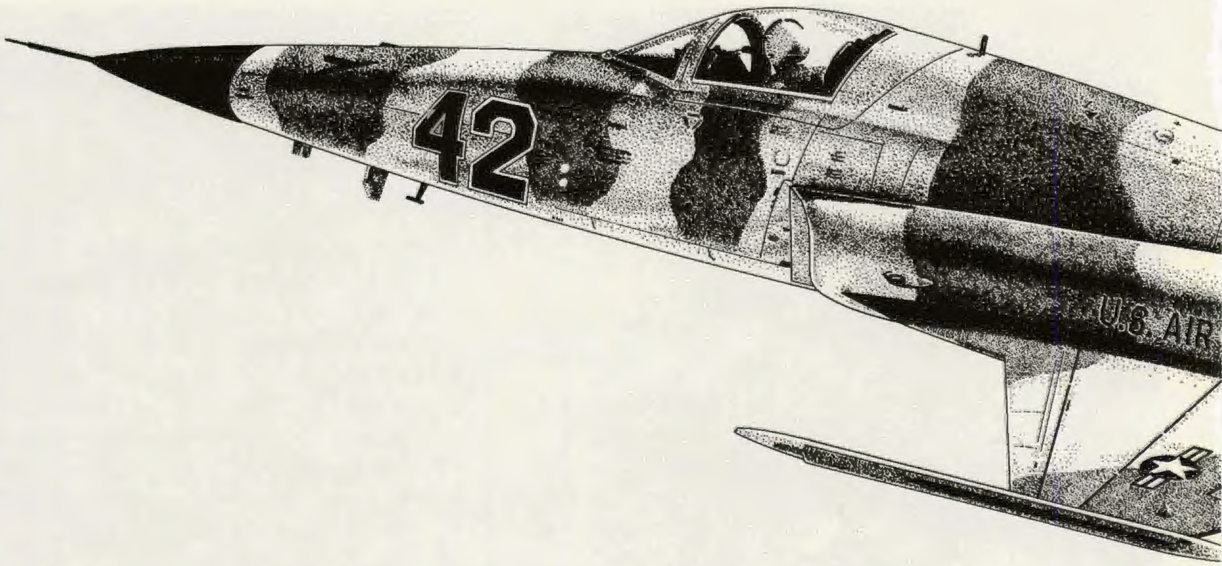
It is you who fly and repair the aircraft safely, load the bombs without the unwanted boom, and supervise and train your people to do the job right; and it's you who drive without an accident, hunt without shooting somebody, and swim without drowning.

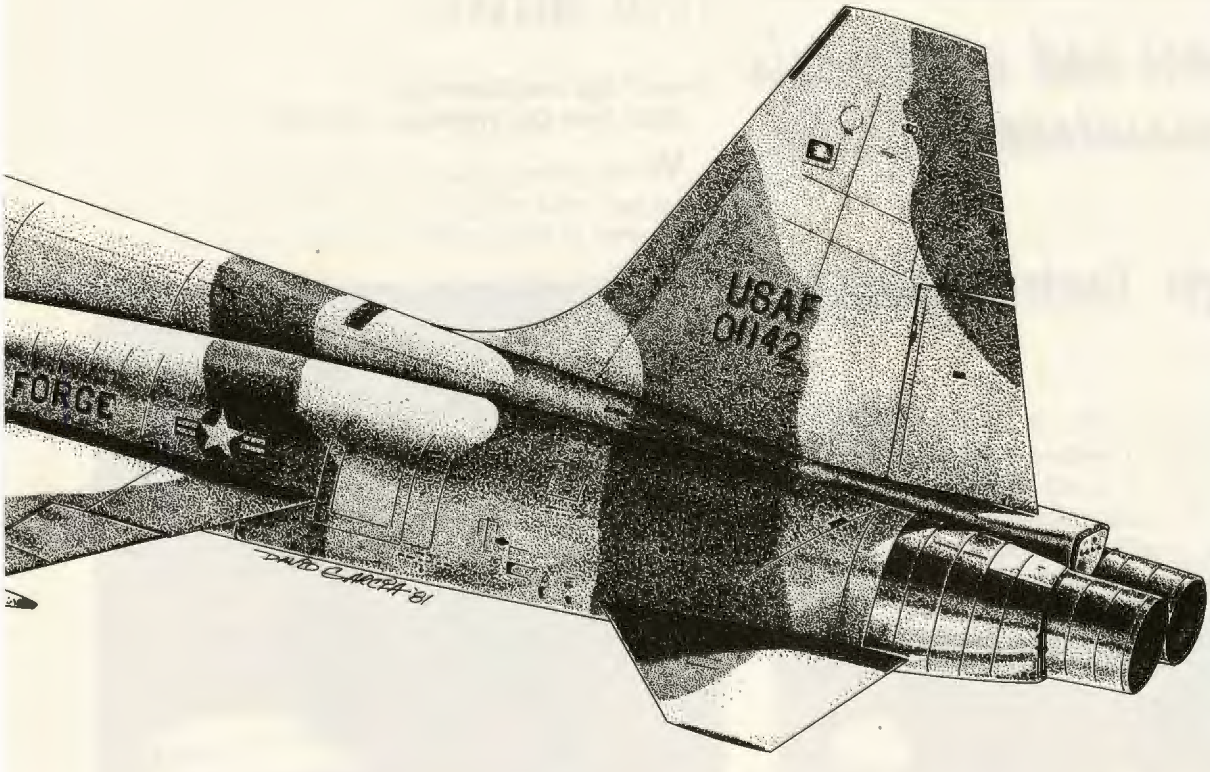
Yes, it is you who do all of these things without injury or damage to equipment because you make sure it is done safely.

The real "who" in safety is indeed Y-O-U! It's people, all of us as individuals who take the time to make sure the job is done the right way the first time. You are ultimately responsible for safety, whether it be on the job, at home, or in whatever you are doing. Direct involvement in the shop, unit, wing, and Air Force safety programs is a responsibility we all share.

Originally published in the Moody AFB *Knight Express*.

F-5E Tiger II

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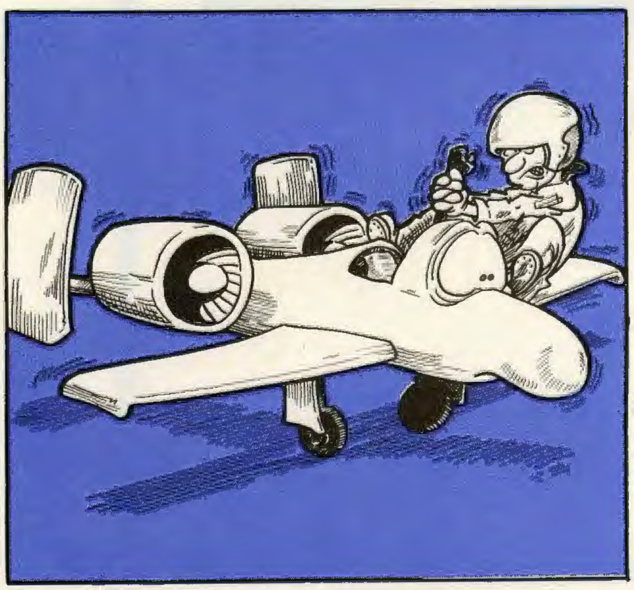
chock talk

...incidents and incidentals with a maintenance slant.

A-10 Flight Control Binding

The A-10 pilot started the left engine and then, as usual, checked aileron response. When the stick was moved left or right, it would remain there and not return to the center neutral position. The pilot aborted the airplane and it was impounded.

The cause of the binding turned out to be foam.



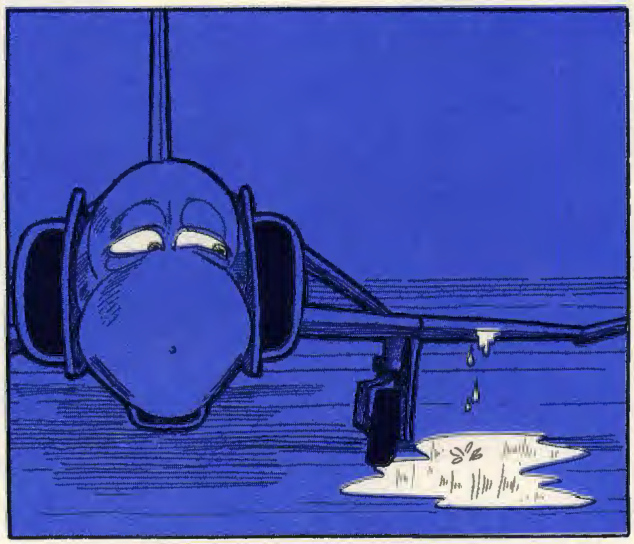
The A-10 has rigid foam filling empty spaces around fuel storage areas. One of the access panels (F-20) in the vicinity of a fuel area has this rigid foam attached to the back of it. The foam back has channels cut in it for plumbing, cables, and bulkhead structures. One of those channels is for the aileron cables. When the panel was installed during phase inspection, it was forced down, and the aileron cable was not routed through the proper channel. The cable was binding against the foam.

Until this incident occurred, the phase troops didn't know the panel could be installed incorrectly by pressing down on it. Now we all know—right?

TCTO Missed

From TSgt Joe Robinson
6585 Test Gp, Holloman AFB, NM

While getting ready for the launch of an RF-4C, the crew chief noticed hydraulic fluid leaking from the center of the leading edge flap on the left wing.



Further investigation showed that the flap cylinder assembly actuator had separated at the barrel gland nut.

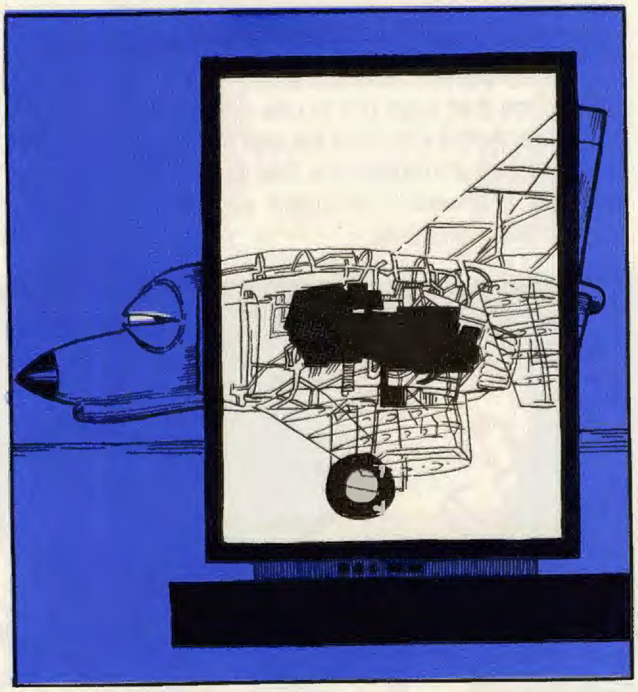
Oddly enough, that particular gland nut shouldn't have been there; it was supposed to have been replaced by a field-level TCTO dated 15 March 1974. The TCTO was rescinded in December of 1975 after all aircraft were reported to be in compliance with it.

If the problem hadn't been discovered on the ground, it could have resulted in an unintended extension of the leading edge flaps while airborne. Loss of aircraft control could have resulted.

Poor Camera Work

An F-4 overseas was in straight and level flight when the number 2 engine compressor stalled. The stall cleared itself, and the aircraft returned to base without difficulty. An inspection of the compressor section on the ground showed extensive compressor damage caused by ingestion of a hard metal object.

The day before, work had been done on the right variramp. The maintenance involved changing the ramp's servo valve and extended over a 2-day period. The hydraulics specialist who began the work had trouble installing the new valve and didn't finish the job before shift change. A hydraulics specialist on the next shift picked up the hardware and completed the job. Afterwards, the ramp was closed, and the variramp screen area was X-rayed.



No FOD was seen on the film.

But later, a closer look at the film showed that the wrong area was X-rayed. The actual work area was 8 inches to the rear of the area X-rayed. FOD could easily have gone undetected in the work area. The likelihood of hardware being left in the ramp area was increased because the two hydraulics specialists never talked face-to-face about the job. That usually leaves some loose ends. One of those loose ends later could have caused the compressor damage.

Clear communication between the hydraulics specialists might have helped. So might better communication with the NDI specialist who took the X-rays. Somebody should have told him where to point the camera.

Murphy's Mock-Up

The RF-4 had a little trouble getting a good alignment of the ARN-101 inertial system. The inertial measuring unit failed a built-in test. But it realigned normally. The aircraft took off and climbed into the clouds, leveling off at 26,000 feet.

During a turn, the pilot felt that the instrument indications were different from what he expected. The weapon systems officer (WSO) noticed a computer malfunction light on the ARN-101, which cleared itself when he pressed the test button on the digital display indicator. The pilot and WSO cross-checked attitude indications between the two cockpits: there was about 30 degrees difference in bank angle between the two. Both cockpits showed level pitch attitudes, but the altitude was decreasing. The pilot switched the reference system selector to standby. Both cockpits indicated 10 degrees of right bank and 20 degrees nose-up pitch. The altitude was still decreasing at a rate of 6,000 feet per minute. The pilot transitioned to the emergency attitude indicator (peanut gage), which showed a 5-degree right bank and 5-degree nose-low pitch attitude. That made sense, so he used the peanut gage for his attitude reference.

The pilot leveled at 19,000 feet and began a turn to 220 degrees heading. After completing the turn, the pilot noticed that his heading on the standby (whiskey) compass was 285 degrees. The pilot, deciding his primary and standby attitude references and his heading system were all unreliable, declared an emergency. Using the peanut gage for attitude and the whiskey compass for heading, he descended out of the clouds and safely landed.

Looking into the problem, maintenance investigators noticed an odd thing about the compass controller: it had "Mock-Up" stenciled on its side. Internally, the compass controller had two broken wires. Apparently, the unit was intended to be used as bench-checking equipment and was stenciled so it wouldn't be installed in an aircraft. Murphy's Law, of course, decreed that if there were any way it could be put in an airplane, it would be put in an airplane. And it was.

CHOCK TALK

Birdstrike Blunder

No doubt you've noticed by now that this is birdstrike season. Here's how *not* to handle a birdstrike:

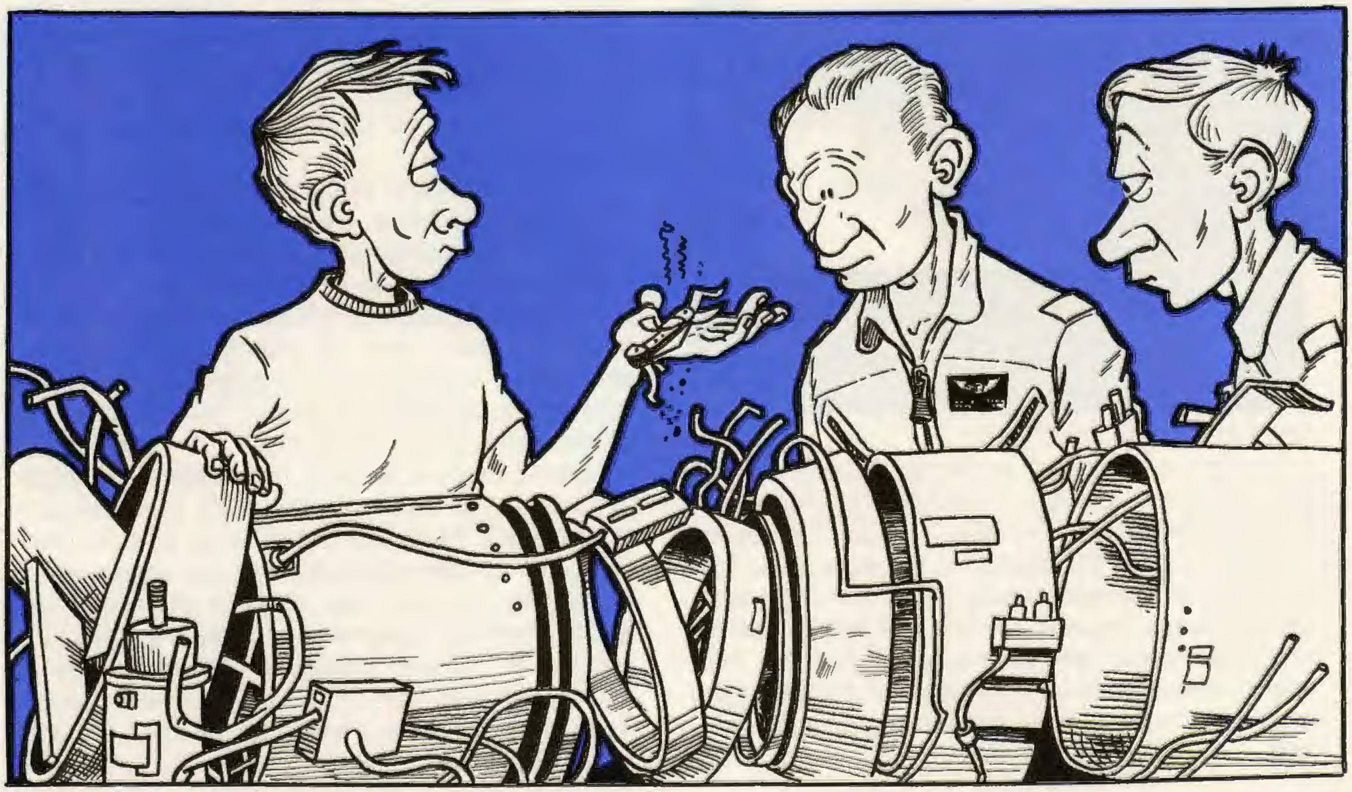
During preflight, the RF-4 pilot noticed that the engine FOD inspection had not been documented in the aircraft forms. However, an inspection for a birdstrike on the previous sortie was signed off. The pilot checked with the crew chief, who assured him that the inspection had been completed when the engine had been checked for a birdstrike. Just to be sure, the pilot verified that the check had been made with the line chief.

Satisfied, the pilot cranked up the engines and taxied out. On the runway, he ran the engine up. As it passed 76 percent RPM, he thought he noticed a little vibration. At 84 percent, he heard two loud bangs and the RPM rolled back. The pilot pulled the throttle back to idle and the stall cleared. He taxied back in and shut it down.

The engine had suffered major damage in the compressor and turbine sections, but the investigators couldn't find what caused the damage. The aircraft wasn't missing any screws or fasteners. Maybe it had something to do with the birdstrike.

The birdstrike had been discovered during postflight on the previous sortie. The aircrew on that sortie had felt a thump, but didn't think it was anything serious. The birdstrike wasn't reported to anyone outside the AMU. The AMU's engine personnel checked the engine and found that there hadn't been any damage to the engine, but the air-oil cooler had to be cleaned out. The jet engine mechanic working on it told his supervisor there were some large bone fragments that he couldn't remove by hand. So the supervisor gave his own personal pocket knife to the mechanic to help him remove the bone pieces. Neither of them remembered seeing or having the knife after the work was completed. When the engine was finally taken apart, fragments of the pocket knife were found in the compressor case.

Birdstrikes cause enough damage on their own. They don't need us to make things worse. Have a plan for birdstrike damage; and follow the rules, such as the one that says not to use personal tools on the flight line. And there must be one that says not to bluff the pilot about inspections that could have been left undone. If it wasn't recorded properly, it probably wasn't done properly.



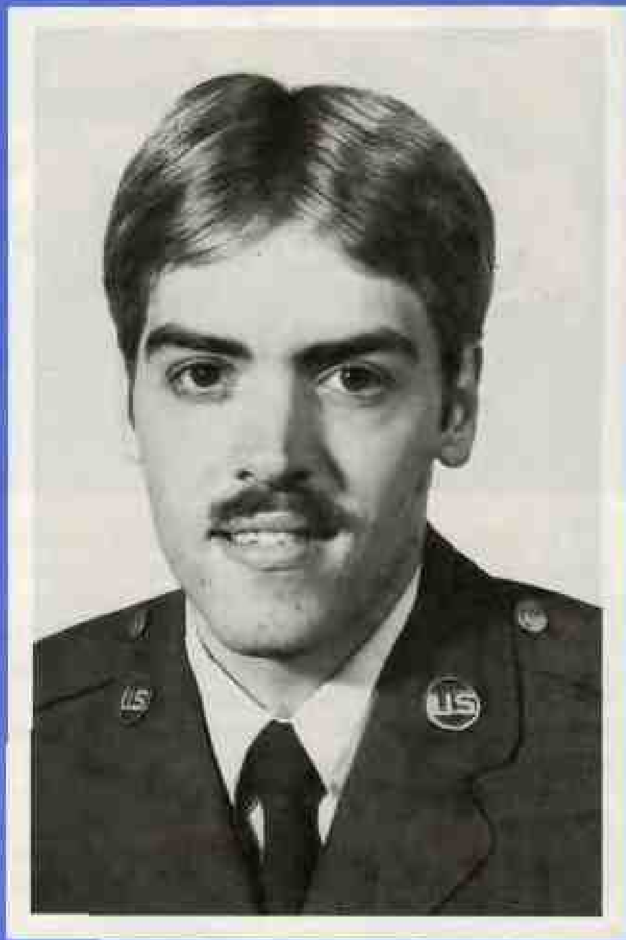
INDIVIDUAL SAFETY AWARD

SrA Pierre Fournier is this month's winner of the Tactical Air Command Individual Safety Award. Airman Fournier is an aerospace ground equipment (AGE) technician with the 49th Equipment Maintenance Squadron, 49th Tactical Fighter Wing, Holloman AFB, New Mexico. He proved his thoroughness and outstanding troubleshooting ability in detecting and correcting a severe hazard in the MC-1A motor generator.

While working on a motor generator and using the appropriate technical data, Airman Fournier received a severe shock. The unit had been unplugged before he began his work. He rechecked the tech order and verified that he hadn't overlooked any procedures. He asked other technicians and found that some of them had received shocks while working on similar units. Airman Fournier decided to pursue the problem and find the cause. He discovered the 440-volt input line to the unit has large filter capacitors attached—capacitors which are capable of storing enough voltage to give a fatal shock under some circumstances. The tech data contained no steps for discharging the capacitor.

Airman Fournier put a procedure for discharging the capacitors into practice and briefed all maintenance workers on the hazard. He submitted a change to the tech data and also began investigating other equipment which could have the same type of hazard.

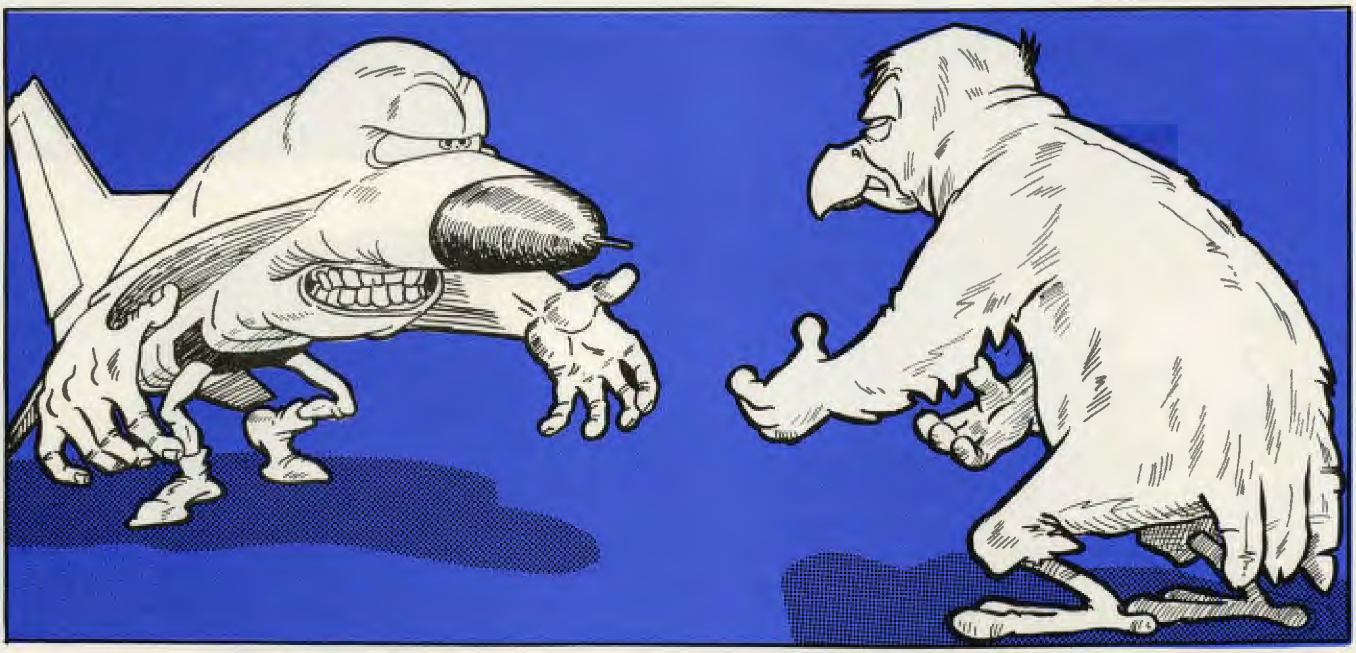
Airman Fournier's prompt and thorough investigation and his decisive action has averted serious or fatal injury to himself and his fellow airmen. He is well deserving of the TAC Individual Safety Award.



SrA Pierre Fournier

PASS IT ALONG...

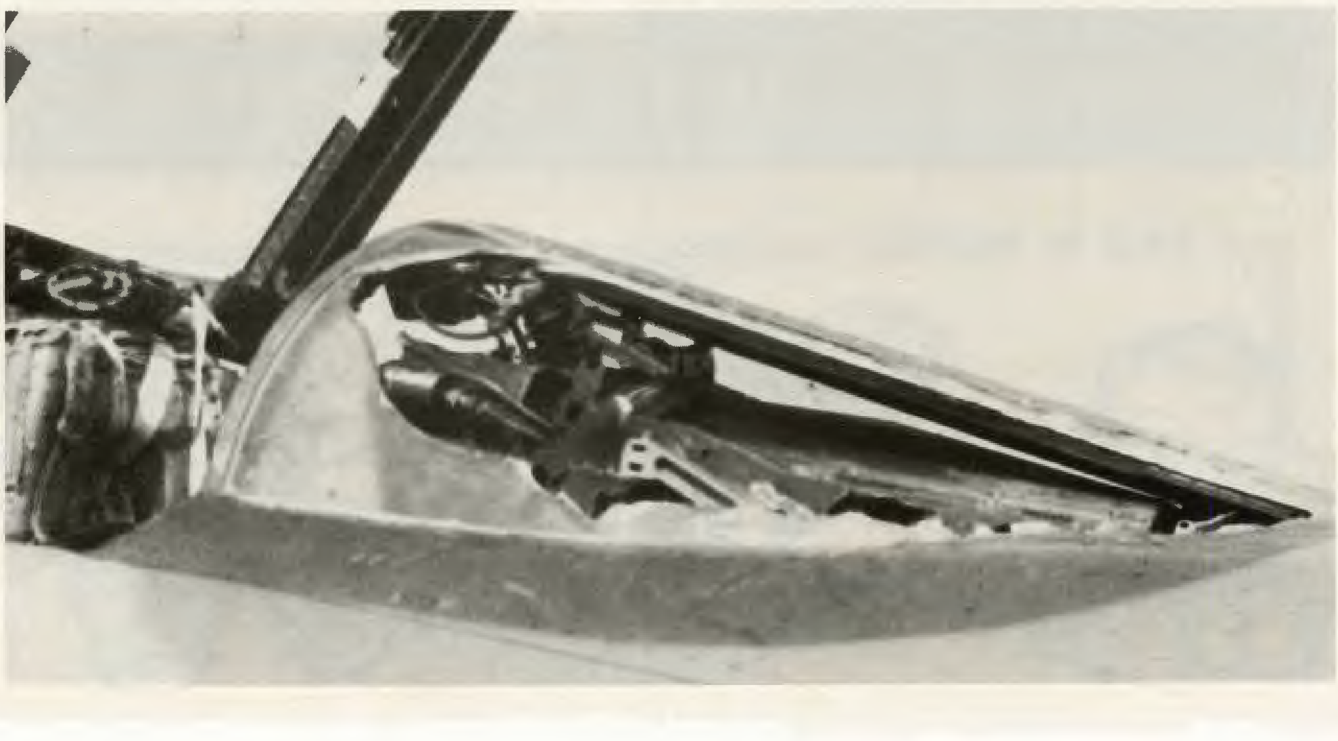
nine people are waiting



The most one-sided war in the history of aerial warfare is the ongoing battle between the flesh, blood, and feather birds and the metal alloy superbirds. Recent kill ratios have been on the order of 3,000:1 in favor of the superbirds. Still the birds refuse to yield the skies to the superbirds. They contest supremacy with little else but plucky courage.

That recklessness has not gone completely unrewarded. Even late model superbirds, like the F-16 and the A-10, have been knocked down by the birds. And despite the kill ratio, the birds have not lost their tremendous numerical advantage. Recent increases in superbird production are too little and too late to gain on the production rate of birds.

Due to their numerical advantage and a somewhat cavalier attitude toward death, the birds have adopted kamikaze tactics. Their most effective tactic has been to turn the superbird's speed advantage into a liability: by attacking a superbird at its fastest, they increase the effective force of their strike. This tactic is best used in a headon pass against the superbird's windshield or canopy. About 20 percent of the birdstrikes have been this type of attack;



BIRD VERSUS SUPERBIRD

however, only 7 percent of these strikes have shattered the transparency. The declining success of this type attack is primarily due to stronger windshields on the superbirds. Even when the birds have penetrated into the cockpit, they have been countered by the superbird pilots' tactic of flying with at least one and sometimes two visors lowered. The old blind-'em-with-shattered-plexiglass scheme is losing effect.

A more effective maneuver in recent years has been to attack the superbird's power plants. The superbird's speed is not critical in this maneuver, so

it can be attacked in slow speed flight, such as takeoff and landing. During those phases of flight, engine RPM is high; the high RPM ensures that the bird hits the engine, because what would be a near miss otherwise is drawn into the engine by its suction. The effectiveness of this tactic is borne out by the statistics: less than 20 percent of the strikes are to the engine, yet they cause 40 percent of the damage. The damage does not normally result in a kill, but it can if the superbird pilot does not react correctly.

Because the superbirds are most vulnerable to engine attack during take off and landing, 63 percent of the engine strikes have been in and around the superbird's airfields. In fact, 47 percent of all strikes occur within 10 miles of the home field, evidencing the superbird's susceptibility to strikes during the takeoff and recovery phases of flight.

A glaring weakness is apparent in the birds' aerial combat ability overall: all-weather capability is almost nonexistent. Less than 1 percent of the strikes take place in clouds; 67 percent occur in bright daylight. On the other hand, night effectiveness is superior. About 18 percent of the strikes are at night, even though the superbirds only fly 16.5 percent of their time at night.

Low altitude coverage by the birds is excellent, but high altitude capability is minimal (although there have been some strikes above 20,000 feet). The birds have concentrated on the low and very low altitude arenas. Strikes below 300 feet account for over 37 percent of the total, and 80 percent of the strikes are concentrated below 3,000 feet.

The most likely targets for strikes by the birds are fighter or attack type superbirds, which account for 40 percent of the total strikes. The most likely birds to be involved are small perching birds (38 percent) or hawks and vultures (34 percent). The birds are also likely to be young. The motto of the kamikaze birds is: "There are old birds, and there are bold birds, but there are no old, bold birds."

Despite their losses, the birds are confident. They are willing to conduct a long war of attrition because they know they can outproduce the metal superbirds. Gull production alone has shown remarkable increases in recent years. Even though they are on the short side of that 3,000:1 kill ratio, the birds are positive that time is on their side. They may be right.

WEAPONS WORDS

Maybe Cats Can See in the Dark, But...

The small arms instructor was preparing to store his .38 pistol in the vault. He opened the chamber to visually check it, but the room was dark because of power failure. He closed the chamber and pulled the trigger. The pistol fired with a deafening noise in the small room. There had been a round remaining in the chamber, and he hadn't seen it in the dark.

That's not surprising. What's surprising is that he thought he could see well in the dark in the first place. Catman he wasn't.

Loose Butt Plate

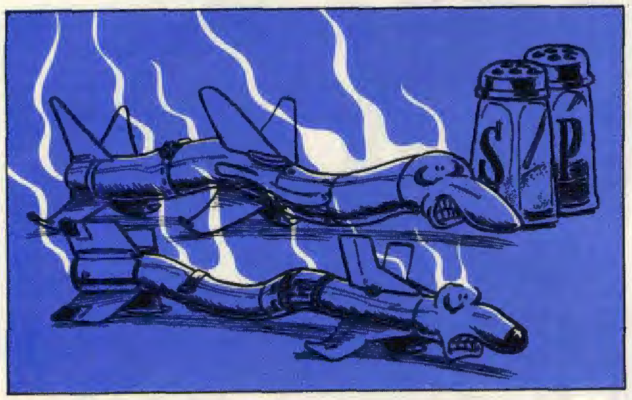
A loading crew was transferring a weapon system evaluator missile (WSEM) from its storage rack to the loading truck. The crewmember at the aft end of the missile was using the butt plate as a handle. Just as they cleared the rack, the butt plate pulled loose from the recorder subassembly. The missile fell to the concrete floor.

Ever pick up a jar by the top only to find that it wasn't screwed on tight? It's the same kind of problem. It works much better when we make sure it's screwed on tight before we lift it.

Rushing Home

The load crew chief and a member of his crew were checking out an AIM-7 missile on an F-15 overseas. The crewmember was in the cockpit while the crew chief was doing the ground checks. The tech data says to make sure that all the pylon and tank safety pins are installed and the explosive impulse cartridges are removed. Even though he had over 5 years experience, the crew chief neglected the warning. When the crewmember pressed the emergency jettison switch, in accord with the checklist, the centerline tank and pylon jettisoned.

If you're wondering why the supervisor neglected the warning, maybe it has something to do with the fact that it was getting close to quitting time. Rushing almost guarantees missing something.



Overcooked Missiles

A unit overseas suspects it may have overheated some missiles. The AIM-7 and AIM-9 missiles were placed in a tab-vee shelter for quick turn of the aircraft. The maintenance troops attempted to back an F-4 into the tab-vee by using a Coleman tug. The F-4 still had one engine running. They had trouble positioning the aircraft properly; it took five tries to get it in the shelter. After it was parked, the aircrew continued to run the engine to align the inertial navigation system. That's when the crew chief thought of the possible missile damage. He had the aircrew shut down. The nozzle closure plugs on the missiles were found blistered.

The troops involved were at a deployed location. They weren't used to working with the tab-vee shelters. That's the same kind of situation we could find ourselves in on a deployment. Maybe we should think about it ahead of time, so we don't fry our missiles—or anything else.

Halfway Pinned is Unpinned

A 3-man loading crew was moving a weapon system evaluator missile (WSEM) from station 3 to station 4 on an F-106. They followed the tech data and thoroughly inspected the rail. It checked O.K. The loading crew chief cocked the T-handle on the rail, and the crew slid the WSEM onto the rail. The T-handle wouldn't return to its proper position, even though they pushed and pulled on the missile. Unaware of the problem and thinking the missile was secure, one of the crew unpinned the missile from its handling frame. When the crew chief decided to remove the WSEM from the rail and reload it, the crewmember who had unpinned it from the handling frame hurriedly replaced the pin.

As they slid the missile off the rail, its nose dropped before the man in front had expected it to. He grabbed it with his free left hand. Just then, the missile separated from its handling frame and dislocated his left little finger as it pulled away. Startled, he let go of everything. The missile and frame fell to the ground independently, since the missile had separated from the frame. When they landed, the missile's radome struck the frame and cracked.

They found the safety pin still sticking through the fin of the WSEM, but it had never been locked into the handling frame. The pin set the stage for the incident; and when the crewmember in front got caught with poor hand position, the results were just what you'd expect—all bad.

Another Pin Undone

Two egress specialists were sent to an F-4 to install the forward seat assembly. The safety pin was installed in the canopy initiator (M3A2) mounted in the cockpit. The warning streamer on the pin was attached to the pin bag, which was left on the cockpit floor. When the technician lowered the seat assembly onto the catapult, he unknowingly stepped on the streamer. That pulled the safety pin from the initiator and armed it. Then, while the technician was working on the seat's mounting bolts, he accidently pressed on the bellcrank firing linkage, which fired the initiator. The initiator's firing activated the canopy thermal battery, which fired the canopy thrusters. The canopy would have been blown off if it hadn't been fully open.

TAC ATTACK

SURVEY RESULTS

An unknown sage has said, "Don't ask a question if you can't stand the answer." But we took a survey of our readers, anyway.

Almost 300 readers responded to our survey—not an overwhelming number but better than 2 years ago. This sample should better represent the overall readership. We recognize, of course, that surveys of this type are not as accurate as random surveys. But it does give us a good indication of what's working and what's not working.

The respondents were a good cross-section of our audience. The percentages of respondents by rank are as follows:

Rank	
0-1 to 0-4	33%
0-5 and up	11%
E-1 to E-6	31%
E-7 to E-9	10%
Other (civilian & unknown)	15%

Although that's a good cross-section, the proportions aren't necessarily representative. We suspect a higher proportion of staff as opposed to line workers answered our survey.

For our analysis of the responses, we combined the "Good" and "Super" answers into a percentage favorable. We figured if someone rated a category "Good" or "Super," he was inclined to read it. The overall responses to our regular features were as follows:

Feature	Percent Favorable
Angle of Attack	63
Chock Talk	90
TAC Tips	92
Weapons Words	76
SPO Corner	64
Awards	76
Letters	68
Fleagle	94
Centerspread Art	84

To no one's surprise, "Fleagle" is our highest rated feature. What is surprising is how highly our readers rated "TAC Tips" and "Chock Talk."

"Angle of Attack" was rated low, and we have already changed "Angle of Attack" from an editorial to a publisher's note, that is, like many magazines, a few words on what is contained in that issue. However, the magazine still intends to present the premise that safety is the byproduct of doing the job right.

Apparently, some readers aren't familiar with "SPO Corner." As a matter of fact, 18 percent of our respondents didn't rate it at all. One problem may be the title: "SPO" isn't a common, everyday word. It stands for *systems project officer*, and it refers to the flight safety officer who monitors a given aircraft; for example, the F-4 SPO is the flight safety officer in TAC Safety responsible for the F-4 weapons system. The SPOs can contribute valuable information, so we will incorporate their articles into "TAC Tips" instead of running a separate column.

"Weapons Words" and awards' stories rated about average. "Weapons Words" rating may have been affected by the low number of weapons troops who responded—less than 5 percent of our total listed themselves in weapons or munitions jobs. Many of the weapons troops who did respond asked for more "Weapons Words," and all of the airmen in weapons rated it favorably. The feature seems to be reaching its target audience.

One thing we noticed about awards was that senior officers rated awards more favorably than any other group. Other groups rated it far differently:

0-5 and above	94% favorable
0-1 to 0-4	75% favorable
E-7 to E-9	79% favorable
E-1 to E-6	71% favorable

In fact, more senior officers like the awards than liked "Fleagle," 94 percent to 90 percent.

Centerspread art is popular with all segments of our audience. Several remarked, however, that they didn't understand its purpose. Actually, it has two purposes. First, it leads more people to pick up the magazine. If they pick it up, they may read some of the articles. Second, the art reminds us of our heritage. The lessons of flying safety were purchased for us by those who went before. The price was often a life. We hope the centerspread art reminds us of where we come from.

The second part of the survey rated types of articles. The results were:

Type Article	Percent Favorable
Emergency Situation Training	85
Life Sciences/Survival	87
Aircraft Operations	86
Weather	74
Maintenance	76
Ground Safety	71
Historical	75
Funny Photos	86
Current Developments	86
War Stories	82

Ground Safety varied by rank:

0-5 and above	61% favorable
0-1 to 0-4	62% favorable
E-7 to E-9	86% favorable
E-1 to E-6	78% favorable

Survey Results

There is even greater disparity by career field. Readers working in flying operations rated ground safety lower (55 percent favorable) than readers in maintenance (83 percent favorable). The enlisted ranks, especially in maintenance, seem to be more concerned about ground safety. Maybe they are closer to the problem.

Weather stories were rated pretty much the same by the different groups. It's not the most popular subject; but a good, fresh perspective on weather problems is still worth printing. And we'll continue seasonal warnings of weather hazards.

Opinions on maintenance articles varied. Naturally, the maintenance troops like them best (84 percent). On the other hand, 90 percent of the operations respondents enjoyed "Chock Talk." Although some of our maintenance readers wanted more technical articles, we don't have the expertise. We will continue to print general interest maintenance articles when we receive them. Our aim is to provide crosstalk between operations and maintenance.

Everyone wanted stories on life sciences and survival. Current developments in aircraft and emergency situation training were also popular. We'll favor those kinds of articles as we receive them. That's a problem: we've got to receive them to print them.

Aircraft operations articles were well accepted by all (85 percent favorable). War stories also were favored by most respondents. Our stock of these stories is also limited, so keep those cards and letters coming.

If you'll notice, the thread running through all this is that it is up to you to provide the stories. If you don't write them, we can't publish them, no matter how well they are liked. As we've said before, it's your magazine.

We asked you to rate your magazine in comparison with several others of the same general type. Those who were familiar with each of the different magazines rated them this way:

	TAC ATTACK IS		
Compared to:	BETTER	SAME	WORSE
Flying Safety	58%	36%	6%
MAC Flyer	60%	31%	9%
USAFE Airscoop	64%	30%	6%
Approach	51%	36%	13%

Obviously, this is not an objective comparison of the different magazines. What the survey really shows is how well our target audience identifies with *TAC ATTACK*. It is a measure of reader loyalty.

Within the limits of our budget, we will continue to put out a high quality magazine. Most of our readers (83 percent) rated our layout as good, and 87 percent like the artwork and photos.

The ultimate test of our effectiveness as a magazine is simply whether we help our readers to do their jobs better. If, as we've said, safety is the byproduct of doing the job right, then our help on the job is what's important. Our readers rated us as effective. We asked "Has *TAC ATTACK* helped you in your present duties?" and 80 percent of those responding answered Yes.

We still have room for improvement, but it's nice to know we've achieved some success. Since it's your magazine, it's your success. Keep it up. Let's get better together.

BIRDSTRIKES: *What can we do?*

By now, you know we've entered the peak of the birdstrike season. The question is, What can we do about it? Some of the measures usually recommended simply aren't practical. We can't stay out of low altitudes completely. We can't avoid the flyways when we're based on them. We can't always slow down.

What we can do is analyze our missions carefully to ensure we aren't spending time at low altitude *needlessly.* The airspace below 6,000 feet is a high threat area for birdstrikes during the migrating season; we should treat it that way. When we're at low altitude, good lookout and precise radio calls can help us handle birds as well as bogies. We can at least spot flocks of birds and some of the larger individual birds.

Since we are going to be at low altitude, we should anticipate the possibility of a bird strike. Think about how you'll react if you suddenly see a bird in front of you. You don't want to dive because the rocks below you will hurt more than the bird. Pull up, instead, while ducking your head below the glare shield. If you do take a birdstrike, the airplane will be pointed in the right direction. And the bird isn't as likely to hit the canopy or windscreen. In a two-seat airplane, you'll want to prearrange transfer of control in case of blinding or other incapacitating injury.

Low altitude is no place to practice close formation during birdstrike season. Your instinctive flinch from a bird could cause a midair with your wingman. If you do take a strike, don't overreact. Climb and analyze the situation. At altitude, do a controllability check. Your wingman can check you over. You may have communication problems due to the noise; but as you climb and slow down, communication should improve.

The best protection you have during a birdstrike is your visor. Always have at least one visor down, even at night. The odds of hitting a bird while you're night flying are just as high as during the day (maybe higher when you add in the bats). The visor can save your eyes from shattered pieces of plexiglass. If you are blinded in a single-seat fighter, you're going to have to eject. If you keep that in mind, the visor won't seem like such a nuisance.

It will be difficult to see and avoid small birds; but you might be able to help them avoid you. Your landing light and strobe lights, if you have them, can help the bird see you. If you're at slow speed and not maneuvering, the bird will usually avoid you when he sees you. So when the tower reports heavy bird activity around the airdrome, you should consider a straight-in approach. Birds aren't very good at predicting your flight path in a turn; the straight-in gives them a chance to see and avoid.

Nothing you do will guarantee that you won't get a birdstrike. The best you can do is to lower the odds of a strike by being alert. Protect yourself, especially your eyes, in case the odds catch up with you. And right now, before you fly, plan how you're going to handle a birdstrike. The odds say that by the time you have 1,250 flying hours in TAC, you will have had a birdstrike. When it comes, it probably won't be at a convenient time; so prepare yourself now.

84th FIS Retires Undefeated

By Maj Steven Link
84 FIS Public Affairs

Editors Note: The 84th FIS has consistently led the TAC Air Defense category of the TAC Tally. At the time of their deactivation, they had accumulated 115 months without a class A mishap—that was more than anyone in TAC or TAC-gained air defense forces. Since their redesignation, they no longer are in the Air Defense category, so they have retired undefeated. Their unmatched record stands as a challenge to all TAC and TAC-gained air defense units.

After four decades of distinguished service, the 84th Fighter Interceptor Squadron (FIS), currently located at Castle Air Force Base, California, was redesignated the 84th Fighter Interceptor Training Squadron (FITS) on 30 June 1981.

For several weeks prior to the deactivation, the unit's F-106 Delta Darts were flown to other squadrons throughout the United States. The 84th's distinctive lightning bolt markings are now hidden under the markings of their new squadrons.

As the books are closed on the 84 FIS, the squadron can take pride in many accomplishments recorded there. From an enviable list of aircraft kills and damage done to enemy logistics during WW II to the many contributions to air defense in recent years, the unit has left its mark.

The squadron was justifiably proud of one achievement especially—flying safety. When the 84th was redesignated, the squadron had conducted flying operations for more than 9½ years without a major accident.

The 84th moved to Castle AFB from Hamilton AFB near San Francisco in 1973, maintaining training and alert commitments while becoming acclimated to a new environment.

Departures and recoveries from Castle AFB involve crossing as many as ten low-altitude airways and five high-altitude jet routes serving the San Francisco area. Bay area airports have a combined traffic density of one million takeoffs and landings annually. Over 2,000 civil aircraft a month also use Castle's Stage III radar service while transiting Castle airspace.

Castle AFB is the Strategic Air Command's central training base. B-52 and KC-135 crew training requires approximately 30,000 flying hours annually. The local traffic pattern is saturated with aircraft with flying characteristics quite different from the F-106.

The San Joaquin Valley, where Castle AFB is located, is notorious for the rapid formation of heavy fog from November through February. Sometimes, when the fog closed in, the nearest base with clear weather was 270 miles away.

Throughout the 9½ years, the squadron participated in Red Flag and other tactical exercises worldwide that demanded maximum performance from pilots as well as machines.

The mixed fleet of integrated and conventionally instrumented F-106s maintained by the squadron presented a challenge. The pilots who were initially trained on tape instrumented F-106s had to be trained to fly in F-106s with conventional instrumentation as well.

While squadrons, wherever they are located, face their own unique challenges to flying safety, few have achieved the record of the 84th Fighter Interceptor Squadron. ➢

TAC TALLY

	TAC AUG	TAC THRU 1981	TAC AUG 1980	ANG AUG	ANG THRU 1981	ANG AUG 1980	AFR AUG	AFR THRU 1981	AFR AUG 1980
CLASS A MISHAPS	3	27	21	0	3	9	1	1	2
AIRCREW FATALITIES	2	15	14	0	2	8	1	1	1
TOTAL EJECTIONS	2	23	21	0	0	7	1	1	2
SUCCESSFUL EJECTIONS	1	21	17	0	0	4	0	0	1

TAC'S TOP 5 thru AUGUST '81

TAC FTR/RECCE class A mishap free months	
42	33 TFW
35	1 TFW
34	31 TTW
22	49 TFW
21	355 TFW

TAC AIR DEFENSE class A mishap free months	
103	57 FIS
56	5 FIS
53	48 FIS
12	318 FIS
3	87 FIS

TAC GAINED FTR/RECCE class A mishap free months		
112	188 TFG	(ANG)
104	138 TFG	(ANG)
103	917 TFG	(AFR)
100	116 TFW	(ANG)
90	434 TFW	(AFR)

TAC GAINED AIR DEFENSE class A mishap free months	
109	191 FIG
90	102 FIW
86	177 FIG
52	125 FIG
35	119 FIG & 142 FIG

TAC/GAINED Other Units class A mishap free months		
145	182 TASG	(ANG)
138	193 ECG	(ANG)
133	26 ADS & 4787 ABGp	
129	110 TASG	(ANG)
125	USAFTAWC	

CLASS A MISHAP COMPARISON RATE 81/80

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

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
TAC	1981	4.0	3.0	3.2	5.6	6.0	5.9	6.3	6.3				
	1980	2.0	4.0	5.2	4.4	4.7	5.2	5.3	5.2				
ANG	1981	9.3	4.8	4.6	3.3	2.6	2.2	1.8	1.6				
	1980	5.0	7.6	6.6	7.1	6.5	6.1	1.9	5.1				
AFR	1981	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8				
	1980	0.0	0.0	0.0	0.0	0.0	4.3	3.7	6.5				

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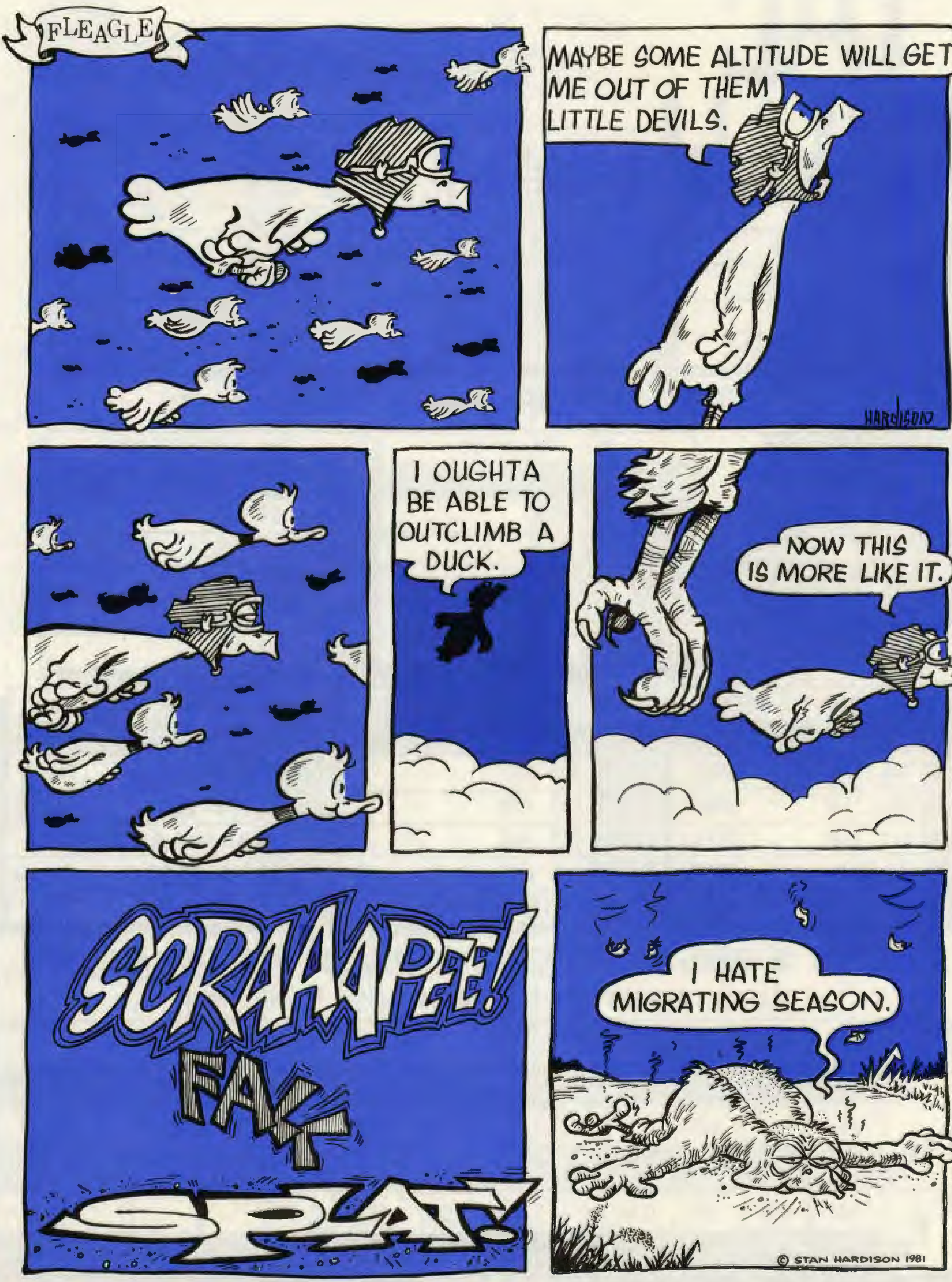
FLEAGLE
MAYBE SOME ALTITUDE WILL GET ME OUT OF THEM LITTLE DEVILS.
HARDISON
I OUGHTA BE ABLE TO OUTCLIMB A DUCK.
NOW THIS IS MORE LIKE IT.
SCRAAAPEE!
FAK
SPLAT!
I HATE MIGRATING SEASON.
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