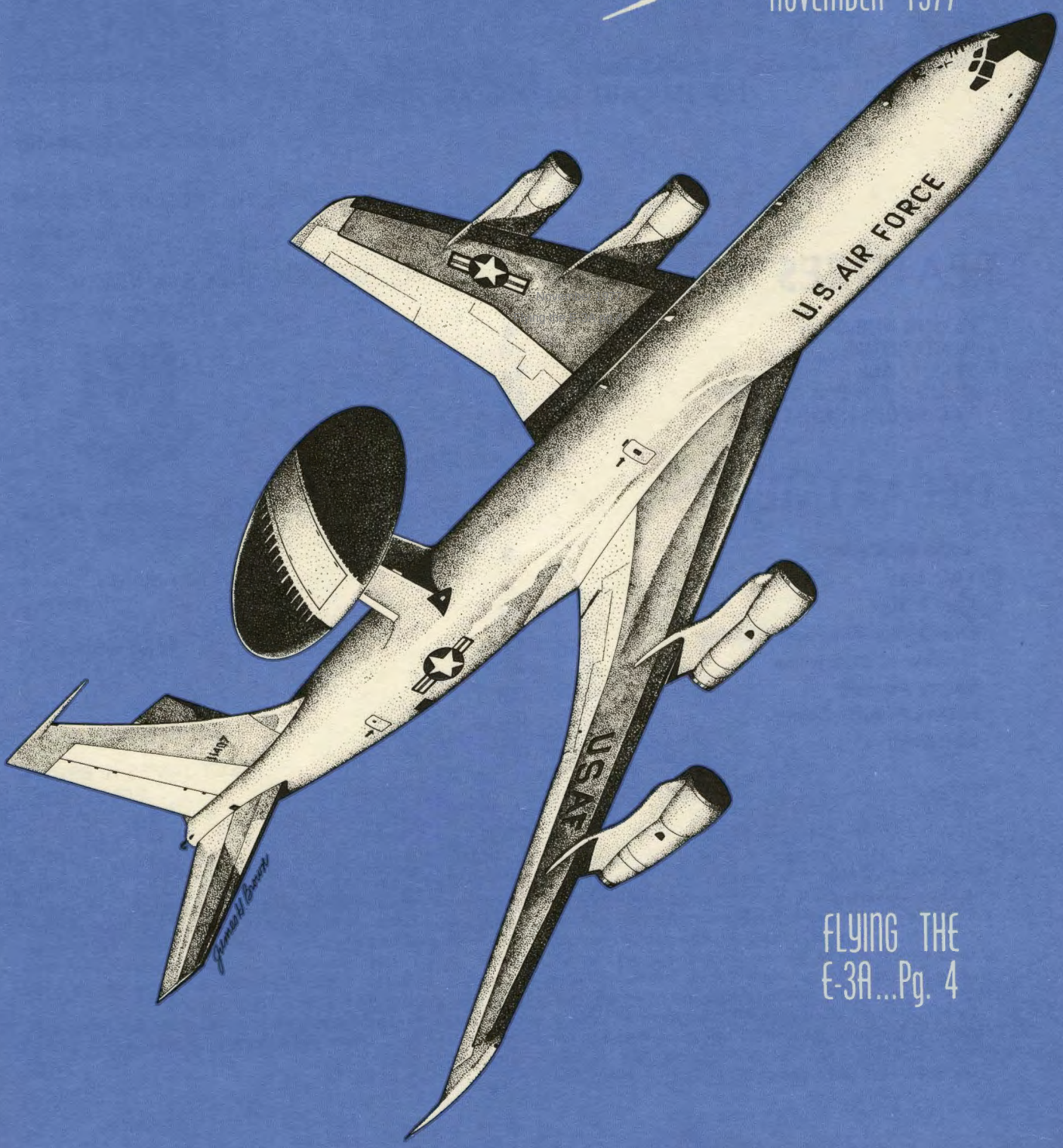
TAC ATTACK

NOVEMBER 1977



FLYING THE E-3A...Pg. 4

TAC ATTACK NOVEMBER 1977 VOLUME 17 NUMBER 11

NOW

FOR EFFICIENT TACTICAL AIR POWER

TACTICAL AIR COMMAND

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COMMANDER

LT GENERAL JAMES A. KNIGHT, JR.
VICE COMMANDER

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Angle of ATTACK

TEAMWORK

Crew integrity and coordination, whether it involves 2 or 12 crewmembers, is a shared responsibility and is essential to mission accomplishment. Effective teamwork has often broken the chain of events leading to an airborne problem, stopping the developing emergency at the incident level — far short of a major aircraft accident. With hot mikes, two or more sets of eyeballs, checklists, and some teamwork, multi-crew aircraft should be able to fly safely and effectively throughout the aircraft's designed flight envelope on any assigned mission. Class A mishap statistics show differently.

As of 3 October 1977, TAC regular forces have experienced 23 DOD Class A mishaps. Fourteen of these mishaps were caused by TAC people. Ten of the fourteen mishaps, 71 percent, involved multi-crew aircraft and have accounted for 94 percent of our fatalities. All but one of these accidents involved fighter aircraft. A brief look at a few of these accidents will illustrate the consequences of a lack of crew coordination.

● An F-111 departed controlled flight during a range mission. The aircrew safely ejected. The aircraft was improperly configured for the pass; a lack of checklist discipline. The pilot attempted a difficult delivery outside of parameters. The aircraft commander didn't ask for help and the WSO gave none. Result — the loss of a valuable tactical fighter.

● An F-4E was evading an attacking F-15 during a DACM mission. The pilot of the F-4 attempted a split-S type maneuver too low to get the aircraft pointed in the opposite direction before impacting the ground. Both crewmembers died when they ejected out-of-the-envelope. Someone should have been briefed to be constantly aware of the altitude. Lack of situational awareness by both aircrewmembers resulted in the pilot attempting a maneuver at an insufficient altitude for recovery, two fatalities, and one tactical fighter destroyed.

● An F-4 makes a pop-up inside of the planned MAP. The WSO allows the attack to continue. A less experienced wingman observed on his own intercom, not on UHF, that his leader wasn't going to make it. The result . . . the loss of a portion of our combat capability and two lives.

The list goes on.

A clear-cut detailing of individual crewmember responsibilities is the beginning of effective crew coordination — coordination which will support the crew in tight spots. Any sports team that fills a vacant position just because there is a required number of players, but fails to train, practice, and use him fully ends up a loser. There's not much difference in the flying business. The pilot of a two-engine fighter wouldn't think of intentionally making a single-engine takeoff, or not using all the equipment on the aircraft. The same thinking applies to crewmembers. Everyone in the aircraft contributes to the mission. To fail to utilize their talents to the fullest is to invite tragedy in peace and defeat in combat.

George M. Sauls

GEORGE M. SAULS, Colonel, USAF
Chief of Safety

FLYING THE E-3A

By Maj John P. Tagnesi
966 AWACTS/552 AWACW
Tinker AFB, OK

Major John P. Tagnesi is this month's Fleagle T-shirt winner

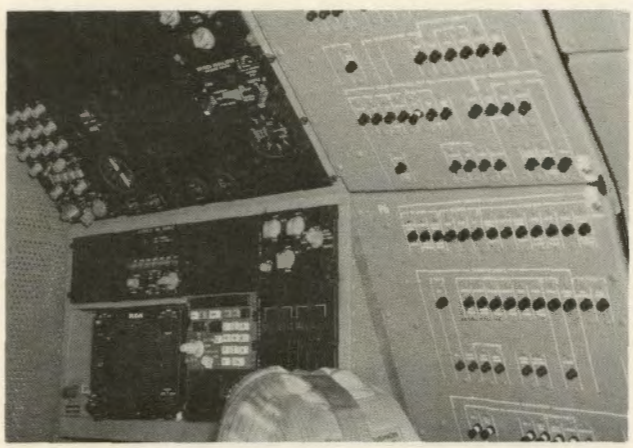
The next time you land at Tinker AFB for a fuel stop, look for a unique, large aircraft -- TAC's newest and most expensive -- the E-3A. While it resembles a large tanker with a frisbee on top, it most definitely is not! Assigned to the 552d Airborne Warning and Control (AWAC) Wing, which reports directly to the TAC/DO, the aircraft will be used to control and direct air warfare in the future.

The E-3A is the largest and most modern of the Boeing 707 series, and is a gentleman's flying machine. It's comparable to flying in a commercial airliner, but you're allowed to ride up front. The flight crew consists of two pilots, a navigator, and a flight engineer, who are solely responsible for the flight operations of the aircraft. The mission crew, consisting of 13 people, is responsible for directing and controlling the air battle and coordinating with the appropriate battle staff.

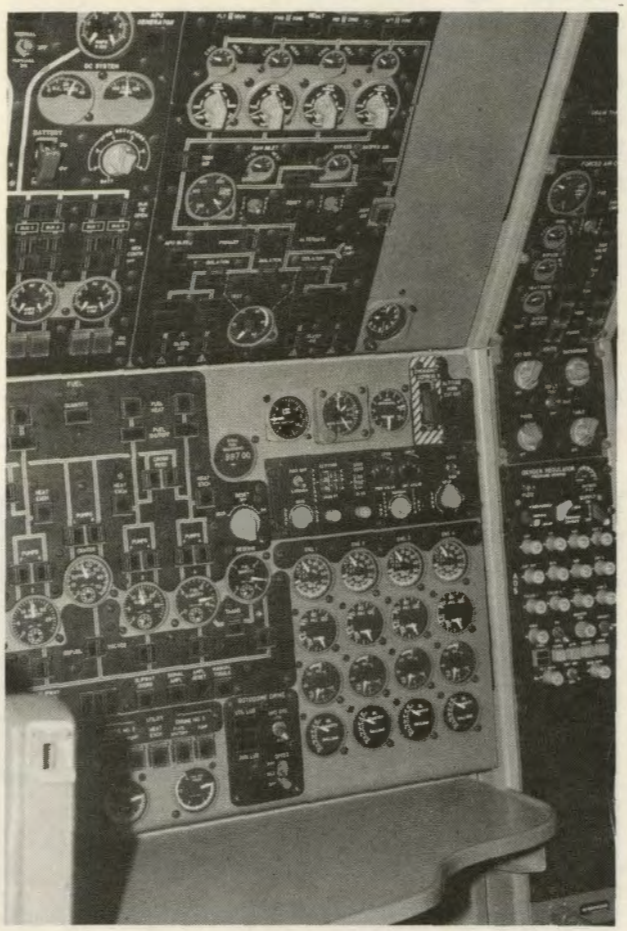
The E-3A, a modified 707-320, is larger, heavier, and more powerful than the KC/WC/RC-135. Specifically, the E-3A is 15 feet longer, 15 feet wider, 25,000 pounds heavier, and has 36,000 pounds more thrust than its look-alikes. Since many articles have been written about the capabilities of the radar system and the mission crew, this report concerns only the flight deck, crew responsibilities, and the E-3A's aerodynamics.

The navigator's primary job is to initialize and monitor the Navigation Computer System (NCS). This system consists of dual inertial navigation systems which are automatically updated and corrected with omega and doppler inputs. The NCS, when providing inputs to the autopilot, can command signals to fly a racetrack pattern, a circle, a figure eight, and yes, even a straight line. For basic navigation, the navigator also has an array of instruments which includes dual RMIs (TACAN/VOR), dual DMEs, TAS, OAT, altimeter, AVQ-30-X weather radar, periscopic sextant, and one GI issue clock.

The E-3A flight engineer is unlike any other flight crewmember in TAC. He is the primary "worker" -- like the worker bee in the bee hive.



The navigator's station is limited in size and equipment. The navigation computer system (lower right) is essential for mission radar, autopilot control, and overwater flights.



The flight engineer controls and monitors the electrical system as well as the air conditioning, fuel hydraulics, pressurization, and cooling system. The rotodome drive (center bottom) allows the rotodome to rotate at 6 RPM (XMIT) or 1/4 RPM (Idle).

flying the E-3A

He has most of the action on the aircraft He must be intimately familiar with the aircraft's major systems, since he has direct access to all systems' controls. He preflights the exterior and interior and sets the pacing for all normal and emergency checklists. In addition, he monitors engine performance on his own instrument panel. Unlike his counterpart in other commands, this highly trained Tactical Air Command flight engineer does not wear a spoon or fork on his flight suit; he's been trained to use napkins, not his sleeves.

The copilot is the assistant pilot, and his primary duty is to be a pilot. He has his own Flight Director (FD 108) and his own TACAN and VOR receiver. In addition, he has ready access to the IFF/SIF, ADF receiver, UHF, VHF, and HF radios, emergency flap switches, probe heaters, flap lever, and gear handle. During certain phases of flight, the copilot is "requested" to selectively operate these devices. Unlike the copilots in "STAR WARS," an E-3A copilot is not fuzzy, and he can talk intelligently. (At times we do restrict him to a simple "yes,sir" or "no,sir"!)

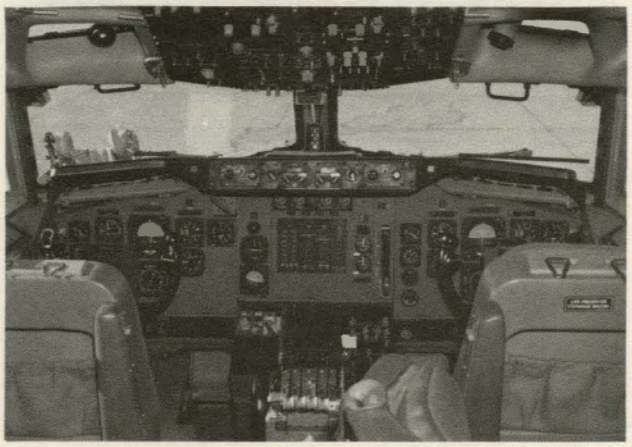
The pilot in command is responsible for making takeoffs, accomplishing inflight refueling, and flying approaches and landings. Additionally, he looks for traffic, engages the autopilot, and answers all queries about the aerodynamic effects of the rotodome on the aircraft. (Incidentally, there are none.) Finally, he allows the copilot to make all radio calls and to complete the 781. While the pilot flies the E-3A to the orbit point and is responsible for the safety of the flight and all persons aboard, he does not control or direct operational mission requirements. Only the mission crew can tell fighter pilots where to go during the E-3A mission. (We do reserve that right for the O'Club.)

Many unique and exciting E-3A design features separate it from other USAF "heavies." First, is the interior noise level. After engine starting, noise level is extremely low and flight deck conversation occurs without the interphone system or oxygen mask.

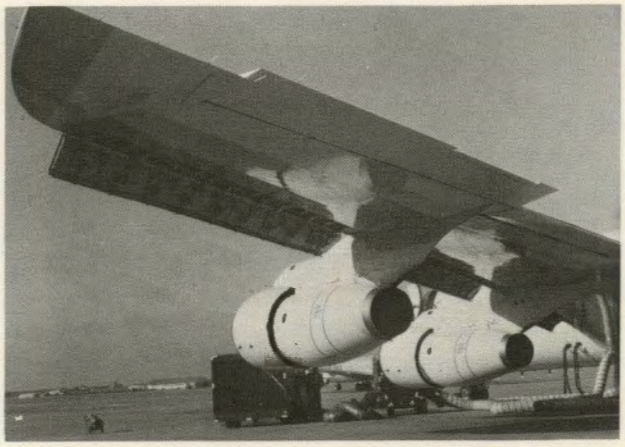
Second, the takeoff acceleration is exhilarating. For a large aircraft, being physically pushed into the seat (4-way adjustable), is extremely unusual. Using 81,000 pounds of thrust, a typical takeoff ground roll is normally less than 4,000 feet.

The third unique feature is the rotation angle and climb rate. The typical pitch angle is 15° to 18° and, of course, causes both pilots to lose outside horizontal references. We must rely solely on the ADI for rotation and pitch control. Climbing at 170 knots, the initial climb rate exceeds 5,000 fpm and the VVI is normally pegged. Whether you're flying the aircraft or watching the takeoff, the rotation angle and climb rate are impressive.

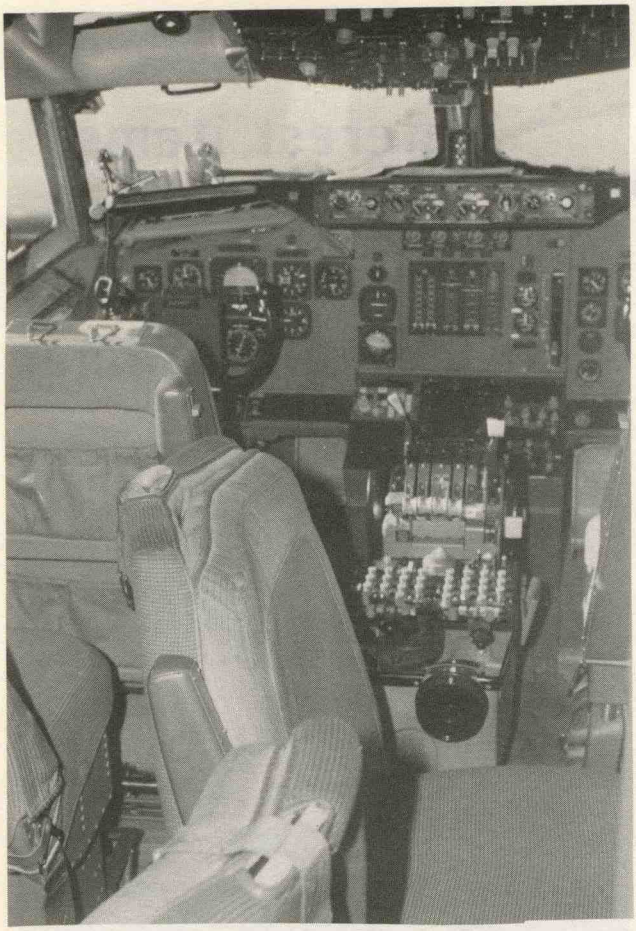
Additionally, the E-3A's air refueling platform is inherently stable. The pilot's primary concern during air refueling is to guard against the out-



The pilots have an uncluttered, well designed instrument panel and an independent flight director system. The forward aisle panel (knee level) contains the pilot's INS, weather radar, HF and UHF radios.



Unlike the 135 models, the E-3A has full leading edge flaps that are extended fully when the inboard flaps reach 6°.



The seats are comfortable but the cockpit is not spacious. Seat changes by students, instructors and crewmembers are restricted by this lack of space.

board engine's power exceeding the inboard power. This asymmetrical thrust, although controllable, can interfere with the smoothness of the contacts. It also keeps the boom operator awake!

In the traffic pattern, the E-3A maintains airspeed and requires relatively little power due to its clean design. A typical instrument pattern consists of: clean downwind (200 kts); base (25° flaps - 150 kts); final approach (gear - 50° flaps - 130 kts). The leading edge flaps and the inboard and outboard trailing edge flaps allow for the drastic reduction of airspeed on final. Unlike the smaller 135 models, the E-3A wings appear to unfold in all directions as these various flaps are extended.

Touchdown is normally much smoother than our commercial counterparts and requires very little braking after the speed brakes are extended. Since there are no thrust reversers or drag chutes for braking action, the brakes were designed to compensate for these deficiencies. With maximum braking, the landing roll can be reduced to less than 3,000 feet at normal gross weights and is accomplished without worry of "hot" brakes.

This has been a cursory glance at the E-3A and the flight crew. Space prohibits description of many other special features. The operational use of the E-3A will undoubtedly influence the concepts of future air warfare. We are glad to be aboard and look forward (as well as all other quadrants) to contributing to the TAC team effort.

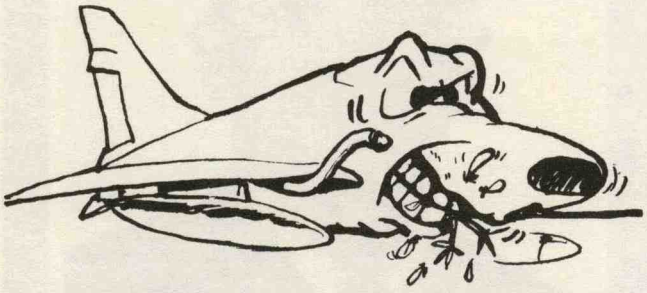
Major John P. Tagnesi (B.S. Marshall University) is an instructor pilot, 966th Airborne Warning and Control Training Squadron, 552d Airborne Warning and Control Wing, Tinker Air Force Base, Oklahoma. His previous service experience includes assignments with Strategic Air Command in B-52 aircraft and in Tactical Air Command with the 548th Special Operations Training Squadron. Major Tagnesi is a Senior Pilot with over 3,500 hours of flying time with 3 combat tours and 292 combat missions in the B-52 and EC-47.

TAC TIPS

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

The hardest thing in the world to open is a closed mind.

SUPER SABRE EATS BIRDS

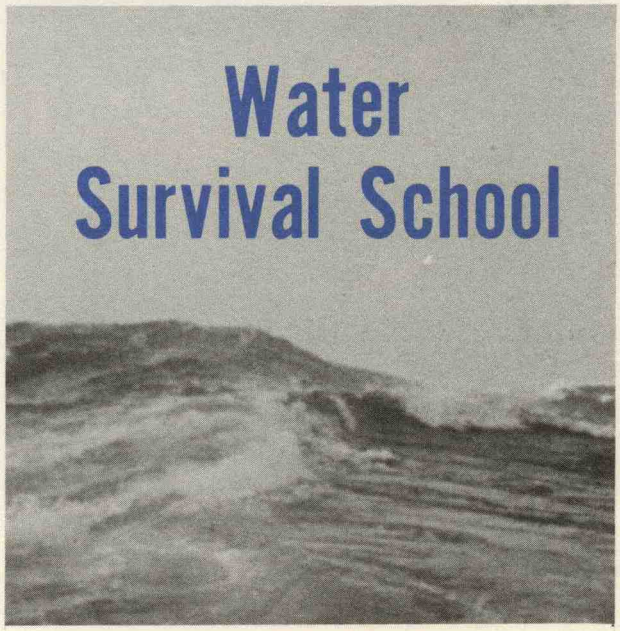


In the safety business, it's very easy to find dumb or bad things to write about because we don't often hear about the guys who do a good job. So hold onto your helmets, gang, and read on because — it's time for the good news.

The pilot of an F-100D was leading a formation takeoff when, just after becoming airborne (20 to 50 feet) at the 4,000-foot remaining marker, his Super Sabre gulped down numerous doves. The jock felt one very large compressor stall, engine surge and power loss, and saw fire coming from the intake. The pilot immediately initiated landing and abort procedures and set the aircraft back on the runway. He then released the tail hook and deployed the drag bag with approximately 2,900 feet of runway remaining. The BAK-12, located 26 feet into the overrun, was successfully engaged, and the aircraft came to a halt 430 feet later without damage.

This near-accident vividly illustrates the importance of having a plan of action for critical emergencies, such as aborts, before takeoff. There's no time for mental debate when you've just lifted off, and the runway available is rapidly diminishing.

Water Survival School



Formal water survival training for all rated aircrews is required by AFR 50-3, Course No. S-V86-A. Conducted at Homestead AFB, Florida this course trains aircrews in the employment of survival/life support principles, procedures, equipment, and techniques and will help aircrews survive over-water bailout, ejection or ditching, assist in their survival at sea, and aid in their safe recovery and return to duty.

Because water covers 80% of the earth, this training could very easily save your life. Unit training officers should review all personnel records to ensure that every aircrew receives this lifesaving training. USAF Water Survival Training is conducted by the 3613th Combat Crew Training Squadron, Homestead AFB, Florida, 33030. AFR 50-3 and AFM 50-5 provide information on policies, procedures, attendance requirements, and course contents. So, unless you can walk on water or have gills, have some fun in the sun and learn how to survive in 80% of the world — at water survival school.

and THINGS that go BUMP in the FLIGHT

The flight of two A-10s completed their mission without incident and returned to their base for a formation landing. Number two was on the right side and was to deploy full speed brakes after landing to increase nose-tail separation.

A few seconds after touchdown, number two noticed that he was overtaking lead. He checked the throttle in idle, increased aerodynamic braking, and applied right rudder and aileron. The pilot, new to the aircraft, apparently reverted back to habit patterns learned in his previous aircraft and failed to use the speed brakes as briefed. A few seconds after touchdown, two's left wingtip struck the upper right deceleron on lead's aircraft. The aircraft then separated, and the rollout was uneventful.

Number two had checked his runway alignment a mile and a half on final. This was the last time he checked his position until after touchdown. At that point, he noticed he was left of the center of runway . . . but too late.

It may be a good idea for all of us to review our formation landing procedures with emphasis on lateral separation requirements. It may also be time for a little self-reflection on how much we trust ourselves and our leads. My personal preference as a wingman is to keep checking my position with respect to the runway throughout the approach — it's a lot easier to do than riding through the grass or banging wingtips.

By SMSgt David E. Masters
5th Weather Wing Climatologist
Langley AFB VA

For many TAC people, the arrival of Ole Man Winter means ski trails, snowballs, football games, and hot toddies. But, in regards to the TAC flying mission, winter is not necessarily the season to be jolly. Ice, snow, strong winds, and other assorted "goodies" will probably contribute to a few accidents this winter. By "winterizing," we can all help to reduce the number of accidents and injuries this season.

For the maintenance supervisor, one of the biggest challenges in winter is assuring that his troops are properly attired when working outside. There's always one guy who rushes out into 20-below weather, wearing only a light jacket, to do some "quick and easy" task. Then he gets to the airplane and finds out the job will take about 2 hours — and starts on it. He'll never last 2 hours out there, and if the supervisor doesn't get him inside and properly clothed, he'll freeze his you-know-what off. Of course, even the best supervisor can't keep an eye

on everybody all the time, so the real responsibility for being properly protected is with each individual.

For the flying types, winter offers some unique challenges. Landing a fast-mover on an ice-covered runway can really put some zip in your day. It must be a real thrill to touch down a little long and hot and have blowing snow suddenly drop the visibility to zero just as you discover that melting snow has covered the runway with about a half inch of water!

What can we do about these wintertime fun and games? Since we can't change the weather, we can learn as much about it as we can — we can winterize.

In addition to weather observing and forecasting services, most local weather stations provide a recorded forecast over the telephone. The number to call is in the base telephone directory. Maintenance supervisors would do well to get the recorded forecast before sending personnel outside. These forecasts are usually updated every 6 hours or so, and more often if required. Supervisors should also insure that their personnel are aware of the wind chill factor. When temperatures are low, even the slightest wind can produce serious effects on exposed skin. A good rule of thumb is, for each mph of wind, subtract 2 degrees of temperature. For example, if the temperature is -15°F and the wind is blowing at only 10 mph, the equivalent chill factor is nearly -40°F. With a wind of 20 mph, the chill factor would be about -60°F! In addition to the chill factor,maintenance personnel must be aware that taxi and ramp areas can become ice covered; that at very cold temperatures, warm hands can easily freeze to metal and tools; and that loose, bulky clothing can be awkward to work in. Also, in very cold air, the danger of static electricity buildup increases. Contrary to popular belief, there is greater danger of fire in the winter than in the summer. The increase static electricity generation and the fact that spilled fuel evaporates more slowly, combine to create a real wintertime danger.

For the intrepid aviators, planning ahead and being prepared for whatever Ole Man Winter throws at you, is good advice. Practice and repractice those procedures you are going to need to move that bird around on slick surfaces. Preflight planning is extremely important in winter. Clothing requirements, aircraft and airfield conditions, the weather, and your available survival gear should all be thoroughly checked prior to "kicking the tires and lighting the fires."

That preflight weather briefing, sometimes done just to fill the squares, takes on a much greater importance during the winter. The local weather type will do everything he can to give you as much information as possible: present takeoff and forecast recovery weather; en route and refueling forecasts — even the next day's ice fishing forecast if you want it. But the weather guy just doesn't know your aircraft, or your mission, as well as you do. If there's something you feel he hasn't covered, ask questions. Explain why you are asking the question. After all, the more the forecaster knows about your aircraft and mission, the more he can help you — and the guy he later briefs, who is flying the same aircraft or similar mission.

Once you slip the surly bonds and get your mission underway, don't forget the weather man. The Pilot to Metro Service (PMSV) is a great way to exchange information about winter weather. Even if the weather is "as briefed," let the forecaster know via PMSV. Remember, for all the modern equipment available to him, the forecaster can't see the weather along your flight path. Pilot Reports (PIREPs) can be an extremely valuable tool to the forecaster, especially in the season of very changeable weather.

Fronts and low pressure systems can really get up and move out during the winter. When they do, things can go from bad to worse in a heck of a hurry. That Sierra Hotel weather you had on takeoff could suddenly become Delta Sierra. So, check with the ground-bound prognosticator as often as you can, both to give information and to keep track of what's going on up ahead and back home.

One more thing — when you've got the bird back, safely tied down,and all the paperwork done, remember that Ole Man Winter can conjure up some pretty nasty deals on the highway as well as the taxiway. Winterizing is just as important for driving as it is for flying. An aviator, maintenance man, or support troop killed or injured on the highway is just as great a loss as if the accident had happened on the ramp or in the airplane.

Winterizing is not just a buzz word. It's the preparation, both physically and mentally, for a season which is extremely hazardous to man and machine. Let's be ready for it when winter gets here.

chock talk

...incidents and incidentals with a maintenance slant.

BANG

Two egress specialists, a sergeant and an airman first class, were sent to an A-7 to accomplish a seat removal and replace a time change item. The proper checklist, 1A-7D-2-2CL-1, was being used. The sergeant was standing on a B-4 stand next to the cockpit reading the steps to be performed and supervising the airman, who was accomplishing the tasks. The removal had been accomplished without incident up to the point of installing the harness actuator safety lock. As this step was read, two other individuals climbed up on the stand and began talking to the sergeant about procedures for removing FOD which had fallen under the ejection seat of another aircraft. While the sergeant was talking about the FOD, the airman in the cockpit continued to perform the maintenance. When he attempted to install the harness actuator safety lock, he exerted enough pressure to move the sear which resulted in the firing of the MK 86 MOD Zero delay cartridge.

When you're working with, or near, explosive items, make sure you know exactly what you're doing. If you're supervising an operation and are interrupted, stop all the work until you are able to devote your full attention to the job being done. It'll save time in the long run.

PHLAMED OUT PHANTOM

An F-4 was returning to its home base from an auxiliary air field where the right engine had been changed due to an oil leak. Three miles on final approach, the pilot retarded the throttles to approximately 75 percent RPM and the right engine flamed out. Although a restart was accomplished, throttle movement was very stiff, and the throttle could not be advanced above 70 percent. The pilot flew a successful approach and landing. On landing roll, the throttle was moved to idle, but the engine remained at 70 percent. The throttle was then moved to cut-off, and the engine shut down normally.

The retaining bolt and cotter key that secured the throttle linkage were in place. However, the linkage had not been properly mated prior to the installation of the bolt and cotter key. This allowed the linkage to vibrate loose and become misaligned. When the throttles were retarded, the misalignment caused the fuel control to go to cut-off.

Two errors are apparent in this incident. First, the personnel who assembled the throttle linkage probably didn't follow the tech data and didn't have very much pride in their work. Second, the inspectors didn't do their job and failed to note the improperly installed throttle linkage.

We were lucky — this time. Let's not depend on luck. Take pride in your work, and do it right the first time. The aircrews are betting their lives on you.

ALLIGATOR CLIPS EAGLE

The F-15 was undergoing maintenance troubleshooting that required both engines to be run-up. The checklist was used to perform the pre-run walk-around inspection. Intake inspections were accomplished and documented. After start, the aircraft had been operating at 80% power for 3-1/2 minutes when the ground safety observer noticed another aircraft taxiing behind them. The man in the cockpit retarded the throttles and, as the RPM decreased, the safety observer noticed sparks coming from the right engine tail pipe. After shutdown, an intake inspection verified that the right engine had sustained extensive damage caused by the ingestion of a ground cable and alligator clip.

This was only the second F-15 engine run conducted by the engine operator and, although he used the Tech Data, he overlooked the CAUTION on page 2-2 of TO 1F-15-2-2-3 that says the ground cable should be moved aft of the engine inlet duct while the engines are operating. Because of one small oversight, that little ground cable and alligator clip cost us $145,977, one engine, a lot of extra work, and a small piece of combat capability. Not a fair trade.

STALLED EAGLE

An F-15 was in a 4-G right turn at 30,000 feet and .95 Mach when the left engine stalled. The engine then stagnated at 67 percent RPM, FTIT 970 degrees C, and fuel flow 300 PPM. The throttle was retarded to idle with no change in the engine parameters. The engine was shut down and successfully restarted at 25,000 feet, and the aircraft returned to base without further mishap.

During the investigation, a 15- x 8-inch piece of paper toweling was found neatly folded in the intake of the fuel flow transmitter. It was suspected that the inlet line to the fuel flow transmitter was disconnected while performing maintenance on other systems, and the paper toweling was used as a temporary dust cap while the line was disconnected. The paper toweling in the fuel flow transmitter inlet partially blocked the fuel flow to the engine which resulted in the stall/stagnation.

Just another case of people not doing their jobs right — the first time. Sure, it didn't cause any engine damage. But it cost quite a few people a lot of time and extra work to discover why the engine stalled/stagnated. It also cost us a valuable training sortie. When you look at it, shortcuts cost us more time. Is it worth it?

tell it all...

By General Robert J. Dixon
Commander TAC

Aircraft mishaps are usually caused by a mistake or a combination of mistakes. People — design engineers, maintenance specialists, aircrews, or supervisors — make mistakes. Accident prevention is essentially a matter of eliminating these mistakes and guarding against other errors.

The reason for a mishap investigation is accident prevention — not to place blame. Mishap causes are identified in order to prevent the same mistake from happening again.

Mishap investigations are totally dependent on accurate information. Information comes from physical evidence and statements of witnesses. Often, there are gaps in available data. Data can also lead investigators astray. Not much can be done about physical evidence — it is either there or it is not. Fortunately, trained specialists can get a lot of information from a very few pieces. Occasionally, this is enough. Usually gaps have to be filled in by witnesses — people.

This brings me to the point that I want to stress again — the need for *timely, accurate* and *complete* reporting by people with knowledge of any information that may have anything to do with a mishap.

We have had instances in the past in which people failed to provide such information. In one case, an investigation board was reconvened to consider information which came to light after the board had concluded and submitted its report. For some reason, knowledgeable people did not come forward during the initial investigation, and pertinent facts were not learned until the board reconvened.

What we need to get at, is the *"for some reason."* Apprehension, fear of reprisal, fear of incrimination? To allay such fears, I emphasize one important facet of aircraft mishap investigation — the area of "privileged information." In order to insure that people can provide truthful, accurate information to aircraft mishap investigation boards, all information collected by the boards is treated—*by regulations* — as privileged.

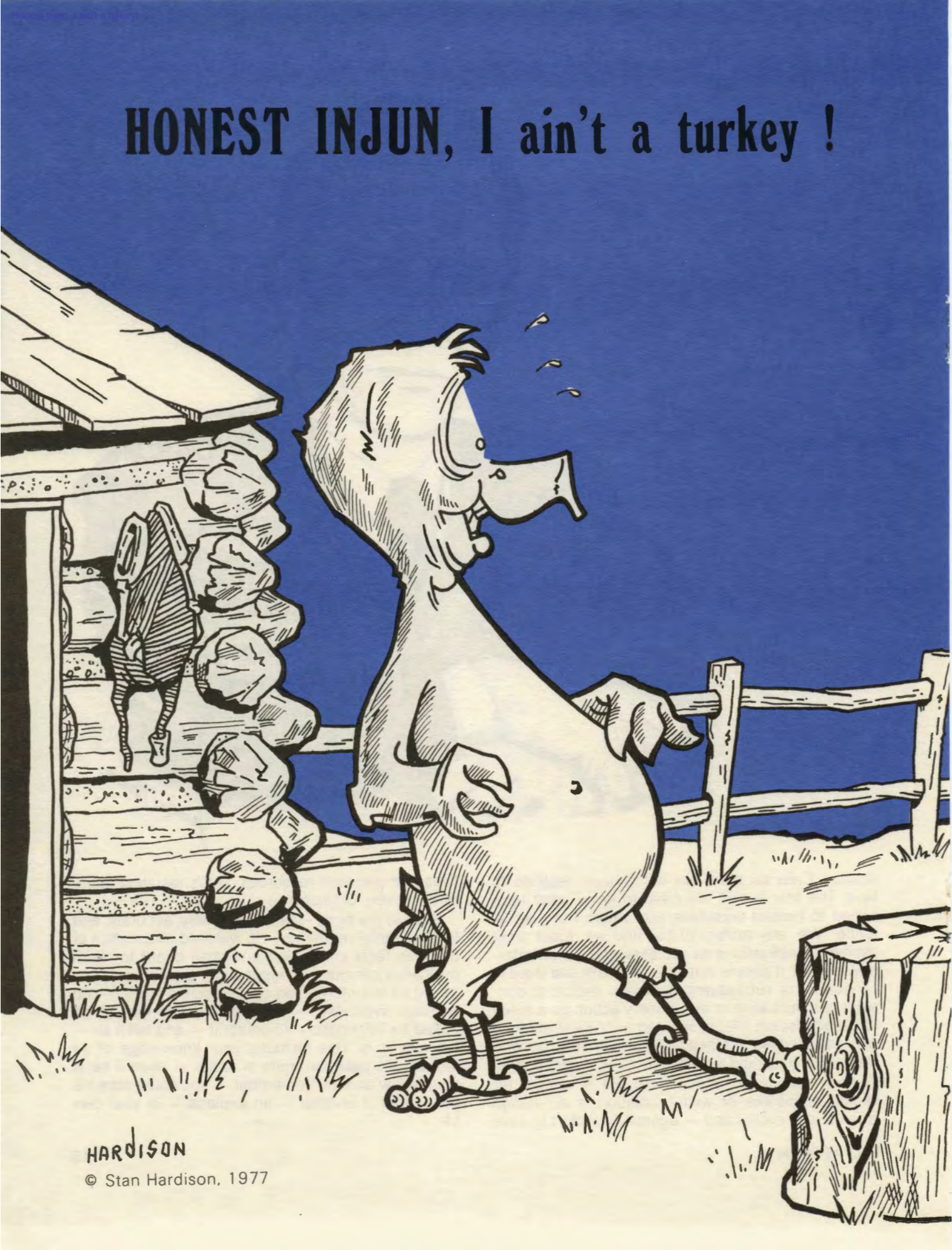
Information so provided cannot be used as evidence for determining misconduct, disciplinary action or pecuniary liability. It cannot be used in a Flying Evaluation Board. Another indication of the importance of total candor is the fact that witnesses before a mishap investigation board do not testify under oath. No one should evaluate the significance of a particular piece of evidence to a mishap investigation and decide to withhold it. Evaluation is the board's job. The board needs all the help we can give. Every bit of information contributes, and the board needs all that is available. Fitting the pieces together is their business.

It is true that we can conduct *separate* investigations if facts indicate there may be cause for administrative or disciplinary action. However, witness statements provided to an aircraft mishap investigation board *cannot* be used to *determine* these

actions. Even so, there are some basic realities to face. The first is that we *have* to know what happened to protect ourselves and others from recurrence. We are professionals and we must treat mishap investigations as professional — not fraternity — work. If people volunteer the truth and there is concurrent or subsequent, separate, reason to consider administrative or disciplinary action as a result of the admission, TAC is oriented *in favor* of the man who admitted his *mistake* — we can trust a man who made a mistake and admits it — he is, in fact proven human *and* proven professional. He is *one of us*. Hiding a mistake or willful violation is *an action against our profession* — against our effort to save lives and preserve resources. TAC's resulting orientation is very different.

Back to my point — we need timely, accurate, and totally truthful reporting — to withhold information or disguise facts could lead a mishap board to reach erroneous conclusions. Inadequate corrective action based on misinformation could result in more — and perhaps avoidable — mishaps. Do not wait to be called for information. Volunteer it — and tell it all — the way it is. This includes your knowledge of an individual's personal traits or faults — even if he is your fellow airman. Remember — you could save his life — that of another — an airplane — or your own life.

HONEST INJUN, I ain't a turkey !



HARDISON

it ain't a

"I have read several articles in TAC ATTACK recently that have been both interesting and informative. These articles were written by jocks who had experienced problems unique to the fighter pilot business. They had lived through these experiences and wanted to convey some lessons learned to other fighter pilots. This is truly how we learn! I, too, had a unique experience and would like to share the important lessons I learned with other fighter pilots."

By Lt Col William O. Harris III
192 TFG
Byrd Field, VA

At eight o'clock on the morning of 4 June, I was in the shower beginning my routine that would terminate in a smooth touchdown at Ellington AFB at 1130 local time. I was taking an F-105 to Ellington for a static display at an Open House on 5 June. The Thunderbirds were going to be there with a show, so I was looking forward to a super weekend. Another F-105 was going also, and our brief time was set for 0900 with an 1100 takeoff from Savannah (Travis Field) to head for Ellington.

We checked the takeoff, en route and terminal area weather, flight planned, and briefed. I felt thoroughly prepared as the two-ship formation of Thuds taxied out for takeoff at Savannah.

The engine runup, burner light, takeoff roll, climb out, and departure from Savannah were as advertised; and the whole mission seemed like a piece of cake.

We were cleared to flight level 280; I was leading, and as we progressed through flight level 260, a large explosion occurred in the aft

piece of cake!

section of my bird. My immediate thought was, "What the hell was that?" This thought was quickly followed by an uneasy quiet in the aircraft -- the winding down of engine instruments, the prominence of a fire light, and a call from my wingman that I was leaking a lot of fuel through every port and seam in the aft section. I answered quickly that I had flamed out.

Looking out over the state of Georgia, I noted the bird was presently over dense woods, and as I started to pick up glide speed, I pointed the aircraft to keep it over uninhabited terrain. Extending the ram air turbine in the F-105 insured that I had enough hydraulic pressure to move the control surfaces, and I had no problems handling the aircraft at glide speed.

Now through a very weak radio receiver came the call from my wingman that I was still leaking fuel, and that the fuel was burning. That was the last radio message I heard. About 15-30 seconds have elapsed now since the explosion; and with the engine indications, fire light, and knowledge from my wingman that there was a fire, I stopcocked the throttle and decided not to attempt an air start. I was now gliding "safely" at about 300 knots and decided to make a couple of turns to check for smoke and to determine the extent of the fire. The aircraft was controllable for the time being, so I started to mentally prepare myself for the ejection I knew must eventually come.

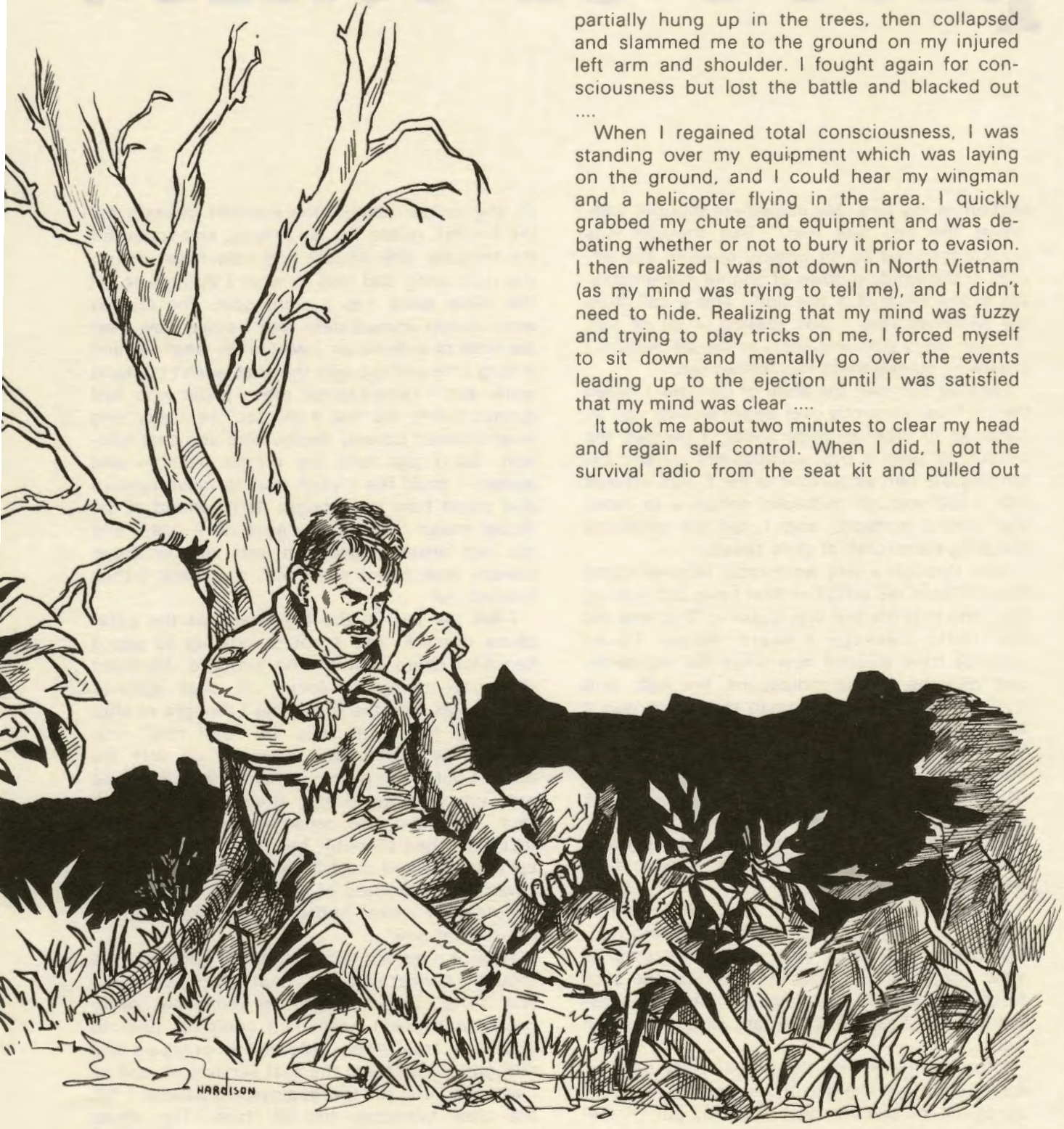
Passing through 16,000 feet, the controls started to stiffen up, and it looked like zero hour was here. I pulled the nose up in an attempt to slow down; and as I got the nose up, the stick froze. The nose was up, and the bird was slowing down as I started to prepare myself to punch out ....

I forced myself into the proper body position for ejection and caught myself leaving my heels up aginst the ejection seat. I quickly put my feet on the rudder pedals (the ejection position for the F-105), raised the leg braces, and squeezed the triggers. The aircraft had now fallen off on the right wing and was in what I thought to be the initial entry into a right spin. The canopy went almost immediately, and I could now hear the rush of outside air. I waited for what seemed a long time and thought the seat wasn't going to work; but I remembered other pilots who had ejected telling me that it seemed like a very long time between canopy deployment and seat ejection. So, I just held the proper position and waited. I soon felt myself start to move upward and could hear the "freight train" sound of the rocket motor lighting. My eyes were open, and my last visual impression was of the upper canopy bow about even with my knees. I then blacked out ....

I felt the jerk of the leg straps as the parachute opened, and I could look up to see a beautiful chute keeping me airborne. My mind was now trying to focus on post ejection procedures, and the first thing I thought of after checking the chute was the "pull four" maneuver. As I attempted to reach up with my arms, I felt a sharp pain in my left shoulder and arm which stopped my attempt at the "pull four." My mind now became occupied with the fact that I had probably been injured during the ejection and had most likely broken my left arm. I was in the process of feeling my left arm and shoulder for broken bones when I passed out for the second time ....

When I regained consciousness, gone was the thought concerning the "pull four." My mind was fuzzy, and I fought to remember other procedures that I needed to complete prior to eventual tree entry. My mind grasped the thought of deploying the seat survival kit, and as I was reaching for the deployment handle, I felt the tree branches hit my face. The chute

it ain't a piece of cake !



partially hung up in the trees, then collapsed and slammed me to the ground on my injured left arm and shoulder. I fought again for consciousness but lost the battle and blacked out ....

When I regained total consciousness, I was standing over my equipment which was laying on the ground, and I could hear my wingman and a helicopter flying in the area. I quickly grabbed my chute and equipment and was debating whether or not to bury it prior to evasion. I then realized I was not down in North Vietnam (as my mind was trying to tell me), and I didn't need to hide. Realizing that my mind was fuzzy and trying to play tricks on me, I forced myself to sit down and mentally go over the events leading up to the ejection until I was satisfied that my mind was clear ....

It took me about two minutes to clear my head and regain self control. When I did, I got the survival radio from the seat kit and pulled out

the antenna. The noise I heard from the radio was deafening, and I couldn't understand anything I heard. I then remembered the chute beacon, found the parachute harness, and turned the beacon off. The radio was now clear, and I could hear my wingman calling to me and to the helicopter on Guard channel. I answered my wingman, told him I was OK except for a banged up shoulder and arm, and asked if he could see me or my chute. He informed me that the trees were too dense to see me, but he knew generally where I was. I told him I could hear the helicopter, and that I was going to walk toward the helicopter noise. I started walking, radio in hand, and continued to talk to my wingman on the survival radio. I found a path and a road in the woods leading toward the helicopter noise, and I followed it until an Army helicopter crewmember met me and led me to the waiting chopper. I was taken to Robins AFB Hospital where I stayed for a few days prior to release and eventual physical therapy treatment back in Richmond, Virginia. My shoulder and arm were not broken, so a few weeks of physical therapy brought them back into good shape.

My reason for writing this article is to share an experience with you, and also to point out some bad errors I made due to confusion, shock, injury, or all of them put together.

FIRST: I was not as sure of my post-ejection procedures as I should have been. All fighter pilots know how to get out of a sick bird, but very few think it's going to happen to them. I submit that they do NOT pay enough attention in hanging harness training to have it all together for the parachute descent and eventual landing. If I had been more positive of those procedures, my mind could possibly have focused on them and prevented my blacking out a second time while I was in the chute. I'm sure I was in shock from my injury, but I still fault myself for not trying to attempt the "pull four" and also for not getting rid of the oxygen mask (I left it hanging from one side of the helmet).

SECOND: I did not deploy the seat kit and did not even think of it until just prior to tree entry.

THIRD: I did not prepare myself properly, or in time, for entry into the trees.

It's hard for me to fault myself for a poor PLF since the chute did partially hang up in the trees prior to releasing me onto the ground.

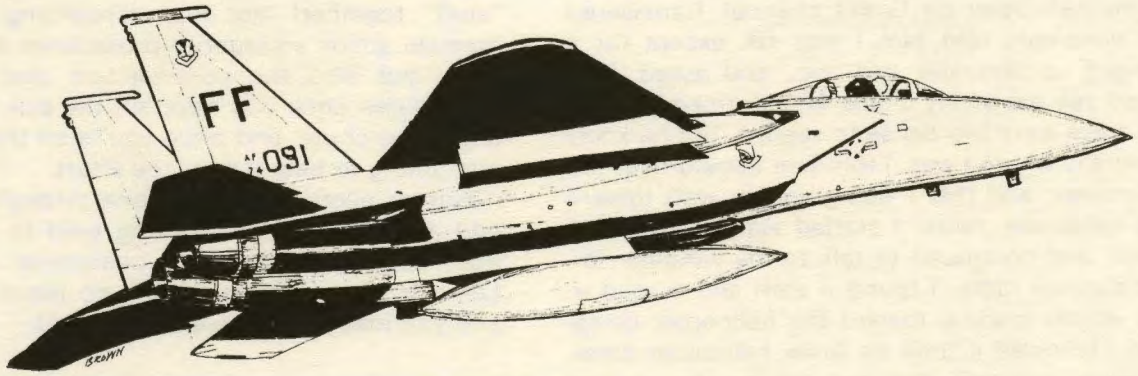
FOURTH, and most important, I only took the radio with me when I left my landing area. Even though I was sure I would be picked up soon, I should have kept the equipment and survival gear with me to facilitate my rescue.

Gain from my experience and get all your "stuff" together! Not just concerning the immediate action emergency procedures in the aircraft; but also the post-ejection and survival procedures once you have left the sick bird and are in the chute, and once you're on the ground attempting to help the rescue effort.

Fighter pilots who have gone through combat and are still alive and kicking tend to minimize their survival problems in peacetime -- DON'T. Learn from my errors. It ain't no piece of cake, and you may not be as lucky as I was. ➢

Lieutenant Colonel William O. Harris, III (B.S., United States Naval Academy) is the Air Force Advisor to the 192d Tactical Fighter Group, Byrd IAP, Richmond, Virginia. His service experience has included assignments as an instructor pilot (ATC), an O-1E Forward Air Controller with 600 combat missions, an F-105 pilot with 110 combat missions, an F-104 instructor pilot at the USAF/GAF Fighter Weapons School, Luke Air Force Base, Arizona, and a staff officer at Headquarters, Tactical Air Command. Colonel Harris is a graduate of the Armed Forces Staff College. His decorations include the Silver Star, the Distinguished Flying Cross with 1 Oak Leaf Cluster, the Bronze Star, and the Air Medal with 32 Oak Leaf Clusters.

F-15
Emergency Situation Training



By Maj Bill Tobey
1 TFW/SEF
Langley AFB VA

SITUATION:

While selecting both ABs during the heat of an ACT battle at FL 200, you hear and feel a loud bang. As you calmly scan the gauges, you observe the left RPM at 30 percent and the FTIT rising through 920 degrees. You pull the left throttle to Mil, then to Idle. The RPM does not recover, so you put the left throttle in Cut-Off. As the left engine cools to 500 degrees, you prepare for a restart but notice that you inadvertently allowed the RPM to decay to 3 percent, and your airspeed is decreasing below 250 KCAS while in level flight even though the right throttle is at Military. Although the right engine responds to throttle movement, the most RPM/FTIT you can get is 80 percent/450 degrees, and the nozzles are at 60 percent. Whatcha gonna do? (Assume Block 14 or earlier.)

OPTIONS:

A. Lower the nose and gain airspeed.
B. Select AB on the right engine.
C. Cycle the right EEC (Engine Electronic Control). If the malfunction still exists, EEC-OFF.
D. Cycle the right generator.
E. Cycle the right inlet ramp switch.
F. Eject.

DISCUSSION:

Your first concern should be attaining 12 percent RPM on the left engine. Therefore, Option A is required immediately to prevent further airspeed decay and to increase the windmill RPM of the left engine so you can get an airstart.

Option E should have no effect on your problem, and Option D won't help either. In fact, it may get very quiet if the emergency generator doesn't power up.

While you're accomplishing Option A, you analyze Options B and C. Option B is a possibility, but you run a high risk of stagnating the right engine -- then you'd really be up to your pits in Kimchee. Since altitude is not a critical factor at this point, you can disregard Option B -- for now.

Option C is a viable option. However, before cycling the EEC switch, pull the throttle back until the RPM starts to decrease and then push it back up a tad. This will prevent the possibility of an engine stall due to a throttle/RPM mismatch when the EEC tries to retrim the engine. If cycling the EEC doesn't correct the malfunction, operating with the EEC off may restore nearly normal engine operations below AB range. Remember, an EEC malfunction should be suspected whenever engine operation appears abnormal.

If Options A and C don't work, Option F may be the only answer. However, before you jettison your sick Eagle, give Option B a try. If the engine doesn't stagnate, you may be able to get sufficient airspeed for a restart on the left engine.

A sound and timely evaluation of a situation such as this is essential to avoid turning a problem into a major emergency.

AIRCREW of DISTINCTION

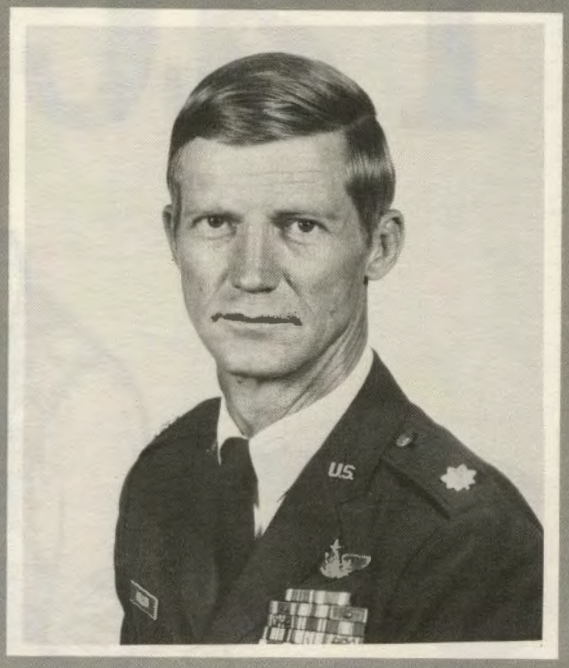
On 20 July 1977, Major Miller (IP) and Lieutenant Bryant (PSO) were flying as the number two aircraft in a three-ship F-111 training sortie which was to include air refueling and low-level navigation.

At the completion of the air refueling, the crew noticed a large reduction of thrust available and the right engine decaying towards idle. All attempts to recover the engine were unsuccessful. The airstart sequence was then begun; however, the throttle could not be moved out of the cutoff position. Afterburner was selected on the good engine in order to maintain altitude and airspeed, and a return to base initiated. During the return, all efforts to free the right throttle were unsuccessful.

As the descent for a single-engine approach was initiated, the left engine was retarded from afterburner to military power. Immediately following this throttle movement, the left engine RPM began to decay. Although Major Miller took the appropriate actions, the RPM continued to decelerate towards idle. As the RPM decayed through 50 percent, engine driven electrical power was lost which prevented normal radio or interphone communication and further compounded the situation.

With both engines now inoperative, Major Miller was forced to place the left throttle in cutoff to attempt a restart. The rapidly falling hydraulic pressure made loss of the flight control system imminent. Additionally, because of the loss of the pneumatic throttle boost, it took both hands to move the left throttle. Lieutenant Bryant held the control stick forward to attain as much windmilling RPM as possible while Major Miller effected a successful restart. The engine was then set at a stabilized power setting, sufficient enough to complete a single-engine landing.

The superior airmanship, prompt reaction to a critical inflight emergency, and professional competence demonstrated by Major Miller and Lieutenant Bryant resulted in the successful recovery of a valuable aircraft. Their actions qualify them as the Tactical Air Command Aircrew of Distinction.



Maj Delbert F. Miller
391 TFS/366 TFW
Mountain Home AFB ID

1 Lt Paul G. Bryant
391 TFS/366 TFW
Mountain Home AFB ID

Tac Prof

essionals

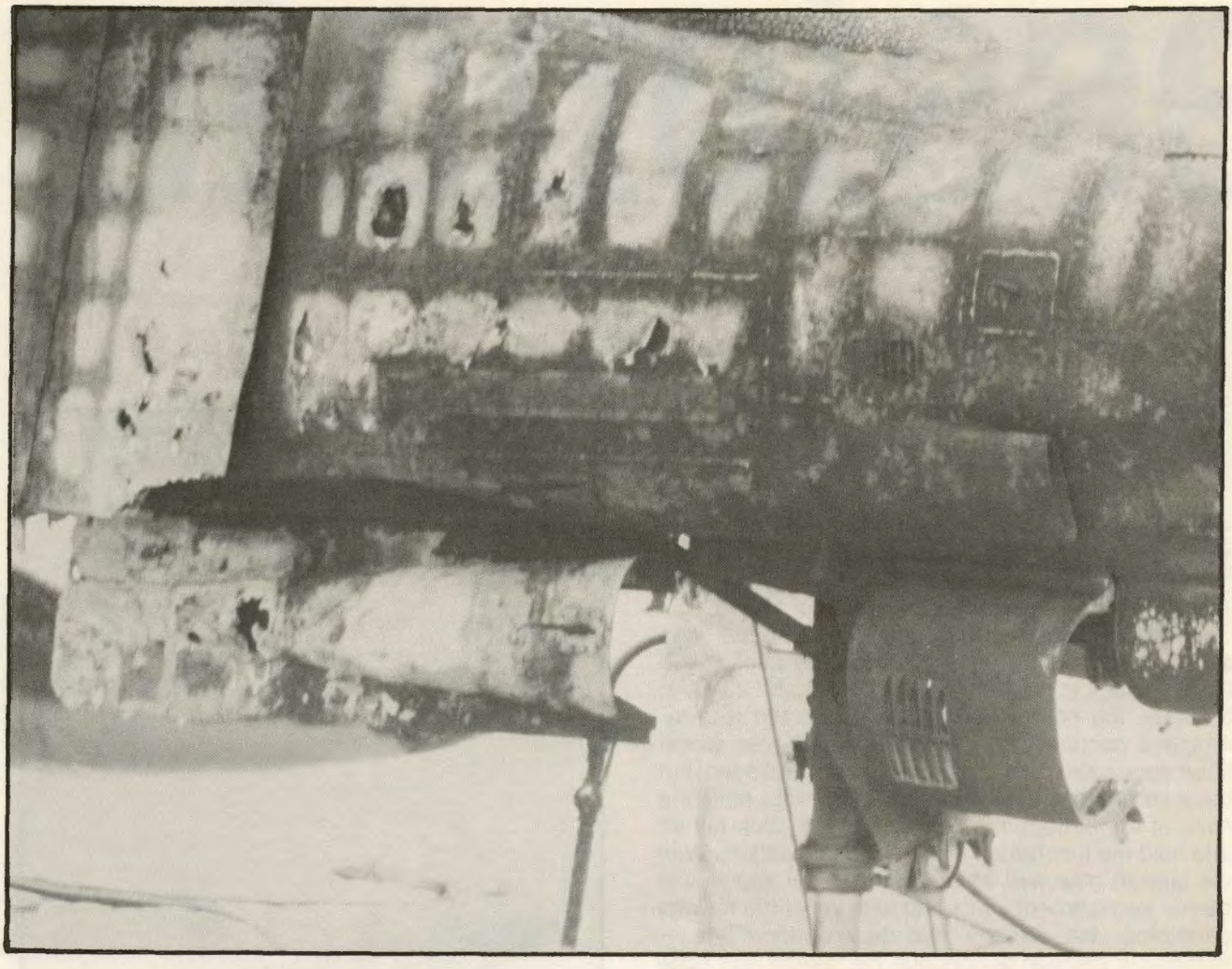
The Thud was scheduled for a Wild Weasel training mission as lead in a flight of three. Takeoff data had been computed for a 6,600 foot takeoff roll on a 10,000 foot runway with a liftoff speed of 188 KCAS.

Everything was normal until liftoff speed was approached during the takeoff roll. The pilot eased the pole back to rotate the aircraft to takeoff attitude; however, the nose wheel remained on the runway. Airspeed continued to increase beyond nose wheel liftoff speed and more back pressure was added, but there still was no rotation. In a final effort to raise the nose of the aircraft, the pilot pulled the stick full aft and held the trim button in the nose-up position. With the aircraft now well above both refusal speed and barrier engagement limits and with very little runway remaining, the aircrew had two options left — immediate ejection or continue the takeoff and hope for an eventual rotation and liftoff. The pilot elected to continue the takeoff for 500 more feet and alerted the EWO to prepare for ejection.

Moments later, at 205 KCAS, the aircraft abruptly pitched up and became airborne. The pilot smoothly applied forward pressure on the stick to prevent overrotation and found that the aircraft was slow to respond. Large control inputs were required to produce even a small aircraft response and moderate pitch oscillations ensued.

The pilot eliminated the oscillations and climbed to a safe altitude where he performed numerous controllability checks. After determining that only pitch control was affected, the pilot requested and received permission to attempt a landing at higher-than-normal approach and landing speeds.

A perfect approach and touchdown was flown, and the aircraft was stopped straight ahead on the runway. Investigation after landing revealed that a faulty hydraulic pitch actuator was delivering fluctuating



pressure to the horizontal stabilizer.

The aircrew's extraordinary airmanship and calm appraisal of an extremely hazardous situation clearly demonstrate professionals in action.

*****

Two crew chiefs were on the flight line performing as a launch crew when a fire broke out on their aircraft. The crew chief who was on the interphone to the aircrew told them to emergency egress. The fire rapidly began to go out of control; but despite the intense heat, and without regard for their own safety, both crew chiefs carried fire bottles to the burning aircraft and directed fire suppressant toward the cockpits in an effort to protect the aircraft commander and WSO during their egress. Only after both aircrewmembers had cleared the aircraft and the fire had reached such an intensity that the fire bottles were no longer effective, did the two crew chiefs leave their station.

Calm actions, teamwork, pride . . . call them professionals.

*****

Just after entering the low-level route, while at 480 knots and 1,000 feet AGL, the pilot of the number two RF-4C observed a large bird at 12 o'clock. The pilot attempted to avoid the bird; however, it impacted the center windscreen less than a half second after it was sighted. The center windscreen shattered and became translucent, and the major part of the bird entered the cockpit through the right quarter panel, striking the pilot in the right shoulder. The left quarter panel was covered with bird remains, making it opaque and unusable.

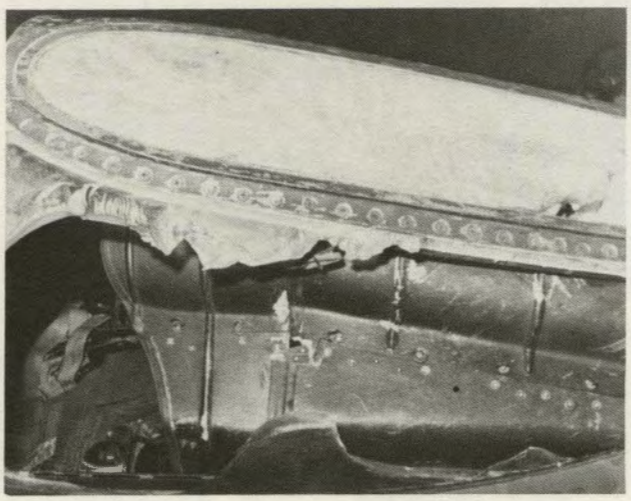
Although the aircrew's vision was obscured by glass particles and the bird remains which covered their visors and intercockpit communications were

extremely difficult due to noise, the aircrew was able to control the aircraft and initiate their prebriefed bird strike procedures.

The pilot elected to assume the lead position for the return flight because of extremely poor cockpit visibility and the limited use of his right arm as a result of the injured shoulder. Additionally, the center windscreen came loose requiring him to hold it in position to prevent it from separating.

During the return flight, the WSO monitored the aircraft systems for any further malfunctions and assisted the pilot with the flight controls. The fuel was reduced, and the aircraft set up for a straight-in GCA. Because of the restricted forward visibility, the pilot had to yaw the aircraft on final and look through the broken right quarter panel. A flawless approach and touchdown was flown, and the aircraft brought to a stop.

Both the pilot and the WSO displayed outstanding airmanship, perfect crew coordination, and took the correct action resulting in another demonstration of true professionalism.



*****

A weapons load crew chief and his crew were loading 20mm ammunition into an A-7 aircraft when he noticed smoke coming from the engine compartments of the ammunition loader/transporter which contained approximately 2,850 rounds of ammunition. The load crew chief ceased operations, and he and his crew pushed the loader away from the aircraft. He then dispatched his crew to evacuate the area and notify the Fire Department.

The load crew chief then removed the fire extinguisher from the loader, opened the hood, and found the compressor engulfed in flames. He quickly began battling the flames and extinguished them prior to the Fire Department's arrival.

Again . . . the actions of a professional.

*****

During the last pop-up attack on the range, the Range Control Officer informed the F-4 flight lead that smoke appeared to be trailing from his aircraft. After the flight rejoined, the wingman observed that it was fuel streaming from the left side of the lower fuselage.

A fuel check with the flight revealed that the lead aircraft was 1,000 lbs below the other flight members; and by leveling off at FL 210, the fuel had decreased to 3,500 lbs. Although the aircraft was headed towards the primary divert base, it was determined that it could not be reached due to the decreasing fuel quantity.

The pilot requested vectors to the nearest suitable airfield and retarded the left throttle which appeared to decrease the magnitude of the fuel loss. The only available aerodrome was a civilian airfield with a 6,400-foot runway.

A descent was initiated and on a 5-mile final approach, the fuel had decreased to 1,000 lbs. A successful landing was made utilizing the available runway, and the aircraft shut down with 800 lbs.

Excellent crew coordination, positive and decisive action . . . traits of TAC professionals.

These are vivid examples of TAC professionals in action. There are others . . . lots of them:

The engine mechanic replacing a turbine.

The Security Police directing traffic at a busy base intersection.

The graphics specialist preparing a briefing.

The tower controller handling air traffic at a busy TAC base.

The . . . what's your job?

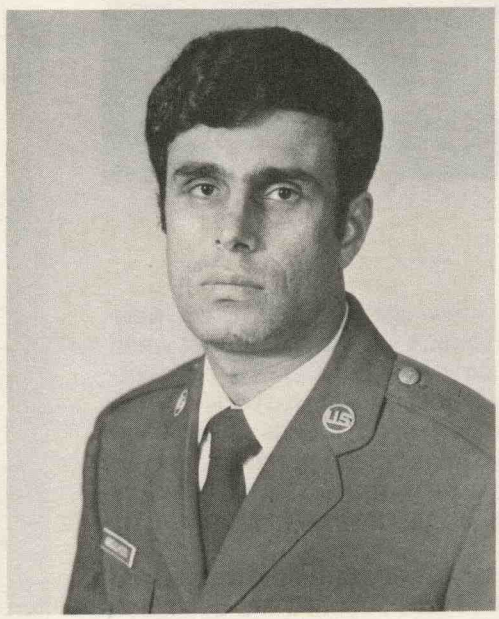
TAC SAFETY

INDIVIDUAL SAFETY

SSgt John E. Watts

Staff Sergeant John E. Watts, Sergeant Timothy A. Feiring, Sergeant Marvin Noel, Senior Airman George R. Chappell, and Airman Hafez W. Abhoulson, 1st Aircraft Generation Squadron, 1st Tactical Fighter Wing, Langley Air Force Base, Virginia, have been selected to receive the Tactical Air Command Individual Safety Award for this month. They will each receive a desk set and letter of appreciation from the Vice Commander, Tactical Air Command.

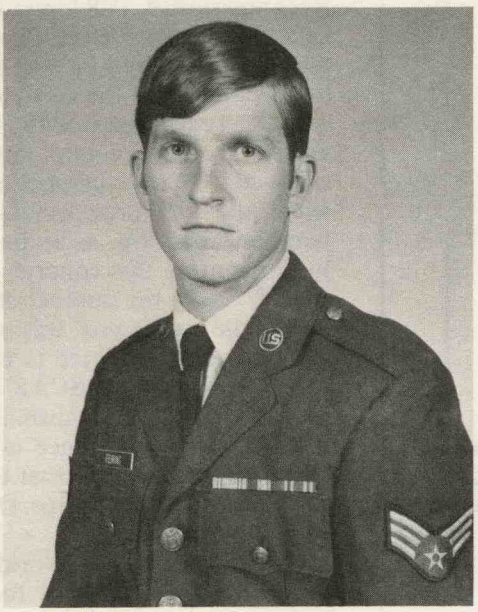
SrA George R. Chappell



Amn Hafez W. Abhoulson

AWARDS

AWARD



Sgt Timothy A. Feiring

Sgt Marvin Noel

CREW CHIEF SAFETY AWARD

Airman First Class Rosalie M. Bachman, 27th Organizational Maintenance Squadron, 27th Tactical Fighter Wing, Cannon Air Force Base, New Mexico, has been selected to receive the Tactical Air Command Crew Chief Safety Award for this month. Airman Bachman will receive a desk set and letter of appreciation from the Vice Commander, Tactical Air Command.

A1C Rosalie M. Bachman

LETTERS

Editor

Captain Jerry D. Coy's response to the April 1977 article on SCAR (Strike Control and Reconnaissance) by Major Steven Elm is most appropriate and deserving of additional comment. While learning from past experience is one of those motherhood and apple pie axioms everyone accepts, the Air Force, as an institution, seems to have a pathetic memory. All too frequently we remember the wrong lessons and forget those that have continuing value. Fast FAC, or SCAR, appears to be relegated to the latter category.

Captain Coy is absolutely correct in pointing out that SCAR is nothing new, and Major Elm was equally correct in stating that some variation has been "employed in every U. S. air war." In World War I, when artillery provided the long range firepower, the concept was named "Calling Fire." Observation aircrews would adjust artillery fire to destroy attacking German columns. During 1917-18, Calling Fire missions proved to be a decisive element in several major battles with up to 400 "strikes" being controlled. In World War II, the name changed to "Leading the Fighters"; and once again, in Europe, the concept proved to be the most effective means of destroying mobile targets. Following the breakthrough from Bastogne, this tactic set the single-day record for destroying mobile targets by striking 1,700 German trucks and armored vehicles. With the introduction of jet fighter-bombers in the Korean conflict, RF-51s were used in "Circle 10 Missions" to locate, identify, and mark mobile communist targets for the short-legged jets. As the cease-fire approached, success was again achieved with over 2,300 vehicles being destroyed in March of 1953. Most of us are familiar with Misty and Wolf, Atlanta and Bullwhip, Laredo, and many others associated with the Fast FAC/Visual Reconnaissance (VR) programs in Southeast Asia. Like the mythological Phoenix, the concept continued to rise from its own ashes.

The tenacity of the concept from war to war can be explained easily because the basic problem of locating and destroying mobile targets has remained unchanged. What is perplexing is the mechanism by which the Air Force decides which lessons to forget between wars. We, as an institution, seem relegated to reinventing this concept each time we fight. The tragedy lies in the number of aircrews that have been lost while relearning this unchanging lesson after having been committed to combat.

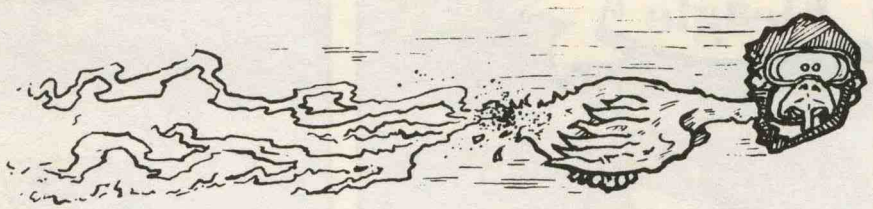
Yes, Captain Coy, SCAR is an "old" concept, but where is our SCAR capability today? Thanks to the foresight and persistence of former Fast FACs and VR aircrews, some of that capability is struggling to survive in the Recce force. Our hats off to all of those who have preceded us — World War observation crews, recce crews in World War II and Korea, and the Fast FAC in SEA — for they are the ones who truly solved the problem of using the airplane to destroy mobile targets.

Lt Col Kent E. Harbaugh
67 TRW/Chief, Operations Training
Bergstrom AFB TX

Dear Col. Harbaugh,
We couldn't have said it better. Thanks

ED

TAC TALLY



	TAC			ANG			AFR		
		thru SEP			thru SEP			thru SEP	
	SEP	1977	1976	SEP	1977	1976	SEP	1977	1976
CLASS A MISHAPS	5	23	25	1	9	7	0	1	2
AIRCREW FATALITIES	16	24	11	0	3	4	0	0	1
TOTAL EJECTIONS	5	21	22	1	9	4	0	1	1
SUCCESSFUL EJECTIONS	3	16	17	1	6	4	0	1	0
RATE COMPARISON		5.9	7.5		5.3	3.7		3.0	6.4

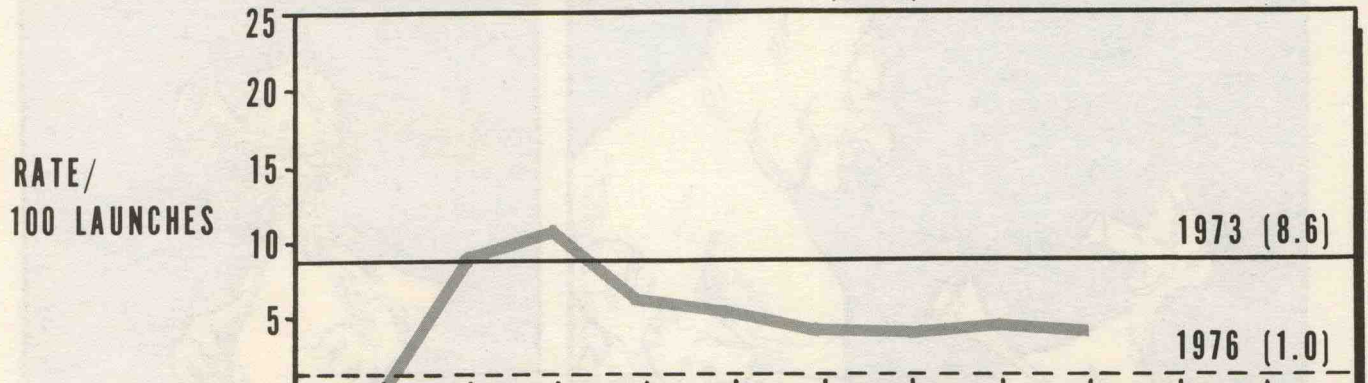
TAC'S TOP "5" thru SEP

TAC FTR/RECCE	
class A mishap free months	
23	4 TFW
17	474 TFW
15	56 TFW
12	67 TRW
11	35 TFW

TAC GAINED FTR/RECCE		
class A mishap free months		
66	127 TFW	ANG
32	156 TFG	ANG
27	117 TRW	ANG
21	434 TFW	AFRES
21	162 TFTG	ANG

TAC/GAINED Other Units		
class A mishap free months		
122	182 TASG	ANG
102	135 TASG	ANG
94	507 TAIRCW	TAC
91	193 SOG	ANG
83	110 TASG	ANG

REMOTELY PILOTED VEHICLE (RPV) ACCIDENT EXPERIENCE



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
CUM RATE	0.0	9.1	10.8	6.7	6.0	4.0	4.2	4.7	4.4			
NO OF ACDTS	0	3	1	0	1	0	1	1	0			

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Fleagle
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MAMA !!