

# TAC ATTACK

JULY 1977

July 1977

93.00



HAPPY FOURTH  
OF JULY

James H. Brown





FOR EFFICIENT TACTICAL AIR POWER



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### TACRP 127-1

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## Angle of ATTACK

# Summer Hazards

Summer is upon us and with it will come an increase in off-duty ground accidents. If we repeat last year's experience we can expect to lose 11 of our people and injure 275 others. Warm weather? Inevitability? Don't you believe it. Off-duty accidents are as preventable as on-duty accidents. Possibly more so.

One of the greatest hazards associated with the summertime is driving. Crowded highways, long hours of driving to get the most out of a three-day weekend, and the constant exposure to the "other" driver are a few of the many hazards. Falling asleep at the wheel is the greatest single killer on the road.

Water sports -- swimming, skiing, boating, scuba diving -- are great fun. Ignoring common-sense rules, however, will result in anguish, pain and grief. Wearing a life vest while skiing or boating, wading and diving only where you know

the bottom and swimming only in designated areas are some of the simple rules which will prevent a drowning accident.

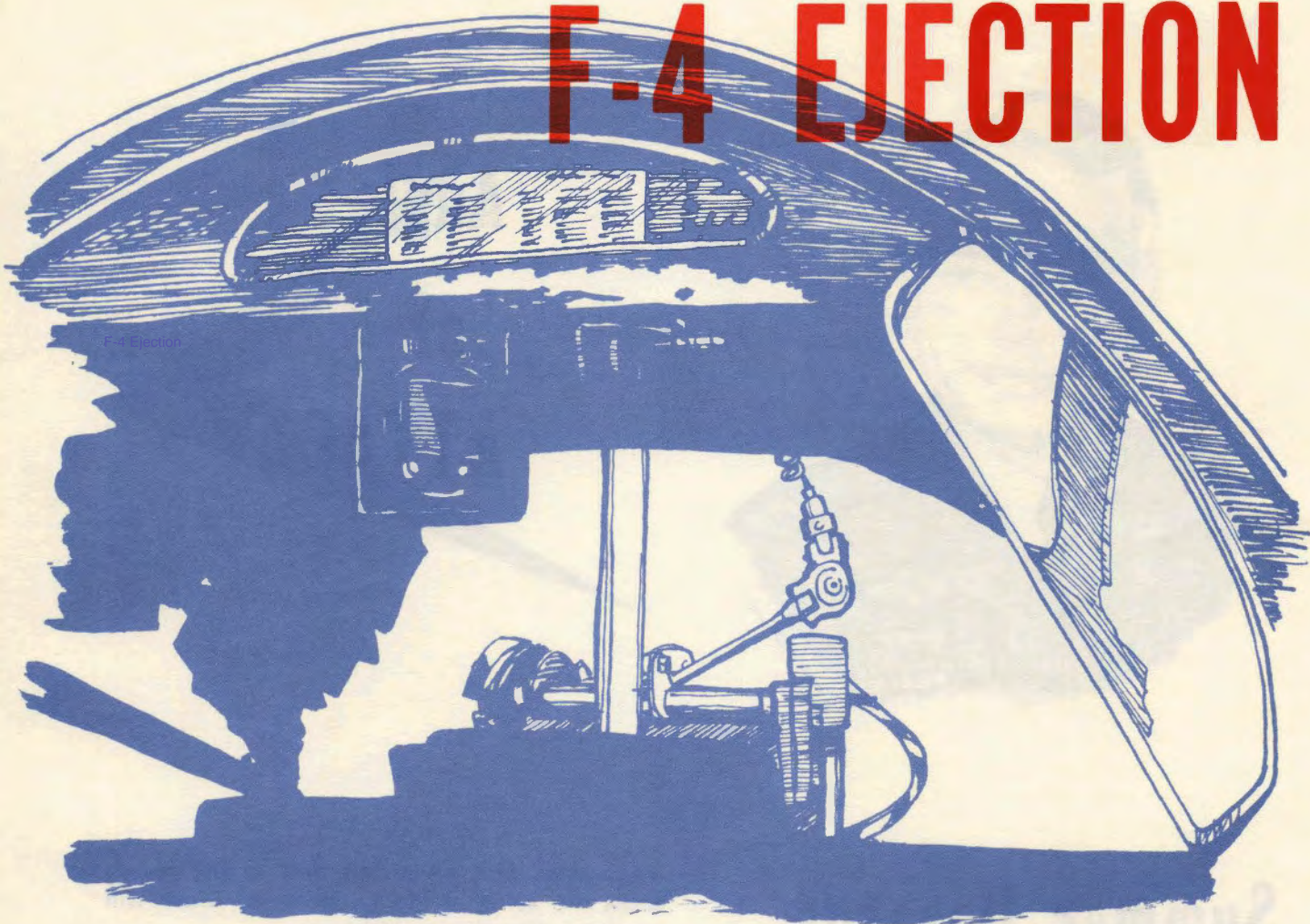
During the rest of the summer, we must not forget our responsibilities to ourselves and our loved ones. In order to meet that responsibility, we must have an awareness of the hazards intrinsic to summer recreation and then conduct ourselves in a manner that will not lead to personal harm or be injurious to others.

With the grim reminder of last year's victims, let's reassess our attitudes for a safe and enjoyable summer season. Leave nothing to chance. Keep yourself and your automobile in top condition. Have a good time -- but don't take chances. Your family needs you, your unit needs you, and I know TAC needs you. You owe it to yourself. ➤

*George M. Sauls*  
GEORGE M. SAULS, Colonel, USAF  
Chief of Safety



# F-4 EJECTION

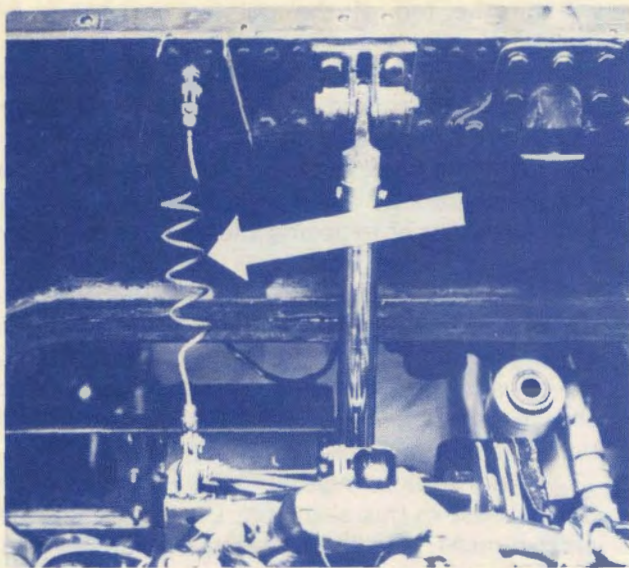


## ----With a Missing Interlock Block Interdictor Pin

**By Maj William M. Douglass  
4444th Operations Squadron  
Luke AFB, AZ**

**G**ear up, flaps up, rain removal off, hold it. Some motion in the area immediately behind the student's ejection seat caught my eye. Leaning down a bit and peering between the various boxes and lights, I saw that the front seat interlock block had come out of its normal position and was swinging loose at the end of the wire cable that secured it to the canopy. My immediate reaction, for some reason, was to reach





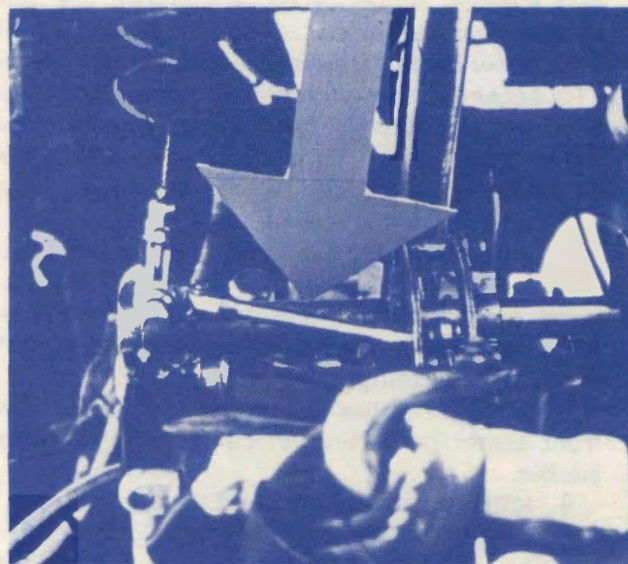
up and grab it. The location of boxes and the fact that I was wearing a flight jacket kept everything but my fingers from getting beyond the instrument panel. In a second or so, I realized that I did not have the training or the knowledge to fix a Martin-Baker ejection seat, in the air, on takeoff, and from the back seat. I advised the wingman to discontinue the rejoin and to move to a loose route position, told Phoenix departure that we were going to the fuel burn-out area with an inflight emergency, went back to tower and advised them of the nature of our problem, and asked the SOF (in the tower) to come up on my squadron common frequency. With our wingman coordinating the ATC clearances for us, we got some advice from the squadron and the SOF (we have a well thought out, single frequency procedure that allows everyone concerned with an inflight emergency to be "on the same frequency"), and started to orbit in the burn-out area.

Sure enough, "Murphy" stepped in, and we started to have some minor hydraulic and electrical problems. In checking on the status of the interlock block, I saw that the interdicator pin was starting to come out of its position also. The student had been kept advised of the status of his seat and showed remarkable progress in his learning of the various flying skills. In about 15 minutes, his flying skills had progressed from an above-average TR-11 level, through the above-average thunderbird level, and was now working at the John Wayne level of proficiency. The interdicator pin finally fell out of the seat but hung

up on something at the top of the seat. We burned our fuel down to landing weight, did the F-4 circuit-breaker ballet to fix the other problems, and set up for the landing. The student, who had been DNIF for the previous 11 days, greased it on, and an egress technician fixed up the seat in the dearm area. A happy ending to a medium-tense situation. But what would have happened if the problems we had in the fuel burn-out area had been more serious? Let's look at the ejection sequences/procedures available to an F-4 aircrew with a missing interlock block and interdicator pin:

1. What happens if the front seater attempts a sequenced ejection with his canopy still on the aircraft? This is probably the worst choice of ejection options because once the interlock block and interdicator pin are gone pulling either ejection handle will fire the seat, and the front seater would be at the top of the rail about .24 seconds later -- right through the canopy. The back seater will have a normal sequence. The problem that occurs is the front seater would be going through his canopy at approximately the same time as the RCP canopy was leaving, thus exposing the RCP occupant to the front seat's rocket blast and a collision between seats could possibly result.

2. What happens if the back seater tries a dual sequenced ejection? It would probably work out fairly well if everything went exactly right. The back seater's canopy should be gone about .3 seconds after the GIB pulls a handle, and he should be at the top of the rail some .24





# F-4 Ejection



seconds later. The GIB should be fully clear of the aircraft a total of .54 seconds after pulling the handle. The front-seat system would be energized after .75 seconds (time for the back-seat ejection sequence to take place). The seat itself has an additional .40 seconds delay built in to allow for the separation of the front canopy (.10 seconds difference between front and back canopies due to front canopy being heavier and larger); so, after 1.15 seconds, the front seat would be up and away. No trouble if everything went well. But since the interlock block/interdictor pin assembly is now gone, there is no safety factor built in. Therefore, if the canopy was delayed a bit, the front seat occupant could meet the canopy as they were both leaving the aircraft -- not a pretty thing.

3. Single initiated ejections? Back seat OK; front seater goes through canopy. Still not desirable.

4. Jettison front canopy and then:

a. Front seater initiates dual sequenced ejection. This might be OK, but the front seater

will hit the top of the rail (approximately 54 inches of travel) in about .24 seconds. Meanwhile, the aircraft's back canopy is in the process of separating (.3 seconds) with the back seater following right behind. Again, the possibility of front-seat/back-seat collision or a front seat/back canopy collision is high; and there is the possibility of exposing the back seater to the front seat's rocket blast.

b. A back-seat-initiated, dual sequenced ejection would be better. The back seater will be gone (at the top of the rail or 54 inches of travel) after .54 seconds, and the front seater should start moving 1.15 seconds from initiation. Everything should work out well.

c. Individual, single-initiated ejections might be the best in this situation. Let the back seater eject himself, and then have the front seater do his own. This provides plenty of separation and also minimizes the number of gas tubes and components used.

Although it is possible to eject through the canopy, there is a chance of incurring leg injury from the jagged plexiglass. You probably would not strike the canopy glass with your head because the seat is raked back. The housing on the top aft portion of the seat would be the first thing to strike and break the canopy. Additional head clearance is provided from compression of the occupant into the seat during seat acceleration.

To recap, with the interlock block/interdictor pin assembly gone; and the prospect of a possible ejection staring you in the face, I would suggest getting rid of the front canopy and then using the back-seat-initiated, dual-sequenced ejection in a critical-action emergency situation. If you're in a controlled situation, single-initiated ejections are the best choice. What happens if you notice the back seat interlock block and interdictor pin assembly hanging loose, and ejection is a very real possibility? Basically, it's the same procedure. Jettison the back canopy and use the individual, single-initiated ejection as a first choice. A front- or rear-cockpit-initiated, dual-sequenced ejection is a good backup.

Remember, the procedures used when the interlock block/interdictor pin assembly is missing are the same as those used if you lose your canopy. However, the best insurance against being placed in this uncomfortable situation is to perform a thorough preflight of your seat. This little ounce of prevention can save you from a few anxious moments in the air. ➤





# AIRCREWMAN OF DISTINCTION



**Lt Ronald L. Kukuruda**  
**146 TFS/112 TFG**  
**Greater Pittsburgh IAP, PA**

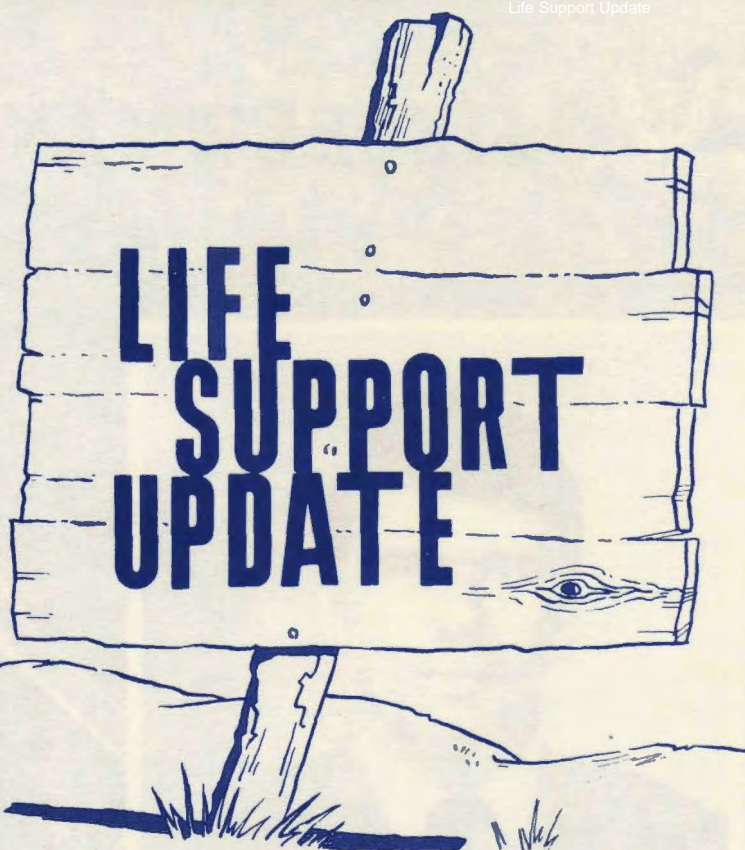
On 22 January 1977, Lieutenant Kukuruda was number three in a three-ship A-7D flight redeploying from Davis-Monthan Air Force Base, Arizona, to Greater Pittsburgh IAP. Runway conditions at Greater Pittsburgh necessitated recovering the flight at Rickenbacker Air Force Base, Ohio.

The flight was three miles out on initial at Rickenbacker (300 KIAS and 2,500' MSL), when Lt Kukuruda's aircraft started to compressor stall. The engine hot light illuminated and the turbine outlet temperature indicated TOT 800°. He immediately retarded the throttle to lower the outlet temperature. However, the TOT would increase rapidly at any attempt to advance throttle position. The throttle was again retarded and manual fuel selected; again, the TOT went out of limits when the throttle was advanced. Lt Kukuruda

returned the throttle to idle and concentrated on making the runway. With the airspeed decreasing and losing altitude, he did one 'S' turn, lowered gear and flaps at approximately 240 KIAS, and landed halfway down the runway. Lt Kukuruda secured the engine just prior to engaging the departure-end BAK-12. Initial investigation revealed a considerable number of turbine blades missing. Subsequent TDR findings determined a missing bolt in the airflow regulator caused improper inlet guide vane scheduling, resulting in a massive over-temperature condition.

The superior airmanship, prompt reaction to a grave inflight emergency, and professional competence demonstrated by Lieutenant Kukuruda resulted in the successful recovery of a valuable tactical fighter. His actions qualify him as the Tactical Air Command Aircrewman of Distinction.





# BPIR

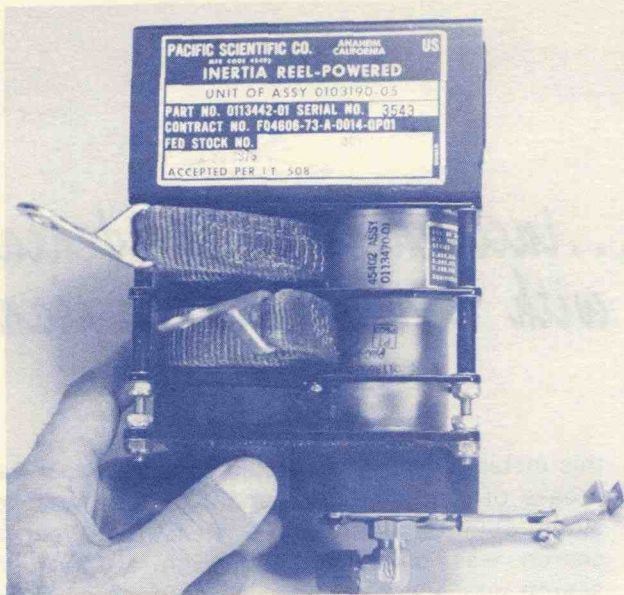
**By Mr. Mike Byers  
District Representative  
Pacific Scientific Company**

The ballistic-powered inertia reel (BPIR), installed on most ejection seats in the USAF inventory, is designed to reposition the aircrew before ejection and decrease the chance of spinal injury. The idea is to get the spine as straight as possible: If you're bent forward, the anterior (leading) edges of the vertebrae are relatively close together and the compression caused by the thrust of the seat rocket or catapult can crush the discs and injure the edges of the vertebrae. Without going into the nuts and bolts of the system, the BPIR functions by taking gas pressure, turning it into rotary motion, and winding up the straps on a spool. This pulls you back in the seat -- in about three-

tenths of a second! The drawing shows a cutaway of a typical BPIR.

While the ballistic function of the reel is important during an ejection, the reel must also operate as a restraint during normal flight conditions and provide protection during a crash or unusual maneuver by locking. The manual locking handle takes care of restraint during rough air, etc., and an inertial mass causes the reel to lock automatically at strap accelerations of two to three Gs. A few reels are vehicle sensitive, i.e., the reel senses Gs on itself rather than strap acceleration. In high-performance aircraft, this often causes problems because the reel can sometimes get enough Gs on it to lock during normal maneuvers, or even during taxi. Strap acceleration sensitive reels, on the other hand, must be carefully engineered into the ejection seat to insure that the strap geometry is correct; and the straps will always be able to feel the desired two to three Gs acceleration, regardless of whether the acceleration occurs in pitch, roll, or the fore and aft axis of the aircraft. It's annoying (and sometimes dangerous) for the reel to lock inadvertently in flight, but it's worse if it doesn't lock during a crash. The Life Support SPO (ASD/AEL), in conjunction with the using



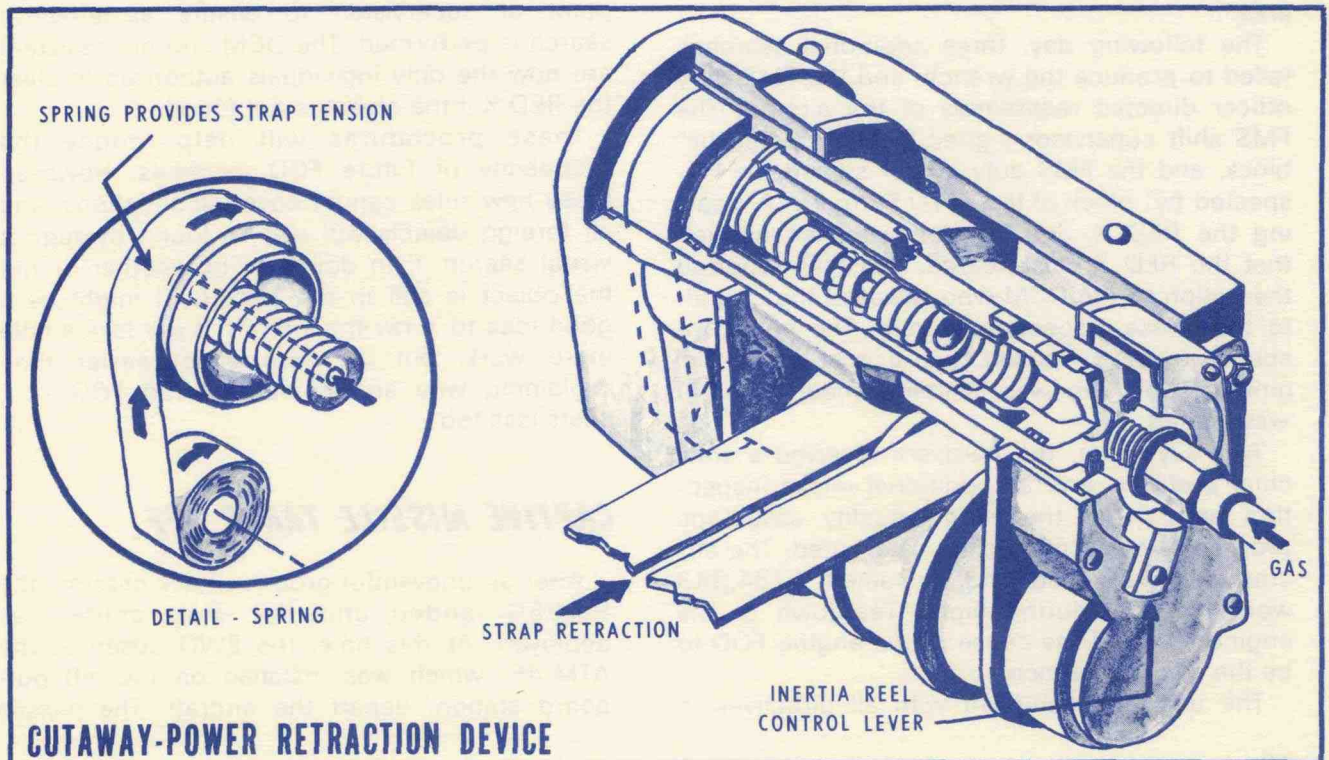


commands, is presently working on a new MILSPEC for BPIRs.

While there is little the aircrew can do to control the BPIR (other than ejecting or operating the manual handle), a few cautions will help increase the service life of the reel and generally make it easier to live with. Particularly on F/RF-4 seats, because of relatively complicated linkage between the manual control and the reel, adjustment of the linkage is critical. In many cases, failure of the reel to lock or unlock with the manual control is caused by poor ad-

justment of the linkage. The linkage should always be checked out first, as it's considerably easier to do this than to remove the reel from the seat. Also, because of space limitations, F/RF-4 reels are mounted with the spool vertical rather than in the usual horizontal position. The straps are rotated 90 degrees to allow them to come through the back of the seat correctly. If you find that the straps are being frayed rapidly, the problem is probably in the edge of the cover plate (not shown in the photo). A sharp edge on the cover plate will fray the straps; in this case, the plate should be replaced. San Antonio ALC is developing instructions for local repair of cover plates with sharp edges.

Caution should be used when removing the reel or seat to insure that the control linkage and lever mounted on the reel are not damaged. Damage in this area can result in a bent link and/or loosened control lever mounting screws. The plastic cam that supports the control lever is currently being replaced with a stainless steel cam which will allow the reel to withstand more abuse. The reel is pretty tough. It's designed to take a 4,000-pound ultimate load and a 2,600-pound proof load for testing, but it's not designed to take an impact on the end of the spool or on the control lever. Because of this, it's also important to insure reels are correctly packaged when they're shipped. With a little "care and feeding," the reel should last for a long time with only the straps and the gas generator needing replacement due to age. ➤





# chock + talk

*...incidents and incidentals  
with a maintenance slant.*

## **AARDVARK EATS WRENCH**

During the phase inspection of an F-111, a hydraulic actuator was discovered leaking. Two repair and reclamation (R&R) specialists, equipped with a tool box and five open-end wrenches, were dispatched to remove the actuator. After completing the job, only four open-end wrenches could be located. The fifth, a one-half inch open-end wrench, was missing.

The R&R specialists made a search, but could not find the tool. They immediately notified the shift supervisor who also conducted a search without results. He then notified the FMS duty supervisor and job control. A RED X entry was made in the AFTO Form 781A stating "one-half inch open-end wrench lost in left spike or intake area."

The following day, three additional searches failed to produce the wrench, and the FMS duty officer directed reassembly of the aircraft. The FMS shift supervisor signed the "Corrected by" block, and the FMS duty officer signed the "Inspected by" block of the AFTO Form 781A clearing the RED X. Job Control was then notified that the RED X was cleared, and they reported the action to the DCM who released the aircraft to the phase inspection branch. The phase inspection was completed, and a post-phase engine ground run was accomplished. No FOD was noted.

Two days later, the Aardvark received a crew chief preflight, and an additional intake inspection as part of the wing's quality assurance program. No discrepancies were noted. The aircraft was launched and sustained \$134,343 worth of FOD during flight. Teardown of the engine revealed the cause of the engine FOD to be the missing wrench.

The unit had complied with all directives in

this instance, yet the FOD still occurred. Just the breaks of the game? Not entirely. There was no single point of supervision to ensure an effective search was performed. Although a thorough search was accomplished, it was done by three different individuals who were unaware of the areas searched before.

As a result of this very expensive mishap, each TAC unit should now have local written procedures that ensure aircraft forms are documented with a RED X entry each time a lost object is suspected to be within an aircraft (TAC/LGM msg 072010Z Mar 77). Additionally, the entry will include a description of the object, when it was lost, where it was lost, steps taken to find it, etc. The aircraft must be impounded, and when a search for the item is conducted, the effort must be accomplished under a single point of supervision to ensure an effective search is performed. The DCM and his assistant are now the only individuals authorized to clear the RED X if the object is not found.

These procedures will help reduce the probability of future FOD incidents. However, these new rules cannot cover all situations, and all foreign objects will not be found through a visual search. If in doubt as to whether or not the object is still in the aircraft, it might be a good idea to X-ray the aircraft. It will take a little more work, but it's sure a lot easier than explaining why an engine received FOD -- it costs less too.

## **CAPTIVE MISSILE TAKES OFF**

After an uneventful ground attack mission, the F-105G landed and the drag chute was deployed. At this time, the EWO observed the ATM-45, which was installed on the left outboard station, depart the aircraft. The missile



skidded on the runway beside the aircraft for 3,000 feet before coming to rest.

The AGM-45 adapter pylon has specially designed rails to hold the training missile in place during flight. A metal detent retainer prevents the missile from sliding forward off the rails, and this detent is held in place by spring pressure of 1,900 - 3,000 PSI. Teardown of the pylon detent assembly revealed the nut had backed off from the detent spring clevis assembly reducing the snubbing pressure on the detent to zero. Only the last thread of the clevis assembly had been stripped. Since the nut could not be installed or removed fully using only finger pressure, it was determined that the nut had been improperly installed or torqued during the last teardown of the detent assembly, which had been done at another base.

If your unit uses this type of adapter pylon, it might be a good idea to check the adapter detent spring assembly nut for proper torque. It could prevent a captive missile from taking an unscheduled flight.

## OVERHEATED AARDVARK

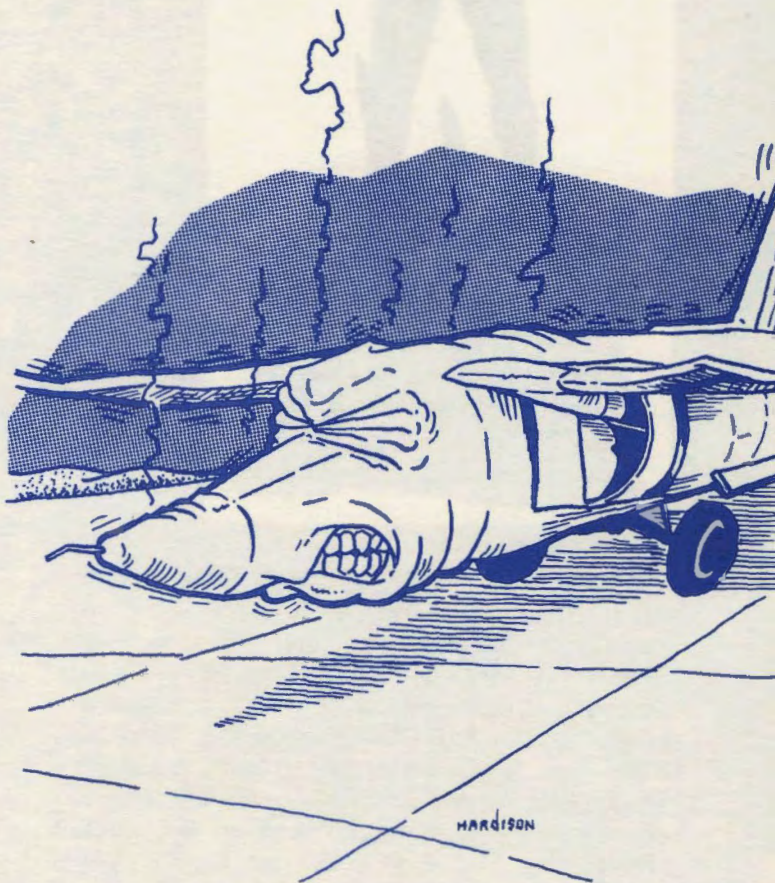
The F-111D was scheduled for a low level mission. During the descent into the low level route structure, the aircrew heard and felt a slight thump. All engine indications were normal, and the aircraft was leveled at 2,500 feet above the ground. Approximately two to three minutes later, the right engine oil hot light illuminated. The checklist procedures were accomplished, but the light remained on. The right engine was then shut down, an emergency declared, and the aircraft landed. The oil hot light remained on throughout the remainder of the flight.

The post-flight inspection revealed that the coupling on the 16th stage bleed air duct line at the forward bulkhead connection had failed which allowed the duct to separate from the bulkhead. After the duct had separated, 16th stage bleed air was directed on the underlying components, and the oil within the gearbox was overheated. This caused the oil hot light to illuminate. The light did not go out after the right engine was shut down because of the reverse flow of 16th stage bleed air from the left engine through the common "Y" connection. The reverse flow exited the bulkhead where the

clamp had failed on the right engine and continued to heat the oil and other engine components. The fire detection system was not activated because the concentrated airflow was not directed toward the fire detection loop.

The investigation also revealed that the failed clamp was not the correct part required by TO 1F-111D-4-6. The correct part number was MVC 62323-250. However, the part that failed was an MVC 62323-300 clamp. Although the parts are almost identical in appearance, the inner fairings of the -250 clamp are wider than those of the -300 clamp. The improper clamp was probably installed during engine installation six months prior. The clamp then slipped or became misaligned, causing stress on the clamp's spot welds. The welds then failed causing the clamp to come apart.

When you are performing maintenance, make sure you check the part numbers required by the TO with the parts received for the job. While parts can look the same, there may be subtle differences between the two which can cause a pilot a very bad day.





# awards

## KOREN KOLLIGIAN, JR. TROPHY



**Captain Robert G. Downs**

Captain Robert G. Downs, 50th Tactical Fighter Wing, Hahn AB, Germany, was presented with the Koren Kolligian, Jr. Trophy in a ceremony held in the Pentagon on 16 June 1977. Captain Downs was selected for the Award, given annually to the USAF aircrewmember judged to have most successfully coped with an inflight emergency, for his actions in averting a serious aircraft accident while he was an F-4 aircraft commander in the 4th Tactical Fighter Wing, Seymour Johnson AFB, North Carolina. Captain

Downs' aircraft was struck by lightning while flying in instrument conditions, which rendered all attitude and performance instruments except for the turn-and-slip indicator inoperative; caused an engine flameout and flight control transients; removed a 4-foot section of the vertical stabilizer; and forced him to execute lost wingman procedures. Through superb airmanship, he was able to regain control, climb to visual conditions, and rejoin with his flight leader for a formation approach and an uneventful recovery.



# CHIEF of STAFF INDIVIDUAL SAFETY AWARD

Staff Sergeant David A. Trezise, 823d Civil Engineering Squadron, "RED HORSE," was selected to receive the Chief of Staff Individual Safety Award for his outstanding contribution to the accident prevention programs of Tactical Air Command and the United States Air Force during 1976. By superior leadership, technical expertise, managerial skill, and direct personal involvement, Sergeant Trezise aided in accomplishing the mission successfully and safely. His efforts directly contributed to a 300-percent improvement in ground safety incidents within his organization during 1976.



# AVIATORS VALOR AWARD

Lieutenant Colonel Clarence R. Reed and Captain Victor G. Grahn, 27th Tactical Fighter Wing, Cannon Air Force Base, New Mexico, were presented the Aviators Valor Award by American Legion Aviators' Post 743 of New York.

The Award, established by the Post in 1953, is given for "a conspicuous act of valor or courage performed during an aerial flight, in or out of combat, by a rated Air Force member."

Lieutenant Colonel Reed and Captain Grahn received the Award for the successful emergency landing of an F-111D that was on fire and also had hydraulic failure. Although the aircraft flight manual recommends ejection for the emergency, the aircrew elected to attempt a gear-up, approach-end arrested landing rather than eject over a populated area.



Lieutenant Colonel Reed and Captain Grahn.



# PLACE THE FACE



This P-51 "Mustang" pilot scored 8.5 victories in 89 combat missions in the European Theater of Operations during World War II.

"Gadzooks, Batman, what a response to our May 'Place the Face' contest." Over 75 entries were received and only three got "gonged." Not too shabby.

The first correct contestant was even more of a surprise. Our winner wrote, "The personality pictured in this 'Place the Face Contest' is my daddy, Lieutenant General James V. Hartinger, Commander 9th Air Force." Captain James V. "Jimmer" Hartinger, Jr., Headquarters 125th Fighter Interceptor Group (ANG), Jacksonville,

Florida, will receive the coveted "Fleagle Fanny Feather of Fate Award" emblazoned with one of Fleag's own tail feathers.

This month, we bring you the photo of another well-known TAC personality, a P-51 ace -- can you "Place the Face"? Send your entry to:

TAC/SEPP  
Langley AFB, VA 23665

Be sure to include your name, rank, duty title, etc., and date your letter. Good luck! ➤



# DOWN TO EARTH!



## MOWER SAFETY TIPS

*(There is an old saying that goes along with this particular time of the year, "He who carelessly his front yard mows, can rapidly come up short on toes.")*

The point being, it's that time again -- you can almost hear the grass growing, it's sprouting so fast. So, it would appear that a few safety tips on the operation of power lawn mowers is in order. No computer statistics are available to list the number of mower accidents that occur each year, but it goes without saying that folks do get hurt doing yard work. The following information, if used, can help prevent such occurrences:

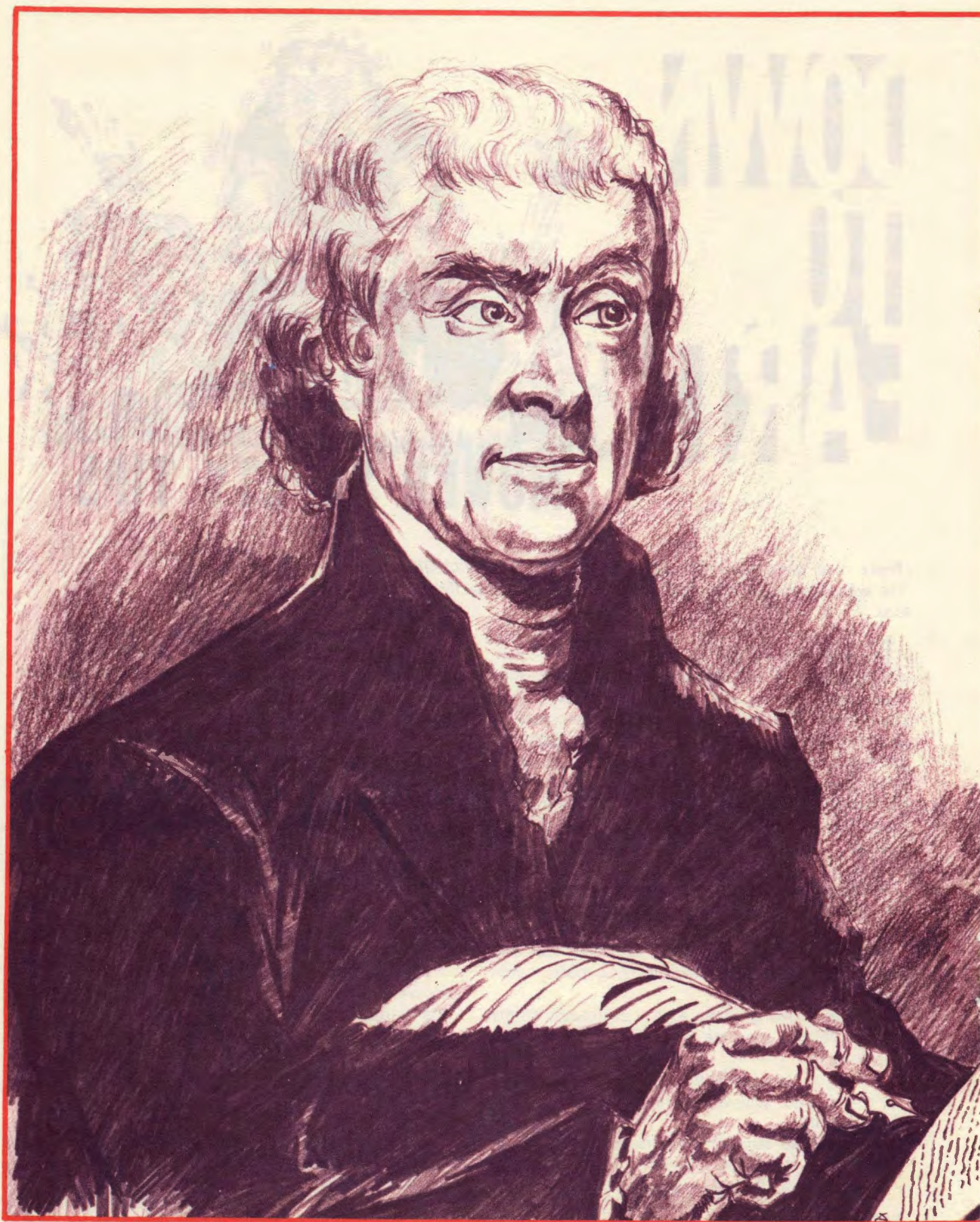
- Inspect the area to be mowed before beginning. Clear the grass of stones, wire, glass and other debris which may become missile hazards.
- Keep small children, pets, and your feet and hands clear of the mower's moving parts when starting.
- Wear shoes of some sort -- preferably safety shoes. NEVER operate a power mower when barefooted.
- Keep in step with the mower. If you lag or let it pull you, you won't have full control over the machine.
- Always be sure of your footing on inclines. The steeper the slope, the more care is required -- especially if the grass is damp. Don't pull the

mower towards you down an incline, mow across the slope.

- Excessive cutting speed of the mower blade is dangerous -- don't overspeed the engine by tampering with the governor.
- Never permit small children to operate a power mower. They may be smart enough, but they lack the physical strength necessary to handle the machine.
- Learn to disengage the clutch or stop the motor quickly in an emergency. Always secure the motor when finished.
- When grass is wet or it's raining, do not use an electric power mower. Also make sure an electric mower has its frame grounded through the cord.
- Disconnect the spark plug wire on the mower whenever working on it or unclogging the blades.
- Don't refuel a mower when the engine is hot. Also allow the mower to cool before storing it and ensure that it is stored in a well-ventilated area.

These guidelines will insure you of two things: a nicer looking lawn; and, the right number of fingers and toes. Give 'em a thought. ➤







*'Whensoever hostile aggressions... require a resort to war,  
we must meet our duty and convince the world that we  
are just friends and brave enemies.'*

*Thomas Jefferson*





# DIIV7 DI7 DUV7-RI7 PHYZ-BIZ



*Last month Lt Col Andersen discussed the historical background of alcohol use, how alcohol is absorbed by the body and how it affects the various physiological functions of the body.*

*This month, we'll take a look at the interaction of alcohol and some other common drugs, and see how that "Cup that Cheers" can become that "Cup of Death".*

ED

## *The Cup that CHEERS*

### Part II

**By Lt Col Harold Andersen**  
**HQ TAC Physiological Training Coordinator**

The probability that you are a drinker is overwhelming. Conservative estimates conclude that over 75 percent of all Americans consume alcohol and that 70 percent of these use it on at least a weekly basis. Non-drinkers (tea totalers), who are outnumbered by drinkers by more than 3 to 1, abstain from alcoholic consumption for a variety of reasons ranging from religious prohibitions to health convictions. The great majority of drinkers are categorized as "responsible" drinkers, as opposed to "problem" drinkers and/or "alcoholics." Presumably, the responsible drinkers are home free with no problems. However, approximately seventy-five percent of

these responsible drinkers treat themselves at home for what are known as "common complaints" -- and there's good probability that alcohol and various other drugs may be consumed simultaneously. In fact, recent research indicates that most of the "alcohol - other drugs" incidents involve the moderate or responsible drinkers; and few, if any, recognize the capability of their alcoholic beverages to alter the pharmacological properties of the other drugs they may be taking.

If alcohol and certain other drugs are taken together, or so that their effects are exerted at the same time, the response produced is greater than the predictable effect of the two drugs. This is called a "potentiating" effect; and alcohol/drug interaction can cause a reaction as great as 10 times the effect of either substance acting alone -- strong enough of a reaction to result in



death. It has been proven that alcohol is directly involved in 50 percent of all highway fatalities and it may be indirectly involved in many more as the result of interaction with other drugs.

Let's briefly review some of the drugs which aircrews may use, prescription and non-prescription, and examine the results of their interaction with alcohol.

Some of the more dangerous combinations are called "sedative - hypnotics" such as barbituates (Phenobarbital and Lumanil). Also included with them are the minor tranquilizers, Valium and Librium. When these drugs are combined with alcohol, they have an overwhelming depressant effect and death can result from depressed cardiac functioning, respiratory failure and vasomotor collapse. Hospitals report that Valium is involved in more instances of abuse than any other drug.

Narcotic analgesics (pain killers), such as Darvon and Demoral, can depress central nervous system functioning and cause death by respiratory collapse when used in combination with alcoholic beverages.

The sulfanimides and chloramphenicol, which are used as antibiotics, can cause severe reactions such as: nausea, vomiting, headache, high blood pressure, erratic heart beat and possibly death.

Diuretics (Diuril, Lasix, Hydromox) and anti-histamines and anti-depressants, such as Elavil, Norpramin, Sinequan, etc., make the operation of vehicles or machinery hazardous due to the sedative effect of alcohol and the adverse effects on psycho-motor skills of the anti-depressants.

Even common, every-day substances such as aspirin and sodium salicylate can cause problems. Both of these substances tend to cause gastro-intestinal bleeding and the consumption of alcohol will aggravate the condition. Anti-coagulants are potentiated by alcohol to such a degree that ordinarily prescribed doses can lead to life-threatening hemorrhages.

The above list is not intended to be exhaustive, but it should convince everyone that alcohol, in combination with other drugs, can be doubly hazardous.

Undoubtedly, the most prominent aspect of the subject of alcohol use/abuse is the condition called "alcoholism". It is defined as "a chronic, pathological, behavioral disorder manifested by repeated drinking of alcoholic beverages in excess of the dietary and social

uses of the community and to an extent that it interferes with the drinker's health or his social or economic functioning." The life expectancy of the alcoholic is 10 to 12 years shorter, and their mortality rate is at least 2.5 times greater, than that of the general public. In fact, alcoholism is cited as being responsible for more than 13,000 deaths each year.

The answer to the question, "How does one become an alcoholic?" is both complex and far from established fact. In the final analysis, the abuse of alcohol stems from the combination and interrelationship of physiological, psychological and sociological factors, and the details are beyond the scope of this article. However, alcoholism is recognized as a disease, and the Department of Defense Directive 1010.2, "Alcohol Abuse by Personnel of the Department of Defense" recognizes it as both preventable and treatable. The DOD policy includes: prevention of alcohol abuse and alcoholism, restoration to effective functioning of abusers, and the humane management and disposition, including treatment and rehabilitation, of those who cannot be returned to active duty.

The Navy and the Air Force have inpatient care at some large medical centers and treatment includes: individual and group counseling; behavior modification; administration of Antabuse; and, the use of Alcoholics Anonymous.

Help is available for those who need it. Evidently, the program is effective because it is claimed that 66 percent of those treated recover. So, if you are a drinker who:

- drinks to solve problems.
- needs a drink to get started in the morning.
- gets so drunk that medical attention is required for "falling down" injuries.
- drives your car while plastered.
- does things while drunk, and then can't remember them later.

then you should be involved in the DOD program -- NOW! And for those who consider themselves as "normal" drinkers, remember the difference between you and the alcoholic may only be a few ounces of booze.

Not very long ago, a group of anti-gun types attempted to have cartridges declared a "hazardous substance" and banned from sale. It seems to me that many more lives, thousands of lives, could be saved (not to mention your tax dollar) if the same consideration was given to alcohol. The "cup that cheers" is definitely more hazardous to your health than firearms. ➤



# TAC TIPS

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

## **PHOTOCHROMIC LENSES...** ***not too good for flight crews***

You may have seen ads about the new "photochromic" sunglasses. This new innovation to the flying equipment scene uses a new type lens which can be fitted into both sunglasses and prescription eyeglasses. The ads claim two advantages: (1) convenience of having a tint which varies with the ambient light; and (2), one who has to wear prescription eyeglasses is able to save the cost of buying a second pair of tinted lenses.

What the glowing advertisements do not tell you, is that there are certain serious drawbacks while driving and flying. Let's examine some of the basics of why and how these glasses work. First, any pair of tinted glasses should transmit no more than 25 percent of visible light. However, a number of photochromic lenses cannot achieve this requirement. The cockpits of many aircraft are sometimes well-shadowed and this, together with the ultraviolet filtration effect of the cockpit windshield, may not allow sufficient penetration to activate the photochromic effect. This is the "automatic" change in tint of the photochromic lenses which responds to light brought about by microcrystals of silver halide locked in the glass. The ultraviolet content of the sunlight darkens the halide; but unlike in photographic film, the process is reversible. Thus, the silver halide tends to become colorless again when the level of light is reduced.

There are currently two main varieties of these lenses, one being darker in appearance than the other. However, both have a variable tint which changes the amount of sunlight available. When exposed to a brighter or dimmer light, the change in tint of photochromic lenses is far from rapid. Under test conditions, lenses

removed from sunlight were 50 percent clear in five minutes and 75 percent clear after 20 minutes. Even after hours in darkness, the lenses may never achieve more than 80 percent clarity. In some varieties of lenses, the tint is not intended to clear beyond a certain density, and the lenses will always remain somewhat darkened.

The human eye can maintain a constant acuity of vision over a wide range of light intensities. But below a certain level -- about moderate room illumination -- visual acuity falls steeply with reduced light. Also, any transparency placed between the eyes and the object being looked at has the effect of reducing the effective illumination in proportion to its optical density. For these reasons, any material of reduced transparency, such as sunglasses or a tinted windshield between the pilot and the exterior of the aircraft, will reduce his visual performance somewhat in clouds, and significantly more at dusk or at night.

A pilot who has been wearing photochromic glasses in sunlight will find his vision impaired if he flies into clouds or deteriorating weather because the external light intensity from the sky diminishes faster than the lense can recover. The pilot who wears prescription photochromic lenses at night, believing that they are truly clear, is also at a visual disadvantage, though he may not realize it.

On this point, consider an accident that occurred recently. A pilot wearing antiglare spectacles, was flying towards the setting sun above a cloud layer. After making an instrument descent through clouds approaching his destination, he found light intensity to be much lower than he expected. He experienced some difficulty in seeing but because his radio earpiece was attached to the frame of the glasses and he had to maintain radio contact, he did not take the glasses off. His glasses were a causal factor



in the accident report.

Pilots buying antiglare glasses, prescription or not, should ensure that their lenses are of nonpolarizing material and the tint dark and neutral. If a pilot uses a headset for flying, he should wear it while trying on the glasses to ensure fit and comfort.

In extreme circumstances, pilots flying with photochromic glasses may end up flying "blind" and may not even be aware of it. The practical solution to this unsafe possibility is straight-forward:

Have a clear pair of prescription glasses readily available, and if so desired, have an alternate pair with antiglare tint wherever you fly.

NOTE: Air Force aircrews are prohibited from wearing photochromic glasses during flight. (AFR 167-3) ED  
Adopted from Pan American CROSSCHECK Mar 77

## HUN BITES THE BULLET

The flight of three F-100s had completed four bombing passes without incident and had set up for low-angle strafe. On the pull-off from the first pass, as the nose of the lead aircraft (an F-100F) passed through the horizon in a right turn at 400 ft. AGL, the front seat pilot noticed a series of white streaks emanating from the forward canopy bow and progressing aft. Almost instantaneously, there was an explosion which disintegrated the forward half of the canopy bubble. The pilot leveled the wings while he

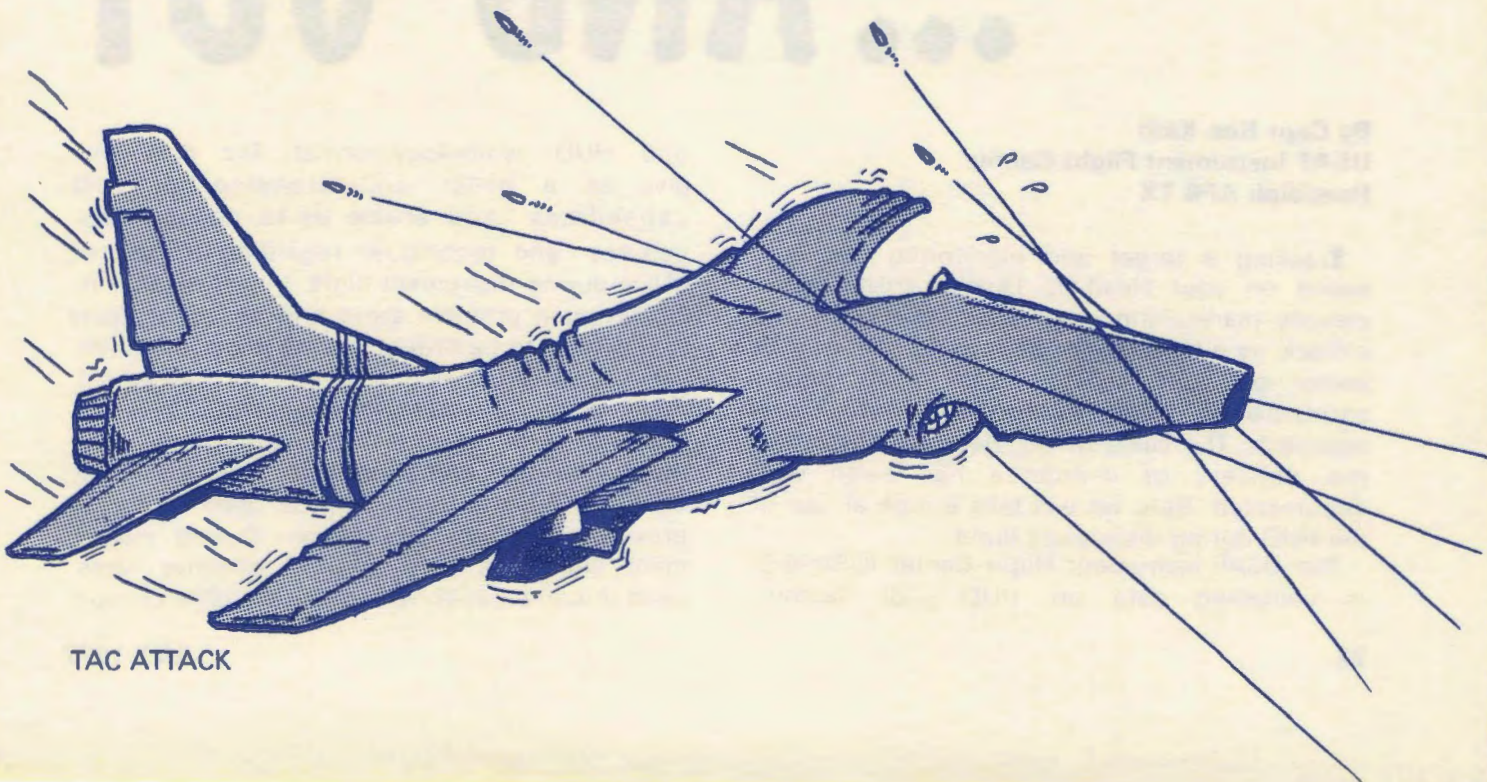
ducked below the glare shield, checked the engine instruments, lowered the speed brake and reduced power to slow down. Attempts to reestablish intercockpit communications were unsuccessful until the airspeed was reduced below 250 knots.

The IP in the rear cockpit was momentarily disoriented following the explosion and being struck in the left side of his visor by a piece of canopy bubble which caused the visor to break and fall off of the helmet. He immediately lowered his clear visor and pulled the windscreen manual emergency release knob to extend the wind screen. Although the windscreen released, it would not fully extend and had to be pulled the rest of the way up.

As the airspeed was reduced, the IP was able to establish communications with the front seater. After determining that he was not injured, the aircraft was recovered at a nearby divert base.

The range officer stated that the crew did not violate any foul criteria and that the aircraft had opened fire at approximately 2,200 feet and that the firing had ceased by 2,000 feet. However, the IP had not thought the pull-off was aggressive enough and was about to comment on it when the canopy was struck by a foreign object, most likely a spent 20MM round.

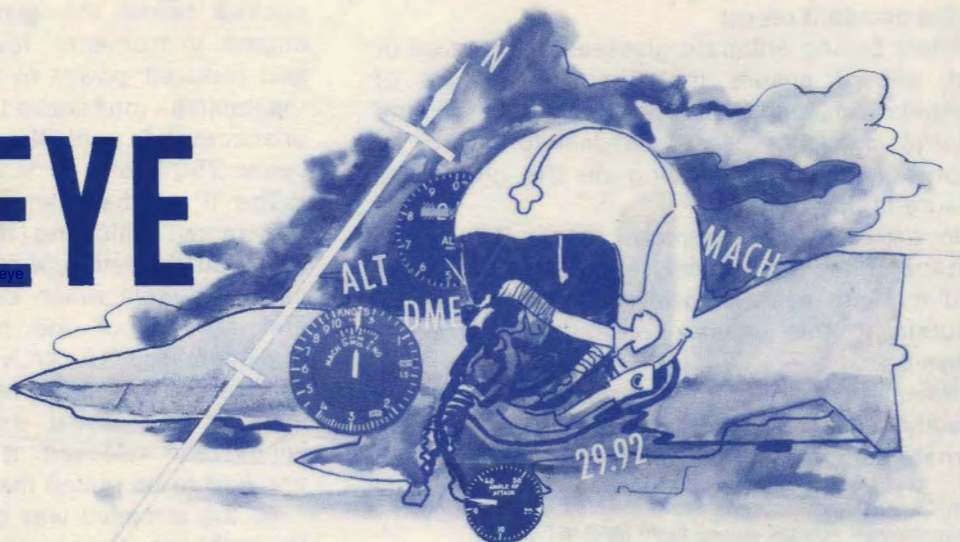
This mishap effectively demonstrates two things: the dangers of lazy pull-offs during a strafe pass; and the importance of keeping your visor down at all times. 'Nuff said.



TAC ATTACK



# POPEYE



# HEAD-UP ...AND OUT

**By Capt Ron Karp  
USAF Instrument Flight Center  
Randolph AFB TX**

**T**racking a target and monitoring your air-speed on your Head-Up Display (HUD) while cleverly maneuvering into your opponent's "six o'clock" is a lot different than using the velocity vector on your HUD to track your runway touchdown point during an instrument approach. The value of the Head-Up Display in the delivery of ordnance has been well documented. Here we will take a look at use of the HUD during instrument flight.

The USAF Instrument Flight Center (USAFIFC) is compiling data on HUD pilot factors

and HUD symbology/format. The data will give us a better understanding of HUD capabilities and enable us to develop procedures and techniques regarding the use of HUDs during instrument flight. Initial results indicate some problem areas and misconceptions which need to be brought to the pilots' attention.

First, the HUD is not a primary instrument flight reference system. Although HUDs have the potential to be used as a primary system, until the mechanical and procedural problems have been solved, they can only be used safely to provide additional information. During instrument flight, the HUD is most effective when used in combination with other available cockpit



indicators. In other words - you still have to cross-check your primary flight instruments.

At the present time, HUDs do not have adequate failure monitoring systems to alert the pilot of all systems failures, and erroneous information can be displayed without the pilot's knowledge. Prior to flying an instrument approach, the HUD should be included in the basic instrument cross-check during the en route and descent phases of flight to assure it is functioning properly.

Finally, there is not always enough information displayed to safely fly in all instrument conditions with sole reference to the HUD. Depending on the system, TACAN bearing, DME, bank angle, or glide slope/localizer raw data may not be displayed. Don't limit your capabilities - use all of your flight instruments.

One of the misunderstood components of a HUD is the VELOCITY VECTOR SYMBOL (also called FLIGHT PATH MARKER in some systems). This symbol indicates the point toward which the aircraft is actually flying. Because it displays a specific parameter of total performance (flight path), it is a performance instrument - not a control instrument. If used properly, the velocity vector can make instrument flying easier. However, if misinterpreted or used improperly, the velocity vector can cause overcorrecting or indicate a need for erroneous corrections. Following are examples of the techniques being developed to use the velocity vector:

#### **Steep Climb or Descent**

If you are in a steep climb or descent and want to level off, positioning the velocity vector to the zero index (horizon) will not level the aircraft immediately because of inertia (remember, performance instruments always have a lag). To level off smoothly, change the pitch on the attitude indicator the amount the velocity vector indicates you are climbing/descending and wait for the velocity vector to stabilize. Small corrections can then be made directly on the velocity vector to keep the flight path level.

#### **Starting a Descent for an Approach**

Determine what glide slope is required (e.g., 2.5 degrees) and lower the pitch that amount on the attitude indicator. After the velocity vector has stabilized, check to see if it is maintaining the desired glide slope and then adjust accordingly. Cross-check the cockpit instruments during the approach to assure that the velocity vector is maintaining the desired vertical velocity (VVI) performance.



#### **Visual Transition From Instruments to the Runway**

If you have confirmed the validity of the HUD systems with the cockpit instruments during the approach, the HUD becomes an extremely useful aid in flying the visual portion of the approach. After breaking out of the weather, however, be prepared to recognize HUD failures during this critical segment of flight. If there is any doubt as to accuracy of the HUD data, cross-check your cockpit instruments and be prepared to transition to them for information.

The HUD is one of the best recent improvements in flight data display. However, its limitations for instrument flight must be remembered. Using the Head-Up Display properly and keeping alert for failures will make your instrument flying easier, smoother, and help keep you out of the dirt, rocks, trees, and elephants.

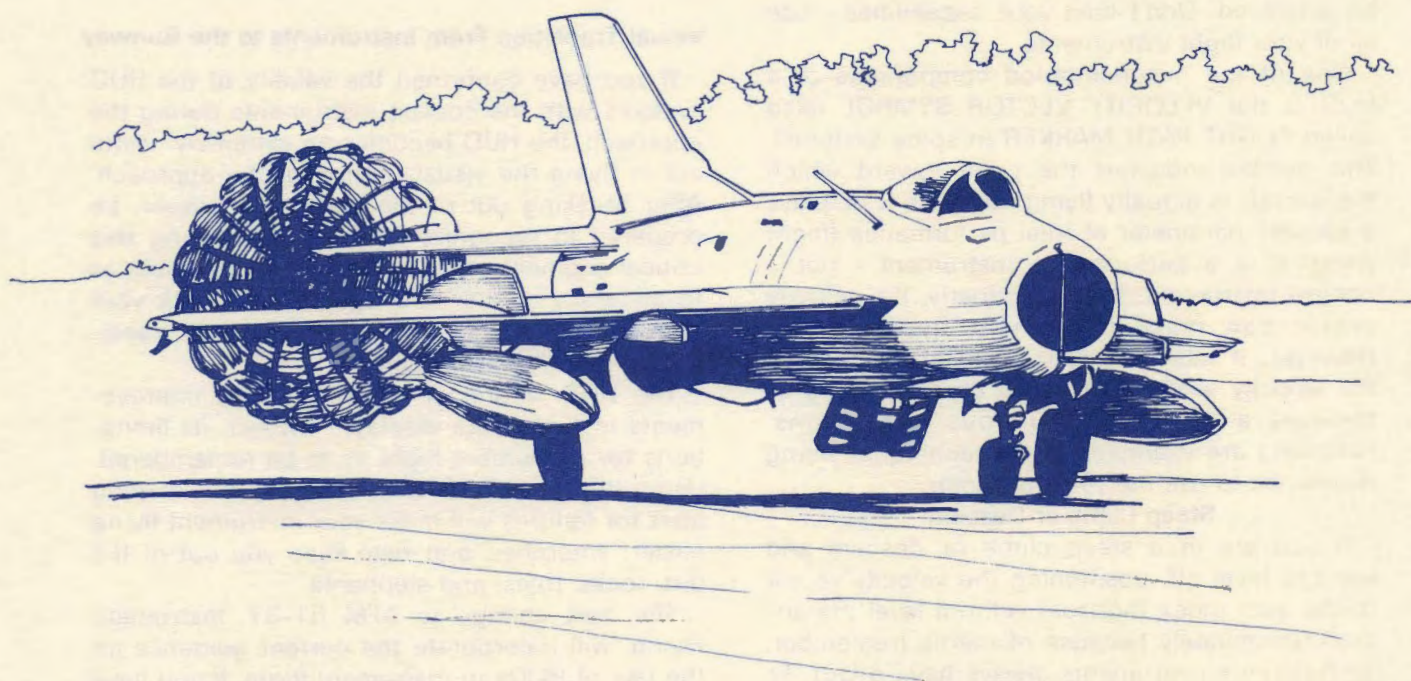
The next change to AFM 51-37, Instrument Flying, will incorporate the current guidance on the use of HUDs in instrument flight. If you have any comments or questions, give us a call or drop a note. Our Address is:  
USAFIFC/FSD, Randolph AFB, TX 78148;  
Autovon: 487-4276/4884.



Captain Merrill R. Karp (M.A. Central Michigan University) is in the Flight Standards Division of the USAF Instrument Flight Center, Randolph AFB, TX. Following pilot training, he flew the F-4 for 8 years including multiple combat tours in Southeast Asia (1970-1973) and 4 years in the 4th Tactical Fighter Wing at Seymour Johnson AFB, NC. He is a senior pilot with more than 2,000 hours of flying time and 355 combat missions.



# **I met a MIG-19 SQUADRON COMMANDER**



**“He walks, talks, and has the same basic needs that I do. He is a PROFESSIONAL who wants to WIN !”**

By Col Thomas F. Tapman  
HQ 13 AF/ADO  
Clark AFB, PI



Editor

*I led a PACAF briefing team to the Pakistan Air Force Staff College at Karachi from 27 February through 2 March 1977, and this is where I met Wing Commander J. A. Carrapiet who is one of their instructors.*

*Commander Carrapiet had been a MIG-19 squadron commander and was anxious to show us an aircraft. I asked him if it was okay to write this article and use his name, and he assured me he would be delighted to read about himself in TAC ATTACK. In writing the article, I did not use his name but referred to him as squadron commander. If you elect to publish this article, please feel free to change it as you desire.*

*Col Thomas F. Tapman*

*13 AF/ADO*

*Clark AB, PI*

*Dear Colonel Tapman,*

*TAC ATTACK thanks both you and Commander Carrapiet for the article.*

ED

When we met, the first question that crossed my mind was one that any ex-A-7D squadron commander, like myself, would like to know, "What are my chances of interdicting 200 to 300 miles behind enemy lines and surviving against the MIG-19?" He was quick to answer that the bird would stroke along at 1.3 Mach and smiled when he asked, "How fast is the short little ugly fellow?" I returned his smile with a sly grin and countered with, "Do you have an all-weather capability?" By this time, a twinkle appeared in his eyes as he began to explain the plus factors of the MIG-19. He was obviously proud of the fact that the '19 was capable of 600 hours between major engine overhauls, and his particular aircraft had 150 landings on the same set of tires with many more remaining.

Now, fighter pilots blow a lot of smoke -- especially at each other -- so, while admiring his bird, I asked the crew chief how he liked maintaining the thickly-built, tricky-looking devil. He was quick to reply that he liked working on the bird, but admitted that many of the components were difficult to get to. There are few removable panels on the fuselage and components must often be removed by feel alone. I was fascinated with the crew chief's command of the English language. He told me

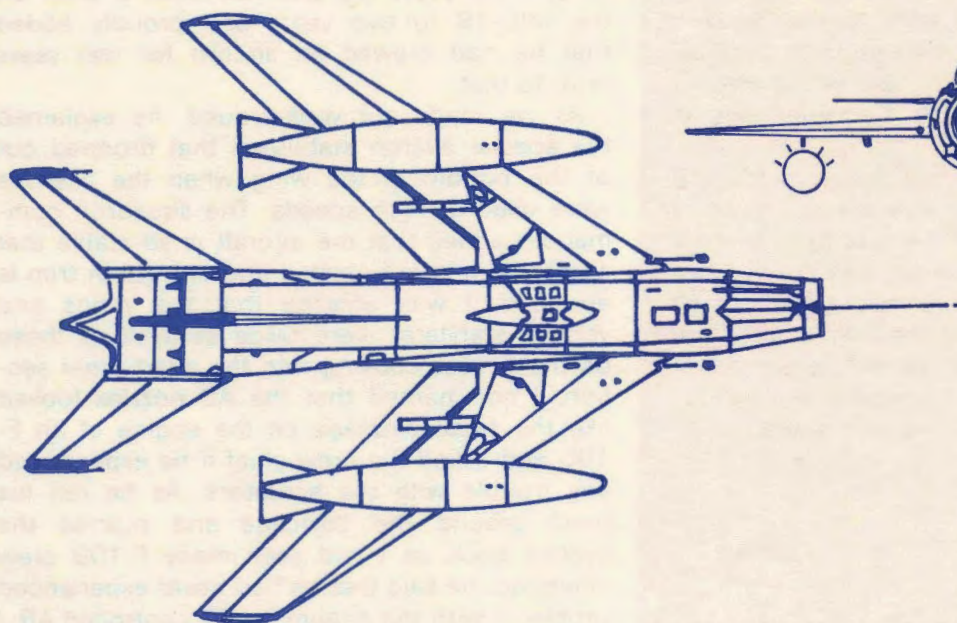
he was 20 years old and had been a chief on the MIG-19 for two years and proudly added that he had crewed an aircraft for two years prior to that.

As we made our walk-around, he explained the special aileron stabilizers that dropped out of the bottom of the wing when the ailerons were used at high speeds. The squadron commander added that the aircraft is so stable that aileron trim is not needed and only pitch trim is available. I was amazed that the wings and vertical stabilizer were twice as thick as those on the F-100. Looking into the afterburner section, I commented that the AB nozzles looked like the small birdcage on the engine of an F-100 and asked the crew chief if he experienced any trouble with the actuators. As he ran his hand around the birdcage and pushed the eyelids back, as I had seen many F-100 crew chiefs do, he said that he had never experienced problems with the pneumatically controlled AB. I turned to the pilot and asked about hardlights and overtemps on the engine during AB operation, and he swore -- with his hand on the MIG's fuselage -- that he had never heard of such a problem. The chief added that at one time they had experienced difficulty starting the engines on the ground and explained that the problem stemmed from low battery voltage. I asked which side the battery was on and he pointed to the right. When I asked which engine was started first, he explained that there was no preference and added that they were modding their birds so both engines could be started simultaneously.

On the lower left side of the vertical fin, there are four holes approximately the size of a flare gun cartridge and each has a different color code. The squadron commander explained that the different colors signified a particular emergency with radio failure. The pilot fires the appropriate flare on initial, and while turning base, looks to mobile (they have one also) for clearance to land.

I was amazed at the cockpit! The seat was not adjustable and appeared to me to be as low as a T-33 seat all the way down. I could barely see over the canopy rails. By this time, it was obvious to me that if Bob Janca was flying the machine, he would have one hell of a time seeing me in my bright and shiny new F-16. I asked the good squadron commander how he "checked six," and he said that as long as they keep their Mach up, they never worry about anything but what's in front of them. He added





Designation: FARMER (Chinese: F-6)

Wing Span: 36'

Length: 44'

Speed: M 1.3 at 33,000 feet

Gross Wt.: 22,000 lbs.

Ceiling: 60,000 Ft.

Crew: 1

Armament: 30MM Guns, 2 X 500 lb.bombs, air-to-surface rockets, "Alkali" missiles

that I was sitting in an original seat even though most of their birds had been modified with Martin Baker equipment. The cockpit looks busy; there are funny gadgets all over the place. All down the left and right sides are toggle switches, circuit breakers, and handles to play with during a mission. I sat in the seat, mesmerized, and was happy when my brain began to tell me that I understood most of the gadgets and gauges.

I climbed out of the cockpit and asked how quickly they could scramble on an air defense alert ... they could easily get airborne in less than 2 minutes with the average mission lasting about 35 minutes. The chief added that a typical training mission with internal fuel only lasted about 1 hour and 23 minutes. If they hung two 200-gallon tanks on, they would normally fly two hours and five minutes. I asked the CO how she flew and if she had any stability problems.

"Stable as a rock," he replied. Since he had some F-86F time, I asked if the MIG-19 was as stable as the '86, and he acknowledged that the '19 was much more stable in all speed ranges.

As we drifted off to the side and stood admiring the beautiful machine, it was obvious that the squadron commander and crew chief were proud of her. The feeling that I experienced is difficult to put into words, but most aviators will agree that they fall in love each time they see a sleek, poised, proud fighter.

I didn't want to leave, but heck, I have had that feeling so many times before that I've learned to just ignore my feelings and press on. As we drove off, the squadron commander turned and looked out the rear window of the car and said to me, "She is the most beautiful thing I have ever seen," and we both watched until we turned the corner of the hangar across the ramp.



# Reader Response Form

HOW WOULD YOU RATE THE  
FOLLOWING **TAC ATTACK** MATERIAL?

TYPE OF ARTICLE/FEATURE		LOUSY	SO-SO	GOOD	GREAT
REG FEATURES	ANGLE OF ATTACK				
	CHOCK TALK				
	TAC TIPS				
	PHYZ BIZ				
	AWARDS				
	FLEAGLE				
SPECIAL FEATURES	EMERGENCY SITUATION TNG				
	LIFE SCIENCES/SURVIVAL				
	AIRCRAFT OPERATIONS				
	WEAPONS SAFETY				
	AIRCRAFT ACCIDENT REVIEWS				
	INSTRUMENT FLYING				
	WEATHER				
	MAINTENANCE				
	GROUND SAFETY				
	HISTORICAL				
	FUNNY PHOTOS				
	CURRENT DEVELOPMENTS (AIRCRAFT)				
	WAR STORIES				
CENTER SPREAD ARTWORK					

GRAPHIC PRESENTATION (ART WORK, PHOTOS, ETC):

GOOD ☐ TOO SHORT ☐ SO-SO ☐ TOO LONG ☐ CAN BE IMPROVED ☐ ABOUT RIGHT ☐

THE LENGTH OF ARTICLES IS: ☐ ☐ ☐

HOW MANY ISSUES OF **TAC ATTACK** HAVE YOU SEEN IN THE PAST YEAR? \_\_\_\_\_

HOW SOON AFTER **TAC ATTACK** IS PUBLISHED DO YOU USUALLY SEE A COPY OF IT?

a. The same month b. One month later c. Two months later d. Over two months later

PLEASE CONTACT ME FOR AN ARTICLE: NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_ AUTOVON \_\_\_\_\_

HOW WOULD YOU COMPARE **TAC ATTACK** TO THESE SAFETY MAGAZINES?

	BETTER	WORSE	ABOUT THE SAME	DON'T KNOW
--	--------	-------	----------------	------------

AEROSPACE SAFETY				
MAC FLYER				
USAFE AIRSCOOP				
ADC INTERCEPTOR				

HAVE YOU GAINED ANY MEASURE OF ADDITIONAL SAFETY AWARENESS BY READING **TAC ATTACK** ? ☐ YES ☐ NO

COMMENT \_\_\_\_\_

MY JOB/RANK IS: \_\_\_\_\_

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	WEATHER				
	MAINTENANCE				
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	HISTORICAL				
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	CURRENT DEVELOPMENTS (AIRCRAFT)				
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MAC FLYER				
USAFE AIRSCOOP				
ADC INTERCEPTOR				

HAVE YOU GAINED ANY MEASURE OF ADDITIONAL SAFETY AWARENESS BY READING **TAC ATTACK** ? ☐ YES ☐ NO

COMMENT \_\_\_\_\_

MY JOB/RANK IS: \_\_\_\_\_

CUT ALONG SOLID LINE



FOLD ALONG DOTTED LINE  
TAPE AND DROP IN MAILBOX

TAC/SEP  
LANGLEY AFB VA 23665

OFFICIAL BUSINESS

Penalty for Private Use, \$300

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HAMPTON VA.  
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Langley AFB, Virginia 23665

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# TAC

## SAFETY AWARDS

### MAINTENANCE SAFETY AWARD

Technical Sergeant Kenneth Barton, Jr., 23d Field Maintenance Squadron, 23d Tactical Fighter Wing, England Air Force Base, Louisiana, has been selected to receive the Tactical Air Command Maintenance Safety Award for this month. Sergeant Barton will receive a certificate and letter from the Vice Commander, Tactical Air Command.



TSgt Kenneth Barton, Jr.

### CREW CHIEF SAFETY AWARD

Sergeant James H. Willis, 4th Organizational Maintenance Squadron, 4th Tactical Fighter Wing, Seymour Johnson Air Force Base, North Carolina, has been selected to receive the Tactical Air Command Crew Chief Safety Award for this month. Sergeant Willis will receive a certificate and letter from the Vice Commander, Tactical Air Command.



Sgt James H. Willis



# LETTERS



© Stan Hardison, 1977

## Editor

Did anyone ever hear the phrase "Those who will not learn from the past are condemned to the same mistakes in the future"?

Well, April 1977 TAC ATTACK would lead me to believe we're headed for that end.

The very well done article on SCAR (Strike Control and Reconnaissance) would have us believe this is a new tactical concept. It may be new to Recce pilots, but tactically new, I think not. The lengthy description of SCAR is an exact replication of fast FAC procedures. The techniques of rendezvous, ingress, strike control, damage assessment and egress were used by FACs hundreds of times in Southeast Asia.

The only thing I could see that was new was the ability of the Recce to pinpoint an attack reference point.

SCAR is new to Recce crews, but let's not forget the guys that originated and made these tactics viable — the Forward Air Controllers!

Capt Jerry D. Coy  
Chief, Quality Control Div  
43 TFS/21 COMPW  
APO Seattle 98742

## Jerry

Neither the author nor TAC ATTACK intended to have you believe SCAR was a new "tactical" concept. As the author stated, "... Flown in a variety of aircraft under a variety of names, SCAR techniques have been employed in every US air war." However, the employment of reconnaissance aircraft and aircrews in this role is new.

Don't worry, no one will forget the contributions both fast and slow FACs have made.

ED

P.S. Yes, we've heard the phrase. We also heard another: "I do not resent criticism, even when, for the sake of emphasis, it parts for the time with reality."

## Dear Fleagle

A technique that is religiously briefed to all new F-15 jocks may have application in the F-4 and other fighters. We brief our studs to put their left hand on the Emergency Brake/Steer Handle anytime they are in close proximity to other aircraft or people (quick check, parking area, etc). In case of failed brakes or steering or hydraulic failure, their hand is already on the proper handle. This cuts out several seconds of pucker time and has already allowed two of our pilots to stop immediately after discovering that they had no brakes (insidious anti-skid failure ... did not display a warning light). I'll bet Stan Hardison could work this into a Fleagle and put the idea into everyone's head. Can't help but think that some of our previous ground accidents could have been prevented by this technique. And maybe one or two of our future ones too! Keep up the good work!

Maj J. A. Thornton  
4461d TFTS  
Luke AFB, AZ

## Dear Maj Thornton

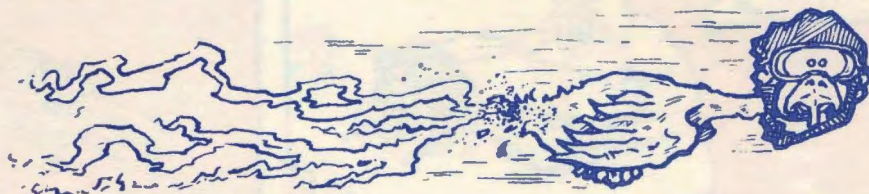
Thanks for your input. However, your technique may not be valid in all aircraft for all people. For instance, because of the location of the Emergency Brake Handle in the F-4, it would be awkward to taxi with your hand on the Emergency Brake Handle. Some pilots could not see over the glare shield while in that position. However, if it works in the F-15 ... it's probably a good technique for Eagle drivers.

Fleag

P.S. Who's Stan Hardison?



# TAC TALLY



MAJOR ACFT. ACCIDENTS ▶
AIRCREW FATALITIES ▶
TOTAL EJECTIONS ▶
SUCCESSFUL EJECTIONS ▶

TAC			ANG			AFR		
MAY	thru MAY		MAY	thru MAY		MAY	thru MAY	
	1977	1976		1977	1976		1977	1976
2	11	15	0	4	4	0	1	1
2	4	5	0	0	2	0	0	1
2	10	11	0	3	1	0	1	1
2	10	10	0	3	1	0	1	0

## TAC'S TOP "5" thru MAY

TAC FTR/RECCE	
accident free months	
19	4 TFW
13	474 TFW
11	56 TFW
9	33 TFW
8	67 TRW

TAC GAINED FTR/RECCE		
accident free months		
62	127 TFW	ANG
28	156 TFG	ANG
23	122 TFW	ANG
23	117 TRW	ANG
17	434 TFW	AFRES

TAC/GAINED Other Units		
accident free months		
118	182 TASG	ANG
98	135 TASG	ANG
90	507 TAIRCW	TAC
87	193 TEWG	ANG
74	USAF TAWC	TAC

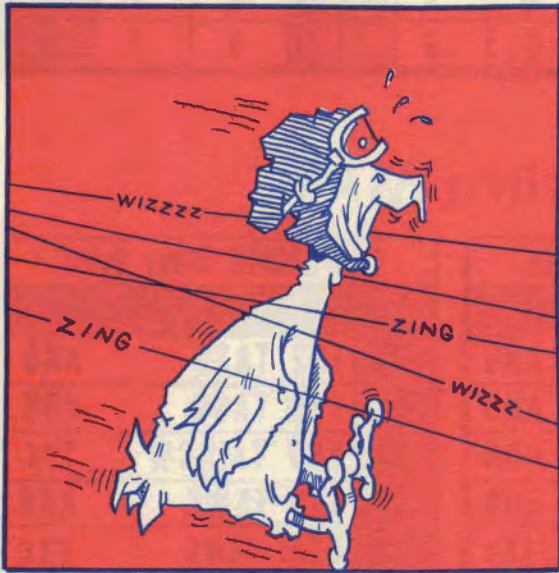
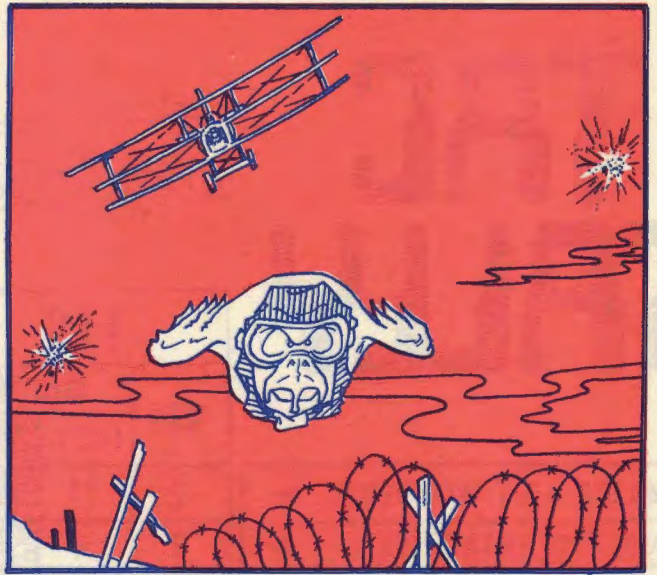
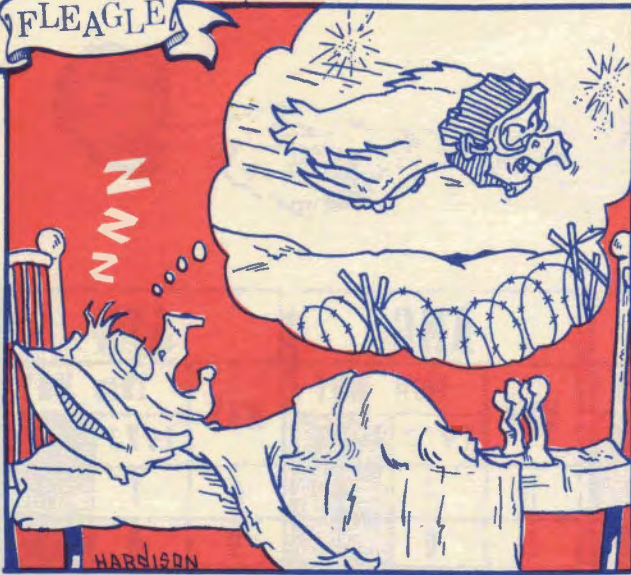
## MAJOR ACCIDENT COMPARISON RATE 76/77

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

TAC	76	77	76	77	76	77	76	77	76	77	76	77	76	77
	2.9	0.0	8.6	5.3	9.0	5.8	7.3	5.4	8.0	5.1	8.1	6.9	6.8	7.5
ANG	10.5	0.0	5.0	3.1	6.5	1.9	4.8	5.7	3.8	4.6	3.9	3.4	3.5	3.7
	7.6	0.0	0.0	0.0	11.3	10.1	8.1	7.4	6.1	5.8	5.0	4.2	7.2	6.4
AFRES	0.0	0.0	0.0	0.0	11.3	10.1	8.1	7.4	6.1	5.8	5.0	4.2	7.2	6.4
	0.0	0.0	0.0	0.0	11.3	10.1	8.1	7.4	6.1	5.8	5.0	4.2	7.2	6.4

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





SPLOOSH!

