

TAC ATTACK

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OCTOBER 1973



October 1973

safety is paramount except... pg 4

SAFETY IS PARAMOUNT
EXCEPT....Pg 4

for efficient tactical air power

TAC ATTACK

OCTOBER 1973

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TACRP 127-1

Articles, accident briefs, and associated material in this magazine are non-directive in nature. All suggestions and recommendations are intended to remain within the scope of existing directives. Information used to brief accidents and incidents does not identify the persons, places, or units involved and may not be construed as incriminating under Article 31 of the Uniform Code of Military Justice. Names, dates, and places used in conjunction with accident stories are fictitious. Air Force units are encouraged to republish the material contained herein; however, contents are not for public release. Written permission must be obtained from HQ TAC before material may be republished by other than Department of Defense organizations.

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Angle of ATTACK

The "ALL-CAUSE" Accident Investigation System

The Air Force recently changed accident investigation procedures to an "all-cause" system. In the past it was required to list a primary cause in each accident and, if necessary, list contributing, probable and possible causes. The investigating board and the staff of each reviewing agency had to determine which of the multiple causes made the accident most likely or inevitable. Sometimes the primary cause got the most attention, to the detriment of the other listed causes.

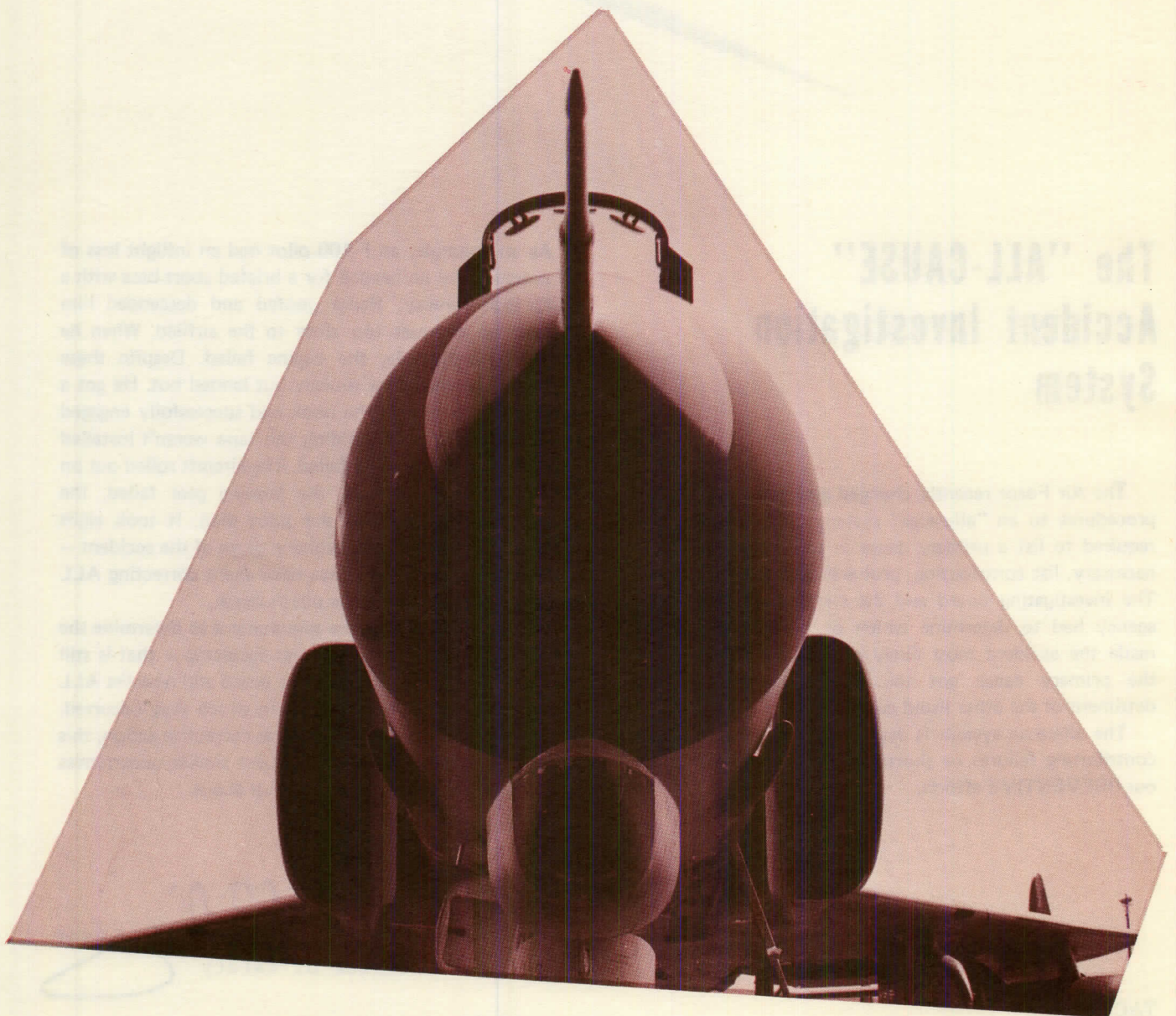
The all-cause system is designed to identify all of the contributing failures or shortcomings in order to expand our PREVENTIVE efforts.

As an example, an F-100 pilot had an inflight loss of oil pressure and he headed for a briefed abort base with a 6000 foot runway. Radar goofed and descended him through an overcast too close to the airfield. When he retarded his throttle, the engine failed. Despite these problems, he made the runway but landed hot. He got a good chute, extended the hook and successfully engaged the barrier. The bolts holding the tape weren't installed properly and the BAK-12 failed. The aircraft rolled out on the nonsurfaced overrun, the landing gear failed, the aircraft caught fire, and the pilot died. It took eight months to determine the primary cause of the accident — eight months that could have been spent correcting ALL the problems that led to the pilot's death.

We are not changing the requirement to determine the sequence of events that precedes accidents — that is still necessary. However, the accident board will now list ALL accident causes in the sequence in which they occurred. Since each of these findings requires corrective action, this should increase our ability to prevent similar occurrences — and prevention is what safety is all about. ➤

E. Hillding
E. HILLDING, Colonel, USAF
Chief of Safety

safety is except...



paramount,

by Capt David A. Greschke
33 TFW FSO
Eglin AFB, Florida

It was a typical hot, humid afternoon in Thailand. We were sitting air defense alert at a forward operating location (FOL) with four F-4E aircraft. We shared the alert pad with the HH-43 "Pedro" helicopter rescue unit. The pad was located about 700 yards from where our planes were at the end of the runway.

Our alert force consisted of four pilots and four navigators. Two F-4s were on five minute alert and the other two were on 15 minute alert. We were scrambled either by telephone followed by the Klaxon or by the Klaxon only. The Pedro crews had a crash phone and a loud bell that ordered them airborne. So, with all the phones, buzzers, bells and sirens hanging on the walls, it was hard to maintain normal heartbeats and blood pressures.

On this particular afternoon, there took place one of the most outstanding "Keystone cops" five minute scrambles ever witnessed. I will never forget it. It all started...

KLLAAAAAAAAAAAAAAAAAAAAA

The building started rumbling and vibrating like a stampede was in progress.

"Come on, Gunfighters, That's for us."

I was on the bottom bunk and only had to roll sideways out onto the floor, get up and start running. I did just that, almost.

"Oommpf!" What the _____. I thought I'd been hit, but I was on a friendly base.

"Nice shot, Dennis," I yelled as I realized what had happened. Both he and I rolled out of bed in formation with great precision. Unfortunately, he was on the top bunk and wound up doing a touch-and-go off my back. I was lucky this time, nothing but injured pride.

"Hey, Gordy, would you do us a favor and call the Thai restaurant and cancel our order?"

"Don, are you back in the pool room?"

"I think I saw him lying down by the airplanes."

"One at a time through the door."

"Well, hold it! Your gun is hooked on my strobe light case."

"Come on, Come on, we're wasting time!"

KLLAAAAAAAAAAAAAAAAAAAAA

They even had a Klaxon on the outside of the building so you didn't regain any composure on the way to the airplanes.

"Is everyone in the truck?" We usually piled into a panel truck that was parked out front. People were hanging out all over the truck. One of the back doors was gone, besides.

"Go!"

The truck took off like a streak. That is, like a bucking bronco takes off in a streak. We all flew from front seat to back seat, floor to ceiling, side to side, but finally the fore and aft oscillations dampened out and we were accelerating... well, as best a greasy motored six cylinder, overworked, low-left-front tired panel truck with nine jet jocks could accelerate.

On the way down to the planes, I thought how inconsiderate it was of the North Vietnamese to be sending MiGs our way right at supertime. We already had supper ordered. I had only one consolation; the MiG pilots were probably just as hungry.

The truck came sliding to a sideways, gravel throwing, dusty stop. The maintenance people were already busy scrambling around the airplanes. Their Chinese fire drill appearance seemed to have some direction. We finally untangled ourselves from the truck.

"Did anyone get the airborne order?"

"They only said, 'Go gate, FL310, 330 degrees'."

"Okay, Dave, I'll meet you on top."

safety is paramount,
except...



With that bit of flight planning over, lead went running from behind the blast shields toward his plane. I could see what was about to happen to him.

"Sully! Look out for the _____"

TWAANG! CRASH!

Looking into the setting sun during the rice paddy burning season was like trying to see through a glass of Fresca. What Sully didn't see was a ground wire. It ran from the tail section of the plane to the ground. It caught him chest high.

He began to get up so I ran past him, shouting as I went, "That must be why they call it a grounding wire, Sully".

I stopped at the base of the ladder and threw on my survival vest. My backseater went shooting past me two steps at a time up the ladder.

"Chief, get the power cart going."

"Yes, Sir."

"I'm gonna need help with my left shoulder strap. Send Smitty to help my GIB."

"Right!"

I scrambled up the ladder and jumped in the cockpit. With the crew chief's help, I buckled up my harness and fastened my lap belt. I had one rule about straps. I didn't fire any engine until I at least had those two items



securely fastened. Not everyone subscribed to that rule, to be sure. Now I was ready to fire up the sleeping beast.

"Dennis. Dennis! Are you on yet?"

"Rog . . . having . . . troub . . . ere . . . I'm up."

"You ready to start?"

"Roger."

The crew chief signaled two fingers. He was ready.

"Engine masters are on, firing one and two."

The thick grey-black smoke belched from beneath the belly. Lead's airplane was engulfed already and barely visible.

"Chief. Frank! FRANK! Get on the headset!" I motioned violently with my hands over my helmet earphones as I yelled. My oxygen mask was just as vigorously slapping me in the face.

"The headset! The headset! Plug in!"

"Yes Sir, what's the problem?"

"I've got a hangfire on one. It's stuck at 22 percent."

"Smitty! Number one. Get it."

"Wait Frank! Wait! Number two is up. One's off."

"Right. Hold it Smitty!"

"Two's up. Aux air doors clear?"

"Cleared to cycle, Sir!"

Wham! Both generators on and looking good.

"One's down to zero. Disconnect power. You're cleared under."

"Right, Smitty, go!"

"You ready for the checklist, Dave?"

"Rog. Shoot."

"Anti-skid?"

"On, light out."

"Stab augs?"

"One, two, three engaged."

"Standby, Denny. Frank? Come on, come on. Frank?"

I figured he and Smitty were underneath changing the cartridge. We all knew the Dash One said to wait a minimum of five minutes to change a hangfire. But when you're on five minute alert you tend to overlook those little warning notes.

"Frank, dammit, what's going on under there?"

"Rog, Smitty didn't have his gloves on. He burned his arm a little, so I had to help him. You're cleared to fire!"

"Rog, one's up!"

"Got a flasher on the INS."

"Roger." Come on engine, I thought to myself. Lead was shooting holes through my plane with his looks.

"She's comin' up chief. Lookin' good. Flaps cleared down?"

"Roger."

"Flaps coming to one-half. Checklist, Dennis."

"Gunfighter 51, check."

"Two! Checklist!"

"Lower guard down?"

"Mine's down. Yours?"

"Down. Flaps?"

"One-half." Every chance I got, I reached down to fasten another strap. I figured that during a low-altitude, low-air-speed ejection I wouldn't need them all buckled as long as I was strapped to the seat and connected to my parachute.

"Ground, Gunfighter 51 scramble two."

"Roger five one, You're cleared on for takeoff, gate to FL310, 330 degrees. Contact Brigham control."

"Roger, copy, cleared for takeoff."

"Checklist!"

"Trim?"

"Three units nose down."

"Cleared primary sync."

"Rog . . . primary . . . and . . . sync."

"That's it to taxi."

"Rog, chocks out Frank. Good launch. Tell Smitty I'll buy you guys a beer when we get back."

"Roger, thank you. Good luck, Sir."

The traditional "Thumbs up" and we were rolling out of the chocks.

"Nose gear steering and brakes?"

"Checked. Flaps are half, pressure's good. Engine instruments look good. My oxygen's normal. SPC is on. Anti-skid is on."

"Roger, I'm good back here."

"Okay, Denny, recheck your harness and lap belt, we're goin'."

"Roger!"

"Gunfighter 51, button 9 go."

"Two!" Lead was on his way, finally.

"Okay, lead's got two good burners and flaps. We're rollin'. Two good nozzles. Engine instruments look good."

"Speed's off the peg. 80 knots."

"Nose gear's disengaged."

"120."

"Roger, we're goin'."

"150, 165, 170."

"We're off."

"Gear?"

"Comin' up!"

"Flaps?"

"Comin' up!"

"I'm showin' gear and flaps up."

"Roger, same, lights are out."

"350."

"Hang on, we're goin' up."

"Gunfighter 51, check."

"Two!"

Time from Klaxon to gear in the well? Four minutes and 45 seconds. The worst was over. The rest was just routine.

TAC TIPS

...interest items,

AN OPEN LETTER FROM A FLIGHT SAFETY OFFICER

Dear (Pro) (Plumber):

I watched your approach yesterday with (pride) (disgust) and I can truly say that I have never been more (favorably impressed) (terrified). Few pilots can display such (ability) (stupidity) and (good judgment) (poor judgment) the way you do. As a matter of fact, both the commander and I would like to (commend) (hang) you as a result of your continued (outstanding) (disgraceful) performance.

Regarding your approach yesterday, the (go around) (attempted salvage) initiated (on final) (over the 1000 foot marker) was (impressive) (dangerous) and showed, overall, (excellent knowledge) (complete ignorance) of current TAC procedures. It is my opinion that if you continue to (display such skillful airmanship) (show your disregard for safety) you will surely go down in the annals of TAC aviation as one of the most (competent) (inept) aviators of all time.

Hoping to (serve with you again) (see you at the end of the long green table), I remain,
Your FSO

Thanks to SAC Safety Bulletin by way of ATC "Food for Thought".

HF/BRAKE FAILURE (EC-135)

On landing rollout, halfway down the runway, the pilot of an EC-135K lost all braking. The copilot applied brakes and safely brought the bird to a stop. Mechanical failure? Linkage? Nay, brother — it is suspected that the villain was an HF radio! It seems one of the radio operators was keying his HF (6753 KHZ) at the time the pilot was getting on the binders, causing the pilot's brakes to fail. Local research found the same failure could be induced on the unit's other EC-135K, but it is not known at this time whether all ECs and WC-135s will be affected by this bug; a study is underway. In the meantime, until a proposed change to the basic manual comes out, try not to make any HF transmissions during taxi, takeoff and landing, if equipped with the MARK II Modulated Anti-Skid System.

Hey! pass it along... nine others are waiting.



mishaps with morals, for the TAC aircrewman

CHANGE IN THE USE OF RADAR BEACON CODE "7600" (RADIO FAILURE)

To assist radar facilities in the early detection of a radio failure situation, pilots are now expected to operate their transponder on the emergency code (7700) for a period of one minute prior to changing to the radio failure code (7600). This will serve as an 'attention-getter' for radar facilities not presently equipped to automatically display 7600. Here are the steps you should follow if you encounter two-way radio failure, and your bird is equipped with a functioning transponder:

1. Reply on Mode A/3 Code 7700 for a one minute period. Make sure that your IFF control box is also

turned to the 'emergency' position during this period. This will help alert military radar facilities not presently equipped with the Code 7700 automatic display feature.

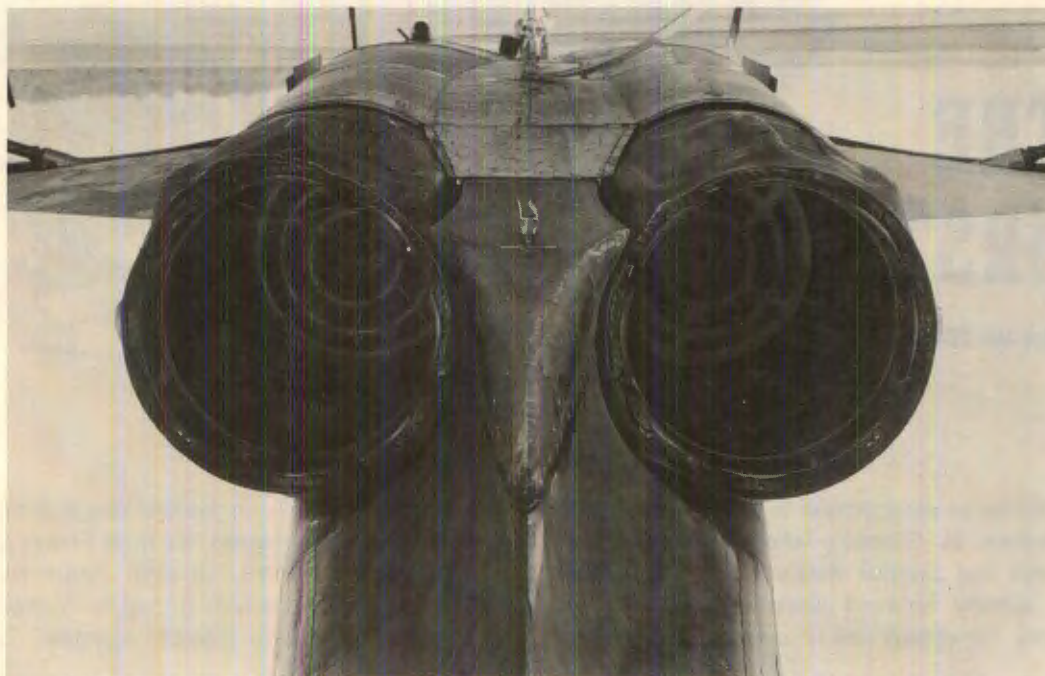
2. Then change to Code 7600, and remain on 7600 for a period of fifteen minutes, or completion of your flight, whichever is earliest.

3. Repeat steps 1 and 2 as practicable.

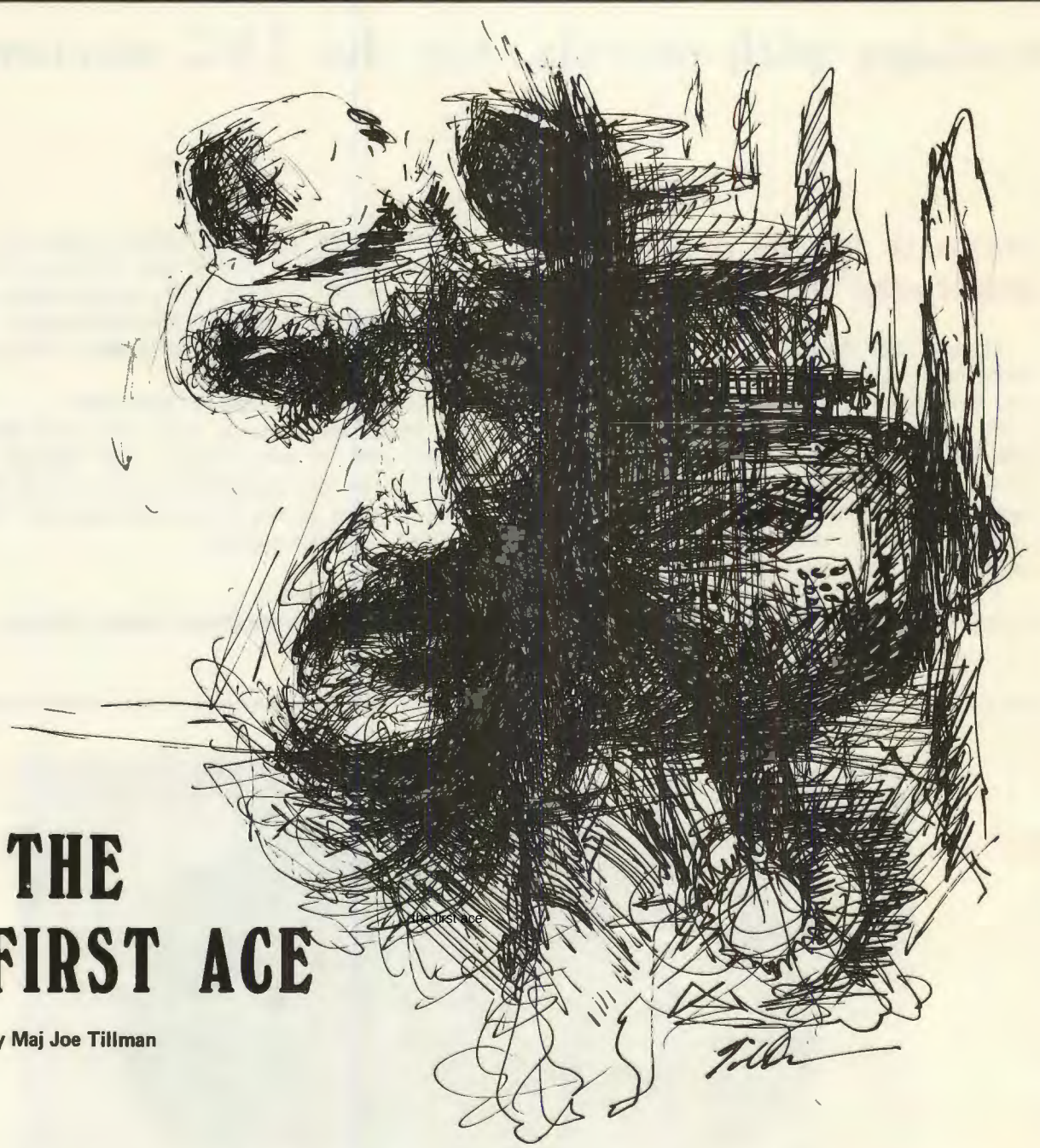
Pilots are reminded that the above change to ANTICIPATED pilot action is only intended to assist ATC in the early recognition of a radio failure. This does not preclude the use of the emergency code (7700) any time the situation warrants.

by Rex M. Stewart

FAA/TAC Liaison Officer, Langley AFB Va.



BIG BROTHER IS WATCHING YOU U U U U



THE FIRST ACE

by Maj Joe Tillman

Roland Garros, an early pioneer in aviation, was giving flying exhibitions in Germany when he learned that German troops had invaded Belgium and his beloved France. He quickly returned home and reported for military service. He already had an extensive background

in aviation, having flown the first long over-water flight — crossing the Mediterranean Sea from France to Tunisia, a distance of 558 miles, in eight hours and fifty-five minutes, in 1913. He now turned his studies to military application of heavier-than-air machines. Carrying on

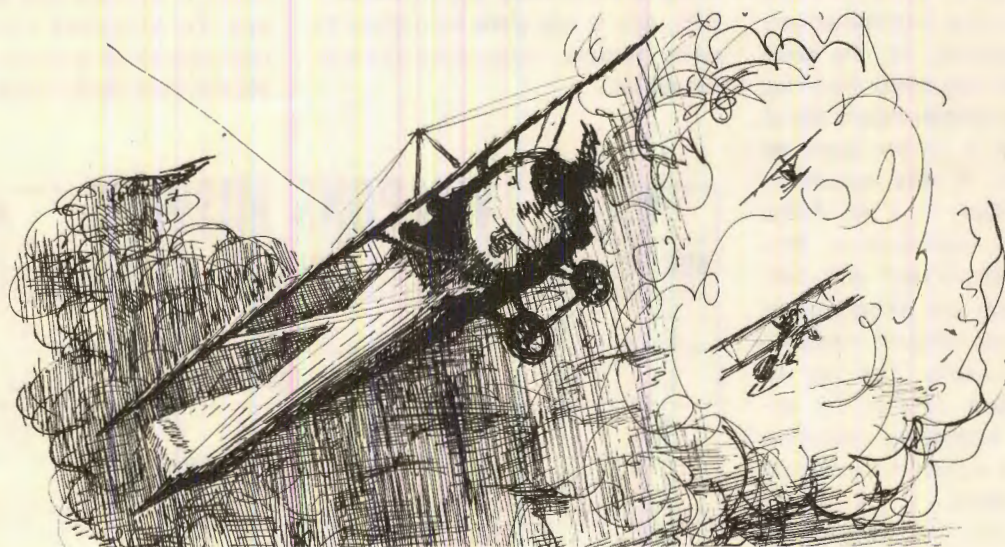
studies on the use of the machine gun in flight originated by Eugene Gilbert, Garros was the first to give the machine gun wings. Gilbert experimented with covering prop blades in steel tape to allow firing the Hotchkiss gun through the props, but the first ground test resulted in the death of two of his assistants from deflected slugs and the idea was dropped by a heartbroken Gilbert.

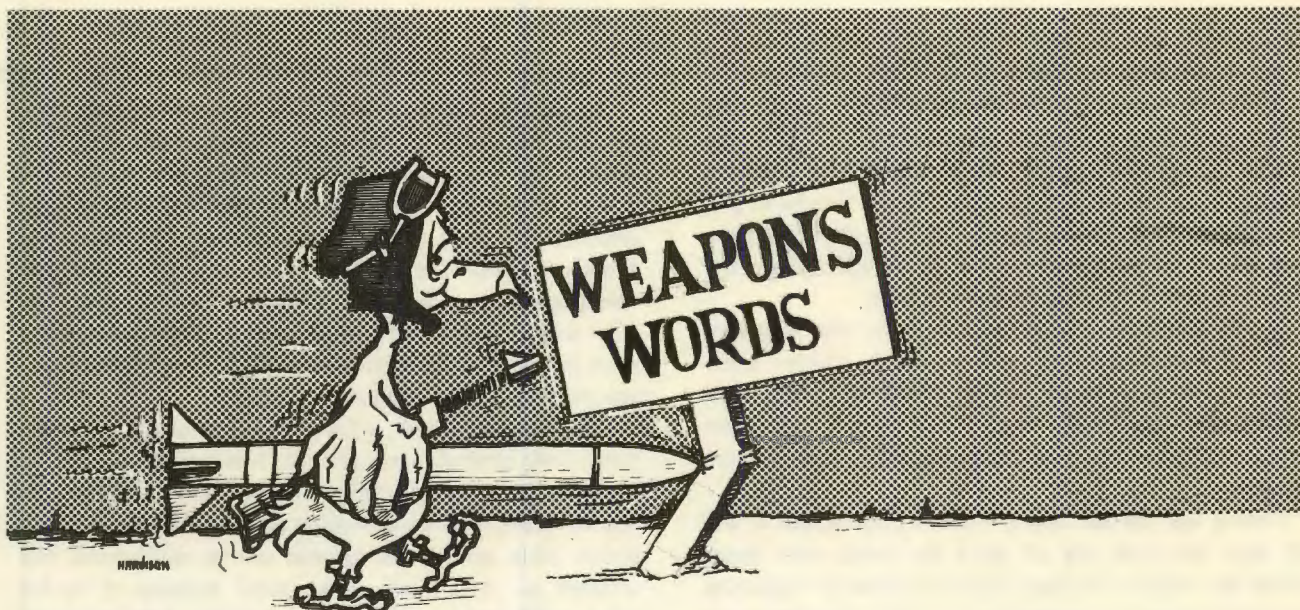
Roland Garros improved on the idea by installing a set of armor-plated deflector collars which proved quite efficient. Less than seven percent of all the bullets fired hit the deflector plates and the angle of the plates prevented damage to either the pilot or the machine from ricochets.

Testing was carried out in February 1915, but it was not until the first day of April his device was tested against the enemy. On that day he downed an Albatross with a quick burst — success! Ten days later, he shot down two Aviatik two-seaters. His forward-firing Hotchkiss allowed him to roar in directly behind the enemy — an advantage not successfully enjoyed prior to the invention of his gun deflectors. The following afternoon he caught an L.V.G. over Dunkirk and destroyed it — number four. Two days later Garros spotted another Aviatik flying toward French lines. He quickly dumped his load of bombs while his gunner punctured the Morane's reserve fuel tank to reduce the aircraft weight. Trailing a contrail of gasoline, the Frenchman closed in. In a few minutes Garros watched the flaming Aviatik pancake in a marsh. He had his fifth kill.

Roland Garros had scored five victories in sixteen days. He was the toast of Paris and cited for the Legion of Honor. The term "ace" was a popular catchword of the day in France, referring to anyone who was outstanding, whether a cyclist, jockey, or aviator. Naturally, the French pegged Garros with this title. An American newspaperman interpreted the term "ace" to mean any pilot who downed five enemy aircraft. Since he used the term in his next dispatch to New York, "ace" became the standard for rating a fighter pilot's skill.

The adulation was enjoyed by Garros only a short time. Only nineteen days after his first combat success, he crash-landed about 40 miles from the Dutch border. He had been on a bombing mission and cut his engine for an attack glide against the railroad sidings at Courtrai. His attempt to restart was unsuccessful because of fouled spark plugs and he made a forced landing behind enemy lines. Unhurt, Garros attempted to burn his machine to keep his invention a secret, but the damp Morane Bullet refused to burn. Garros was taken prisoner, and after painting out the insignia, a German pilot flew the airplane to Berlin. It was here that Anthony Fokker studied the design of the deflection plates and, advancing the idea, he designed a machine gun with an interrupter gear which synchronized the Parabellum gun to the propeller. His first models were given to Oswald Boelcke and Max Immelmann, and although these two aces were the top German pilots at that time, they never equalled the record of five kills in sixteen days by the world's first ace, Roland Garros.





IS YOUR NUCLEAR EQUIPMENT CERTIFIED?

by **Lt Col James E. Falconer**
Chief, Nuclear Safety Branch
Hq TAC/SE, Langley AFB, Va.

Personnel working with nuclear weapon systems are told by technical orders to use only authorized and approved equipment. At the same time numerous operations involving nuclear weapon systems require use of equipment that is neither approved nor authorized. A new regulation, AFR 122-3, titled "The Air Force Nuclear Safety Certification Program," is now in the field and will provide assurance that all equipment used with nuclear weapons meets required safety criteria. The key to getting equipment certified for nuclear use is an engineering evaluation of each piece of equipment, including modified equipment.

As users, your job in selecting equipment for nuclear operations will be much simpler; either the equipment is certified under AFR 122-3 or

it cannot be used. This reg now allows you to check one document, the Nuclear Certified Equipment List (NCEL), to determine certification status of equipment for your nuclear operations. The Director of Nuclear Safety will maintain the list and distribution in TAC will be through safety channels. Even though you know a piece of equipment is certified, the NCEL should be checked because it contains restrictions and limitations. Also, this is one place that identifies safety features, subsystems and sub-assemblies.

Like many other lists this one may not include the particular piece of equipment you normally use. Until it's included, notify your weapons safety officer so he can take action to have the needed equipment added to the NCEL. Equipment not on the NCEL, but currently approved by technical orders, may be used.

If you need a copy of the NCEL, see your weapons safety officer. The NCEL is the only way for you to be sure the equipment you use for nuclear operations is certified and meets the necessary safety criteria. ➤

TAC			WEAPONS MISHAPS			ANG		
AUG 73	THRU AUG		EXPLOSIVE	AUG 73	THRU AUG		AUG 73	THRU AUG
	1973	1972			1973	1972		1972
22	127	72	TOTAL	11	41	18		
11	45	22	Personnel	7	27	11		
7	57	32	Materiel	4	13	7		
4	25	18	Other	0	1	0		
0	12	11	MISSILE					
1	3	2	NUCLEAR					

TACTICAL AIR COMMAND



Maintenance Man Safety Award

Staff Sergeant James W. Stewart, 35 Munitions Maintenance Squadron, 35 Tactical Fighter Wing, George Air Force Base, California, has been selected to receive the TAC Maintenance Man Safety Award for August 1973. Sergeant Stewart will receive a letter of appreciation from the Commander of Tactical Air Command and a Certificate.



SSGT STEWART

TACTICAL AIR COMMAND



Crew Chief Safety Award

Staff Sergeant Alton E. Lozier, 35 Organizational Maintenance Squadron, 35 Tactical Fighter Wing, George Air Force Base, California, has been selected to receive the TAC Crew Chief Safety Award for August 1973. Sergeant Lozier will receive a letter of appreciation from the Commander of Tactical Air Command and a Certificate.



SSGT LOZIER

TACTICAL AIR COMMAND



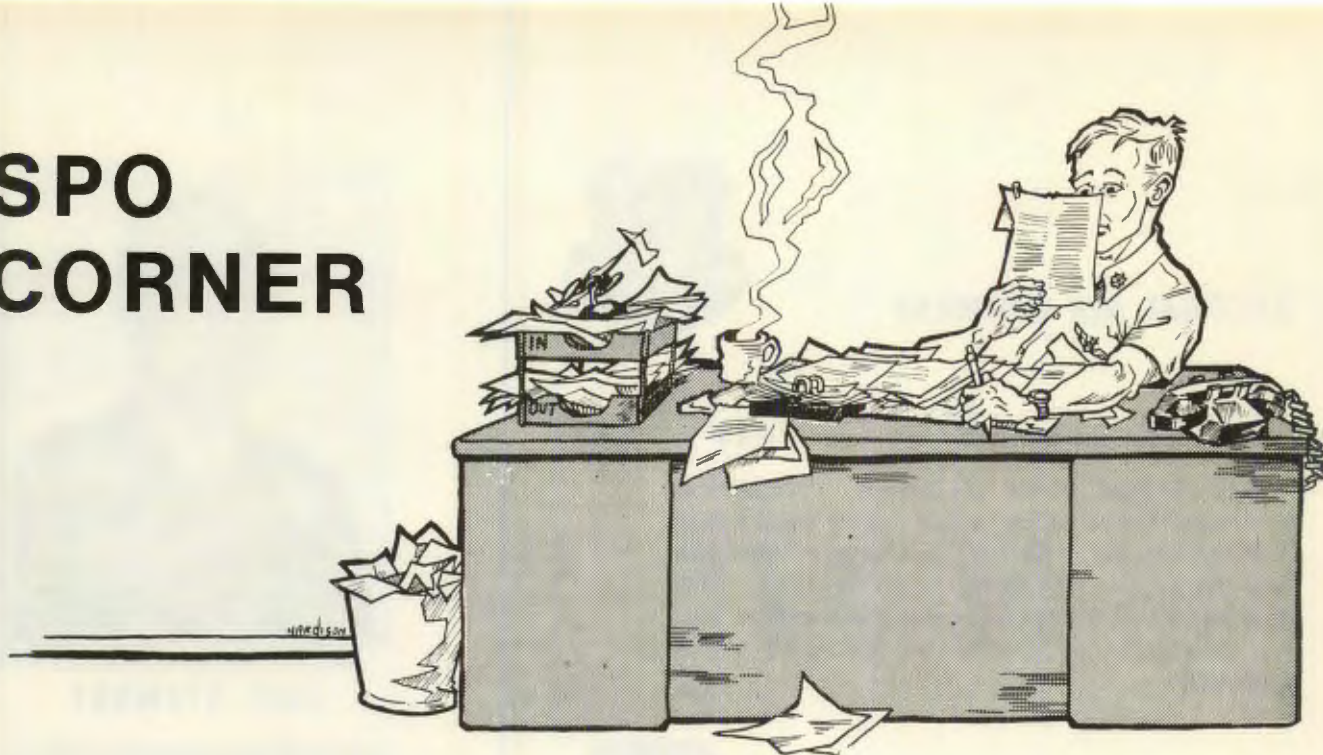
Ground Safety Man of the Month

Senior Master Sergeant Jerritt H. Hansell, 317 Avionics Maintenance Squadron, 317 Tactical Airlift Wing, Pope Air Force Base, North Carolina, has been selected to receive the TAC Ground Safety Man of the Month Award for August 1973. Sergeant Hansell will receive a letter of appreciation from the Commander of Tactical Air Command and a Certificate.



SMS HANSELL

SPO CORNER



EJECTIONS

By CMSgt Jim Heart, TAC Life Support Superintendent (DOXBL)

Life Support Continuation Training and Why We Need It.

This is why we need it — and we will tell it like it is:

From 1965 to 1972 the USAF has had 1200 ejections in which aircrews were called upon to display ability and benefits derived from the USAF Life Support Continuation Training Program. However, 198 of these ejections resulted in fatalities, of which 122 "were out-of-the-envelope". In the last three years the USAF has had 325 ejections (which would average out to be one every 3rd day) with 40 out of the envelope fatalities. This clearly shows that emergency ejections are not declining proportionately. With these ejections, Life Support Training then becomes a most vital program.

You may hear the following after an ejection that resulted in a fatality: "He was an old head, had 2000 hours in the bird — I don't understand it." Having many hours in the bird does not provide the aircrew with the training or the understanding that he must decide to get out while the ejection system can still save him. A complete and thorough knowledge of the limitations of the ejection system, coupled with repeated drills until the required mechanical movements become automatic reflexes, is a necessary ingredient required to save lives.

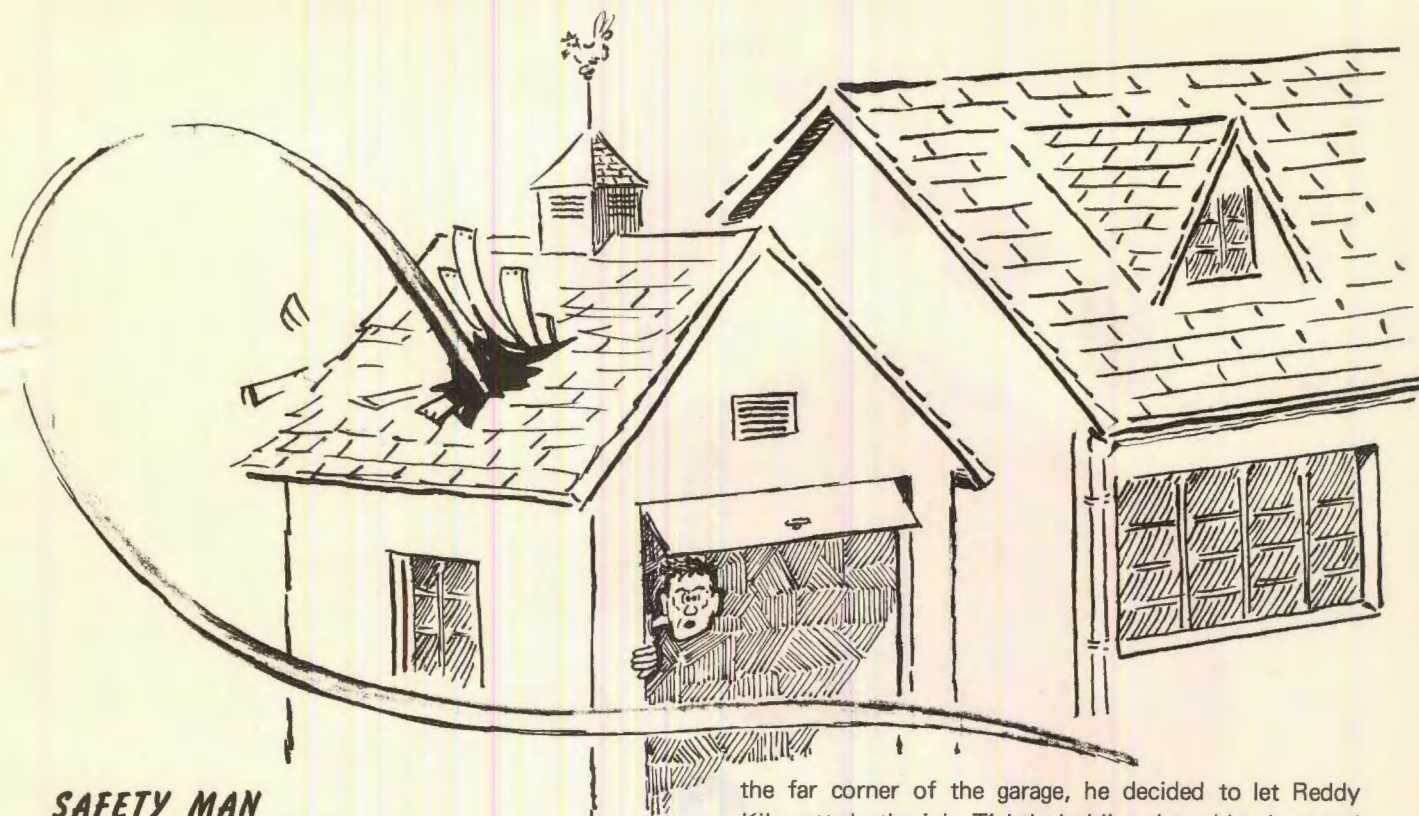
With the phase down of operations in SEA, and these times of doing more with less, we must guard against

de-emphasizing the importance of Life Support Continuation Training. In fact, it must be impressed upon and drilled into each and every aircrew to insure that a single life is not needlessly lost due to some missing link of experience or knowledge in life support training.

KNOW YOUR WINGMAN

by Maj Al Mosher

Where is he? Can he hack it? These and similar questions are continually going through the minds of formation leaders everywhere. Two midair collisions have occurred within the past few months which water the eyes and make one wonder if we aren't becoming a little too relaxed on our formation procedures. Do you, as leader, know what your wingman's reaction will be if he loses sight of you? Did you brief him on what to do? Will he react as briefed? Will he make a radio call if he loses you? Do you have to demand that your wingmen maintain proper position or do they do it automatically? Do you even care if they fly in the correct position? We all like to look sharp coming up initial, but do we demand the same precision 20 miles out? Is the radio chatter at the absolute minimum, with clear crisp transmissions, or do you find yourself discussing last night's football game? Perhaps a quote from "Laugh In's" General Bullright is appropriate — "Buck up . . ."



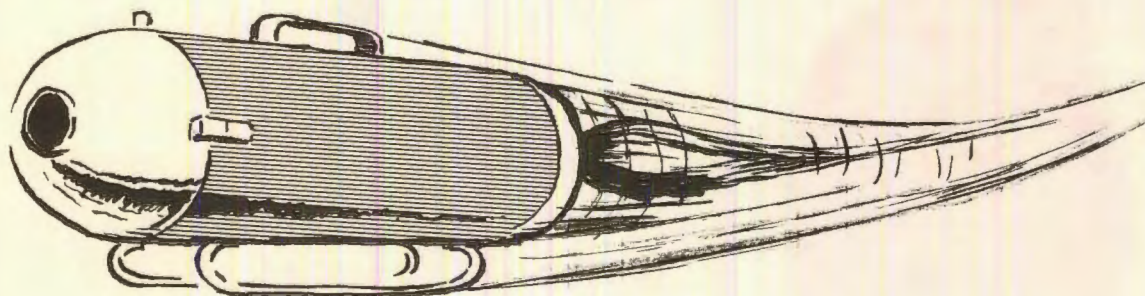
SAFETY MAN RE-INVENTS THE JET ENGINE

It has recently been disclosed that one of our safety officers (unnamed) pulled an unsafe maneuver! I know this sounds like an impossibility, but his story is so unique we'd like to share it with you.

It seems the fellow was faced with the distasteful task of siphoning some gas from one automobile tank to another (completely legal). After one try at sucking at the hose and managing to get only noxious fumes, the light bulb suddenly clicked on. Espying his vacuum cleaner in

the far corner of the garage, he decided to let Reddy Kilowatt do the job. Tightly holding the rubber hose and vacuum cleaner hose together, he cranked the machine up — success! The fuel transfer complete, he then decided to start up the vacuum cleaner and “blow it out.” That’s close. “Blow it up” is closer. The fuel fumes, turbine and igniter plug (on-off switch) produced a jet engine — a very inefficient jet engine. The machine went up in flames — fortunately, that was the only material loss.

As with a lot of “dumb things” people do, it seemed like a good idea at the time. To avoid sermonizing too much here, we’ll simply suggest that if you decide to get highly innovative, think how it will sound the next time you tell your friends about it over a beer in the casual bar . . . if there is a story to tell . . . if there is a next time.





**a
FOOT
to spare**

by CMSgt Vernon L. Devitt
316 TAW/SEFE, Langley AFB, Va.

Picture yourself as a C-130 loadmaster. Your unit is on rotation in Panama and you are on a flight in South America. A couple of days ago, you had some spare time so you explained the operation of the dual rail system to a pilot who was interested. Today that pilot is on the flight. You pick up your load and depart for your off-load base. The load consists of four 463-L pallets weighing 2000 pounds each, and a vehicle which you load aft of the pallets. Your contact for the off-load base is the vehicle operator who accompanies you on the flight, and informs you that there are no off-loading vehicles at your destination. As a crew, you decide to combat off-load the pallets using Method B (one pallet at a time). You review the procedures in TACM 55-130 over the interphone. You are ready. Yes, you are ready for a combat off-load even though AFTO Form 781A has an entry "L.H. Dual Rail Sys Inop Normal, OK in Emer" that hasn't been corrected. You can use the right-hand locks for restraining the pallets until it is time to release them singly.

You land, off-load the vehicle, and begin preparation for a combat off-load, Method B. Because your pilot is checked out on the operation of the dual rails, you decide to let him operate the controls during the off-load. Because of limited space in the off-load area, the aircraft commander changes his mind and decides that Method A (all the pallets at one time) should be used. You acknowledge a couple of things and begin the off-load. You position yourself aft of the left wheelwell and signal the pilot actuating the dual rail controls to release the load. The pilot releases the right-hand locks and shortly thereafter you call for help. The first pallet exited O.K., but the second one has pinned your left foot! During follow-on medical treatment, your left foot is amputated above the ankle.

Here's another one. The time, place and names are unimportant. Those involved will know. At least one will never forget. Briefly, this is how it happened: The aircraft was stopped with all four engines running. Two US Army troops boarded the aircraft and requested a combat

off-load because the individual pallet weights exceeded the weight capacity of the available forklift. The loadmaster concurred. The load consisted of four pallets of Class A explosives. The loadmaster positioned the dual rail right-hand release handle to the Emergency Position (this removed the aft restraint on the right-hand side of the pallet) and then positioned the simultaneous handle to the fourth position (this removed both fore and aft restraint on the left side). He then told the Army troops to stand clear, and they did. Because of the congestion in the off-load area, the aircraft commander decided to use off-load Method B. The loadmaster concurred and positioned the left-hand simultaneous handle to the stowed position. This should have provided both fore and aft restraint on the left-hand side of the pallet, but the locks do not automatically provide positive restraint with this locking method; the sequential control handle must be used to relock the locks (this procedure is now a "WARNING" in TO 1C-130A-9). With the assistance of the two Army troops, he began pushing the most rearward pallet from the aircraft. The loadmaster and one Army troop walked with the pallet to the ramp hinge. The other troop stopped prior to this position. The aircraft commander asked for a progress report and the loadmaster replied that the pallet was on its way out of the aircraft and that it was clear to taxi. At this time, the flight engineer left his position to observe the off-loading (the navigator should have been positioned at the foot of the steps leading to the crew compartment to coordinate and observe the operation, but he was looking out the forward overhead hatch). As the aircraft started to move, the flight engineer noticed that the three remaining pallets started to move, so he called on the interphone to stop the aircraft. As the three pallets moved aft, the foot of the one Army troop was pinned between the aft edge of the aft pallet and the crossmember of the dual rail conveyor frame assembly. When the loadmaster attempted to release the right-hand locks, the pin at a draw bar connection failed and the locks had to be manually released. The two forward pallets were moved without difficulty; however, to free the Army troop, the remaining pallet had to be moved slightly to the rear to release the pressure on the lock that was holding it. Before the pallet

A FOOT TO SPARE

was forced aft to release the lock, other methods of freeing the Army troop were tried. The pallet was off-loaded and the left side was moved in an attempt to release the pressure on the right side. An attempt was made to raise the pallet with steel bars. These attempts failed, as did an attempt to cut through the pallet with an axe. All available first aid was rendered and the Army troop was flown to a field hospital where his left foot was amputated.

What was wrong in the pictures just painted? Basically, you could say, not using or following the checklist. But the following questions should alert you to other mistakes committed in our two examples. Who is authorized by TACM 55-130 to operate the dual rail control handles during a combat off-load? Are you qualified to give instructions during the operational phase of the mission? What should your position be during the operation? Do you know the responsibilities of the other crewmembers during a particular operation? What is the aft restraint of the right-hand locks? Can they be unlocked one-at-a-time, using the control handle? Knowing the answers to these questions might have prevented these tragedies. Using the checklist certainly would have.

What these two accidents have in common is the half-hearted use or complete disregard of the checklist. In each of these incidents, the use of and strict compliance with the published checklist would have saved needless suffering and lost manhours.

I direct this article at the C-130 loadmasters because I am one. I can see the trend on the Trend Analysis Chart. I write the Remarks on the AF Form 8 — remarks such as "Did not use checklist;" "Performed checks out of sequence;" "Checklist not current;" etc. I direct it at the loadmaster because in the majority of the accidents, the Board finds that the primary cause is "Aircrew factor in that the loadmaster failed to use or follow his checklist."

I do not wish to imply that the loadmaster is the only crewmember who does not use his checklist properly. In the recent past, I was administering a proficiency flight

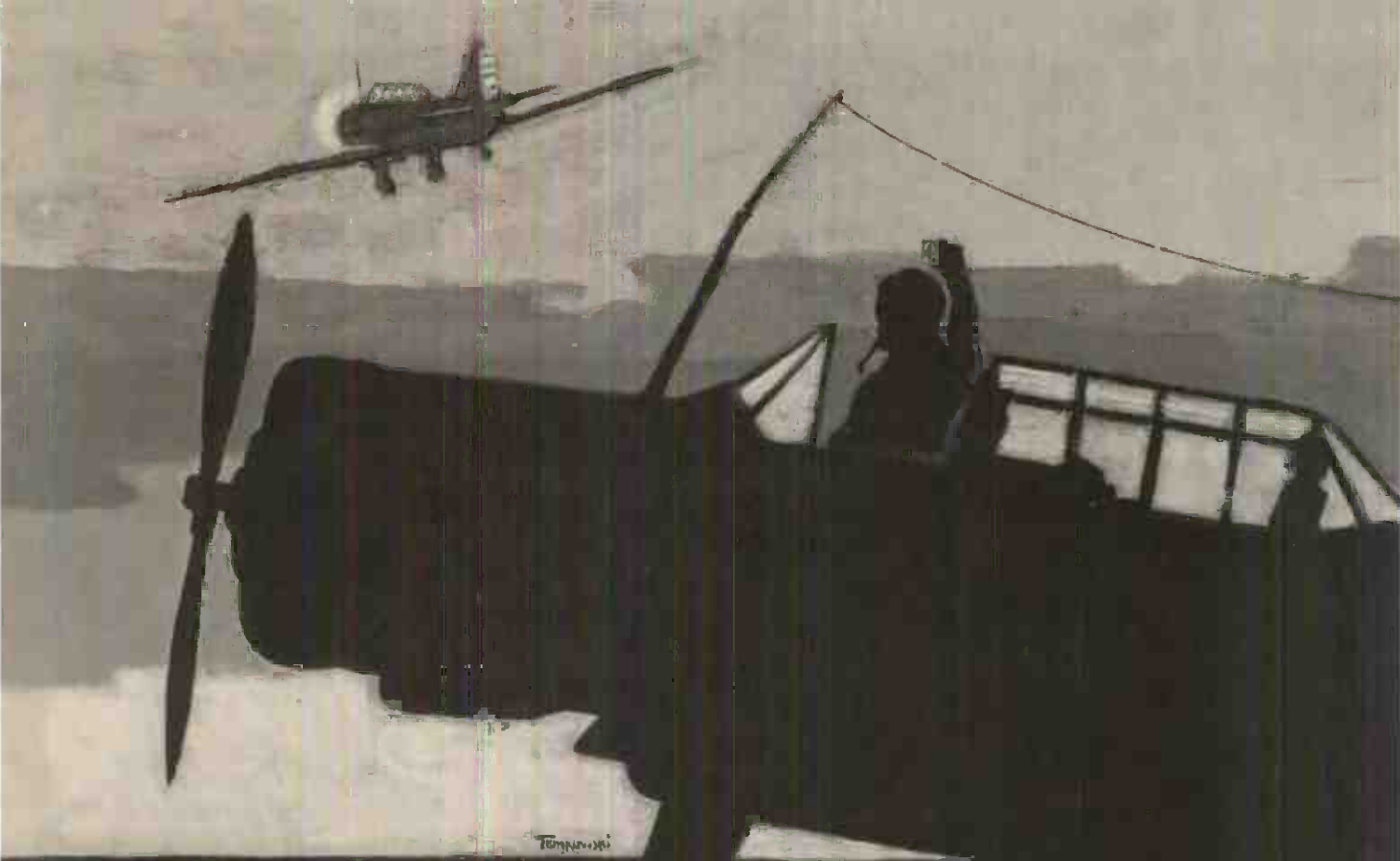
evaluation on a mission in support of Exotic Dancer. After loading the aircraft at an intermediate stop, number three engine wouldn't start on the first try, so the other three were started and then we tried number three again. It still wouldn't start so the crew decided to shut down. The following is a reasonable facsimile of the conversation that I heard on the interphone. "Are we going to shut down by the checklist, or are we just going to shut down?" "We'll just shut down." As usual in instances like this, things aren't too well organized and as the flight engineer started to leave the aircraft, I mentioned that the chocks were not in place. The flight engineer turned to the aircraft commander and said something about having a Stan/Eval Evaluator on board and that they should insert the chocks. You can bet that I was not at ease throughout the remainder of the mission!

Some of these incidents may have been caused by "too much help" and others by the "rush factor," both of which would be eliminated if the checklist were used. There are no provisions in the checklist for too much help or for rushing. Use your checklist. Make sure that the odds are in your favor; ask the aircraft commander to accomplish his checklist. Don't be afraid to speak up.

I have written this article as a SEFE Loadmaster who is concerned about the welfare of loadmasters flying the line, many with very little field experience, hacking the mission with the limited equipment available to them. I would like this article to be a chain letter. If you are a loadmaster, don't put this article down after you have read it; give it to another loadmaster to read. It could save him or someone else a serious injury.

Use your checklist. If it is inadequate or incorrect, take the proper steps to have it changed. If you don't know how to get it changed, ask your friendly Stan/Eval section.

The very next time that you perform any operation for which there is a published checklist (and why are you doing it if there isn't?), ask yourself this question: "Do I have a hand — or eye — OR A FOOT TO SPARE?" ➤



Lessons that Live

From a collection of anonymous stories published in 1942 by the Army Air Forces, TAC ATTACK presents:

Lessons That Live

No. 13 of 17

Courtesy of Lt Col H. M. Butler, 4500 ABW/SE

ONE TOO MANY GREEN LIGHTS

I've now flown more than a thousand hours and I can honestly say I have never had what could rightly be called a narrow escape from a fatal accident — in the air. But I surely heard the flapping of angels' wings once while I was on the ground.

An account of this accident may help some of our new young pilots to avoid making the mistake which almost spelled curtains for me.

This incident happened while I was still a student and we were participating in night flying at Stockton Field, California. I was standing beside an airplane, one of a long

line of ships parked with their wings parallel to the runway. Another student was sitting in the plane and we were talking of this and that while awaiting our turns.

All of a sudden I heard the roar of an engine at full throttle and looked up to see an airplane not fifty feet away and coming at us like a meteor. I dived for the ground and flattened out, but my classmate in the plane was powerless to do anything but duck his head and wriggle down as far as he could in the cockpit.

The oncoming ship zoomed over our heads so close that it tore off the radio mast of the plane beside which I had been standing and badly damaged its own right aileron on the propeller of the parked ship.

Afterwards, we found out exactly what had happened.

Just as the student was getting ready to go, a big whirl of dust in the takeoff area obscured the runway ahead of him and he became confused as to just exactly in which direction he was to take off. He knew, however, that a green light was at the end of the runway. A cursory look and he took off — straight for us. He had mistaken the green running light of our parked plane for the runway beacon. It was just one of those miracles that he missed killing himself and the two of us by the proverbial whisker.

All of which goes to prove the axiom drilled into all pilots by their instructors — it's a whole lot easier to stay out of trouble than it is to get out.



Several years ago a group of hunters headed out into the wilds for a week of hunting and relaxing. As they drove up toward the area, they discussed the much-publicized recent attacks by bears on campers. As they drove higher into the surrounding mountains, they all agreed that these attacks were really few and far between, just highly publicized. Having at least superficially eased their minds, they continued on. Arriving at the site, they proceeded to set up camp. They'd just put the finishing touches to the camp as the sun was setting. They then settled down around the campfire to share a bottle of "Old Stumpblower" and to map out their plans for the next days' hunt. One member got up and wandered out into the brush to commune with nature. Finishing his

communing, he started back toward camp. Deciding to spice up the evening a little bit, he started to shake the bushes and growl loudly.

His buddies promptly, and without any hesitation whatsoever, put twenty-two bullets into him! Dumb? Yes! Head-up-and-locked? Definitely! Obviously none of the professional TAC team are involved in such heads-up-and-locked maneuvers, right? Wrong! Each year seven or eight TAC personnel are involved in firearms incidents or accidents. They run the gamut, from "unloaded pistols" going off in the BOQ, to "unloaded rifles" going off in the car. The 7-8 people mentioned are only the military reportable cases. We have no idea of the number of dependents or civilian "white knuckle" incidents

ROD

by Lt Col John T. Lumsdon
Hq TAC/XPS, Langley AFB, Va.
Rod and Gun Club Custodian

that merely boost Fruit of the Loom sales.

Hunting, shooting, and guns in general provide many people with hours of enjoyment and relaxation. When enjoyed safely, these sports get us out of doors and stimulate our appreciation of the environment. The secret is in the word safety. Remember, shooting sports are a lot like flying, in that one single careless action can cause disaster.

Handling firearms safely requires clear-headed attention to some pretty basic rules. Again, as in flying or driving, there is no safety margin for fuzzy-headedness whether from booze, hangover, prescriptions (such as cold medicine), or just a lack of sleep. The following rules are compiled from a number of sources, and are provided as a guide.

1. KNOW YOUR GUN

- Be sure the gun and ammunition are in good condition.
- Sight in the gun before the hunt. (This includes a few rounds of skeet or trap for you shotgun hunters.)
- Learn to be a good shot and only take shots within your ability.

2. HANDLE YOUR GUN PROPERLY

- Treat every gun as if it were loaded.
- Always point the muzzle in a safe direction.
- Be sure of your target, and know what's behind it.
- Keep the safety on and your finger out of the trigger guard until sighting in on a sure target.
- Be cool and practice self-control.
- Unload and open the action unless the gun is in use.
- Store the guns and ammunition separately and in a safe place.

3. FULFILL YOUR RESPONSIBILITIES AS A SAFE HUNTER

- Establish safe zones of fire.
- Know and observe the game laws.

- Be courteous to all (especially land owners).

4. INSIST THAT YOUR COMPANIONS ALSO OBSERVE THESE RULES

There's nothing new in these rules; most of us have heard them or something similar. Yet accidents occur every year from gross violations. Hit up your local Rod and Gun Club or Ground Safety Office for some information on gun and hunter safety courses. You won't lose your amateur standing and you might even enjoy it. See you on the ranges!



TACTICAL AIR COMMAND

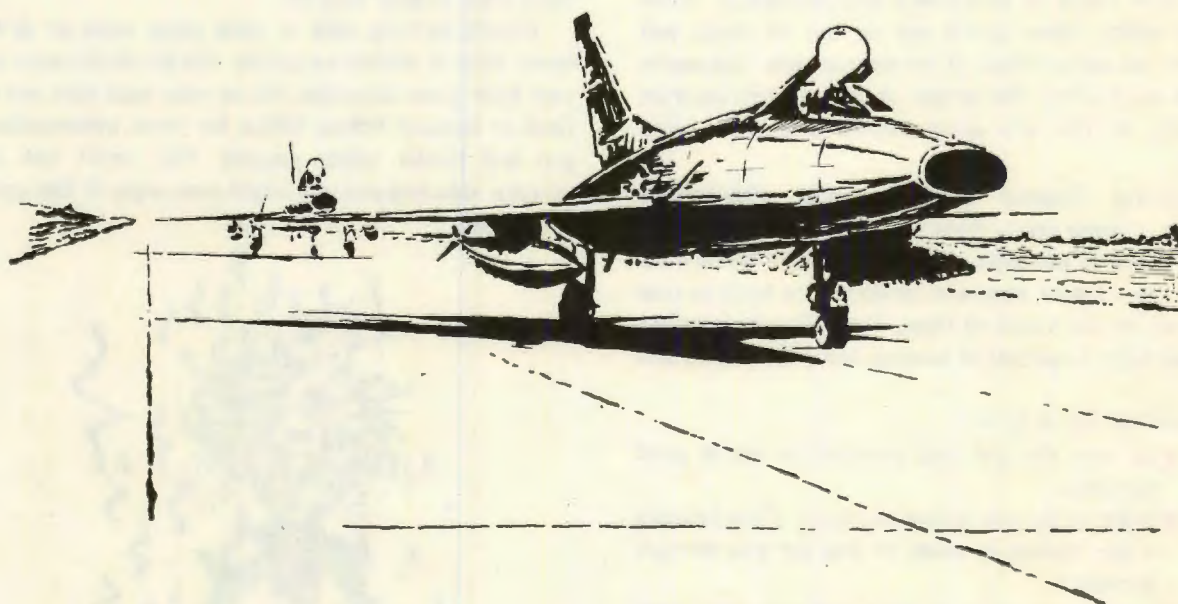
AIRCREW MEN of DISTINCTION



2Lt Opp



Capt Hurst



Second Lieutenant James S. Opp and Captain Jackson F. Hurst, 162d Tactical Fighter Training Group, Tucson, Arizona, have been selected for the Tactical Air Command Aircrewmembers of Distinction Award for August 1973.

Lt Opp was number two in a flight of two F-100s led by Capt Hurst. The flight was uneventful for the first five minutes, but then Lt Opp noticed the onset of a very mild vibration. A few moments later, the engine compressor stalled severely, and EGT and fuel flow started to fluctuate. Lt Opp immediately notified Capt Hurst of the engine problem and made a turn toward home base. During the turn Capt Hurst took the wing position and told Lt Opp to set his power at 89 percent to allow him to recover with minimum throttle movement. Lt Opp then maneuvered to set up a precautionary landing pattern while avoiding overflying populated areas.

During the descent the engine compressor stalled three

more times. Each time flame erupted from the tail pipe. Lt Opp calmly continued the precautionary landing pattern and lowered the gear and full flaps on base leg. On final approach the engine compressor stalled four more times and lost more thrust. Capt Hurst immediately advised Lt Opp to go to half flaps to reduce drag. Raising his flaps to one-half, Lt Opp was able to complete the approach and make a successful landing. Subsequent investigation showed that the engine had disintegrated from the 12th through the 16th stage compressors.

Lieutenant Opp, with less than thirty hours in the F-100, showed extraordinary skill and professionalism. Captain Hurst's quick assessment of the situation and timely advice demonstrated his outstanding judgment. Their combined efforts transformed a potential disaster into a safe landing and certainly qualifies both pilots as Tactical Air Command Aircrewmembers of Distinction. ➤

GET LIT AND LIVE

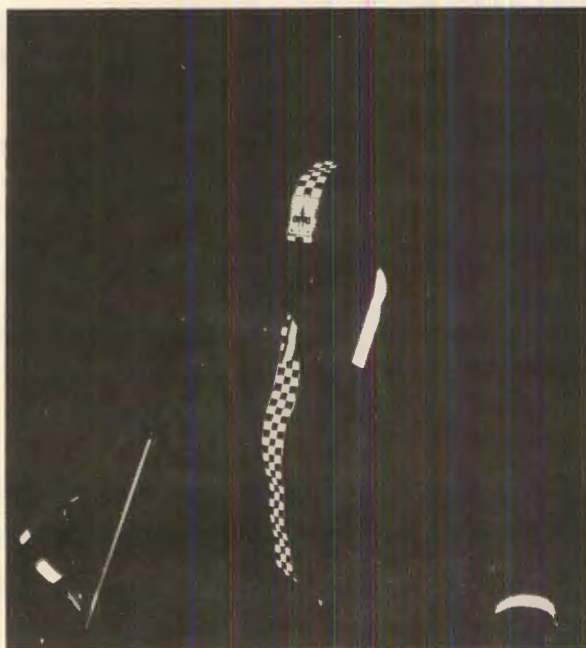
The "see and be seen" idea doesn't apply just to those who fly airplanes. It applies to everyone. It's pretty easy to be seen in the daytime, but it's a lot harder to be seen at night. Airplanes use rotating beacons, called, appropriately enough, anti-collision lights. To increase your chances of being seen at night, you motorcyclists, bike-riders, and pedestrians have your own version of the "anti-collision light" available to you... retro-reflective materials.

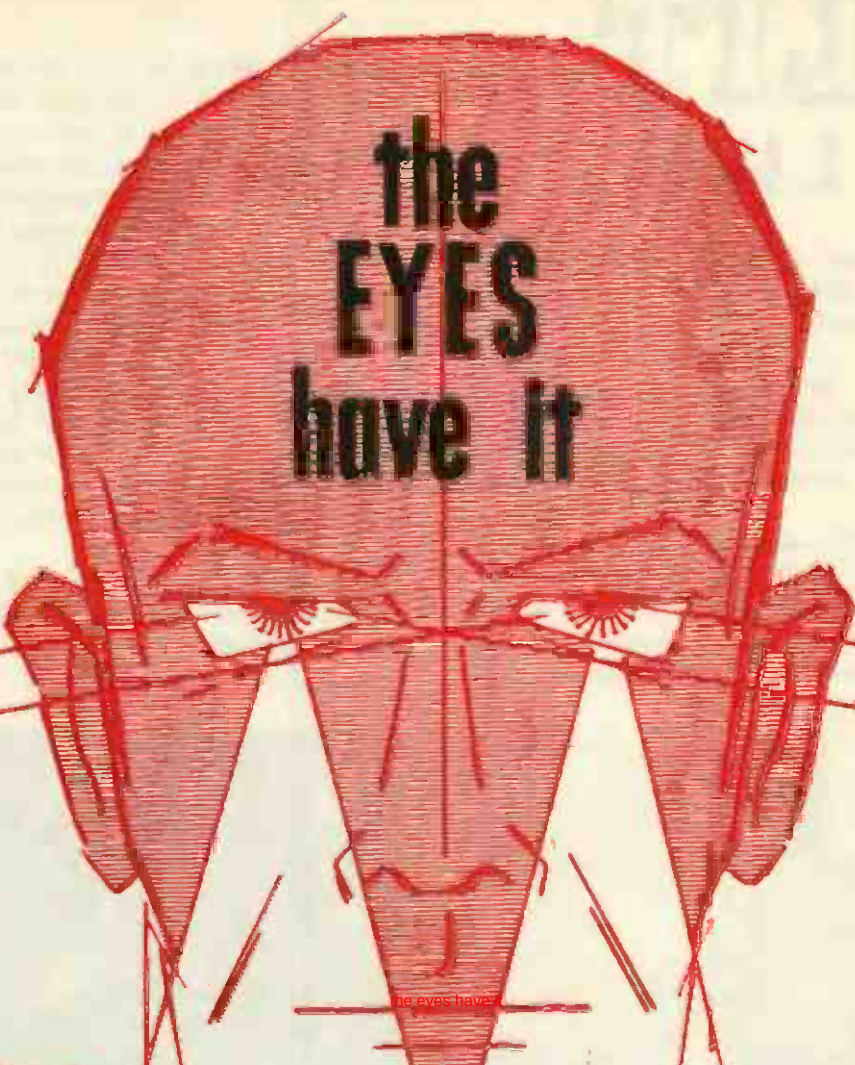
Each year in the U.S. more than 9000 pedestrians are killed and another 500,000 are injured in motor vehicle-pedestrian accidents. Over 2000 motorcyclists and 750 bicyclists die each year in similar accidents. About 55 percent of all pedestrian deaths occur during hours of

darkness — despite the fact that traffic is significantly reduced at night. In a safety study conducted by the State of Indiana, 87 percent of drivers who were involved in pedestrian accidents claimed they had difficulty seeing the victim until it was too late. Enough statistics.

As fall and winter bring more and more hours of darkness, the need to "light up" becomes even more important. The accompanying photos dramatically point out the effectiveness of the reflective tape. Besides the sew-on material worn by our flight line personnel, we suggest you look into purchasing one of the many varieties of reflective material (iron-on tape, shoe reflectors, chalk, spray paint) for use by you and your family. Bicycles, motorcycles (and helmets), boats, trailers, and bumper jacks are all likely candidates for the tape.

For pedestrians, outer garments such as raincoats, rainhats, boots, belts, and umbrellas should be "enlightened." We'll leave it up to your imagination, but please don't be shy — get lit and live. ➤





the EYES have it

Extracted from an article by the AOPA Air Safety Foundation —
"How to Avoid a Midair Collision"

It has been estimated that 80 percent of our total information intake is through the eyes. In the air we depend on our eyes to provide most of the basic input necessary for performing a flight — attitude, speed, direction, and proximity to things (like the ground), and opposing air traffic that may constitute a danger of in-flight collision. As air traffic density and aircraft closing speeds increase, the problem of in-flight collision grows proportionately, and so does the importance of the "eyeball system." A basic understanding of the eyes' limitations in target detection is probably the best insurance a pilot can have against running into another airplane and spoiling his whole day.

PROFILE OF MIDAIR COLLISIONS

An understanding of the nature of past in-flight collisions is helpful, since the statistics form some definite warning patterns. It may be surprising to some, for example, to know that nearly all collisions occur in daylight hours in VFR weather. Not so surprising, the majority happen within five miles of an airfield, or other areas of high air traffic concentration.

There is no way to say whether the inexperienced pilot or the old, bold pilot is most likely to be involved in an in-flight collision. A beginning pilot has so much to think about he may forget to look around. On the other hand, the old head, having sat through many hours of boring flight without spotting any hazardous traffic, may grow complacent and forget to scan. **NO PILOT IS INVULNERABLE.**

CAUSES OF MIDAIRS

What causes in-flight collisions? Undoubtedly, increasing traffic and higher closing speeds represent

potential. For instance, let's say two aircraft have a closing speed of about 750 mph. It takes a minimum of 10 seconds, says the FAA, for a pilot to spot traffic, identify it, realize it's a collision threat, react, and have his aircraft respond. But two planes converging at 750 mph will be less than 10 seconds apart when the pilots are first able to detect each other!

These problems are heightened by the fact that our air traffic control and radar facilities are, in some cases, overloaded and limited.

These are all causal factors, but the reason most often noted in the statistics reads: "FAILURE OF PILOT TO SEE OTHER AIRCRAFT" — failure of the see-and-be-seen system. In most cases at least one of the pilots involved could have seen the other in time to avoid contact, IF HE HAD JUST BEEN USING HIS EYES PROPERLY. So, it's really that complex, vulnerable little organ — the human eye — which is the leading cause of in-flight collisions.

LIMITATIONS OF THE EYE

The eye, and consequently vision, is vulnerable to just about everything: dust; fatigue; emotion; germs; fallen eyelashes; age; optical illusions; and the alcoholic content of last night's party. In flight our vision is altered by atmospheric conditions, windshield distortion, too much oxygen or too little, acceleration, glare, heat, lighting, aircraft design, and so forth.

Most of all, the eye is vulnerable to the vagaries of the mind. We can "see" and identify only what the mind lets us see. For example, a daydreaming pilot staring out into space sees no approaching traffic and is probably the No. 1 candidate for an in-flight collision.

One function of the eye that is a source of constant problems to the pilot (though he is probably never aware of it) is the time required for accommodation. Our eyes automatically accommodate for (or refocus on) near and far objects. But the change from something up close, like a dark panel two feet away, to a well-lighted landmark or aircraft target a mile or so away, takes one to two seconds, or longer, for eye accommodation. That can be a long time when you consider that you need 10 seconds to avoid in-flight collisions.

Another focusing problem usually occurs at very high altitudes, but it can happen even at lower levels on vague, colorless days above a haze or cloud layer when no distinct horizon is visible. If there is little or nothing to focus on at infinity, we do not focus at all. We experience something known as "empty-field myopia," we stare but see nothing, even opposing traffic, if it should enter our visual field.

The effects of what is called "binocular vision" have been studied seriously by the National Transportation Safety Board (NTSB) during investigations of in-flight collisions, with the conclusion that this is also a causal factor. To actually accept what we see, we need to receive cues from both eyes. If an object is visible to one eye, but hidden from the other by a windshield post or other obstruction, the total image is blurred and not always acceptable to the mind.

Another inherent eye problem is that of narrow field of vision. Although our eyes accept light rays from an arc of nearly 200 degrees, they are limited to a relatively narrow area (approximately 10-15°) in which they can actually focus on and classify an object. Though we can perceive movement in the periphery, we cannot identify what is happening out there, and we tend not to believe what we see out of the corner of our eyes. This, aided by the brain, often leads to "tunnel vision."

This limitation is compounded by the fact that at a distance an aircraft on a collision course with you will appear to be motionless. It will remain in a seemingly stationary position, without appearing either to move or to grow in size for a relatively long time, and then suddenly bloom into a huge mass filling one of your windows. This is known as "blossom effect." Since we need motion or contrast to attract our eyes' attention, this becomes a frightening factor when you realize that a large bug smear or dirty spot on the windshield can hide a converging plane until he's too close to be avoided.

In addition to the built-in problems, the eye is also severely limited by environment. Optical properties of the atmosphere alter the appearance of traffic, particularly on hazy days. "Limited visibility" actually means "limited vision." You may be legally VFR when you have three miles, but at that distance on a hazy day, opposing traffic is not easy to detect. At a range closer than three miles — even though detectable — he may not be avoidable.

Lighting also affects our vision stimuli. Glare, usually worse on a sunny day over a cloud deck or during flight directly into the sun, makes objects hard to see and scanning uncomfortable. Also, an object that is well lighted will have a high degree of contrast and will be easy to detect, while one with low contrast at the same distance may be impossible to see. For instance, when the sun is behind you, an opposing aircraft will stand out clearly, but when you're looking into the sun and your traffic is "backlighted," it's a different story.

Another contrast problem area is trying to find an airplane over a cluttered background. If it is between you and terrain that is vari-colored or heavily dotted with buildings, it will blend into the background until it is quite close.

eyes

And, of course, there is the mind, which can distract us to the point of not seeing anything at all, or lull us into cockpit myopia — staring at one instrument without even “seeing” it. How often have you filed IFR on a CAVU day, settled back at your assigned altitude with autopilot on, and then never looked outside, feeling sure that “Big Daddy Radar” will protect you from all harm? Don’t you believe it. Remember, our radar system has its limitations too! It’s fine to depend on instruments, but not to the exclusion of the see-and-be-seen system, especially on days when there are pilots not under radar surveillance or control. And don’t forget, our Air Traffic Control (ATC) system is definitely not infallible, even when it comes to providing radar separation between aircraft flying on IFR flight plans.

As you can see, visual perception is affected by many factors. It all boils down to the fact that pilots, like anyone else, tend to overestimate their visual abilities and to misunderstand their eyes’ limitations. Since the No. 1 cause of in-flight collisions is the failure to properly adhere to the see-and-be-seen concept, we can conclude that the best way to avoid them is to learn how to use our eyes in an efficient external scan.

HOW TO SCAN

So, you want to know what is the perfect scan? There is none, or at least there is no one scan that is best for all pilots. The most important thing is for each pilot to develop a scan that is both comfortable and workable for him . . . in his own airplane.

The best way to start is by getting rid of bad habits. Naturally, not looking out at all is the poorest scan technique, but glancing out at intervals of five minutes or so is also poor when you remember that it only takes seconds for a disaster to happen. Check yourself the next time you’re climbing out, making an approach, or just bouncing along over a long cross-country route. See how long you go without looking out the window.

Glancing out and giving it the old once-around without stopping to focus on anything is practically useless; so is staring out into one spot for long periods of time (even though it may be great for meditation).

So much for the bad habits. Learn how to scan properly; first, by knowing where to concentrate your search. It would be preferable, naturally, to look everywhere constantly but, that not being practical, concentrate on the areas most critical to you at any given time. In the traffic pattern especially, clear yourself before every turn, and always watch for traffic making an

improper entry into the pattern. During descent and climbout, if possible, make gentle S-turns to see if anyone is in your way.

During that very critical final approach stage, don’t forget to look behind and below, at least once; and avoid tunnel vision. Pilots often rivet their eyes to the point of touchdown. (You may never arrive at it if another pilot is aiming for the same numbers at the same time.)

In normal flight, you can generally avoid the threat of an in-flight collision by scanning an area 60 degrees to the left and to the right of your center visual area. This doesn’t mean you should forget the rest of the area you can see from your side windows every few scans. Horizontally, the statisticians say, you will be safe if you scan 10 degrees up and down from your flight vector. This will allow you to spot any aircraft that is at an altitude that might prove hazardous to your own flight path, whether it’s level with you, below and climbing, or above and descending. Of course these limits don’t apply during AERO or ACM training.

THE SLOWER YOUR PLANE, THE GREATER YOUR VULNERABILITY: HENCE, THE GREATER SCAN AREA REQUIRED.

But don’t forget that your eyes are subject to optical illusions and can play some nasty tricks on you. At one mile, for example, an aircraft flying below your altitude will appear to be above you. As it nears, it will seem to descend and go through your level, yet all the while it will be straight and level below you. One in-flight collision occurred when the pilot of the higher flying airplane experienced this illusion and dove his plane right into the path of the craft flying below.

Though you may not have much time to avoid another aircraft in your vicinity, use your head when making defensive moves. Even if you must maneuver to avoid a real in-flight collision, consider all the facts. If you miss the other aircraft but stall at a low altitude, the results may be the same for you.

SCAN PATTERNS

Your best defense against in-flight collisions is an efficient scan pattern. Two basic scans that have proved best for most pilots are called the “block” system. This type of scan is based on the theory that traffic detection can be made only through a series of eye fixations at different points in space. Each of these fixes becomes the focal point of your field of vision (a block 10-to-15 degrees wide). By fixating every 10-to-15 degrees, you should be able to detect any contrasting or moving object in each block. This gives you nine-to-twelve “blocks” in your scan area, each requiring a minimum of one to two seconds for accommodation and detection.

One method of block scan is the “side-to-side” motion.

Start at the far left of your visual area and make a methodical sweep to the right, pausing in each block to focus. At the end of the scan, return to the panel.

The second form is the "front-to-side" version. Start with a fixation in the center block of your visual field (approximately the center of the front windshield in front of the pilot). Move your eyes to the left, focusing in each block, swing quickly back to the center block, and repeat the performance to the right.

There are other methods of scanning, of course, some of which may be as effective for you as the two preceding types. UNLESS SOME SERIES OF FIXATIONS IS MADE, HOWEVER, THERE IS LITTLE LIKELIHOOD THAT YOU WILL BE ABLE TO DETECT ALL TARGETS IN YOUR SCAN AREA. When the head is in motion, vision is blurred and the mind will not register targets as such.

THE TIME-SHARING PLAN

External scanning is just part of the pilot's total eyeball job. To achieve maximum efficiency in flight, one has to establish a good internal (panel) scan as well and learn to give each its proper share of time. The amount of time one spends eyeballing outside the cockpit in relation to what is spent inside depends, to some extent, on the workload inside the cockpit and the density of traffic outside. Generally, the external scan will take about three to four times as long as a look-around the instrument panel.

McDonnell Douglas recently conducted an experimental scan training course, using military pilots ranging in experience from 350 to over 4000 hours. They discovered that the average time needed to maintain a flight situation status quo was three seconds for panel scan and 17 seconds for outside.

COLLISION AVOIDANCE CHECKLIST

Collision avoidance involves much more than proper eyeball techniques. You can be the most conscientious scanner in the world and still have an in-flight collision if you neglect other important factors in the overall see-and-be-seen picture. It might be helpful to use a collision avoidance checklist as religiously as you do the pretakeoff and landing checklists. Such a list might include the following seven items.

1. CHECK YOURSELF. Start with a check of your own condition. Your eyesight, and consequently your safety, depend on your mental and physical condition.

2. PLAN AHEAD. Plan your flight ahead of time. Have charts folded in proper sequence and within handy reach. Keep your cockpit free of clutter. Be familiar with headings, frequencies, distances, etc., ahead of time; so,

that you spend minimum time with your head down in your charts. Check in advance for restricted areas, low-level routes, intensive student jet training areas and other regions of high density.

3. CLEAN WINDOWS. Make sure your windshield is clean. If possible, keep all windows clear of obstructions, like charts, enroute pubs and checklists.

4. ADHERE TO REGS. Stick to and observe the regulations of flight, such as correct altitudes and proper pattern practices. You can get into big trouble, for instance, by "sneaking" out of your proper altitude as cumulous clouds begin to tower higher and higher below you, or by skimming along the tops of clouds without observing proper separation. Some typical situations involving in-flight mishaps around airfields include: entering a right-hand pattern at a patch with left-hand traffic; entering downwind so far ahead of the traffic pattern that you may interfere with traffic taking off and heading out in your direction. In many in-flight collisions one, and sometimes both of the pilots involved were not where they were supposed to be.

5. COMPENSATE FOR DESIGN. Compensate for your aircraft's design limitations. All planes have blind spots; know where they are in your aircraft.

6. TALK AND LISTEN. Use your radios, as well as your eyes. When approaching an airfield whether or not you're going to land, call inbound and tell them your position, heading, altitude and intentions. And find out what the local traffic situation is. At a field with radar service, call approach control.

Since detecting a tiny aircraft at a distance is not the easiest thing to do, make use of any hints you get over the radio. A pilot reporting his position is also reporting to you. Once you have that particular traffic, by the way, DON'T FORGET THE REST OF THE SKY. If your traffic seems to be moving, you're not on a collision course, so continue your scan and watch it from time to time. If it doesn't appear to have motion, however, we suggest you watch it very carefully, and get out of its way, if necessary.

7. SCAN! The most important part of your checklist, of course, is to keep looking where you're going and to watch for traffic. Make use of one of the suggested scan patterns.

Basically, if you adhere to good collision avoidance procedures, and develop an effective scan time-sharing system, you'll have no trouble avoiding in-flight collisions. And as you learn to use your eyes properly, you'll benefit in other ways — beautiful sunsets, bikini-clad beauties and the 97-yard touchdown, just to name a few. Remember, despite their limitations, your eyes provide you with 80 percent of your ability to perceive — couple them with your brain and you'll be around to enjoy these benefits for a long, long time.



CHOCK TALK

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

WHAT WOULD YOU HAVE DONE?

What do you do when you run into a situation that's not covered in the manuals and tech orders? Here's what one unit in another command did.

A maintenance specialist went out to an F-4, and climbed up to the cockpit. He noticed that the rear of the ejection seat seemed to be damaged, so he gingerly climbed down and called for an egress specialist. The specialist arrived and examined the seat. Someone, in closing the canopy earlier, either through negligence or a lack of knowledge, had accidentally crushed a critical component of the seat. The slightest jolt could have fired it. The egress specialist backed off, had the airplane roped off, and called for safety and EOD. Since the problem wasn't covered in the tech orders, they decided to get tech rep assistance. The tech rep arrived on the scene that afternoon, and he and an EOD specialist looked over the damage and devised a plan to de-arm the seat. They injected some quick-drying dental cement into the seat initiator, hoping the substance would freeze the mechanism. They let the solution dry for 45 minutes as they studied and practiced their next step on a training seat. They made a tool to prevent the seat pin from slipping. Going back out to the airplane, the two men cautiously worked on the seat, safing it. Their ingenuity, calm professional approach, and cool-headedness saved the day.

Their makeshift methods will probably NOT work in your situation. What will work is your ability to recognize an unusual situation, one not in the books, and a willingness to call in the experts. When in doubt, get some expert advice and assistance.

THANKS

The other day, a TAC aircrew went out to their aircraft and everything seemed to be in order. The forms were in good shape, the crew chief was there, and everything checked out on the preflight. They taxied out, and the last chance folks took a look. All the panels were buttoned up, no fuel leaks, all pins pulled — the bird looked OK. On the runway the engines checked just like the flight manual said they should.

The mission was uneventful and everything worked as advertised. Afterwards, the crew was in and out of maintenance debrief in short order. After all, it doesn't take long when it's an OK flight.

You don't read much about OK flights in Chock Talk. There aren't many lessons to be learned or tips to pass on. But there is one thing we can say about them and we'd like to say it, loud and clear — THANKS!

COMPONENT CORROSION PART I

A crew recently shut down number two engine in their T-39 due to a fire warning. An uneventful single engine landing was accomplished. Investigation later revealed that the fire warning control box was defective and the connector pins were oxidized and rusted. This corrosion aggravated the already marginal control box, resulting in an unnecessary engine shut down.

During repairs and routine inspections, keep an eye out for our old enemy, corrosion. Rust and oxidation can be just as deadly as component failure, only sneakier. Keep an eye open for it.

COMPONENT CORROSION, PART II

The pilot of an OV-10A attempted a normal engine shut-down with the condition levers, but number one continued to run. The prop was feathered but as the crew was exiting the Bronco, the IP noted smoke coming from number one. The fire in the aft section of the engine was put out with a ground fire extinguisher, with no further damage. A subsequent check found that the fuel shutoff valve cam assembly rod had broken due to binding and . . . you guessed it — corrosion. This failure resulted in the shutoff valve remaining open, letting fuel flow into the hot tail pipe and igniting. If you suspect corrosion of **any** component — call in the experts!

YOU ONLY HAVE TWO

A young sergeant suffered retinal burns to both eyes while assisting a welder. The sergeant even had all the prescribed safety equipment, including a face shield. Unfortunately, it was in the "up" position when the welder struck an arc. The sergeant attempted to get the shield down by nodding his head, but wasn't fast enough. The moral is rather obvious, and its scope extends far beyond this incident. Merely having the protective equipment on hand because it's required isn't enough. The equipment must be used, and used properly. Otherwise, it just clutters up the work area and gets in the way.

3/4 FEATHER

During a low-level route, a C-130 crew experienced severe vibration. The crew identified the culprit as number two engine and immediately shut it down — almost. Only three blades went to feather. The fourth blade stopped at

about 25 degrees. During the uneventful emergency landing, the aircrew noted only minor drag and the prop didn't windmill. It was later determined that the number four blade did not respond to the dome assembly piston's movement. Investigation further revealed the blade thrust bearing retainer failed, causing the blade to seize in the hub socket, shearing the blade bushing attaching screws.



LETTERS TO THE EDITOR

1. TIG Brief # 15, page 17, 3 August 1973, has an outstanding article, "Emergency Procedure Training." I don't know who the author is, but he is singing my song. I'd like to buy him a drink. Suggest you include the article in TAC ATTACK for all to read.

If you ever get down to Norton AFB, contact Lt Col Kriner, Tactical Fighter Project Officer (AFISC). He's the author of the article and he said he'll take that drink. Here 'tis:

EMERGENCY PROCEDURE TRAINING

During the last six months of 1972, failure to use correct emergency procedures was cited as a cause factor in 16 accidents. Six pilots failed to use the correct out-of-control procedures and were forced to abandon their aircraft. Three used improper abort procedures and failed to stop the aircraft on the available hard surface. Four pilots did not use the correct procedures for a failed engine, including one who feathered the wrong propeller of a two-engine aircraft. One pilot failed to lower the aircraft tailhook after landing on a wet runway and departed the far end; while another did not follow the prescribed procedures for landing with a blown tire. Improper electrical failure procedures accounted for another.

Most likely, every one of these pilots could correctly write all of the BOLD FACE emergency procedures for his aircraft. All had passed the "closed book" portion of the proficiency examination. Why, then, when it really counted, did they react incorrectly? The easy way out

would be to blame stress. In reality, it was lack of realistic training. If they had been adequately trained, they would have responded correctly — even under stress.

If your emergency procedure training program is limited to evaluating a pilot's retention ability through administration of written exams, it is inadequate. This does not develop the motor reflexes necessary for a pilot to respond correctly in an emergency. The desired end product is correct movement of hands and feet in the cockpit. The only place this can be developed is in a simulator or a cockpit. A pencil and a desk are not substitutes.

2. Need a special favor from TAC ATTACK. If possible, please print the following want ad in TAC ATTACK:

WANTED . . .

ONE USED A-7 AIRCRAFT, AIR FORCE OR NAVY.

Aircraft is needed for training pilots in Emergency Ground Escape, Proper Strap-in Procedures, and Ejection Seat Training. Rescue teams will use the aircraft for practicing Pilot Rescue. A one time flight A-7 would be ideal. Ground transportation can be arranged. Your help could save a few lives.

Thank you very much,

CMSgt Thomas W. Linam, Jr.
Flight Simulator
Buckley ANG Base
Aurora, Colorado 80010
Autovon 877-9285

REUNION

The annual reunion of the 36th, 49th, 50th, and 86th TFW will be held in Las Vegas, Nevada at the Union-Plaza Hotel on 12th, 13th, and 14th October 1973. Colonel Robinson Risner will be the guest speaker. Base contact is Lt Col Bill McCollum, PO Box 9766, Nellis Air Force Base, Nevada. Autovon 682-2655 or 682-2750.



TAC TALLY

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

TAC		
AUG	THRU AUG	
	1973	1972
4	31	35
1	21	26
2	15	32
2	21	23
0	13	14

ANG		
AUG	THRU AUG	
	1973	1972
1	14	15
1	9	12
0	1	2
0	7	6
0	6	6

AFRes		
AUG	THRU AUG	
	1973	1972
0	1	2
0	1	1
0	2	0
0	1	0
0	0	0

TAC'S TOP "5"

FIGHTER/RECCE WINGS		
ACCIDENT-FREE MONTHS		
65	33 TFW	TAC
35	67 TRW	TAC
33	162 TFTG	ANG
32	4 TFW	TAC
26	184 TFTG	ANG

AIRLIFT/REFUELING WINGS		
ACCIDENT-FREE MONTHS		
97	136 ARW	ANG
88	313 TAW	TAC
61	316 TAW	TAC
50	126 ARW	ANG
49	463 TAW	TAC

SPECIAL UNITS		
ACCIDENT-FREE MONTHS		
108	2 ADGP	TAC
77	DET 1, D.C.	ANG
49	182 TASG	ANG
42	193 TEWG	ANG
39	71 TASG	TAC

OOPS! OUR "TOP 5" FIGURES FOR SEPT WERE IN ERROR—THESE FIGURES ARE CORRECT AS OF 31 AUG.

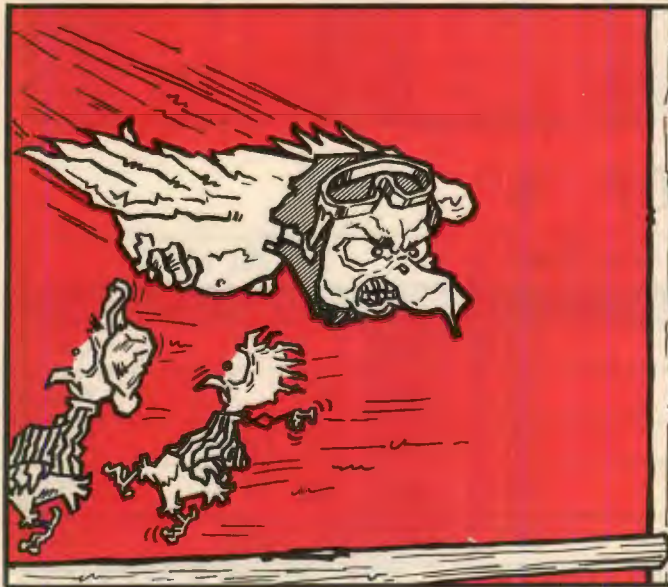
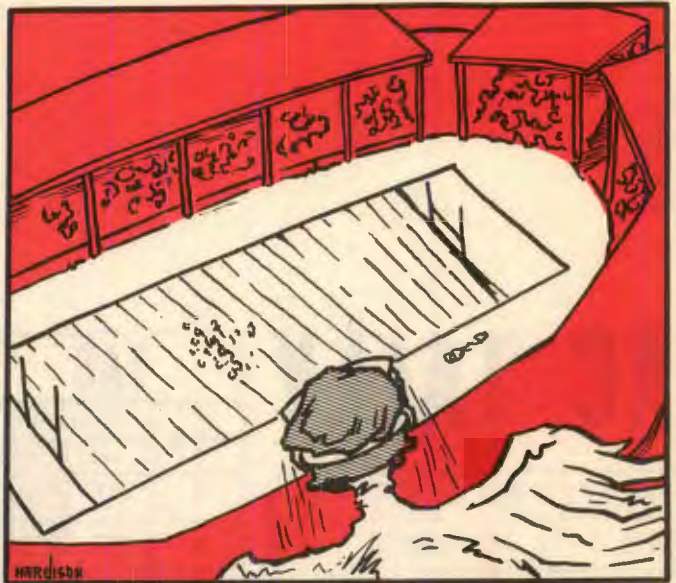
MAJOR ACCIDENT COMPARISON RATE 72-73

TAC	72	0	.8	1.6	2.8	4.0	4.8	4.2	4.6				
	73	5.0	5.1	5.1	4.2	4.3	5.0	4.7	4.4				
ANG	72	0	0	6.3	8.1	6.3	5.1	6.2	6.4				
	73	8.5	8.6	6.8	5.0	4.7	5.1	4.3	4.2				
AFRes	72	0	0	0	0	0	0	0	1.9				
	73	14.9	6.7	4.1	3.2	1.8	1.5	1.4	1.1				

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

FLEAGLE

HEY!
THE EAGLES AND FALCONS.
THINK I'LL BUZZ IN
FOR A CLOSER LOOK.



COOL

Foomp!

