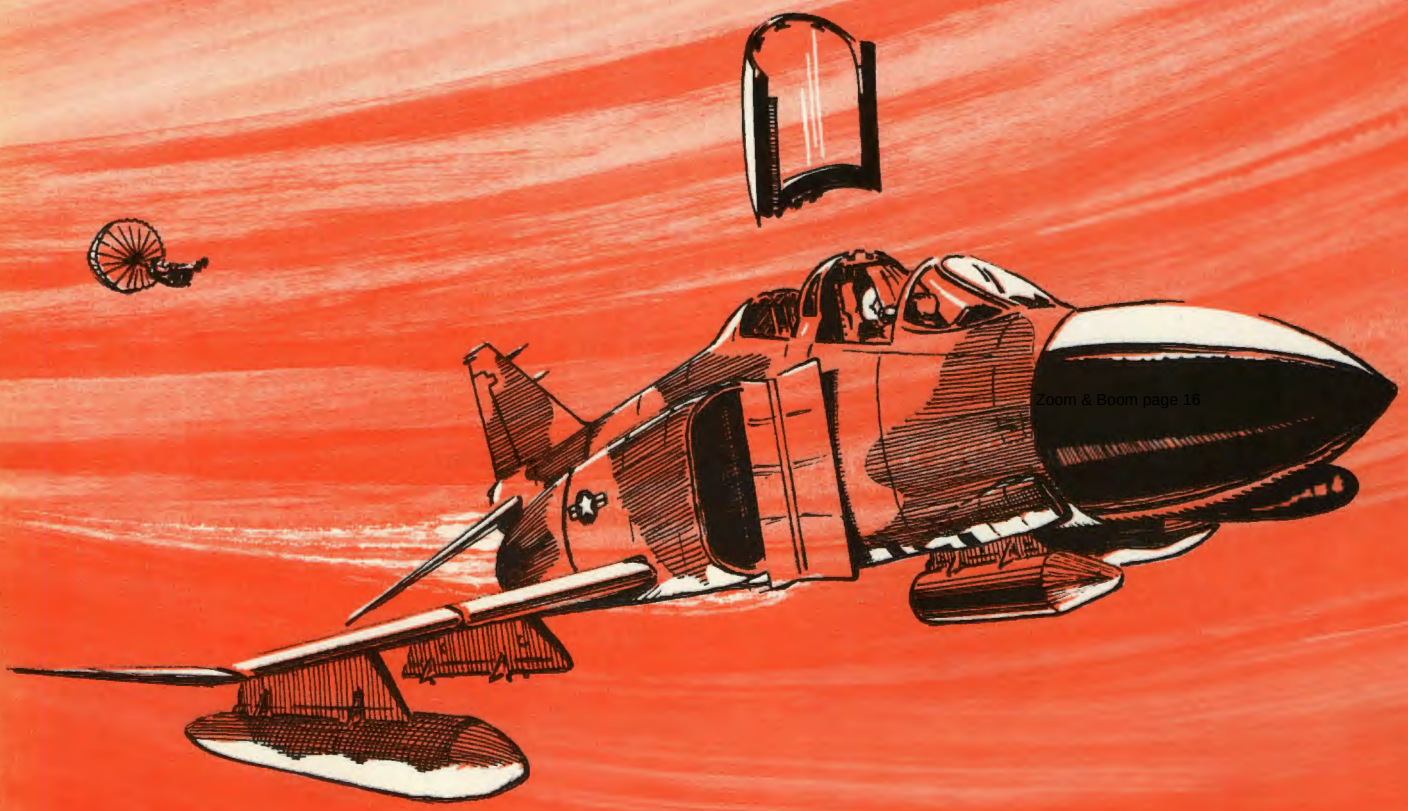
TAC ATTACK

TAC Attack

JULY 1973



Zoom & Boom page 16

ZOOM & BOOM
Pg 16

for efficient tactical air power

TAC ATTACK

JULY 1973
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Tactical Air Command

COMMANDER
GENERAL WILLIAM W. MOMYER
VICE COMMANDER
LT GEN DALE S. SWEAT
Published by the Chief of Safety
COLONEL E. HILLDING

editor
Maj Tim Brady

assistant editor
Capt Jim Young

art editor
Stan Hardison

managing editor
Mariella W. Andrews

layout and production
SSgt John Tomkowski

CURRENT INTEREST

DEPARTMENTS

TACRP 127-1

Angle of ATTACK

OSHA

The Occupational Safety and Health Act (OSHA) is a relatively new term in safety, but it will have an increasing effect on all of us, military and civilian. First a little background.

In 1970 Congress passed the Williams-Steigher Occupational Safety and Health Act, called OSHA. The law requires that all employers dealing in interstate commerce provide a safe and healthful work area. The President issued an Executive Order that made portions of the Act applicable to all federal agencies. AFR 127-12 has implemented that order. Civilian personnel, the surgeon, procurement, and safety, with safety OPR for reporting, are the key staff agencies responsible. The Act establishes a national set of safety standards, creates new reporting requirements and, for the first time, allows the Department of Labor (OSHA Administration) to get involved in the Air Force Safety Program.

OSHA provides work area safety standards with which we must comply. However, rather than trying to abide by two sets of rules, we in the Air Force will continue to use standards as written into Air Force publications. Those publications that are not consistent with OSHA standards will be changed. Each staff agency at base level is responsible to make sure that all work areas conform with OSHA standards as written into Air Force directives and to correct those conditions that do not. If conditions cannot be made to conform, a system for requesting waivers is provided in AFR 127-12.

All Air Force employees (military as well as civilians) have a right to present complaints concerning OSHA matters using present Air Force systems. It is important that we listen to and react to such complaints.

All injuries and illnesses suffered by DAF civilians in their work environment will be reported through safety channels to Air Force for statistical and analytical purposes.

The Department of Labor is permitted to inspect all Air Force contractor operations for compliance with OSHA standards and, with the permission of the Secretary of the Air Force, can inspect any Air Force operation about which a complaint has been made.

OSHA is a new fact of life; let's learn to live with it.

E. HILLDING, Colonel, USAF
Chief of Safety

"PHASING" into flying

by Major Lural D. Stingley
45TRS, Bergstrom AFB, Texas

ED NOTE: The following article was originally presented as a talk at a Flying Safety Meeting. It discusses some interesting and possibly controversial items.

HISTORY:

Once upon a time, way back in the early 1950s, Air Force cockpits were filled with young pilots, and the accident rate was way over 10 per 100,000 flight hours. Jet engines were new. Supervision was scanty, because we still believed in "SURVIVAL OF THE FITTEST." The "Poor Pilots" either killed themselves or were killed by other factors they couldn't handle. The "Good Pilots" survived, through skill, cunning, and a whole lot of luck. If a young troop was smart enough to want to learn from the experiences of others, he was forced to hang around the bar, because no one talked about his goofs until he had a few drinks under his belt.

In those days, the most used item for judging a pilot and predicting his longevity was his total flying time. There were countless studies made of the relationship between accidents and flying experience. These studies were published in every flying magazine in existence. And everyone agreed, the less flying time a pilot had, the more likely it was that he would be involved in an accident. As time rolled on, the Air Force cut back the production of rated officers and the laws of nature continued to function. Soon it became apparent that things had changed. The rated officer corps was still young, but it had gained a great deal of experience. Much of that experience had been quite exciting. The "Poor Pilots" for the most part had either been killed or frightened away. So it came to pass that when a brand new pilot reported in to his flying unit, he found himself surrounded by highly experienced aircrews — THE SURVIVORS — some prematurely gray. He was mothered along and was allowed to gather experience only under the watchful eyes of his supervisors until finally he too was considered an OLD HEAD PROFESSIONAL. As a result, the Air Force accident rate dropped to a level that had previously been thought of as an UNATTAINABLE GOAL — below 3.0.

Now the cycle has started over again. Vast numbers of young'uns are replacing the old heads who are retiring or being gobbled up by the rated supplement. Commanders with long memories are becoming more and more nervous.

STATISTICS

Rather than bore you to death with the overwhelming bunch of numbers I received from the big computer at Norton AFB, I've tried to interpret them so I can present them in general terms. The term I will use is called "Phase Points." They are so named because of the general psychological changes which seem to affect crewmembers within specific levels of flying experience. Please remember, Phase Points are not exact. Some people will get hung up on one particular phase. And still others will exhibit no phase symptoms at all.

Each individual is unique and as indivduals they cannot be predicted. However, as a group, they will exhibit, to some extent, the characteristics of each Phase Point.

FIRST PHASE POINT: 800 HOURS

From zero to 800 hours is a period of most intensive training — both supervised and experimentation training.

This is the period where pilots of real potential are separated from the aviation minded plumbers.

The losses experienced during this phase are quite high and can be categorized as follows:

1. Catastrophic materiel failures.
2. Emergency conditions which the crewmember simply could not handle at his present stage of training or experience.
3. Accidents which occured because of the pilot's physical or mental inadequacies, i.e., a lack of motor coordination, reflexes, etc., and mental complexes which may vary from freezing up when faced with an emergency, all the way to the guy who can't appreciate the beauties of normal flying and must get his kicks from such things as flying under bridges, stampeding cattle, and other such things.

At any rate, once the average pilot has logged 800 hours, he has gained enough knowledge and skills to cope with most of the problems he is likely to encounter. Perhaps of even more importance, he still retains enough awe and respect for his new profession that he is not likely to create his own tight spots. So for the next 700 or 800 hours he is a pretty safe pilot.

So you can judge the validity of the 800 hour mark, let me point out that most of the life insurance companies use the 800 hour mark as the point where they make the first reduction of premiums for flying coverage. When you consider the number of successful life insurance companies, it must be fairly accurate.

Not all the plumbers are eliminated or killed by the 800 hour mark. Some will luck through and go on to bigger and better accidents. A select few will bolster your faith in the supernatural by living through a whole career of cheating death.

THE SECOND PHASE POINT: THIS POINT IS LESS DISTINCT THAN THE FIRST.

Primarily because those people who would have been most apt to demonstrate the characteristics of this phase have already been eliminated. However, right around the 1500 hour mark, pilots can be expected to develop the following symptoms. These symptoms may or may not be demostrated, depending upon the stability of the individual.

VANITY: Self-esteen out of proportion.

RATIONALIZATION: A tolerance for personal errors.

COMPLACENCY: Brought about by his success in living so long.

OVERCONFIDENCE: In extreme cases, a feeling of immunity from death develops which makes it impossible to exercise good judgment because dangers cannot be recognized.

Obviously, those aviators who succumb to these illusions are going to raise the accident rate. Now, fortunately, Airplane Drivers as a group are relatively intelligent and quick to learn — providing something or someone gets their attention. Since attention getting experiences of various magnitude come pretty close together in the flying business, most aviators outgrow this phase in short order.

Survival of the Fittest

"PHASING" into flying

Hooked on Flying

THE THIRD PHASE POINT: OCCURS RIGHT AROUND THE 2000 HOUR MARK.

This seems to be the magic number. The pilot with 2000 hours of good flying time under his belt is the single most valuable asset the Air Force possesses. He is the doer – he is the instructor – he is the supervisor – he has survived the tests of the natural laws of aviation – he understands and accepts those laws – he knows what he can do and he knows his limitations. To top it all off, he is hooked – hooked on FLYING. No one can fly that long without loving it. As in any line of work, the people who excel are the ones who love their work. The insurance companies support this point by lowering their premiums for flying coverage to an almost affordable level at 2000 hours.

THE FOURTH AND LAST PHASE POINT:

It is not based on flying time but rather on age. Age and the individual's ability to accept the limitations of age. You have all seen the old pilots who need glasses, but refuse to wear them. Or maybe the old guy who has lost some of his recuperative powers, and yet when out cross country, he insists on staying up most of the night to drink with the young'uns, then shows up to fly the next morning looking like death warmed over and feeling even worse.

Perhaps the most pressing problem the Air Force faces today is how to assimilate the young aviators who comprise the "new rated hump" without incurring unacceptable losses. We know, from experience, that we can take a brand new pilot, throw him into a squadron full of old timers, and before long he thinks and acts like an "Old Pro." What we must do now is take a whole bunch of brand new pilots, throw them into a squadron with just a few old timers and achieve the same results. We hope that through supervision (in the form of education and discipline) we can do just that. We must do it. Most of the supervisors of today are survivors of the 1950s and I doubt there is one who did not lose a friend to a silly accident. We do not want to lose any of our young troops that way. And we will do whatever we can to prevent it. We will lecture them, evaluate them, place restrictions on them, and do anything else we feel will help them in the long run.

On the other side of the coin, I have heard a lot of new guys remark that their operational squadron is a lot different than Air Training Command and RTU because it is so much looser. Well, it is a little looser and less rigid, but not because the commander and supervisors are not believers in discipline. They are. It is actually a kind of conspiracy, designed to produce an atmosphere of mutual trust and respect; calculated to allow the individual to grow in experience, self-discipline, and personal responsibility. It also allows him to take his doubts, problems, and ignorance to his supervisor, as to a friend, not just a boss. Don't be afraid of the few crotchety old devils left in the squadrons because they want nothing more than to help you. Chances are they won't offer help unless you ask for it. So you may have to make the first move.

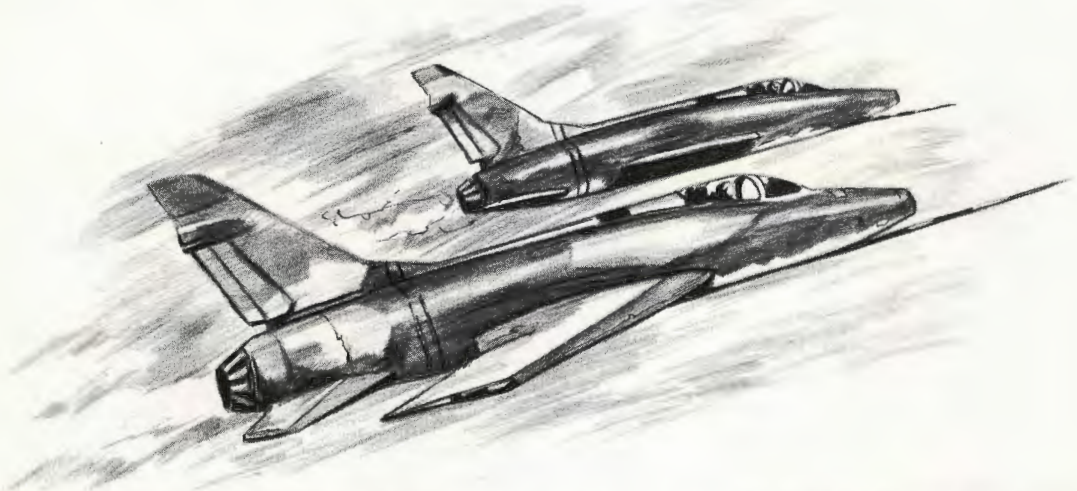
You young'uns are the most important people in the Air Force, and we all know it. We want to make it through this dangerous period without losing a single one of you. So, 15 years from now when you are all faced with a whole new crop of eager young air machine drivers, you can say, "Boy, these kids sure are green – but if we bring them along like we were led, there should be no problem." Most of all we want you to live so that in your dotage you can look back on your flying career and cherish every minute of every hour you logged. SO BE IT!!!

TACTICAL AIR COMMAND

AIRCREWMEN of DISTINCTION

2Lt Broker

LtCol Howard



Second Lieutenant Joseph G. Broker and Lieutenant Colonel Franklin D. Howard, 175th Tactical Fighter Squadron, Joe Foss Field, Sioux Falls, South Dakota, have been selected for the Tactical Air Command Aircrewmen of Distinction Award for May 1973.

Lieutenant Broker was number two in a flight of four F-100s led by Lt Col Howard. The flight was scheduled as a routine air to ground range mission. Shortly after level off at FL 190, about 30 miles south of Sioux City, Iowa, Lt Broker's aircraft experienced a severe compressor stall followed by two less severe stalls. EGT was excessively high, so Lt Broker retarded the throttle. Lt Col Howard, as flight lead, was notified of the situation, immediately declared an emergency, and turned the flight back toward Sioux City. Passing 15,000 feet, Lt Broker noted engine RPM at 77 percent and an EGT of 600 degrees. He flew a precautionary landing pattern with Lt Col Howard flying wing. The aircraft was configured for landing while passing through 7500 feet on downwind. Due to a strong headwind, altitude loss on base leg was more than desired. Lt Col Howard called for the flaps to be raised to one-half. When he saw that he wasn't going to make the runway, Lt Broker advanced power to full military, with no response. Lt Col Howard then advised Lt Broker to raise the landing gear. External stores were retained because of the densely populated area. When Lt Broker saw that he had the runway made, he lowered the gear and made a heavyweight touchdown at 190 knots. The drag chute was deployed normally, and the rollout was uneventful. Preliminary investigation revealed that all turbine wheels were badly burned and the bucket tips were destroyed.

Both Lieutenant Broker and Lieutenant Colonel Howard demonstrated high degrees of flying skill and judgment in their handling of this serious emergency. Their combined efforts transformed a potential disaster into a safe landing and certainly qualifies both pilots as Tactical Air Command Aircrewmen of Distinction.

KOREN KOLLIGIAN, JR. TROPHY

First Lieutenant Wesley G. Zimmerman, 49th TFW, Holloman AFB, N. M. has been named the winner of the Koren Kolligian, Jr. Trophy for 1972. This trophy is presented annually to the pilot or aircrewmember who most successfully coped with an emergency during flight.

CITATION

TO ACCOMPANY THE AWARD OF THE
KOREN KOLLIGIAN, JR. TROPHY

First Lieutenant Wesley G. Zimmerman distinguished himself by successfully recovering an F-4E aircraft that was literally shot to pieces.

On 4 July 1972, Lieutenant Zimmerman was flying an escort mission over North Vietnam when his aircraft received severe damage from AAA, SAM, and two ATOL missiles fired from a MiG 21. All utility systems were lost and only partial flight control surfaces were functional. The rudder was completely gone, the drag chute and drag chute area gone, one-half of the trailing edge slab on each side shot away, and moderate damage sustained by the right engine afterburner can, both wings, and the ECM pod. The fuel gauge read zero. In spite of the high approach speed required by the no-flap approach, the marginal control effectiveness, and a continuous tendency of the aircraft to roll right, Lieutenant Zimmerman landed his aircraft safely and successfully engaged the barrier, preventing further damage to the aircraft and danger to the crew.

Lieutenant Zimmerman's outstanding professional feat of airmanship in preventing the loss of a multimillion dollar aircraft, reflects great credit upon himself and the United States Air Force.

JOHN D. RYAN, General, USAF
Chief of Staff

The F-4 with SAM, AAA, and ATOL missile damage.

CHIEF OF STAFF INDIVIDUAL SAFETY AWARD

Major Arthur R. Solkey, 316th Tactical Airlift Wing, Langley Air Force Base, Virginia, has won the Chief of Staff Individual Safety Award. This award is presented annually to the Air Force member or civilian employee who has made the greatest contribution to Safety within the Air Force.

CITATION

TO ACCOMPANY THE AWARD OF THE
CHIEF OF STAFF INDIVIDUAL SAFETY AWARD

The Chief of Staff Individual Safety Award is presented to Major Arthur R. Solkey in recognition of his outstanding contributions to the safety programs of the Tactical Air Command and the United States Air Force during 1972.

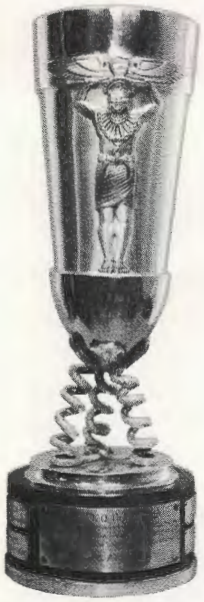
Major Solkey served as Chief of Safety, 316th Tactical Airlift Wing (TAC), Langley Air Force Base, Virginia, from 1 January 1972 to 31 December 1972. During this period his dedication, professional skills, and innovative programs were instrumental in establishing and maintaining an exceptionally high degree of safety consciousness among wing personnel throughout the year. The unit's enviable safety record attests to his superior talents and performance.

The distinctive accomplishments of Major Solkey perpetuated the high standards established for the Chief of Staff Individual Safety Award and reflect credit upon himself and the United States Air Force.

JOHN D. RYAN, General, USAF
Chief of Staff

Chief of Staff Individual Safety Award

PREMIER SAFETY AWARDS



COLOMBIAN TROPHY

4th TACTICAL FIGHTER WING

AWARDED BY USAF ANNUALLY TO THE TACTICAL ORGANIZATION CONSIDERED TO HAVE HAD THE MOST MERITORIOUS ACHIEVEMENT IN FLIGHT SAFETY.

FLIGHT SAFETY PLAQUE

4th TACTICAL FIGHTER WING

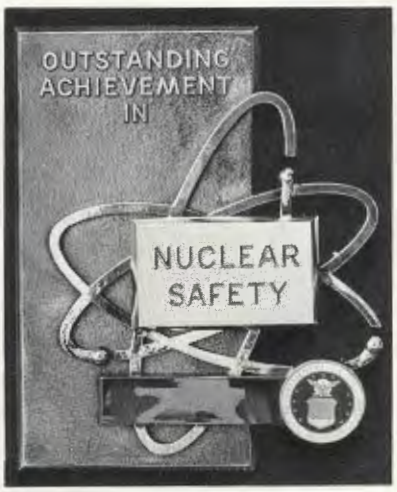
67th TACTICAL RECONNAISSANCE WING

317th TACTICAL AIRLIFT WING

459th TACTICAL AIRLIFT WING (AFRES)

162nd TACTICAL FIGHTER TRAINING GROUP (ANG)

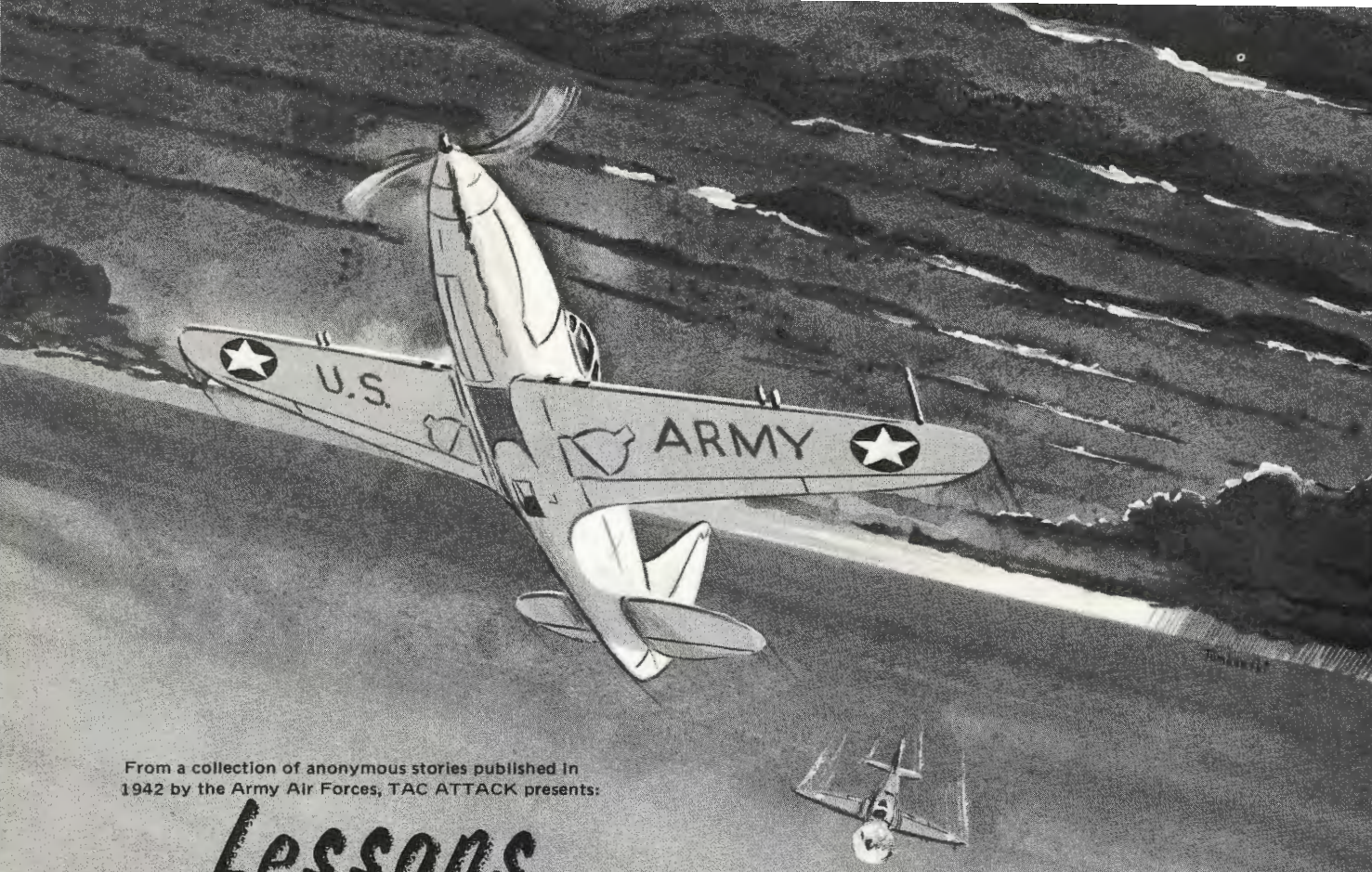
NUCLEAR SAFETY PLAQUE



316th TACTICAL AIRLIFT WING

MISSILE SAFETY PLAQUE

57th FIGHTER WEAPONS WING



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

Lessons That Live

No. 9 of 17

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

PANIC OVER CHAME BAY

I was on a practice individual combat mission over Chame Bay, Panama, and my opponent and I were both flying P-39Ds. The planes were fully loaded with combat ammunition, including 2,000 rounds of .30 calibre in each wing, giving this ship a very risky stall and spin characteristic.

We'd been scrapping several minutes and the combat, unnoticed by either of us in the thrill of the fight, had dropped from 10,000 feet to 5,000 feet. I made a dive on my "enemy" and in pulling up I lost him under my wing. In my eagerness to find him again, I completely forgot about altitude.

Suddenly I felt an alarming looseness in my controls and at the same time I became aware that my plane was pointing almost straight up. I reacted immediately by pushing forward on the stick — a ridiculous maneuver since I was in a vertical position at stalling speed. When I realized I could never push over straight, I attempted to drop a wing and roll out.

The plane stalled completely; it was upside down and refused to respond to the aileron controls. I had a feeling that it was sliding vertically downward, tail-first. It had no tendency to spin; yet at the same time it refused to respond to my efforts to get a wing down. Next I tried to pull the nose through as in a loop, but my position, hanging upside down on my safety belt, prevented me from doing anything except pull straight up on the stick instead of to the rear.

By this time panic had me in its grip and I felt an almost uncontrollable impulse to release the emergency handle of the door and bail out. I realized, however, that the engine was still churning away at 40 inches of mercury so I cut the throttle back and concentrated on pulling the stick to the rear.

Slowly the nose of the plane fell through, and as it picked up speed I eased it out of the dive, expecting to snap into another stall at any second. When I finally straightened it out, although my altimeter showed that I was at 800 feet, I felt as if the waves of Chame Bay were lapping at my belly.

The lessons learned from this harrowing experience, which really lasted but a few seconds, have burned deep in my mind during the ensuing weeks. When I get into actual combat, I know I'll not make the same mistakes again.

TAC TIPS

...interest items,

ON PAR WITH IFR

by Captain Mike Ferguson
23 TFW, England AFB, La.

Jack Nicklaus is a great athlete, a champion's champion. It's been said that from tee to green, he's the most consistent, all-around player on the tour. He hits ALL the shots well, and he's at his best when he's in trouble. The "Golden Bear" is a pro, and golf is his game.

You and Jack Nicklaus share a common goal . . . to be the best at your respective games. You, like he, want to maintain a level of proficiency which will enable you to "make the right shot at the right time." You want to be at your best when you're in trouble. You are a pro, and flying is your game.

The literary analogy obviously has its limits, but the message is simple. Jack Nicklaus still goes to the practice tee. He still practices the full range of skills he needs to be the best, particularly the trouble shots. So should we.

The summer months and better flying weather are here. We'll all be sharpening up our VFR patterns and so we should. But, I wouldn't kid a kidder. The trusty summer rain showers will be lurking on the horizon ready to clobber the field when you least suspect it. Will your instrument proficiency be at its peak then? How about the proficiency of the guy in the GCA shack? He's half of the team, you know. How about the airplane? When is the last time you practiced a no-gyro GCA? The landing pattern isn't the only place we'll encounter summer weather either. Let me see . . . where are those IFR radio failure procedures written?

Well, 'nuff said. I wouldn't want to oversell the point to a bunch of pros. There is an old saying that "when you need it, you REALLY need it." That could apply to instrument flying this summer. So, keep the bingos up and don't get caught. But, if you do, be prepared. Let's keep the takeoff and landing figures equal in the Form 5.

MISREAD ALTIMETER ?

A T-33 in another command was flying a TACAN approach, at night, over water, when the airplane hit the water eight miles from the field. The airplane and crew were lost. The weather was VFR, and visibility was good.

This was a real stumper for the investigators. The possibility of a misread altimeter seemed to be the most probable cause. With the airplane under thousands of feet of water, possibilities were all they had to go on.

No one will ever know for sure what really happened.

What you can do is make sure that a misread altimeter doesn't reach out and bite you. We've got crew coordination procedures for double checking altimeters. Use them! If you catch the other guy's mistake, you might get a free beer at the bar. Miss his mistakes, and . . . !

INCREDIBLE

An F-4 in another command had one of the most unusual incidents we've ever heard of, and we'd like to pass it on to you.

The aircraft was scrambled as number two in a two ship. En route to the tanker the aircraft commander started acting illogical and his speech became incoherent. His aircraft control was erratic. He attempted to roll in on non-existent targets several times for no apparent reason. The WSO took control of the airplane and the two ship started back home. The aircraft commander remained incoherent, seemed despondent, and did not relate to reality. He was slumped head down in the cockpit. The WSO, who had never received any pilot training, decided to try to land the airplane. He could not jettison stores because he had no jettison capability from the rear cockpit. He decided against a sequenced ejection from the rear cockpit because of the AC's poor body position. He practiced close wing formation on the way home because visibility back home was a mile and a half. He flew a wing GCA, and was one mile on final when his incoherent AC took control and rolled the aircraft away from the runway. The WSO forceably took control and went around to try a second wing approach. The WSO managed to get the AC to lower the gear, flaps, and hook. On the second approach, on short final, the AC attempted to force the nose of the airplane down. The WSO resisted this attempt and forced the nose back up into an

mishaps with morals, for the TAC aircrewman

acceptable landing attitude. After touchdown the WSO steered the aircraft to the center of the runway for a successful no chute mid-field barrier engagement. A medical examination of the AC revealed him to be acutely schizophrenic.

Kinda waters your eyes, doesn't it?

MORE MILES PER GALLON

Safe drivers usually don't get medals even though they definitely save lives. They do reap some real benefits, and not the least of these is increased gas mileage. Two major factors determine mileage; the condition of the car, and the way it's driven. Here are some tips on how to get the mileage your car was built to deliver.

YOUR CAR: Follow a regular schedule at your service station. An engine tune-up twice a year should include the spark plugs, points, condensers, carburetor, and ignition timing. Fouled plugs should be replaced. Defective chokes, thermostats, and heat control valves can also affect gas consumption. Have them checked. Worn valves and piston rings reduce engine compression and waste gas. A simple compression test will tell whether you have ring or valve trouble. Dragging brakes and wheel bearings that are too tight prevent wheels from rolling freely, resulting in a waste of gas. Under-inflated tires cause more drag and make your engine work harder. Poor wheel alignment can be a factor, too. A poorly aligned wheel is dragged sideways up to 40 feet for every mile traveled.

YOUR DRIVING: Fast starts and quick stops waste gas. When you jam on the brakes at a stop light, you are wasting the extra gas you burned to get up speed. A slow approach to a stop light pays off, especially if you get the green and don't have to stop at all. Racing the engine doesn't get you anywhere; however, it does consume a surprisingly large amount of fuel. Speed is expensive. Traveling the same distance, you burn far less gas at 60 mph than you do at 70; as a matter of fact, experts have estimated that the typical automobile would burn 11 percent less. The expert "drives ahead of himself." Seeing a red light in the distance, he takes his foot off the gas and slows down gradually, letting the engine's compression do most of the braking. Approaching a long hill, the expert picks up speed, lets his momentum carry him to the top. At the top, he slows down, alert to possible dangers on the other side. Going downhill, he takes his foot off the gas. On steep grades, he shifts to a lower gear or to low on an automatic transmission, and lets his engine slow him down.

In these days of gas shortages, rising gas prices, and energy problems, ecology and safety can complement each other very well.

summer summer

Courtesy of David C. Walsh

BETWEEN PYOSIS AND PYRALIDAN

by Maj Tim Brady

All of us who fly know the names of the great military airfields which have contributed something to aviation history. Langley Field, Maxwell, Randolph, Brooks, Kelly, and Pyote, to name just a few. But have you ever considered . . . Wait a minute . . . Pyote? What or who (or maybe where) is a Pyote?

If you looked in Webster's handy desk type word thing, you'd expect to find it listed between pyosis and pyralidan. But, of course, you wouldn't find it between these two obscure words, or anyplace else in the dictionary. Where you would find it is between Monahans and Pecos, not too far from Penwell. Texas, that is. And until 1953 it was an active Air Force base. But the chances are, you never heard of it, right? OK, let's see if we can change all that.

During the war, Pyote was used to train crews in B-17s and B-29s. One can imagine that after spending a few months in training and taking in the excitement of the nearby town of Pyote, population 420, the crews viewed the war as a welcome respite. Especially considering that the chief agricultural products of the area were mesquite trees and rattlesnakes.

After the war there were vast quantities of aircraft which, though direly needed yesterday, were an abundant surplus today. To those leaders planning for the future of the Air Force, it presented a two-pronged problem. First, they didn't want to see the slump shouldered defense posture which existed in the twenties and thirties exist again. And second, with so many airplanes stockpiled, the plans for a modern air arm could be frustrated. Thus, it became necessary to dispose of many aircraft, retain some for operational objectives, and store the remainder. And

that's where Pyote enters the picture again.

Beginning shortly after the war and extending into the early fifties, Pyote was a storage site for World War II aircraft. The dry West Texas climate made it ideally suited for that purpose. And indeed, to anyone driving by, the sight of seemingly horizon to horizon aluminum gave Pyote the appearance of an unexpected, shimmering lake in the middle of an arid, dust-choked plain. It ranked as the third largest storage area behind Kelly and Tinker, and at one time reached a capacity of over 2000 aircraft. P-51s, P-63s, A-26s, C-47s, B-29s, B-25s, B-17s, AT-7s, L-4s, and L-5s made up the lot.

But the desert-like terrain and bone dry climate of Pyote didn't solve all of the problems of storage. Corrosion was still a problem but a corrosion control process viewed as a panacea was on the horizon. Cocooning.

The process involved placing dehumidifying agents inside the aircraft and then tape was applied in gridwork fashion over the entire exterior surface of the aircraft. Next, a solution containing a webbing agent was sprayed over the whole mess followed by several applications of a webbing coat. Then came an asphalt layer and finally, the process was completed by topping off with an aluminumized coating.

"One slit with a knife and the cocoon can be pulled off an aircraft like the skin from a banana, leaving the aircraft unharmed and the plane almost ready for flight . . . After ten years in storage, these reserve warplanes could be airborne on a few hours notice." Such was the statement concerning cocooning which appeared in a popular aviation magazine of the day. The truth, however, was more than slightly removed from that optimistic view.

In cool weather the removal process ran more like 600 hours per aircraft and in some cases as many as 1000 hours per. Rarely did it average less than 350 manhours regardless of the temperature. It was somewhat more complicated than a mere slit with a knife. Many processes were tried, ranging from large quantities of chemical solvents to hot water and steam sprays. And one thing they all had in common . . . gook. Stuff that got on everything and into everything.

At Pyote alone, some 601 B-29s were scheduled to be cocooned but when the facts about the process became known, the Air Force eased out of the contract after only 73 of them had been completed.

Some of the aircraft which were stored at Pyote have impressive histories. For instance, the Enola Gay was there for awhile. As you remember, the Enola Gay was the B-29 which virtually brought an end to the war in the Pacific on 6 August 1945, when it was used to drop the first atomic bomb on Hiroshima.

Another famous aircraft stored at Pyote was the Swoose. This aircraft was one of 35 B-17Ds based at Clark Field in the Philippines on that 8th day of December, 1941, when the Japanese struck, wiping out twenty of the aircraft. The remaining B-17s were lost in rear guard actions over the Philippines and Java, except for the Swoose. It was the sole survivor. Both the Enola Gay and the Swoose are now charges of the Smithsonian. History, however, awards no such fame to Pyote.

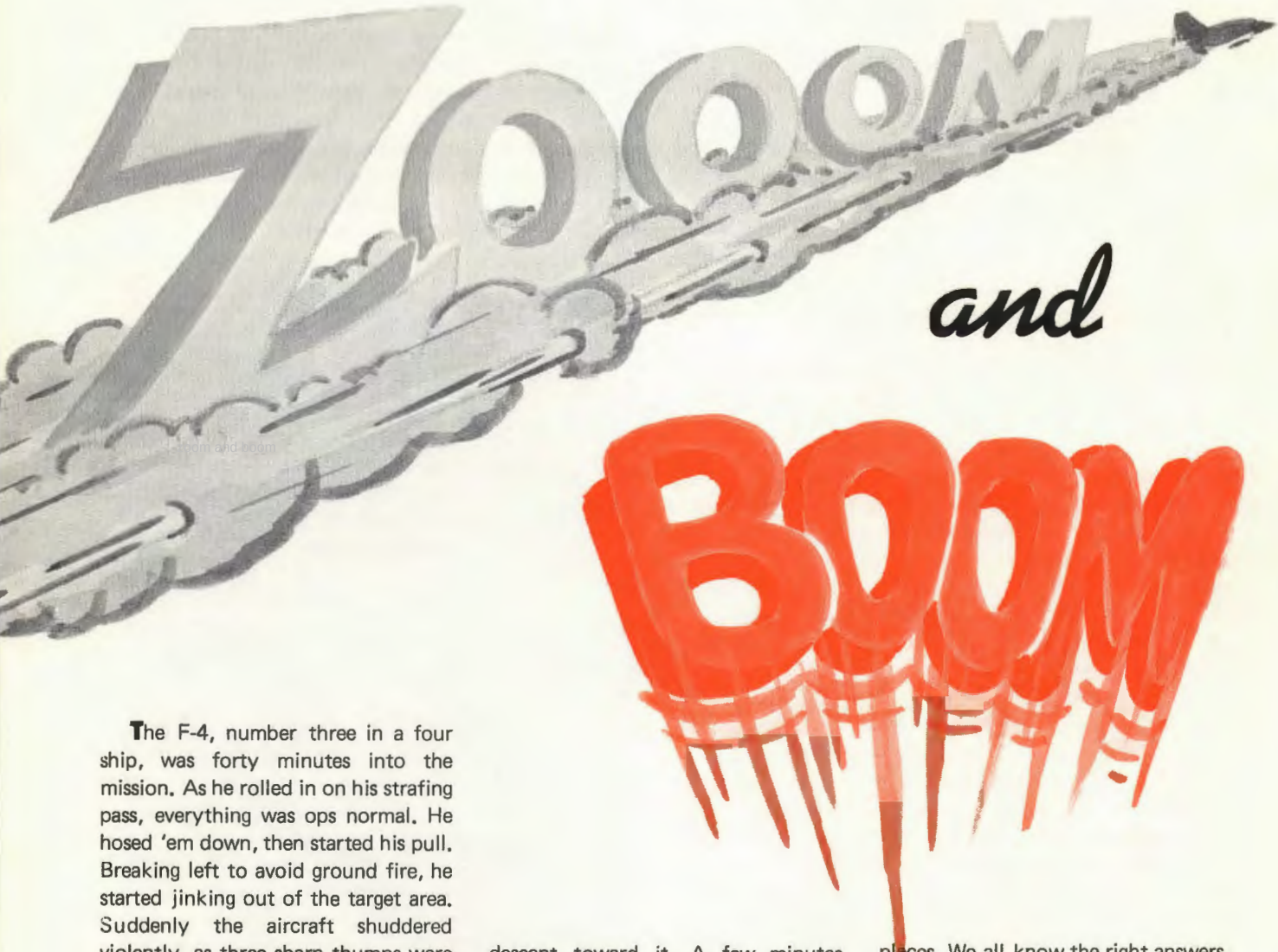
Courtesy of Air Force Museum.

This sign posted on Pyote tells it all.

Probably the factor which most contributed to its demise was its location. You can imagine that during the late forties and early fifties Pyote was not the greatest of assignments. The field was about thirteen miles from town and the town was about a hundred miles from nowhere. Understandably, it was an unlikely spot to attract and hold employees. Civilian employees were hard to retain because of the attractive offers made by oil companies in the area. Several plans were attempted to keep Pyote an active storage area, but each failed. In 1953 Pyote closed.

A few of the buildings are still there, pieces of the ramp and runways still exist, but most of what was that nothing little place lives only in the minds of those who had some part in it.

And its history, unimpressive as it might be, belongs to all of us.



The F-4, number three in a four ship, was forty minutes into the mission. As he rolled in on his strafing pass, everything was ops normal. He hosed 'em down, then started his pull. Breaking left to avoid ground fire, he started jinking out of the target area. Suddenly the aircraft shuddered violently, as three sharp thumps were felt on the bottom of the fuselage. The master caution came on, the telelight panel started flashing, and the engines began to lose thrust. Four told Three that he was on fire and should consider bailing out. Three's backseater said he was getting heavy smoke in the cockpit.

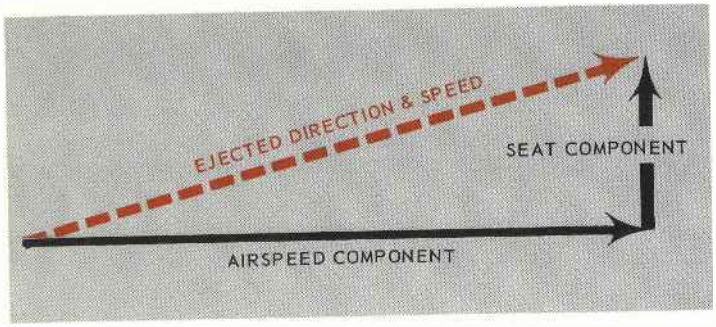
The A-7 lifted off the runway, another routine navigation training mission in front of it. It reached FL 310, then settled down for a long cruise to the next refueling stop. Suddenly the master caution and low oil pressure lights illuminated. The pilot set the power, declared an emergency, went through all the emergency procedures, picked an emergency landing field, and started a descent toward it. A few minutes later, the engine started to lose thrust. Then RPM started to fall. With only a few thousand feet left between him and the ground, the pilot tried an airstart. Unsuccessful!

Another F-4 was on a night refueling mission. One of those nights when there's no up or down. A nightmare in spatial disorientation. The pilot made it through, all the way to the tanker, to the range, and back on to final approach. At 5 miles on final, with the runway in sight and the GCA controller saying, "On course, start your descent," both engines flamed out!

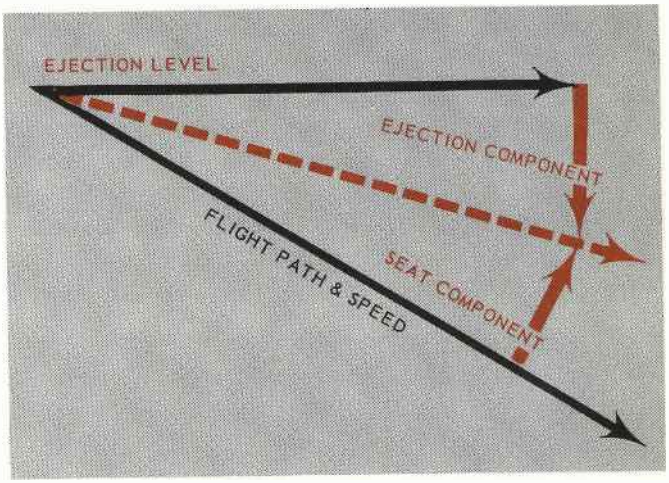
Enough of situations. You get the idea. Ejection situations come along at the most unexpected times and places. We all know the right answers. "The minimum altitude for a controlled bailout is 2000 feet AGL." The minimum altitude, if uncontrolled or during spin or dive conditions, is 10,000 or 15,000 or whatever your good book says it is. The seat in this airplane will work zero-zero, or at zero altitude and 120 knots, or at 125 knots and 250 feet, with gold key unhooked, or whatever. YOU know all the answers concerning your ejection seat. After all, you sit in it every flight. You preflight it almost every day. You've talked to buddies who've used it, and probably thought about some who didn't, but could have and should have.

No one really means to delay his ejection until it's too late, but it

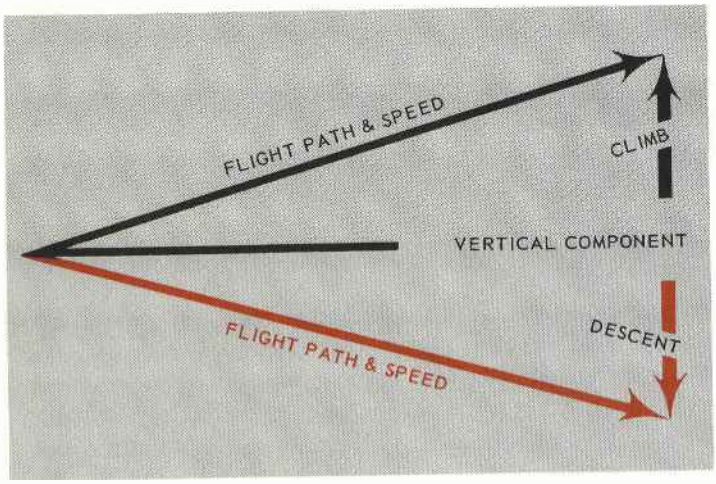
1. In an ejection from a FLYING airplane, the speed and direction of flight are often more important than the ejection itself.

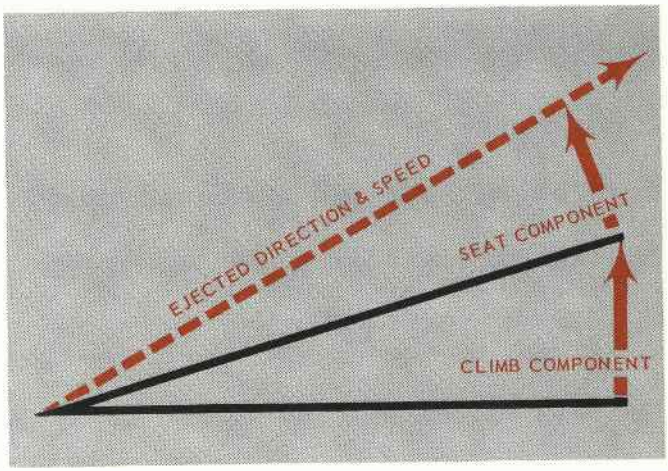


3. If the initial velocity downward equals or exceeds the initial velocity of the seat, the net effect is like having no ejection seat . . . or even a downward ejection.



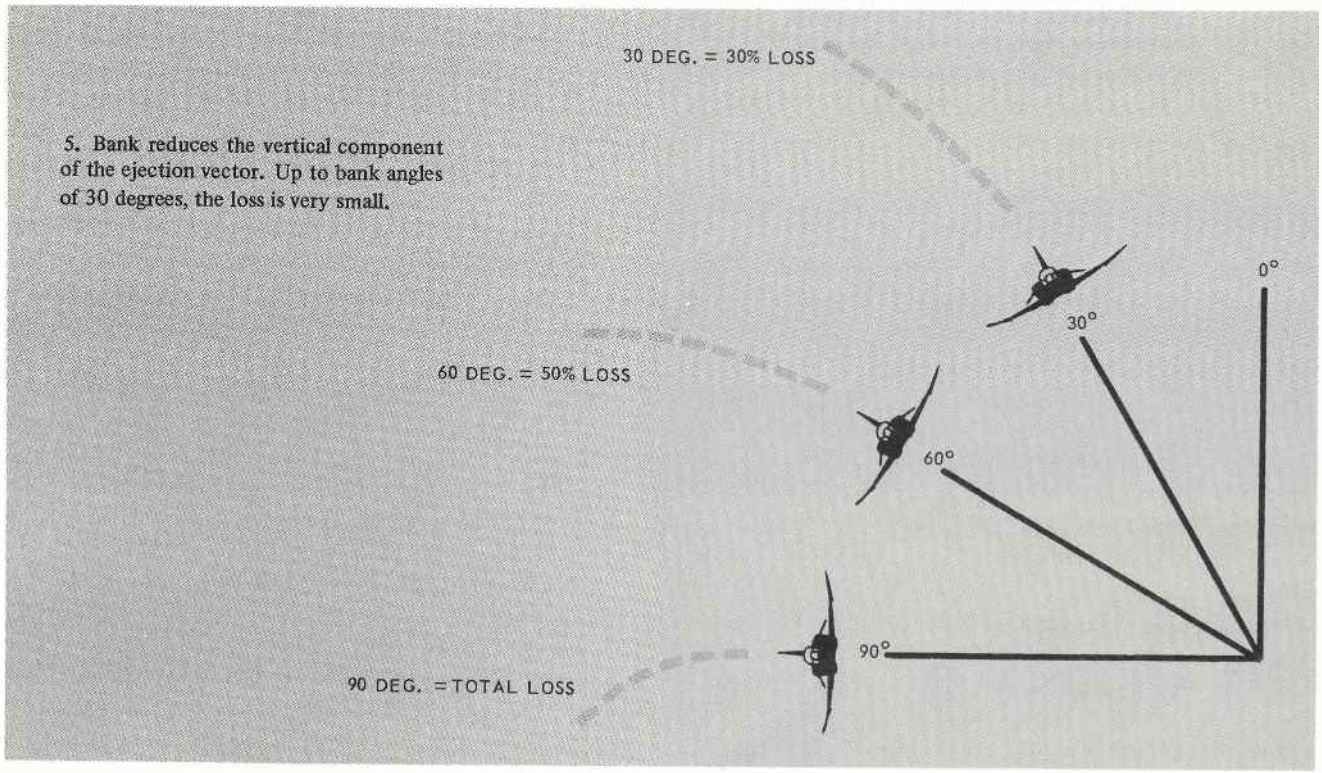
the dynamics of ZOOM





2. If the direction of flight is above or below the horizon, there will be an initial velocity up or down . . . which is added to or subtracted from the initial velocity of the ejection seat.

4. The zoom maneuver provides initial velocity upward. This is added to the initial velocity of the seat, thus increasing the peak height reached by the seat . . . and the total in trajectory.



5. Bank reduces the vertical component of the ejection vector. Up to bank angles of 30 degrees, the loss is very small.

happens. Ejection success rates have slipped in the past year or so. Just turn to the inside back cover of this issue and you'll find some ejection percentages that might surprise you.

Anyway, let's take a look at zoom and boom. Let's examine the purpose of the maneuvers. If you think of the zoom merely as a means of gaining altitude prior to ejection, then you've got a misunderstanding of the purpose of the maneuver.

The ejection seat separates you from the airplane with a known, predictable, trajectory. At any given airspeed, this trajectory will be essentially the same in relation to the airplane, regardless of your pitch attitude or altitude. Whether your seat fires upward, sideways, or downward in relation to the ground depends on your angle of bank. The closer your bank approaches 90 degrees, the closer you are to having the chute open at a lower altitude than the one from which you ejected.

Obviously, if your flight manual says your seat works at zero altitude, that's based on two pretty important, yet basic, assumptions – an upright airplane and no downward vector. Although that seems obvious at zero altitude, it's just as important at 2000 feet. To get the most out of your seat, you must be wings level, upright. (For an interesting discussion on manual bailouts, see Major Dick Penn's article, "Upright, Uptight, and Out O'Sight," in the March 1973 issue.)

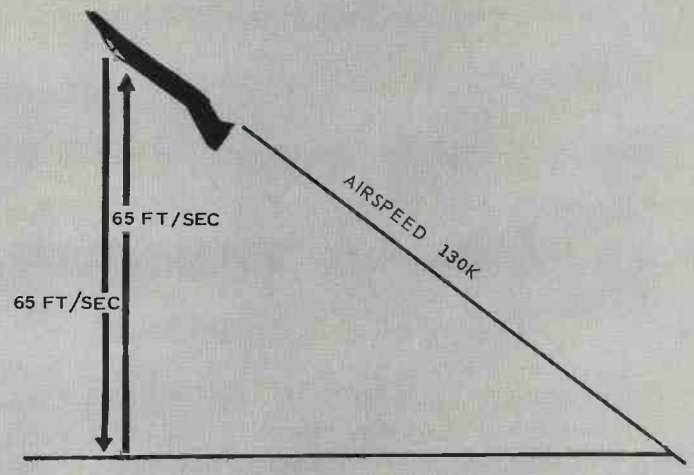
If you don't think this bank angle thing is all that important, think for a moment about the Thunderbird Solo. What do you think his first reaction would be if he had problems while making an inverted pass at 50 feet? If you answered "get upright", you're in the ball park.

OK. So far we've deliberately left out any discussion of that zoom part of the title. It all boils down to vectors. If at all possible, you want to add to that upward vector your seat gives you. Let's look at how that happens.

If your aircraft vector is level and the aircraft's speed is above the minimum for your aircraft seat, then the seat trajectory and chute deployment will be just about what the manufacturer advertises. The seat will go up X number of feet, at Y feet per minute. You'll separate from the seat while you're above your ejection altitude. Then, if your seat is a zero altitude type seat, and assuming you had the minimum airspeed, your chute will be fully open before you fall back through your ejection altitude.

If your aircraft vector is below the horizontal, and the down component of that vector equals or exceeds the upward component of your seat, the X feet that the seat throws you will not take you above the level at which you ejected. All it can do in this case is temporarily arrest some of the downward momentum you had when you left the airplane.

But if your aircraft vector at the moment you eject is upward, the vertical component will add to the upward thrust of your seat. Your trajectory will be higher in relation to



6. You could eject inverted in a 30-degree climb at 130 knots and make it. The vertical component of the seat thrust would be 65 ft/sec down. And the vertical component of your aircraft vector would be 65 ft/sec up.

the ground, and you'll have more time for the parachute to open. And that's kinda nice!

In a very low ejection, a level flight path gives you a minimum margin for malfunction or delay. Ask any jock who's making a pass at 400 knots and 500 feet what he'd do if he flamed out – and he'll say "Zoom." It gives him more altitude, and more important, it gives him more time. Although the old saying is "Trade airspeed for altitude," you're really trading airspeed for time! It takes the seat and chute the same number of seconds to work regardless of airspeed or altitude (assuming airspeed is above the minimum for chute deployment). Your job is to make sure you have that number of seconds available before you, seat, and chute hit the ground.

OK, here come the "what ifs!" "What if you're in a situation where you can't climb? Suppose you're on GCA final, everything hanging, and flame out?"

Now you zoom!

And you don't zoom for altitude! You zoom for time! You zoom for an upward vector, or at least for a decrease in that downward vector. The more you cut that rate of descent before you punch, the more time you're going to give the seat and chute to work. If you can level the bird off, or start a climb before you eject, you're that much better off. Of course, you've got to temper this with the out of control and stall for your bird. Even using a few of those knots to decrease your rate of descent will give you more time.

If you're riding a non-rocket type of ejection seat, it will come out of the airplane at about 3600 feet per minute. Anytime that your airplane is descending at a vertical speed greater than that, you'll have a downward ejection. Another way to put it is that you'll be throwing yourself at the ground. That cuts down on the time available for the system to work.

Rocket seats will give you more time, but even then, stop and think about the sink rates that develop when the engine(s) quit. Time is still critical. The only way to cut down on that descent vector (sink rate) is to act before the airspeed's all gone. Think of your airspeed as energy available to maneuver with. The more airspeed you have, the more energy is available to zoom.

Without the engines, that energy dissipates rapidly. Use it while you've got it. Don't wait until you top out of your zoom. The VVI going back to zero after a zoom is too late. You've got more altitude, but since you've lost that upward vector, you've lost time. And time is what you want!

You may not even be able to start a climb. But you will seldom be in a situation where you don't have enough energy left in the airplane to decrease your rate of descent. Your final approach speed is usually about 130 percent of stall speed for the weight you're carrying. If you use a little of that cushion, you may not start a climb, but you'll sure decrease the rate of descent.

You don't need to have a Masters in math to understand all this vector business. Energy maneuvering is a key to any type of flying, and the proper use of energy also extends into the ejection situation.

A low altitude ejection is a critical and dynamic situation. In order to get maximum performance from a crippled airplane, you've got to know how to trade airspeed for time. Give your seat and chute the time they need to work correctly, and you're well on the way to a successful ejection.

If you've planned to use every ounce of energy in your airplane to get a favorable ejection vector, then you're doing the right thing . . . .

Roll wings level,
ZOOM,
and BOOM!

LET'S TALK

by Capt Jim Young

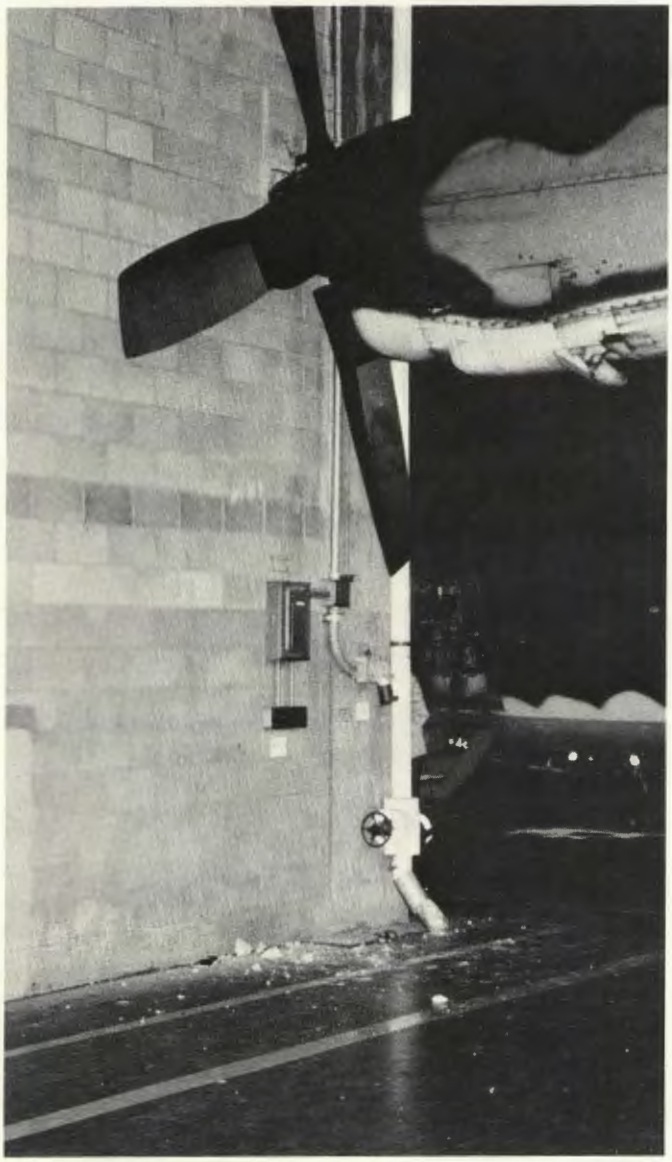
Let's talk about some people with something in common. These people are from different parts of the country, have different backgrounds, different experience levels, different jobs, and different ranks. Some of them were on duty, doing their job, and some of them were off duty, just having fun. Nevertheless, they all have something in common. Let's talk about them.

First, there was an experienced scuba diver doing some off duty swimming and diving with a buddy. He managed to go down into a vertical shaft, 110 feet deep, at night with only one of his two tanks turned on. The two men had told someone where they were going, but did not take anyone with them. They weren't found until the next day when several local divers went down into the shaft and found both men dead. Evidently the man with only one tank turned on had run out of air, and then the two men tried to "buddy breathe" back to the surface. It didn't work. Nobody will ever know for sure what happened down there in that dark pit, and looking back on it, it seems kind of senseless, doesn't it?

Next, there was a crew of men that had a C-130 up on jacks, performing some checks. When they let the big bird down off the jacks, they forgot one little step. Just one. They didn't chock the wheels. Did you ever try to stop a 100,000 pound airplane once it starts rolling? They couldn't do it either. The picture showing a propeller hub pushing into a hangar wall tells it all, doesn't it?

In a similar situation, a crew had taken an RB-66 off the jacks, and were towing it. This one happened after a number of retraction tests had been run. The checks were complete, and the ground crew was ready to take the plane out of the hangar and back onto the flight line. At least they thought they were. The jacks were lowered and removed, and the tow bar was connected. They moved the aircraft approximately twenty feet and started a left turn. While in the left turn, the left main gear began to collapse. The left wing tip, engine tub, tail cone, drag chute can, and left gear door settled to the pavement to the tune of 4,845 dollars and six mighty red faces! You see, the left main gear had not been fully extended prior to starting the towing.

Then there was a young airman that got up, dressed,



and got ready to go to work. He then went up to the third floor of the barracks to check with some buddies to see if they needed a ride to work. He got no response to his knocks on their door so he decided to climb out the latrine window, walk along the two and a half foot wide ledge, and see if they were asleep. The picture gets a little hazy here. He either tripped or slipped, but in any event he ended up 30 feet below, with a double fractured jaw and a fractured right arm. Considering the distance he fell, he's lucky to be alive.

Fifth was a young airframe repairman. He enjoyed weapons a lot and during his off duty hours he was what one could call a "gun nut." He and his roommate took off after work one day and went out to a trash dump to do some target shooting. The young airframe repairman had a 38 caliber pistol, along with a holster. He had modified the holster himself so he could practice being "the fastest gun in the West." During his "Billy-the-Kid" modification, he cut away the leather around the trigger so he could get his finger in the trigger before the pistol cleared the holster. A 38 slug in the leg has now convinced him that this was probably not the best idea he ever had.

Another people accident cost 3,222 dollars; it happened like this. An A-7D landed with three discrepancies. The aircraft was dearmed and maintenance personnel started to work on the airplane. One of the items needing work was the standby attitude indicator, and this required removal of the AC generator control panel. In order to facilitate the removal, the gear handle was raised, the panel was then removed and replaced. At this point, the other writeups came into the picture. Earlier, the roll computer had been removed. The auto-pilot personnel returned, replaced the computer, and one of the auto-pilot men started the engine for a system check. He found the gear handle up, so he lowered it. The computer check was completed and the auto-pilot personnel departed. The aircraft was then readied for flight, and the pilot arrived at the airplane. He preflighted it, and strapped in. Engine start was normal; however, the pilot noticed both main landing gear indicator lights out. He pressed to test both lights but they failed to illuminate. While the pilot was checking out his light problem, the crew chief buttoned up the bottom of the airplane and removed the left main gear downlock. The pilot then told the crew chief that the bulbs were burned out, and the crew chief went to the flight line expediter truck to get some new bulbs. While the crew chief was away, the pilot saw the red warning light in the gear handle come on, and realized that he had a gear problem, not a light problem. When the crew chief returned, the pilot told him he was shutting down and aborting the airplane. The crew chief attempted to put the left main gear downlock back on, but was unable to do so. He didn't tell the pilot of this problem, but went to request assistance from the flight line expediter. The pilot finished shutting down the airplane, and deplaned. He then saw the flight line expediter trying to get the downlock back on and he told maintenance to get a jack. However, before the jack arrived, the left main gear began to fold. The aircraft then settled slowly onto the left wing tip, the main gear doors and the left horizontal stabilizer.

Yes, they all have something in common. They're all members of Tactical Air Command, and they all cost TAC money, time, and in one case, lives. They weren't "hard luck" types, they were people who ignored the rules! If you say it can't happen to you . . . think again. That's what every one of these people thought. Tales of woe? Yes! Avoidable? Yes!!

CHOCK TALK

...incidents and incidentals with a maintenance slant.

TORNADO

Since we're square in the middle of the tornado season let's quickly review some things we can do to keep from locking horns with one. (Courtesy of the 4th TFW, Seymour Johnson AFB.)

In open country, move away from the killer's path at a right angle. If there is no time to escape, lie flat in the nearest depression, perhaps a ditch or ravine.

If you're in a city or town, seek shelter inside, preferably in a tornado cellar or an underground shelter, even in a steel-framed or reinforced concrete building of substantial construction. But stay away from windows!

In an office building, stand in an interior hallway on a lower floor, preferably the basement.

In homes, the corner of the basement toward the tornado usually offers the greatest safety.

In a house with no basement, take shelter under heavy furniture or under a mattress in the center part of the house.

Keep some windows open but stay away from them!

In factories, post a lookout but be ready to move quickly to sections of the plant offering the greatest protection.

If the building is not of reinforced construction, go quickly to a nearby reinforced building or to a ravine or open ditch and lie flat.

STEP BY STEP

Here are seven steps to foreign object damage:

STEP 1. Make sure the crew chief forgets to remove the aft canopy safety strut in the F-4 during cockpit preparation.

STEP 2. Have the backseater notice the strut still in place.

STEP 3. Have the crew chief assist the backseater in strapping in.

STEP 4. Have the crew chief remove the strut and lay it on the vari ramp.

STEP 5. Have the backseater and crew chief forget that the strut is there.

STEP 6. Have the front seater start up and taxi out.

STEP 7. Have the crew go through the engine runup prior to takeoff.

If you accomplish these seven steps, you too can run a canopy safety strut through a J-79 engine. (Ouch!)

ELECTROCUTION

A young sergeant lost his life as a result of an electrical shock. The NCO and co-worker were trouble-shooting a high powered HF transmitter. After removing all primary power from the unit the sergeant came in contact with the high-voltage filter capacitor while attempting to remove a relay for cleaning. A charge, estimated at 1100 volts, passed from his right hand, through his body, and to ground from the calf of his left leg.

The principal cause of the accident was failure to observe warning signs on the transmitter and procedures in the technical order. The sergeant had turned off all circuit breakers but failed to heed a warning label on the protective cover over the filter capacitor which reads: "DANGER HIGH VOLTAGE 10KV — DO NOT REMOVE COVER UNLESS HIGH-VOLTAGE COMPARTMENT DOOR IS OPEN." The cover was removed without opening the compartment door and the

technician was then exposed to the residual charge on the high-voltage capacitor. When he reached over the capacitor to remove the relay, he came in contact with the voltage. Had he opened the high-voltage compartment door, the high-voltage buss would have been automatically discharged through a grounding switch.

His mistake was compounded when he failed to use a grounding rod to short out the capacitor to insure that it was discharged.

"SUPERVISORS," the lives of your personnel are irreplaceable. It's up to you to emphasize and insure technical order procedures are followed, no matter how familiar your workers are with their job.

Courtesy ADC GAP.

THE FOLLY OF A FUEL LEAK

Witnesses saw flames coming from the aft part of the F-4 shortly before it rotated for takeoff. The fire continued after takeoff but the crew was unaware of any problem until the gear and flaps were retracted, at which time the fire light for the left engine came on. About this time a transmission from tower confirmed the fire. The pilot reduced power to idle on the left engine and very shortly afterward the fire light for the RIGHT engine blinked on accompanied by the overheat light for the LEFT engine. A loss of power on the right engine followed, causing a decay in airspeed and loss of control. The pilot ordered an immediate ejection, altitude: 600 feet. Both crewmembers ejected successfully and the WSO received some bruises while the pilot wound up with compression fractures of two vertebrae.

The accident board concluded that escaping fuel from the centerline tank was ignited by the left engine afterburner which caused the fire in the left aft fuselage. When the pilot reduced power on the left engine, fuel was drawn into the right engine bay, resulting in a fire in that area. The board also concluded that had the maintenance operational checks of the centerline tanks been accomplished by the book, the problems with the tank would have been discovered.

This accident happened in another command but, of course, the lessons learned apply to us all. For instance:

- Is your shop performing the checks on the fuel system by the book?
- Supervisors, do your people understand the dangers of a fuel leak and how one unsecured fuel cap can bring down an aircraft? Are the necessary ops checks being performed on the F-4 centerline fuel tank after installation?
- Are you sure?

C-130 REFUELING PANEL

The day started off bad for the C-130A gunship crew. When they tried to start number three, the starter broke. A couple of hours later the airplane was fixed, all four were started, and, as the pilot began to taxi, number four flamed out. Then as he brought the bird to a stop, number two flamed out. A lousy day indeed!

The bad day had actually started prior to that first attempted engine start. While the flight engineer was refueling the aircraft, he discussed the subject of the unusual master switch on the single-point refueling panel with the crew chief. This particular switch would rotate a full 360 degrees instead of the normal 180 degrees; however, it was listed as a suitable substitute. During the discussion the flight engineer finished the refueling and apparently left the switch in a position other than where it was supposed to be. He put it in the "Defuel" position rather than the "Off-Drain" position. Shortly afterward the crew started engines.

The engines flamed out because the refuel master switch was improperly positioned. The tech order says that with the master switch in the defuel position, and the engines operating, proper fuel scheduling to the engines may not occur, and possible flameout may result during the crossfeed check due to air being introduced into the fuel lines.

Y'know something? The book's right.

And you can see what a second's worth of distraction or a minute's worth of inattention can buy. In this case it bought a blown mission and a red-faced flight engineer. But what if the airplane had gotten airborne?

SNAPPED

After completing a mach run on an FCF at 35,000 feet, the F-4 pilot snapped both throttles from MIL to idle for a snap-deceleration check. Both engines promptly flamed out. The pilot was able to get the engines started again and brought the bird home without further complications.

Two errors were made which led to that suddenly quiet situation in the cockpit. The first was an error in judgment by the rigging team boss. While using the alternate method (dry rigging) of adjusting the throttle cables, the riggers used excessive incremental adjustments and wound up with too much slack in the cables. The wet rigging procedure is preferred.

The second error belongs to the pilot. Snap-decelerating checks are in the FCF checklist but not for both engines at the same time. The checklist is explicit on this point. Now we know why.

SPO COR

AERO CLUB- WE TESTED, AND WE LOST!

Aero club tests prove that when light aircraft fuel gauges read empty, the engine quits. The unfortunate part of the latest test was that it was accomplished in the air. The fortunate part is that the pilot is still around to pass on his knowledge.

Fuel gauges in light aircraft have the disadvantages of being hard to read and inaccurate. This is the reason why we visually check the fuel in the tanks prior to takeoff. However, these problems lead to inflight problems of determining actual fuel consumption and fuel remaining. Pilots can overcome these problems only by accurate preflight planning and then revising fuel estimates when in-flight deviations occur (power, altitude, routing).

Remember to leave some margin for a safe recovery with proper fuel reserves and you won't have the distinction of being our next test pilot. We don't need one!

by Major Al Mosher

POTPOURRI—F-4

Several items stashed in my hold basket have pertinent points which may be of interest to F-4 aircrews and which, for various reasons, may be awhile getting out officially.

One sharp young lieutenant noted that the red "OFF" flags in the ADI, standby attitude indicator, and TACAN are not particularly visible under night red floodlight conditions. Review of Systems Command design guidance reveals no comment as to colors required for these flags. Pending changes to guidance and possible changes to F-4 instruments, all aviators should keep this fact in mind and be alert to undetected failures of these instruments under night lighting conditions.

Use and storage of the utility spot and flood lamp continues to be a problem. This gadget can be attached most anywhere in the cockpit and occasionally it or its long cord get in the way of arms, legs, various knobs, handles, throttles, and control sticks. Everyone has his own favorite spot to hook it up, but do your buddy a favor and store it properly back on the provided tab. During day missions when you won't need it, check to see it's firmly attached and stowed.

UHF radios in the F-4 are purportedly poor. Several projects are being worked, but more information is needed on the problem. The crews must provide most of this data, i.e., write it up or submit a hazard report if you determine an unacceptable or unsafe condition. Examples: lost transmissions, especially during high G maneuvering, poor volume control, antenna blanking, excessive need for antenna switching, unacceptable reception or transmission capability. We need your help on this one.

Most of you may have noted you still take your annual instrument ride in the back seat, wearing the same old,

and to most, unsatisfactory hood. Due to earlier hazard reports, new hoods were prototyped. All proved unacceptable or without the added benefits which would justify additional cost for retrofit. So, it looks like we'll have to live with what we have. Hopefully, proper care on the part of the crew, plus the addition of the interdiction pin and guard, will minimize the possibility of inadvertent activation of the canopy and seat. Keep in mind also that with the hood improperly stowed or just pushed to the rear, your upper ejection handle may not be readily available. If these conditions are still unacceptable or if additional hazards exist that we do not know about, send in that suggestion or hazard report and we'll reopen the matter.

A final word: The F-4 accident rate in TAC so far this year is outstanding. This is due to you and yours. Hang in there!

by Maj Burt Miller

GET THE VIBES? —A-7

In this day and age, pilots are well aware of unusual vibrations and noises and pay heed when their aircraft begins to talk back. There is still some truth that flying is nothing more than hours and hours of boredom interrupted by moments of stark terror. Such may have been the case in this instance.

Four A-7 aircraft were scheduled for defensive combat maneuvering in the local area and the mission went normal until recovery. At this time the number four pilot noted a high frequency vibration, odd engine noises, and an increase in pulse rate. All signs pointed to the fact that something wasn't right. The signs were discernible through the aircraft frame and rudders and the high-pitched voice of the pilot. After the initial shock, the pilot selected manual fuel and dumped cockpit pressurization in an attempt to isolate the source of the vibration. Positioning of the body in the ejection seat and a review of ejection procedures were used to effectively lower the pulse rate.

Calm, cool, and collected, the pilot landed the aircraft uneventfully and entered the discrepancy in the aircraft 781. In the writeup he stated that the only noticeable difference from a normal engine was a slight tone variation in the engine during the last stage of acceleration, accompanied by a very slight tremor in the rudder pedals and airframe. Physiological aspects were not entered in the 781.

What happened? Four bolts securing four counter weights to the low pressure compressor failed, causing the weights to move freely behind the low pressure first stage wheel which in turn resulted in an out of balance condition. The fix: An engineering change is in progress to replace the present low pressure compressor rotor balance weights and bolts at overhaul.

MORAL: The seat of the pants is one of the best malfunction detectors known to man! Get the vibes?

emergency situation training

ED NOTE. In the May issue, we ran an emergency situation provided and analyzed by Captain Licari, 27th TFS, MacDill AFB, Florida. The situation concerned double generator failure in an F-4E. The discussion of the situation led to the following response by another F-4E type, and points out some flight manual deficiencies and misunderstandings. Our thanks to both Captain Licari and Captain Sabo for this contribution to a better understanding of this F-4E emergency situation.

Editor, TAC ATTACK.

This office looks forward to the Emergency Situation Training section of TAC ATTACK each month. Since we perform acceptance flight tests on new production F-4s (Block 51), the latest article generated lots of discussion. Congratulations to Captain Licari for a most thought provoking analysis.

I hate to nit-pick such a fine job, but one sentence under Electrical Analysis could be misleading to an inexperienced troop. The sentence reads, "Basically, with the battery bus alone, you have eject light, ignition, (boost pumps on Block 41+), and white flood lights." There is no way three-phase, 115 volt, alternating current pumps can operate on the battery. The Dash One and checklist emergency power distribution charts DO NOT list the boost pumps as being operative with battery power only. The chart on the electrical system (F-4E), Figure F0-5, does list the fuel boost pumps on the battery bus, so Capt Licari was probably misled by this error. MCAIR engineering has confirmed that this entry relates to boost pump control ONLY. After Block 41+, each boost pump is controlled by its respective master switch which is connected directly to the battery bus. This boost pump control function has been added to circuit breakers J12 and J13 which are connected to the battery bus. The "old" boost pump control circuit breakers, J4 and D2, remain on the main 28 volt D.C. bus. Pulling either one of the two left or right circuit breakers kills that respective boost pump; however if J12 and J13 are pulled, the respective ignition circuitry is also disabled. This Dash One "confusion factor" has been relayed to the MCAIR TO writers.

Another update is necessary under the Hydraulic Analysis. After TO 1F-4E-566, the flaps switch and circuit breaker have been relabeled to reflect flaps/slats function and have been rewired to the essential D.C. bus. This means that flaps/slats can be extended normally with double generator failure provided the battery relay remains closed. Note that the Dash One discussion of Double Generator Failure recommends a no-flap landing on airplanes WITHOUT slats.

Still another "hooker" occurs under the Fuel Transfer Analysis. Although the emergency power distribution chart and electrical system chart, Figure F0-5, list the Feed Tank Check and the Fuel Low Warning on the essential bus, unfortunately the fuel quantity indicator is powered by the right main 115/200V A.C. bus and the Fuel Low Warning Light is powered by the Warning Lights 28/14V A.C. bus. This is another case of a "control circuit" only not being labeled as such. The F-4E jock with double generator failure has no indication of fuel remaining. This information was also relayed to the MCAIR TO writers.

The next item (and this is REALLY nit-picking) occurs under the discussion of the hydraulic gauges. Captain Licari correctly states that the gauges fail at the last pressure reading; however we have found that most hydraulic pressure gauges will vibrate to some other position (either higher or lower) than the last pressure reading. So don't jump out with double generator failure just because PC-1 and 2 gauges move towards zero.

The last item (and this is a point of interest rather than an error) occurs under the discussion of the nozzles. Not only is the mechanical function good, but temperature scheduling remains good also. This occurs because the nozzle control amplifier is provided with a separate source of electrical power – a "peanut inverter" driven directly by the engine gear case. Of course, once the battery fails, nozzle position is no longer displayed in the cockpit.

Thanks for the stimulating article and resulting intra-office arguments, (whoops – discussions).

Captain Francis Sabo
Flight Operations Division
AF Plant Representative Ofc AF Contract Mgt Div
McDonnell Douglas Corporation, St. Louis, Missouri

TACTICAL AIR COMMAND

Maintenance Man Safety Award

Master Sergeant Ralph C. Marshall, 834 Avionics Maintenance Squadron, 1st Special Operations Wing, Hurlburt Field, Florida, has been selected to receive the TAC Maintenance Man Safety Award for May 1973. Sergeant Marshall will receive a letter of appreciation from the Commander of Tactical Air Command and a Certificate.

MSGT MARSHALL

TACTICAL AIR COMMAND

Crew Chief Safety Award

Staff Sergeant Douglas F. Brown, 31 Organizational Maintenance Squadron, 31 Tactical Fighter Wing, Homestead Air Force Base, Florida, has been selected to receive the TAC Crew Chief Safety Award for May 1973. Sergeant Brown will receive a letter of appreciation from the Commander of Tactical Air Command and a Certificate.

SSGT BROWN

TACTICAL AIR COMMAND

Ground Safety Man of the Month

Technical Sergeant John Beard, 4500 Supply Squadron, Langley Air Force Base, Virginia, has been selected to receive the TAC Ground Safety Man of the Month Award for May 1973. Sergeant Beard will receive a letter of appreciation from the Commander of Tactical Air Command and a Certificate.

TSGT BEARD

DO YOU HAVE A NEED ?

by Captain Terry L. Young
TAC/DRA (Armament and Avionics Requirements)
Langley AFB, Va.

If so, we may be able to satisfy it. Our job is to define, develop, and test new items of equipment for acquisition into the Air Force inventory. That's a mouthful which means we try to get you what you need to hack the mission. We do that by satisfying operational needs which are stated in Required Operational Capability (ROC) documents. How does this affect you? As an operator in the field, you are in the best position to identify operational deficiencies and come up with a need that, if satisfied, will enable you and the Air Force to do the mission more effectively and efficiently. Some recent examples of items which have evolved through the ROC process are the foamed-in-place helmet, the F-15, the A-10, the Airborne Warning and Control System (AWACS), and leading edge slats for the F-4E.

In order to get this new equipment, we go through the System Acquisition Life Cycle which consists of five major phases:

1. Conceptual Phase — Program Decision
2. Validation Phase — Ratification Decision
3. Full Scale Development Phase — Production Decision
4. Production Phase
5. Deployment Phase

PHASE I

First is the Conceptual Phase where the program bases are established. The Program Decision following this phase determines what follows. To satisfy the conceptual objectives, a military requirement must be established based upon an analysis of military objectives or threats. You, the operator, determine this phase through your inputs.

An example of an item which is currently in the Conceptual Phase is the Operational Airborne Audio Video Tape Recorder. A basic deficiency exists in debriefing of aircrews after their mission. Film documentation of mission results is not responsive enough to the real time requirements of post-mission analysis.

The development of electro-optical sensor systems such as TISEO (a long range visual target acquisition aid) and the Maverick air-to-ground missile have made necessary the development of airborne audio video tape recorders to record the imagery of these systems on a real time basis.

Currently, audio video tape recorders are being used at the USAF Tactical Air Warfare Center and the USAF Tactical Fighter Weapons Center to document Operational Test and Evaluation efforts. However, this system, in terms of quality of the pictures and reliability, is not good enough to be adopted into the operational inventory. Thus, a three-year development program has been instituted to acquire an acceptable Operational Airborne Audio Video Tape Recorder. When it hits the inventory, you will have the capability of viewing mission results immediately after flight, during debriefing.

PHASE II

Second is the Validation Phase, where risks are resolved or lessened and the probability of success becomes high enough to warrant progression to the next phase.

This phase generally involves competition and selection of two contractors to participate in a "fly off" Full-Scale Development Phase.

Example: The AN/ARN-XXX Micro-TACAN Program has just completed this phase and the Ratification Decision has been made. Two contractors, General Dynamics and Collins, have been selected to participate in development of preproduction hardware suitable for Initial Operational Test and Evaluation (IOT&E) on TAC aircraft.

The ARN-XXX is a solid state TACAN which will replace all tube-type TACANs. The "design-to-cost" goal is a price of under $10,000 each in a production quantity of 10,000 units with a Mean Time Between Failures (MTBF) of 1000 hours. If development goes as scheduled, a "fly off" IOT&E will begin in November 1973 and last for about eight months.

PHASE III

The IOT&E is the basic process of testing whereby TAC (the user) measures the capabilities of the preproduction hardware against the requirements. Any unacceptable deficiencies discovered must be resolved before OKing production. If results are totally unacceptable, the program may be cancelled at this point. Also, since the ARN-XXX is a major program, approval of the Defense System Acquisition Review Council must be obtained for production go ahead.

It is during IOT&E that the operator makes sure the new system fills the bill.

PHASE IV

After an initial production run, an Operational Test and Evaluation (OT&E) is conducted to determine if the system still conforms to desired capabilities, maintainability, and reliability. The ten A-10A aircraft to be produced initially will be tested in an OT&E and, based on evaluation of these test results, the go-ahead will be given for full scale production.

PHASE V

In the Deployment Phase the systems proven in IOT&E and OT&E will be phased into the operational inventory.

A good example of a program that has just entered the Deployment Phase is Leading Edge Slats on the F-4E. Once this stage is reached, the procedures of TO 00-35D-54 deficiency reporting take over and the system is treated like every other item in the active Air Force inventory.

To wrap it up, the whole process of generating new systems depends upon you, the operator, to identify what you need to do the job better and to let us know what it is. This can be done through the Air Force Suggestion Program as well as through procedures outlined in AFR 57-1 and AFR 57-4. Or give us a call and talk it over. Maybe we're already working on it. What you need is what you will get, if you tell us what it is.

LETTERS TO THE EDITOR

GEAR-UP LANDINGS

Major Brady's excellent article on "Gear-up Landings" in your February 73 isssue did miss one important point in the evaluation of the Mirage III system of preventing shortened landing rolls caused by the gear-up technique of landing aircraft. That point is that the pilot can hear that beep from the gear checking system as well as the controller.

I had the good fortune of flying the Mirage for three years during my exchange tour with the Royal Australian Air Force, and I can attest to the fact that the system works! Here's why: The controller, upon transmitting "Check wheels down," receives no voice transmission from the pilot, but only the beep that means that the gear is down. If the gear is not down, he is greeted by only silence, and is unlikely to continue the one-sided conversation by issuing a landing clearance. The pilot is so used to hearing a beep when he presses the button on final, that its absence alerts him immediately. The sensation is the same as turning the ignition key in your car and receiving no response – like OOPS! Even other pilots on the same frequency will notice the absence of a beep after hearing the "Check wheels down" transmission, that's how used one becomes to the sequence.

What better testimonial to this system can I offer, than the fact that the Aussies, in many years of using the Mirage as their front-line fighter, have never landed one with its wheels up?

Capt Peter R. Fleischhacker
HQ ADC/DOCCP, Ent AFB, CO.

Thanks for the interesting letter. Your point is well taken. This is just one of several systems being looked at by AFISC. Ed.

ZERO DEFECTS

The inclosed decal was found around the engine oil filter on one of our F-4Es. It could have caused more problems than it did. How did it get there? Your guess is as good as mine. It is interesting to stop and think a little about what this little ZD decal could have caused beyond a declared inflight emergency for low oil pressure.

Lt Col John J. Keller
Chief, Quality Control Div.,
1st Tac Ftr Wg, MacDill AFB, FL.

Zero? Defects?? Ed.

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TAC TALLY

MAJOR ACCIDENT RATE COMPARISON

	TAC		ANG		AF Res	
	1973	1972	1973	1972	1973	1972
JAN	5.0	0	8.5	0	14.9	0
FEB	5.1	1.6	8.6	0	6.7	0
MAR	5.1	2.1	6.8	6.3	4.1	0
APR	4.2	3.2	5.0	8.1	3.2	0
MAY	4.3	4.0	4.8	6.3	2.5	0
JUN						
JUL						
AUG						
SEP						
OCT						
NOV						
DEC						

AIRCRAFT ACCIDENTS

UNITS

	THRU MAY 1973 ACDTS	THRU MAY 1973 RATE	THRU MAY 1972 ACDTS	THRU MAY 1972 RATE		THRU MAY 1973 ACDTS	THRU MAY 1973 RATE	THRU MAY 1972 ACDTS	THRU MAY 1972 RATE
9AF	4	3.5	3	2.9	12AF	5	3.4	7	4.3
1 TFW	0	0	1	6.7	27 TFW	1	10.0	1	10.6
4 TFW	0	0	0	0	35 TFW	0	0	1	7.4
					49 TFW	0	0	2	13.5
23 TFW	1	12.1	0	0	58 TFTW	1	4.0	1	4.1
31 TFW	0	0	1	9.3	67 TRW	0	0	0	0
33 TFW	0	0	0	0	71 TASG	0	0	0	0
					313 TAW	0	0	0	0
68 TASG	0	0	0	0	314 TAW	0	0	–	–
316 TAW	0	0	0	0	355 TFW	0	0	0	0
317 TAW	0	0	0	0	366 TFW	0	0	0	0
					474 TFW	3	23.5	1	6.9
354 TFW	3	14.4	1	10.8	463 TAW	0	0	0	0
363 TRW	0	0	0	0	23 TFW	0	0	1	12.1

TAC SPECIAL UNITS

1 SOW	1	7.1	1	4.4	4410 SOTG	0	0	2	15.1
2 ADG	0	0	0	0	4485 TS	0	0	0	0
57 FWW	1	10.3	0	0	4500 ABW	1	11.3	0	0
ADS	1	–	0	0	OTHER	0	0	1	0

SUMMARY

TAC MAY 73	TAC THRU MAY 1973	TAC THRU MAY 1972		ANG MAY 73	ANG THRU MAY 1973	ANG THRU MAY 1972
5	19	21	TOTAL ACCIDENTS	3	10	9
3	13	14	MAJOR	1	6	7
0	9	19	AIRCREW FATALITIES	0	1	1
2	12	15	AIRCRAFT DESTROYED	1	4	6
3	12	15	TOTAL EJECTIONS	2	5	5
3	7	11	SUCCESSFUL EJECTIONS	2	4	5
100%	58%	73%	PERCENT SUCCESSFUL	100%	80%	100%


FLEAGLE
HARDISON
GAS
POOF
?
WELL, FLEAGLE FIZZLED THE FOURTH AGAIN.
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