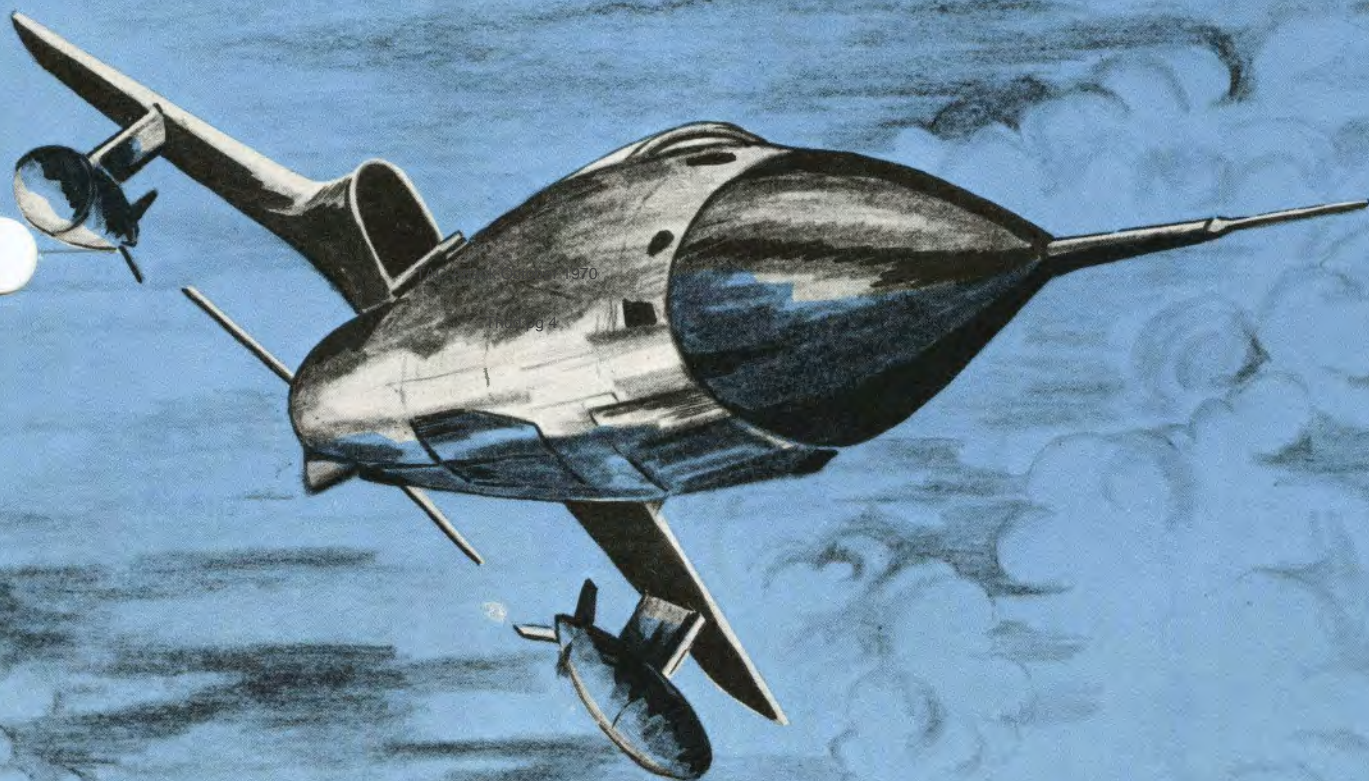


TAC ATTACK

OCTOBER 1970



HARDISON

THUD...Page 4

for efficient tactical air power

TAC ATTACK

OCTOBER 1970

VOL 10, NO. 10

TACTICAL AIR COMMAND

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VICE COMMANDER

LT GEN JAY T. ROBBINS

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Jamie sez:

The only place success comes before work is in dictionary.

current interest

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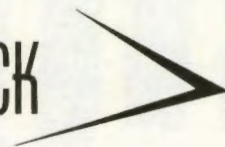
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Angle of ATTACK



ONLY A SMALL STEP FOR SAFETY

As of the end of September, three-fourths through 1970, we have taken a small step toward our goal of improved safety. Yet we are still a long way from taking a giant step in overall safety improvement. Our total fatalities are down 10 from last year — we stand at 27 fatalities from aircraft accidents and 52 from all ground accidents. You'll have to agree that these 79 deaths represent a loss of manpower and combat potential that cannot be recovered.

The old saying, "It's not me, it's the other guy that causes accidents" just isn't true in TAC. The majority of all fatal accidents in our command are caused by personnel error through personal disregard of standards. This has been true in the air and on the ground. If, through full mobilization of all our resources we could have prevented all personnel error accidents this past nine months, over seventy-five percent of these 79 fatalities would still be with us and their loved ones. Simply by preventing all single car accidents and using seat belts, we could have reduced the total by over fifty percent in the ground accident area alone.

These are the cold, hard facts, the data speaks for itself. It's bad enough to have to run a Summary Court for a friend — it's worse to be a statistic. Let's press on with a giant step by cutting our personnel error accidents — a significant reduction in our rates and fatalities cannot be accomplished without that effort.

Virgil K. Meroney
VIRGIL K. MERONEY, Colonel, USAF
Chief of Safety

UNCLASSIFIED

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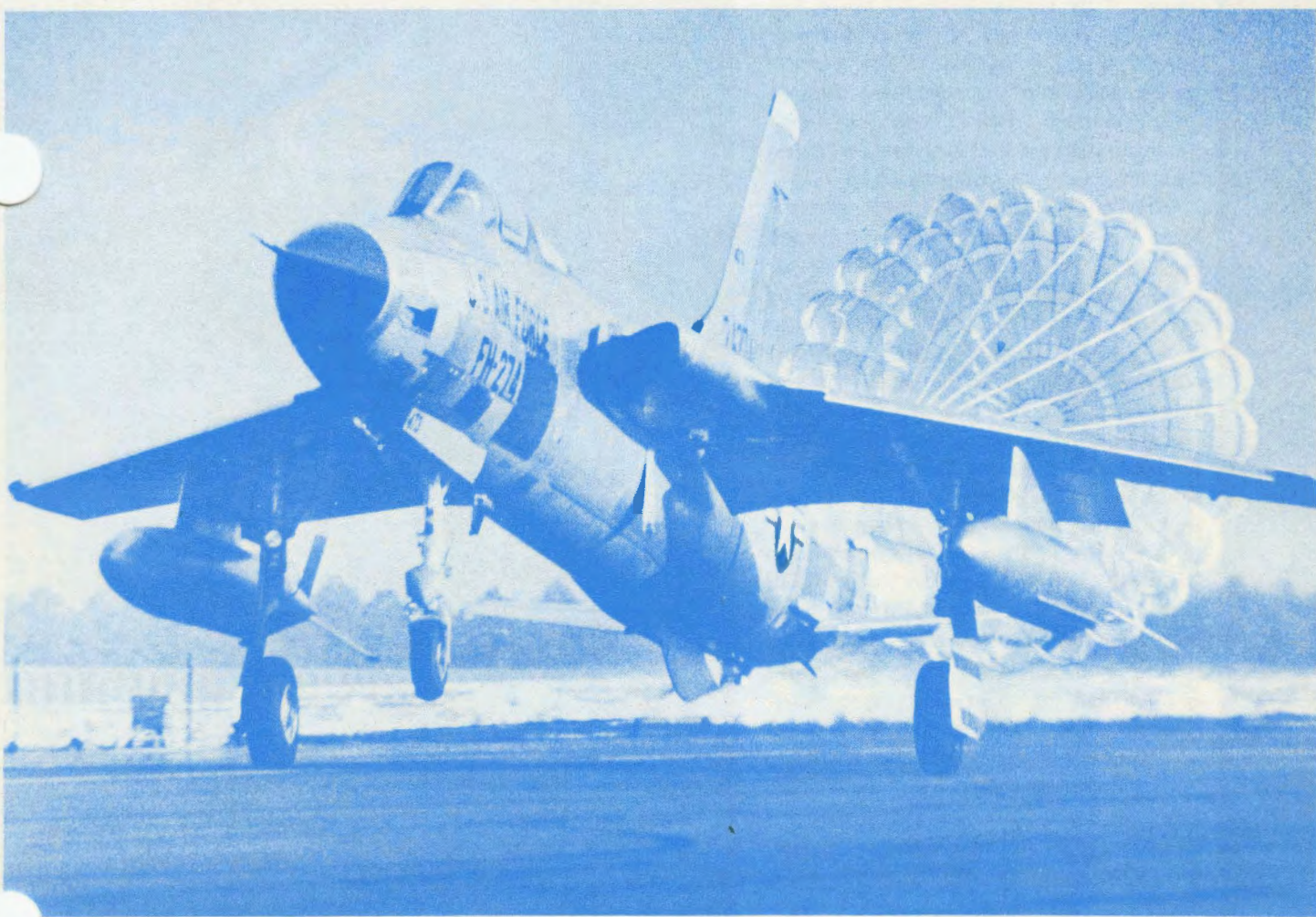
SUBJECT: THUD

1. FOR ALL ADDRESSES: REQUEST WIDEST DISSEMINATION OF THIS MESSAGE TO ALL SUBORDINATE UNITS WHO HAVE SUPPORTED THE F-105 AND THE 355TH TFW IN SEA.
2. THE F-105 THUNDERCHIEFS FROM TAKHLI HAVE FLOWN THEIR LAST STRIKE MISSION IN THE SOUTHEAST ASIA CONFLICT, THUS CLOSING ANOTHER PROUD AND COLORFUL CHAPTER OF AIR FORCE HISTORY. THE 'THUDS' ARRIVED IN DECEMBER 1965 AND, OPERATING FROM TAKHLI AND KORAT, PROVIDED THE BACKBONE OF THE ROLLING THUNDER OPERATIONS OVER HOSTILE NORTH VIETNAM. SINCE THE NOVEMBER 1968 BOMBING HALT,

PAGE 2 RUSDADA0003 UNCLAS

THE F-105S HAVE CONTINUED TO POUND ENEMY COMMUNICATION AND SUPPLY LINES IN OTHER PARTS OF SOUTHEAST ASIA. THE 355TFW TACTICAL FIGHTER WING'S TRULY OUTSTANDING RECORD IN THIS CONFLICT IS EVIDENCED BY THREE PRESIDENTIAL UNIT CITATIONS AND ONE MEDAL OF HONOR RECIPIENT. HOWEVER, THESE PROUD ACHIEVEMENTS COULD NOT HAVE BEEN ACCOMPLISHED WITHOUT THE TREMENDOUS SUPPORT OF MANY OTHER AGENCIES. WE EXTEND OUR SINCERE APPRECIATION AND HIGH PRAISE FOR: PACAF, 7TH AND 13TH AIR FORCE COMMAND SUPPORT, THE FACS, SAC TANKERS, MAC RESCUE SUPPORT, F4 MIG CAPS, GCI CONTROL, MATERIEL ASSISTANCE FROM SMAMA AND AFLC, SUPERB TRAINING PROVIDED BY TAC AND ATC, FAIRCHILD-HILLER AND THE MANY OTHERS. FOR THE ENTIRE 'THUD' TEAM PAST AND PRESENT WE BID FAREWELL TO SOUTHEAST ASIA AND GOOD LUCK TO THOSE WHO REMAIN. GOD BLESS OUR COMRADES WHO HAVE MADE THE SUPREME SACRIFICE AND WE PRAY FOR THE SPEEDY RETURN OF OUR POWS.

BT
#0003





THUD

And thus ends another era in the proud history of the United States Air Force. For the F-105 was a way of life in Southeast Asia — almost a religion to the crews it carried daily into the steel-filled skies of North Vietnam. Few aircraft will ever command such admiration and respect as the Thud drew from the men who flew it.

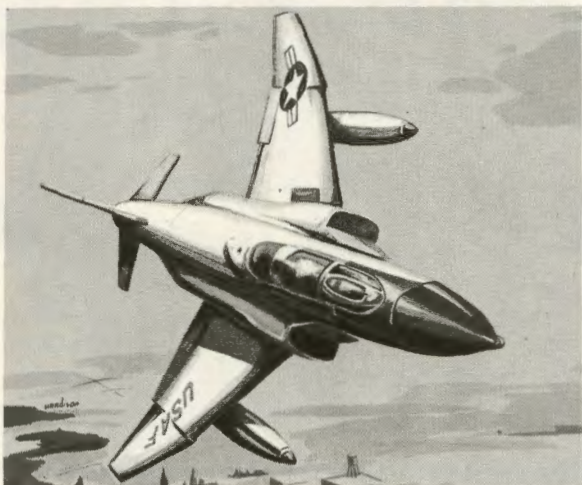
Who could have predicted, back when the Thud was born, that this aircraft would become the backbone of our strike force for nearly five years? That the aircraft would be adapted to a form of warfare never dreamed of in that day. It was blooded in the most heavily defended skies the world has ever known, and it could take it. The aircraft brought its pilots home many times, with fuselage and wings punctured by shrapnel. And some, well you wondered how it could fly with that hole in the wing large enough to dance in — or the one that brought back the missile that was designed to destroy it, almost proudly displaying the fins protruding from its aft section.

Mere words are inadequate to describe the emotion that this event will bring to many. And you feel a loss, as though a warm friendship has ended. But the real tribute to the men who designed, built, maintained, and flew the F-105 — the tribute that is a true measure of its effectiveness in combat, will be the joy on the other side now that it is gone

TACTICAL AIR COMMAND

PILOTS of DISTINCTION

Pilots of Distinction



Lieutenant Colonel Dale G. Nelson and Captain Jack Petry of the 414 Fighter Weapons Squadron, Nellis Air Force Base, Nevada, have been selected as Tactical Air Command Pilots of Distinction.

Lieutenant Colonel Nelson and Captain Petry were flying a gunnery mission in an F-4E, using live 750-pound bombs for maximum training effectiveness. During the pull-off from the first pass, one bomb remained on the right outboard bomb rack. Three attempts to release the bomb using normal release procedures were unsuccessful. An attempt to jettison the bomb rack holding the bomb also failed. The crew declared an emergency and elected to land at an adjoining AF Auxiliary Field. The aircraft made a long, straight-in approach with a smooth landing. Through his rear view mirror Captain Petry saw the bomb and bomb rack separate from the wing and skid along under the aircraft. He immediately advised Lt Col Nelson to "go-around." Both crew members applied full military power, jettisoned the drag chute, and the aircraft accelerated away from the live bomb. As the aircraft became airborne, the bomb exploded low order, causing minor damage to the runway. The aircraft was unharmed and returned to its home base for an uneventful landing.

The coordinated efforts of both pilots during this critical inflight emergency prevented a possible loss of life and aircraft, and readily qualify them as Tactical Air Command Pilots of Distinction.



Lt Col Nelson

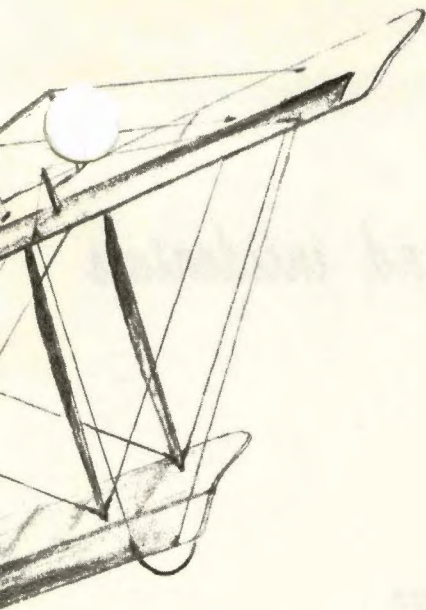


Capt Petry

QUITE A DAY!



Courtesy of DAEDALUS FLYER



By Rusty LaVene

I was flying along peacefully at 4500 feet over the countryside in the vicinity of Taliaferro Field (Tolliver to you Texans) Fort Worth, Texas in a Hisso-Jenny aerial gunnery ship.

"Mac" was in the rear seat as a safety-valve to get me out of trouble in case I got into it because of poor visibility from the front seat. I had shot out my machine gun ammunition on the many gunnery ranges and was just horsing around to get in some extra air time before returning to the field. The violent maneuvering was over and I was in a position to relax a bit.

I had long harbored the suspicion that Mac's parents were a couple of ice cubes because Mac definitely had ice water in his veins. He was a cool one. Even so, I was suddenly startled to see him out of his cockpit behind me and casually edging his way forward toward the engine. As he went by me I shouted, "Mac, where in the hell do you think you're going?" He yelled back, "I'm going up on top. I feel the need for some fresh air," and on he went across the wing root, up and over the Hisso and then onto the top of the center section, where he calmly proceeded to dangle his feet in my face.

It would have been dangerous enough if Mac had been wearing a parachute, but neither of us had ever seen a parachute let alone wear one.

I didn't want my screw-ball flying mate to be blown off of his perilous perch so I flew as flat and straight as I

could and throttled the Hisso back a bit but not enough to court a stall with the resulting spin.

After five or six minutes had passed — they seemed like that many hours to me — with his mission accomplished, and now being thoroughly ventilated, he made the return trip to his cockpit.

On the way back to the field I pulled the nose of the plane up a bit, took a look to see that the air ahead and above was clear of planes, then pulled the cocking handle back and pressed the trigger. This was the usual precaution to assure the pilot that his gun was now shot-out. A "click" as the firing pin went forward gave me assurance that this was the case and that it was now safe for me to land. This procedure was to prevent someone being killed by an "empty" machine gun. We came in over the barracks and landed near the center of the field where the planes were parked.

Since we had to walk to the barracks straight into the line of incoming planes we usually gathered together a group of eight or ten men in order that we would be seen better by the landing pilots, and they could land straight over us or on either side.

About halfway in we spotted a plane making its approach. He realized that he was coming in too high so he stuck the plane's nose over a bit to land as close behind us as he could.

Suddenly machine gun bullets were kicking up dust all around us, so each and every man hit the dirt. Luckily for us there were only ten bullets left in the belt. The pilot had felt sure that he was out of ammunition because the gun had stopped firing even though the trigger was depressed. On the way in he suddenly remembered rules and regulations so he simply pulled the handle back, pressed the trigger, and, got the surprise of his life. (We included him in our Club). Pulling the cocking handle back had ejected a faulty cartridge. It was the remaining GOOD ones that he sprayed at us.

We triple-timed on into the barracks from there. A quick backward glance over my shoulder showed that the pilot had landed with a motorcycle and side car right there to escort him into the company of an irate colonel who proceeded to "eat him out." He was lucky to get by with a few uncomplimentary words about himself and his parents.

I was grateful to get back to the barracks and stretch out on my bunk; I felt that I had had quite a day. ➔

CHOCK TALK

...incidents and incidentals

LOOSE BREECH CAP

As the F-4 aircraft commander attempted to come out of burner after takeoff, he found the number two throttle stuck fast in full burner. After fifteen minutes, gross weight was reduced and the engine was shut-down with the master switch. When the gear was lowered for landing the number two throttle became free. The engine was restarted and the bird was landed normally.

The crew chief failed to secure the starter cartridge breech cap properly during preflight. The cap was found loose in the aux air door area. When the aux air door closed after landing gear retraction, the breech cap jammed against the right throttle linkage. When the gear was lowered and the aux air door opened, it freed the linkage. That's a new one.

SHORT FUSE

Descending from cruise altitude, a T-39 was in a slow right turn when the left engine fire warning light came on. The throttle was pulled to idle, but the light burned on. So it was shut down, and both fire extinguishers were activated for the left engine. Two minutes later the light went out.

On the ground, investigation showed no signs of fire, but the fire detector cable had chafed on the engine, shorted, and activated the light. Though the cable was secure in all mounting clamps, it was bent out of position between two of them.

Chafing time could not be determined, except it couldn't have been long. The engine had a total of 70 hours, and the area had been inspected less than 30 days before.

WHERE'S MY BAR?

Thirty minutes into the T-bird test hop, the pilot laid on one negative G for four seconds to check the fuel vent warning lite. About five minutes later right aileron was applied to roll out of a left bank — but the stick would only move a half-inch in that direction. The pilot stated that it felt as though the stick was bumping against a solid object. He gave it up and went home, landing downwind from a wide, left turn. He got a left crosswind that was and didn't have to sweat using right aileron.

They found a bucking bar in the right wing. The bar had wedged the control cables to prevent stick movement past neutral, to the right. It had been used to replace rivets in the static ground receptacle.

CLEAN IT UP

After thirty minutes of flight while maneuvering in preparation to fire an AGM-12, the Thud pilot noticed he had trouble moving the control stick more than two inches to the right. He declared an emergency and went home.

Investigators removed the control stick and found: one 10/32 bolt, two 10/32 screws, one 10/32 nut, a plastic cannon plug cover, a washer, and a spacer. The 10/32 nut was wedged in the gimbal assembly and was causing the restriction felt by the pilot. The bird had been to IRAN six months earlier, no maintenance had been performed in the stickwell since that time.

Someone set up a beautiful "undetermined" accident through plain neglect. We were lucky this time — how about the next? Clean up after the job is finished!

with a maintenance slant.

SAY AAAHHHHHHH

The F-4 was returning from a cross-country, chugging along at 7000 feet and 230 knots when the number two engine began to compressor stall. The pilot retarded the throttle, then advanced it. Max RPM was 80 percent. He then shut it down and made two airstarts — same results. He pulled it to idle and landed single-engine.

It was FOD. They took the engine apart and discovered, of all things — particles of metal and mirror — in the burner cans and compressor section. This indicated that the foreign object was an inspection mirror. They suspect it was lodged in the vari-ramp area because the pilot reported the ramps cycled open on takeoff and remained open for the duration of the flight. This would have allowed the mirror to vibrate loose at some point during the flight. The aircraft had stopped at three bases during the period of cross-country so the culprit couldn't be found.

BOOM BOOM

A 600 gallon centerline had been installed on an RF-4 and load crew personnel were dispatched to accomplish the jettison system check. An efficient team of two were assigned to do the work and they got right at it. One load crew member climbed into the cockpit while the other remained behind with the PSM-6. When the technician in the cockpit activated the jettison switch, the centerline cartridges fired "as advertised" and the tank bit the dust.

It seems that our jettison system checking team didn't remove the two carts as required by 1F-4C-2-18... and common sense. The basic problem goes deeper than jettisoning. It's as simple as think... think... think...

FRIENDLY FLARES?

The O-2 pilot tried every trick he knew to get rid of a Mark-24 flare on his left inboard pylon. He checked switches and circuit breakers; even tried positive Gs. It wouldn't let go. So he landed with the cussed thing. On rollout he passed over an arresting cable at about five knots. That's when that ornery Mark-24 dropped off and functioned. It didn't catch him and the fire department put it out.

They're cleaning and inspecting their MAU-3 and MAU-4 racks more often. And the fire department hangs around the arresting cables on hung-flare landings.

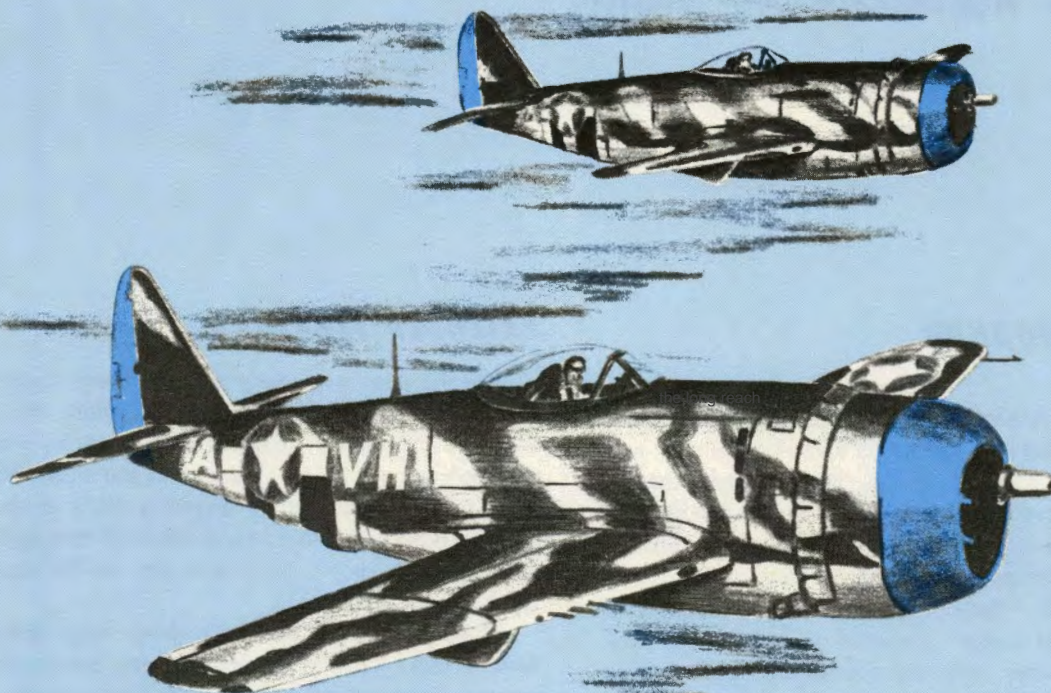
FROM OUT OF THE PAST

An F-4 crew was letting down in their target area when, for no apparent reason, the left outboard MER departed for parts unknown. They saw the MER impact and the ordnance appeared to detonate. Since all switches were set up properly and no reason could be found for the release, they jettisoned the rest of their load and went home.

Back at the ranch, the aircraft was impounded and all checks of the aircraft with the pylon mated showed no problems. The pylon was removed from the aircraft and they went at it again using the AWM-13A. Everything still checked good. Then someone noticed shavings lying in the bottom of the pylon. The access panel was removed for a further look. They found holes in the left wire bundle exposing bare wires. The holes in the wire bundle matched drilling in the pylon where a scab patch had been installed. A wire with 28 volts was next to the wire that serviced the MAU-12 impulse cartridges through the stores release relay.

The pylon had been in 780 storage, there was no way to know who made the scab patch or when it was done. How about that?

THE LONG REACH



You reach out and pick up this VIII Fighter Commander tactics "Manual" dated 29 May 1944 with a respect bordering on reverence. You scan pages eagerly and recognize pictures of the fighter pilot contributors, names and faces ranking among our country's greatest World War II aces. The acronym KIA and MIA appears all too often in their brief "biogs." You marvel at the obvious youthfulness and their friendly smiles, realizing that they have learned much about flying and compressed a lifetime of air battles into a time period of months, not years. They are trying to "reach," to teach, to impress those follow-on generations of fighter pilots who must follow them, and are as yet untrained in aerial combat maneuvering. They recount experiences, tactics, and pilot techniques proven in aerial battles beginning as mass formations in crowded skies and ending in single-ship or element versus element hassels. Not all of their tactics and techniques still apply, some are now impractical. However, they do present and show surprising agreement on some fighter pilot fundamentals. We think you will learn much in reading their personal accounts about flying "into the wild blue yonder," and respect the contribution they have made to a proud profession: the fighter pilot!

I Don't Consider the Dreaming Time Wasted

By Major Walker M. Mahurin
63rd Fighter Squadron
56th Fighter Group
P-47

In reply to your letter requesting some information on aerial combat based on my experience, which I assure you is limited, I would like to make as short a reply as possible. In fact, I would much rather fight a battle than tell about it. However, I will be only too glad to give the points I consider foremost if they can be of the least amount of assistance to anyone else. I hope you can use them.

In my opinion aerial combat isn't half of what it is shown to be in the movies. Most of us have some sort of an idea formed in our heads when we finally get into a combat theatre. We like to think that the battle will assume proportions equal to those of the movies. You know how it is — one pilot sees the other, they both grit their teeth to beat hell, and finally the deadly combat begins with violent maneuvering by both parties. This kind of thought is entirely erroneous. The combat usually takes place at a hell of a speed; the enemy plane is only seen for a few seconds. In nine cases out of ten the victor never sees his victim crash. As a result of the wrong idea, the new pilot who first sees an enemy ship, goes in to attack hell-bent for election, and winds up feeling futile as the dickens because he didn't even succeed in frightening the enemy. I know, because I've done it myself many times. In fact, I've blown some darned good chances by just that sort of an attack.

The conclusion I draw from this is that no combat is worthwhile unless the attacking pilot does his work in a very cool and calculating way. I think that if I have got things pretty well figured out before I make a bounce, I stand a much better chance of bagging that guy I'm going down after. The cardinal points in an attack are, first, be sure of your own position. See that there is no enemy around to make an attack on you. Secondly, make sure that you know what the enemy is doing. Try to figure out what you would do if you were in his position. Third, try to get up sun on him. This is extremely important, because once the element of surprise is lost the enemy is about ten times as difficult to bring down. Even if he is not surprised, he still can't see into the sun — so the chances of getting to him before he can make a turn are

pretty darned good. Last, close right up his old rudder and let go. These are what I consider to be the most important points of combat.

Before I ever saw an enemy aircraft, I used to spend hours just sitting in the old sack thinking exactly what I would do if the enemy were in such and such a position, and what I would do if he were doing something else. I think that it all paid in the long run. A couple of times I have been fortunate in running into just the situation I had dreamed of at one time or another. Then, I didn't have to think. I just acted, because I had mentally been in that very position before. I believe it helped. At least I would advocate it. I still do it, and I hope that I run into a couple more of the dream castles, because it pays big dividends. At the same time, I don't always imagine what I would do if I were making the attack. I have it all figured out, also, when the enemy is on my tail. It can happen anytime and sometimes has. I know that I don't consider the dreaming time wasted. It's a lot of fun, too.

In regard to looking behind and around, I realize that it is a subject that has been harped on by every guy that has ever spent one measly hour on a combat operation. It is an absolute necessity. The result is most obvious. The enemy will never bag an American fighter if the Yank sees him coming in time to take proper evasive action. It is still a bad thing to spend all one's time looking behind. The idea behind fighter aircraft is that they will seek out the enemy and destroy him. A pilot will never accomplish this aim by looking behind all of the time. He must divide all his time to where it will do him the most good. If he knows that there are enemy above him, then, sure, look above and behind. But, if he thinks the enemy is below him then, for God's sake look in front and down. When you spot the enemy go down and get him. Everyone knows about this subject so I think that I've said enough.

One thing that I believe should be stressed by all means is the reading of the mission reports of every group. Those daily summary reports that we get the next day after each mission are the most important of all the printed matter in our intelligence office. Both the bomber and fighter reports are good, because it is easy to see just what tactics

THE LONG REACH

the enemy has used against us. Also, it is easy to note just what changes have been made in previous days. I usually use this stuff to formulate some plan of attack that I would use if I were the enemy controller. Sometimes it works. I know that I got my first victory from reading the mission reports turned in by Gene Roberts. On the day he first got a couple enemy aircraft, he put in the mission reports how the enemy was lining up far out to the side and making head-on attacks on the bomber formation. Gene just happened to mention exactly how far away from the bombers the enemy was. On August 17th I went out to the spot where Gene found his and I got two of them out there. Now, I'm a firm believer in the reports. So, I advocate that all pilots read them. I kind of wish that the accounts of the engagements were just a little more complete.

The next most important thing is the duty of all the positions in a squadron. I've been fortunate in that I have always been in a hitting position — leading a flight. I still think that it is the wingman who counts. I couldn't shoot down a thing if I were worrying about whether or not I had a wingman. He is the most important guy in the squadron. It is up to the wingman to cover his element leader no matter what. Sure, I know its tough to sit back and tell a guy that he is clear behind so he can shoot down an enemy plane. But look at it this way. Sooner or later the guy you're following around is going to be through with his tour. That'll leave a vacancy. The guy who will fill it will be the guy who has been giving the perfect job as a wingman. He will then get the chance to shoot, and probably will have profited by following a good shot around. Then, too, he will realize just what an important job the wingman has. A good wingman is worth his weight in API. So, for the wingmen, stick close to the man you fly with. Watch behind and let him look out in front. Fly well, and you will get to do all the shooting you want soon enough. I know I don't have to say a word about the leaders, it's almost impossible to get through the maze of Thunderbolts who have beaten me to the draw.

The last thing that I can stress is training. I think that my group probably does more training than any other in the E.T.O. At least, it seems that way to me. I've been training ever since I got to the group and I imagine I'll

continue to do so 'till the war is over. It really pays. Every worthwhile hour in the air is the most valuable thing that I know of. After all, we are fighting for our lives. What's more we are fighting for the most valuable thing in the world — Freedom. I think that these two things are well worth a little practice. Aerial camera gunnery is absolutely the most valuable training a man can get. Almost exactly like the real thing, only played with our own ships. Next, in importance comes formation — both tactical and close. A good formation flyer will almost manufacture gasoline — something of which we don't have enough as it is. Third, comes acrobatics, because a guy who knows what his airplane will do won't have to worry about how to make it do it when he could use the time shooting down the enemy. Fourth, anyone knows just how good a red-hot outfit looks when they takeoff and land. They really look good. This is all done by practice and do think they don't feel proud of themselves when they make good landings and takeoffs. I know, because I'm in one of those red-hot outfits, and it makes me feel good as hell. The same old axiom applies: "Anything worth doing is worth doing well."

Besides aerial camera work, I don't know of a thing that closely parallels shooting in combat. I certainly wish I did. My shooting is probably the worst in the whole Air Force. I know that most of us feel the same. Jerry Johnson is probably the best shot in the Air Force, but he won't tell me how he does it. I have to get close enough to the enemy to reach out and club him before I can hit him. Usually, even that won't work. But, boy if I knew how to practice shooting, I would spend all my waking hours at it. If we, and I speak of the Air Force as a whole, could only shoot perfectly we would double our score with no effort at all. When the man does come forth who has invented a way of simulating combat, complete with shooting down the target, then we will win the air war hands down.

Well Sir, I think that I've said enough. I only hope that someone can get one iota of sense from this letter. If someone does, I will know that this time has been well spent. Thanks for asking me what I think — you gave me a chance to blow off a bit. ➤

Tactical Air Command

Crew Chief of the Month

Sergeant Charles A. Gardner, 425 Tactical Fighter Training Squadron, Williams Air Force Base, Arizona, has been selected to receive the TAC Crew Chief Safety Award. Sergeant Gardner will receive a letter of appreciation from the Commander of Tactical Air Command and an engraved award.



Sgt Gardner

Tactical Air Command

Maintenance Man of the Month

Staff Sergeant Charles D. Elliott, 33 Tactical Fighter Wing, Eglin Air Force Base, Florida, has been selected to receive the TAC Maintenance Man Safety Award. Sergeant Elliott will receive a letter of appreciation from the Commander of Tactical Air Command and an engraved award.



SSgt Elliott



OLD MAN WINTER



By Capt James F. Hines
Hq, 5 WWg, Langley AFB, Va.
Scientific Services Officer

This winter, like every winter since the early 1900's, pilots will be challenged by an opponent who could be more dangerous than tangling with a SAM. This adversary is as old as time itself, and has the agility and experience of a well-trained gladiator. It's "Old Man Winter."

This old fellow has an arsenal of weapons that create weather conditions potentially fatal to all unaware flyers who cross swords with him. He does not play by the rules, and has no regard for rank or social standing. If he is to be held in check, each pilot must be aware of his tardy deeds as well as how to combat them.

In order to properly defend yourselves against the mighty thrusts of winter, you should be aware of some of the more hazardous weather situations that are introduced by this season. A few of the hazards are:

- An increase in frontal passages.
- Strong gusty surface winds of long duration.
- Increased precipitation — including freezing precipitation.
- Low ceilings.
- Embedded thunderstorms which may be hidden or masked by thick layered frontal clouds.
- An increase of surface and enroute icing conditions.

All of these are conditions that can prove to be devastating to aircrews who have not taken proper precautions. All of the hazards and necessary precautions cannot possibly be covered in this article, so let's discuss only the more prominent ones.

First, an understanding of meteorological terminology, and what may be implied, is necessary to properly prepare yourself to react to given observed or forecasted conditions. As an example, what does W5X 1/2 F mean to you? The symbols mean, respectively:

- W — Indefinite ceiling, generally used with fog, haze, smoke, or falling precipitation.
- 5 — Vertical visibility to the nearest 100 feet — 500 feet in the example above.
- X — Total obscuration. The entire sky dome and clouds are obscured from the observer.
- 1/2 — Horizontal prevailing visibility is 1/2 statute mile.
- F — Symbol for fog.

This would be read: "Indefinite ceiling five hundred feet obscured, visibility 1/2 mile in fog."

The underlined words above are the key to the implications suggested by the message. The mention of these key words should immediately call your attention to the existence of a potential threat to your safety. This obscured ceiling of 500 feet is not to be confused with a 500 foot cloud ceiling. You can normally see the ground or runway when penetrating a cloud base ceiling (see Figure 1). However, this is not the case with an obscured

Old Man Winter

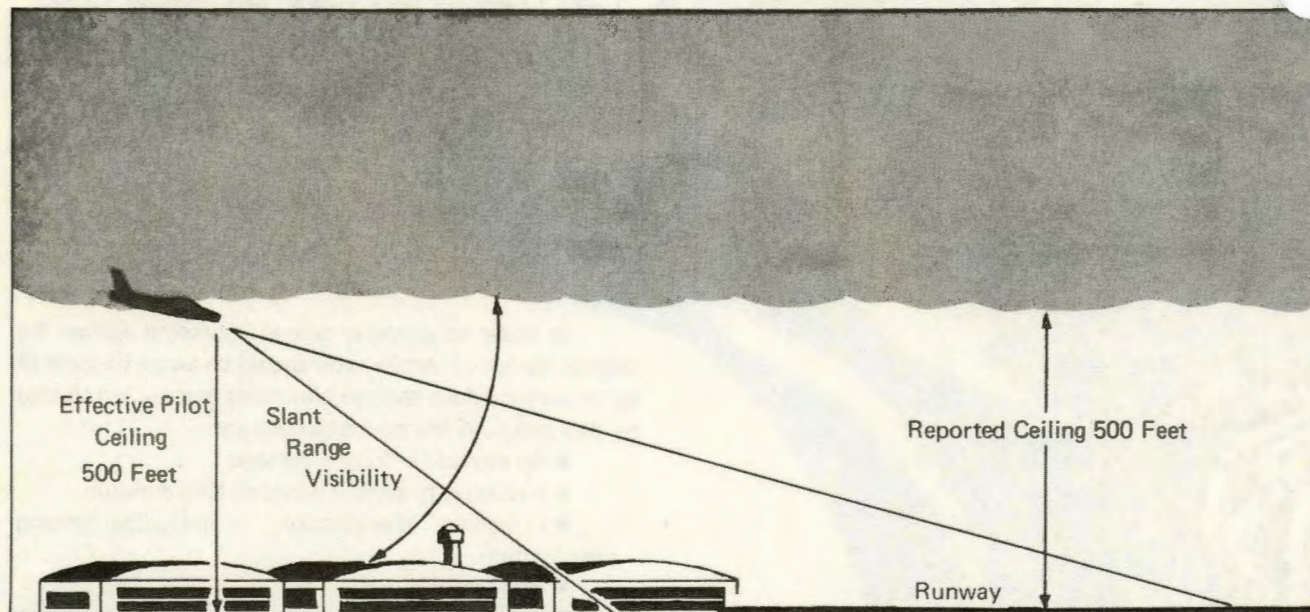


Figure 1. Cloud Ceiling of 500 Feet with no Restriction to Visibility Below Clouds

ceiling of 500 feet. You will not generally see the runway or even the approach lights upon penetration of the 500 foot level, since the obscuring phenomenon usually reaches the surface (see Figure 2). However, you should be able to see the ground directly beneath your aircraft after passing through the ceiling height.

Also keep in mind that the visibility that is relayed to you is the prevailing (horizontal) visibility, and gives very little indication of your slant range visibility (except that you can bet that the latter will be much less). Keep the following definitions in your "memory banks" for future use.

1. Prevailing visibility is that visibility which is normally reported in the weather sequence, and is the greatest visibility which is equalled or surpassed throughout half of the horizon circle, not necessarily continuous.

2. Runway visibility (RVV) is an instrumentally or visually derived value that best represents the horizontal distance a pilot can see down the active runway in the direction of takeoff or landing. When high intensity runway lights are operative, runway visibility observations will take this into account and the reported visibility will be the maximum possible with the lights on.

3. Runway visual range (RVR) is the maximum distance in the direction of takeoff or landing at which the runway, or the specified lights or markers delineating it, can be seen from a position above a specified point on its center line at a height corresponding to the average

eye-level of pilots at touchdown.

The above discussion also applies to partial obscurations, except that the vertical visibility is not reported since the observer can see through the obscuring phenomenon, or a portion of the sky is not hidden.

Partial obscurations present the same problem for an aircraft in the approach pattern, in that the pilot still lacks information concerning the slant range visibility, or the altitude at which he will be able to distinguish the approach lights.

Another area in which the old fellow excels is icing (both at ground level and in flight). Frozen precipitation or frost accumulated on parked aircraft may be hazardous if not removed before flight. Of course, a greater problem concerns the presence of water or mud on ramps and runways during freezing temperatures. This situation allows water and mud to be splashed and blown on your aircraft and could cause frozen brakes, flaps, landing gear, et cetera. This need not be a problem if crew members and maintenance personnel are alert and aware of these possibilities.

Probably one of the trickiest and most fiendish actions taken by Old Man Winter is to tamper with runway conditions. By using rain, ice, and snow he greatly affects the braking action of your aircraft. As a starting point for combating this, obtain and apply Runway Condition Readings (RCR) during preflight planning. RCR can do a lot for you if you take it for what it is. Treat it as a guide, and remember that the stopping

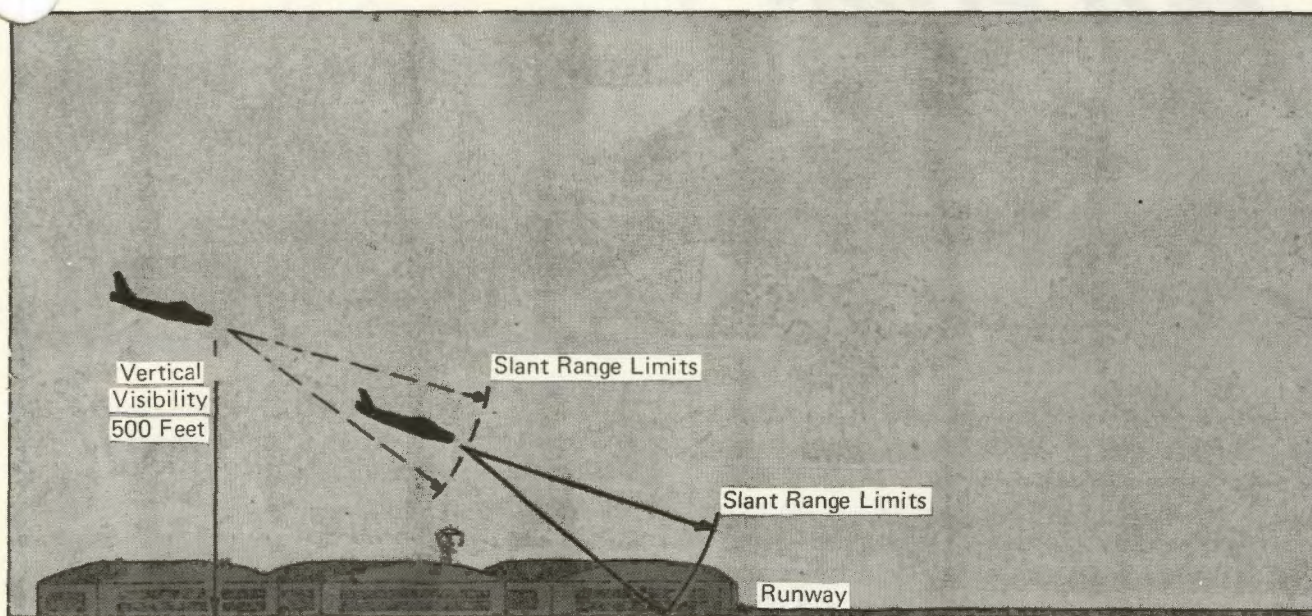


Figure 2. Surface Based Obscuration with Vertical Visibility (Obscured Ceiling) of 500 Feet

distance figures you derive from RCR are based on ideal conditions. Beyond that, you're on your own. Never consider RCR alone as the final determination of the suitability of a runway for landing.

Lastly, enroute aircraft icing has been a continuous hazard, but has diminished somewhat with the advent of the jet aircraft. However, each pilot should anticipate and plan for the possibility of icing on every flight that may be conducted in clouds with temperatures near or below freezing. The following discussion is meant to familiarize you with the icing generally associated with different atmospheric conditions.

Stable air masses often produce stratoform type clouds with extensive areas of relatively continuous icing conditions. Icing in middle-and-low-level stratoform is confined, on the average, to a layer between 3000 and 4000 feet thick. The intensity of the icing generally ranges from a trace to light, with the maximum values occurring in the upper portion of the cloud. Both rime and mixed icing are observed in stratoform clouds, and as mentioned above, present a hazard due to their great horizontal extent. High-level stratoform clouds are composed mostly of ice crystals and give little icing.

Unstable air masses generally produce cumuloform clouds with a limited horizontal extent of icing conditions. You can expect the icing to become more severe at higher altitudes in cumuloform clouds. The concentration of super-cooled water droplets may be several times greater than that generally found in

stratoform clouds. Therefore, the rate of ice accumulation is greater, but lasts for a shorter time. Icing in cumuloform clouds is usually clear.

Aircraft icing rarely occurs in cirrus clouds, some of which do contain a small proportion of water droplets. However, icing of light intensity has been reported in dense cirrus, especially in the anvil-tops of cumulonimbus clouds.

As a rule, you can generally associate the types of icing with the following temperature ranges:

<u>TEMPERATURE</u>	<u>TYPE OF ICING</u>
0°C to -10°C	Clear
-10°C to -15°C	Clear and Rime
-15°C to -20°C	Rime
Lower than -20°C	Possible Rime

General knowledge of the probable icing zones can be a tremendous aid to you as pilots, especially if you are flying conventional aircraft.

This discussion has emphasized only a small portion of the awesome power of winter. When it comes to challenging Old Man Winter, you must remember that he has all the elements on his side. In order to be victorious in such a battle, you must know and understand your enemy, and properly prepare and arm yourself.

DON'T BE A DISBELIEVER, OR YOU MAY BE A LOSER. ➔

TAC TIPS

...interest items, mishaps

NEW CHIEF, FAA/TAC LIAISON OFFICER

Mr. Rex Stewart has been assigned as the full time FAA Liaison Officer at Langley. His services are available to assist in matters relating to air traffic control. Mr. Stewart has access to all FAA Divisions and can obtain information and assistance in all matters pertaining to FAA. Units are invited to contact Mr. Stewart on any matter in which he may be of assistance. His office is located in Building 693, Room 219. The telephone number is Autovon 432-4347 (commercial 764-4347/4193).

Address correspondence to Chief, FAA/TAC Liaison Officer, P. O. Box 625, Langley Air Force Base, Virginia 23365.

GOING TO A-7s?

Last month we discussed some problems encountered by a few jocks concerning the F-4 Emergency Gear Lowering System. Since it is a Navy airplane, we thought a look at another Navy bird we fly, the A-7, might be in order since system operation is similar. The A-7 emergency gear lowering system differs in that the pilot must push in and turn the gear handle before pulling it out to activate the system. This will prevent accidental actuations of the type we have been experiencing in the F-4.

And guess what! The Navy has already experienced a major accident due to the failure of a pilot to fully extend the gear handle following PC-2 failure. Following his attempt to lower the gear with the emergency system he did various maneuvers including airspeed changes and positive and negative Gs. The mains locked down during G application but the nose gear remained in the trail position. He recovered aboard his carrier into the barricade and the bird suffered substantial damage. They put it on jacks, activated the emergency lowering system and the nose gear blew down and locked. So watch it!

NO CHECKEE—NO LAUNDRY

The F-4 crew leaped off on a cross-country trip. Shortly after takeoff, departure control advised them that assorted pieces left their bird on climbout; some fell into the bay. They noticed a slight vibration after that and decided to land immediately. After their straight-in approach, they discovered the access door on their travel pod was missing. So was a good share of their clean laundry and clothes.

This could be a good way to teach crews to check all access doors and panels for security during preflight. No checkee — no laundry!

IM-PROP-ER LAUNCH

The illuminator operator on the AC-119 was resetting a MK-24 flare inflight to 30-second ejection and 30-second ignition. It was in the number one tube and difficult to reach. He was on his knees with his head about six inches above the floor. Supporting himself with one hand he inserted the setting tool and turned the timer to the desired position. That's when the dollar-nineteen completed the circle and hit its own propwash. The illuminator operator lost his precarious balance and fell, probably hooking the lanyard cable as he withdrew the setting tool.

In about 30 seconds the explosion of the flare in the tube tore the left side of the launcher from its mounts and lifted it about six inches. The IO tried to eject the flare, but it wouldn't budge. In another 30 seconds the entire flare launcher was encircled in flames. Both pilot and IO made quick decisions and jettisoned the launcher.

Attempting a reset on the bottom row flares puts the operator in an unstable, awkward position. The unit decided not to do it. When flares in other than the firing position need resetting, they'll do it while the bird is flying straight and level. Then propwash won't be a problem.

with morals, for the TAC aircrewman

ONE-SIDED REVERSE

The Herky pilot computed his headwind component at 12 knots and the crosswind at 33 from the right. On landing, he reversed all four at 110 knots indicated. Three and Four promptly flamed out; One and Two reversed normally. He maintained directional control okay. A postflight inspection couldn't locate the cause for the double flameout. However, other C-130 crews have experienced upwind engine flameouts during high speed reversing in crosswinds. They suggest that the flight manual should make some comment about the problem to alert other Herky crews. It makes sense.

WAYWARD WIND

The O-1 pilot rolled into a left turn on climbout and eased in left rudder. As he reached three-quarter travel, the rudder pedal broke off at the weld point on the rudder bar assembly. Hopeful that other parts of the bird wouldn't follow suit, he experimented with other ways of applying left rudder. By using his hand on the aft left rudder pedal he discovered that toe pressure on the left rudder actuator cable gave him left rudder deflection. But he found no substitute for left brake application.

Thinking about runway directional control on landing, he found a favorable left crosswind out of the north and landed to the east. After about 500 feet of ground roll the bird dog veered right and all he had going for him was right braking; he dug a wing tip in the soft stuff on the runway shoulder.

Wouldn't you know it! That wind sock swung sneakily south in response to unfriendly, gusting winds. Unit maintenance types ran a dye-penetrant inspection of all their O-1 rudder pedal assemblies, but didn't find any other weak welds. They suggest running dye-penetrant or magnetic particle checks on rudder bars every tenth PE inspection. Also, squadron pilots are taking closer flight looks at rudder bar assemblies... there's not

much they can do about wayward winds.

Come to think of it, that could be used in a song title.

DOOR DID IT AGAIN!

The Provider flight engineer completed his cruise checklist after level off and proceeded aft to help the loadmaster set up for a static line troop drop. When the copilot called for the 20-minute check, the engineer started removing the left troop door. As he released the door handle he lost his footing and hit the quick release with his left arm, jettisoning the door. Revengefully, it slashed his arm as a departing gesture. Fortunately, he was wearing a restraining harness and stayed in the cargo compartment. First aid and an immediate landing for medical assistance helped his lacerated arm.

The unit decided to remove the troop doors before takeoff on static line drop missions after this close call. They'll use straps to plug the open doorway.

GEAR GRIPES

After takeoff the C-123 loadmaster reported hot brakes on the left main gear. The pilot lowered the gear for cooling. After a short time he retracted the gear. This time the nose gear cocked to the left in the well. On the second lowering the nose gear remained cocked 15 to 20 degrees left. As flaps were lowered for landing, they stopped after five degrees of travel. That's when the crew smelled and saw hydraulic fluid in the right gear well; hydraulic pressure dropped to zero.

The pilot landed on the right edge of the 200-foot wide runway. Full right air brake and max reverse on number two couldn't overcome the cocked nosewheel. The Provider left the runway at the halfway point, fortunately without damage or injury.

Investigators discovered a broken torque tube in the nose wheel steering hardware. A failed hydraulic fluid flexible hose let their hydraulic system down.

Wonder if a foam strip might've helped that cocked nose wheel lose traction and give the reverse thrust a chance to control heading?

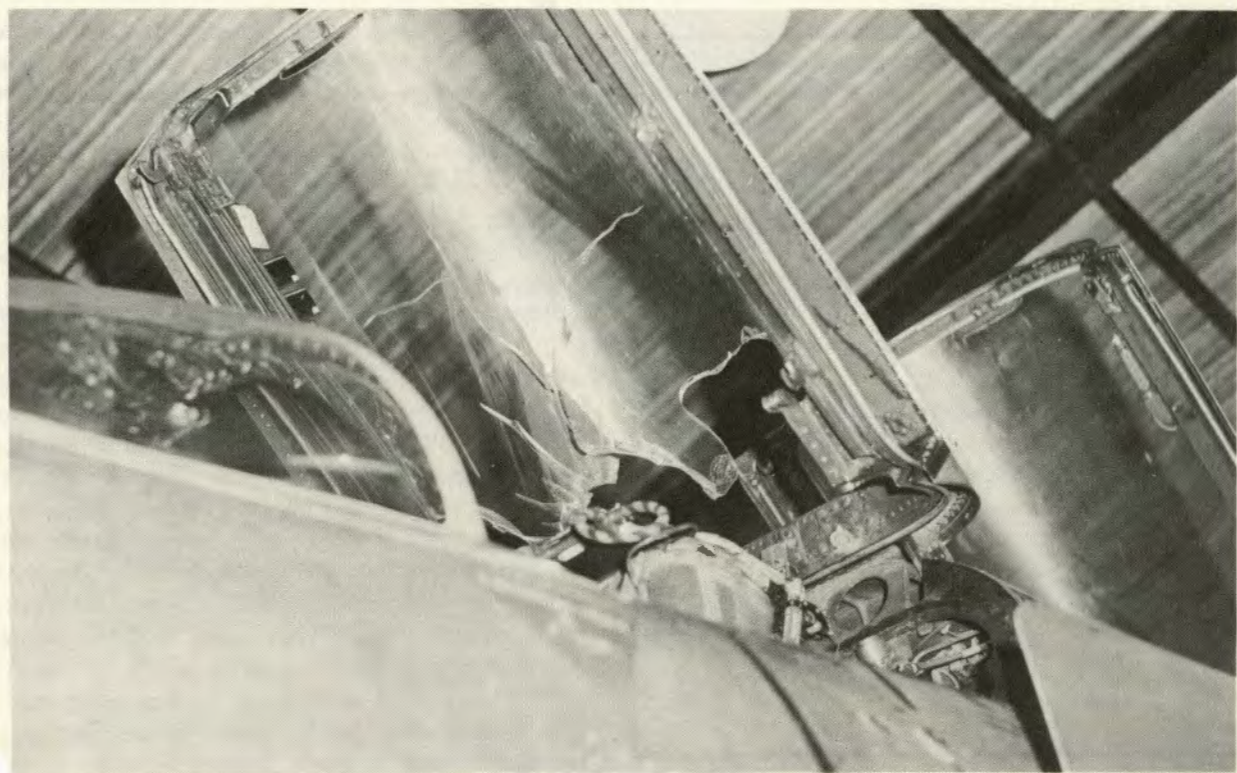
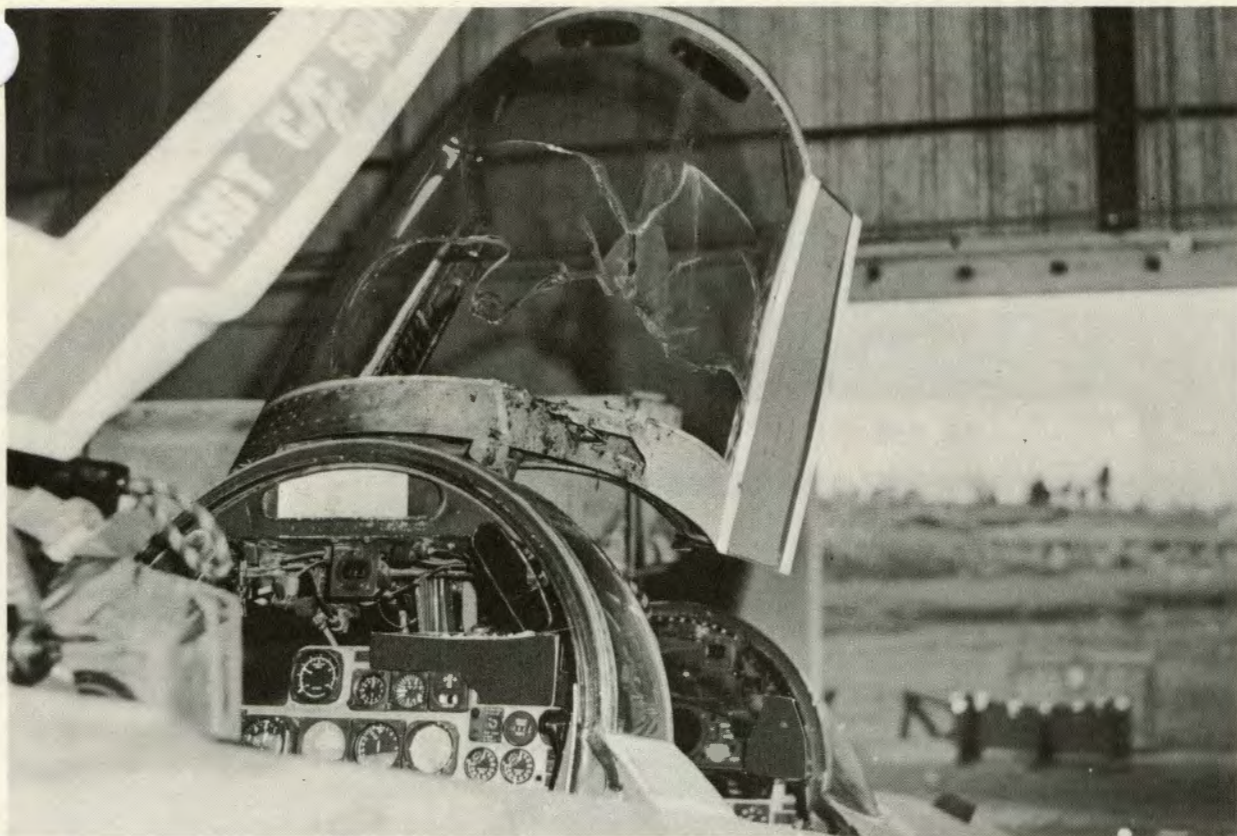


Birdstrikes during this time of the year hardly raise an eyebrow. But here's one that generated a few tense moments and, no doubt, turned on two pilots' adrenalin pumping equipment. The locale is somewhere in SEA, the crew was . . . well, let's let the aircraft commander tell it.

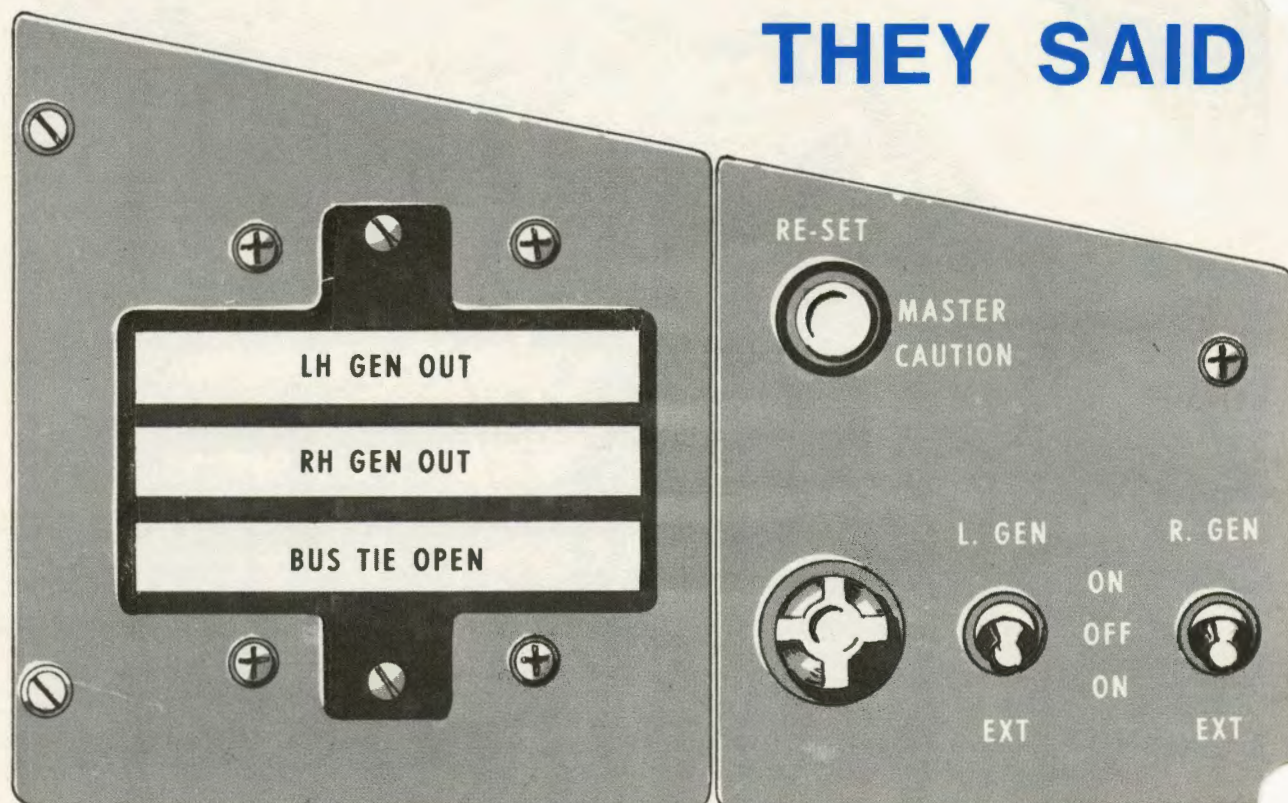
Ed.

I was performing visual reconnaissance over a highly congested enemy area. We had just come out of a hard left turn and were beginning a jink to the right at approximately 1000 feet and 400 knots when I felt a thump and heard a loud continuing howl. My immediate thought was that we had taken a hit because of known enemy activity in the area. I looked over my right shoulder and saw a hole in my canopy about eighteen inches behind my head, about a foot-and-a-half square. About that time I heard my backseater shout, "Let's get the hell out of here," which confirmed in my mind that we had indeed taken a hit. I then started climbing toward the nearest friendly base. While I was doing that, I looked over my left shoulder and could see blood and gore splattered on the aft side of the canopy. I began to shout at my backseater, asking him if he was OK. He couldn't

hear me because of the noise. So, for about 15-20 seconds I was sure he was back there bleeding to death. After what seemed an eternity, I attained enough altitude to be safe from ground fire and slowed the aircraft to 250 knots. Then my backseater was able to hear me and advised that he was all right. Not a scratch as far as he could tell. I asked him to look over the back of my seat and he thought it looked OK. It was here he told me about the feathers. We flew the 150 miles at 250 knots and requested that egress personnel meet us when we landed. The landing was uneventful except for a split flap condition which corrected itself when only half flaps were used. In the dearming area I handed the egress specialist the seat pins through the hole in the canopy made by the bird. My backseater exited the aircraft. After some discussion with the egress people, who by this time had replaced the interlock block knocked out by the bird, I gingerly opened the canopy. Nothing happened except that the canopy opened normally so I unstrapped and stepped out. I could then see the actual size of the hole was more like four and one-half feet square. We had no real difficulty except for the noise and uncertainty right after the strike. But it was a very close thing, 18 inches either way and



THEY SAID IT



The July issue of the U.S. Navy Cockpit CROSSFEED contained a hairy tale about an F-4 that really made us sit up and take a little notice. The crux of the problem was a generator wired improperly so reverse phase current could get in the act following failure of the other generator. We checked to see if this could happen to our Air Force F-4 fleet, the answer was, "Yes, but the odds are a million to one." You see, the three generator leads are different lengths so a man would really have to work at it to hook them up improperly. Well, it wasn't a month following that exchange when we had ours.

The aircraft was to be tested following completion of a TCTO. On takeoff the bus-tie light illuminated and the rudder was deflecting left and right in a random pattern. The takeoff was aborted into the A-gear at about 100 knots. Someone figured a way to reverse the T-2 and T-3 leads on the right generator.

This problem is attacked head-on in the CROSSFEED article followed by some searching questions and a method by which a pilot can determine, after start, if this condition exists on his bird. So, without further ado.....

Human miscues have accounted for numerous mishaps in the aviation community and they continue to rank as the highest single cause factor. Oftentimes the end result is loss of life or material damage while other "bloopers" only result in a "close call," seemingly as a warning or reminder not to repeat the same act or series of acts. The following F-4 incident falls into the latter category primarily due to the experience of the crew and favorable weather conditions. It might well have ended up in the accident category. Here it is in the Safety Officer's words:

"The aircraft was flying in the vicinity of the ship at an altitude of 2000 feet. Pilot was using STAB AUG (but had the AFCS ENGAGE off) when he experienced a large transient oscillation of the aircraft. Approximately five minutes later, the pilot noted that the MASTER CAUTION and the RH GEN OUT lights were illuminated. Before he had a chance to react mentally to this failure, the aircraft went into wild oscillations about all axes. The pilot used full control deflections at times in his efforts to regain control of the aircraft, losing 1000 feet before he was able to stop the gyrations by turning off the STAB AUG. (The aircraft oscillations were so severe that the RIO stowed all of his equipment in the rear cockpit, anticipating that it might become necessary to eject.)"

COULDN'T BE DONE

After regaining control of the aircraft, the pilot noted the following: the left generator had apparently assumed all electrical loads, since the RH GEN OUT light was still on and the BUS TIE OPEN light was out; the AJB-3 ATTITUDE DIRECTOR INDICATOR (ADI) was tumbling in pitch and roll and was spinning in azimuth; the HORIZONTAL SITUATION INDICATOR (HSI) was oscillating plus or minus 40 degrees and the STANDBY ATTITUDE INDICATOR was tumbling. At this time the pilot notified the ship that he wanted to bring the aircraft aboard immediately due to control difficulties. Meanwhile, he reset the right generator (with the STAB AUG off), which remained on for approximately one minute before it failed again, at which time he turned the R GEN switch off. After a short time both attitude indicators seemed to stabilize in unusual attitudes while the ADI continued to spin in azimuth (with the aircraft in straight and level flight). All engine instruments and hydraulic pressure indications were normal. The pilot therefore decided not to secure the right engine, keeping maximum power available in case of further difficulties. An uneventful shipboard arrested landing was accomplished. The flight instrument indications, which seemed completely unrelated to aircraft attitude, caused no difficulties, due to the day VFR conditions.

"It should be mentioned that, although all except one difficulty later proved to be unrelated and independent malfunctions, several other indications occurred during the flight which, combined with those listed above, led the pilot to suspect a possible bleed air duct failure. These other indications were as follows (with the cause of each in parenthesis): a flashing wheels warning light and trailing edge flap barberpole (loose cannon plug) flashing master caution light (bad control box). The one related indication was a low fuel warning light which initiated automatic transfer.

"The cause of the STAB AUG-induced aircraft gyrations and all of the faulty flight instrument indications was determined to be the improper wiring of the left generator to the Cutler-Hammer relay box. Two of the three three-phase AC leads were reversed, causing a phase rotation in the opposite direction. This condition was not readily apparent during normal split-bus operation. However, when the right generator failed, the left generator assumed the loads normally carried by the

right generator through the bus-tie relay. This sent reverse-phased current to the three-phase gyromotors for the attitude and direction indicators and the yaw, pitch, and roll gyros in the STAB AUG/AFCS. This reverse-phased current caused the three-phase motors to electrically brake and drive in the opposite direction. Once this occurred, all attitude instruments became completely erroneous and any control inputs or aerodynamic oscillations could have been amplified, rather than opposed, by the STAB AUG. This, in theory, would give the aircraft dynamic instability and cause divergent oscillation upon displacement of the aircraft in any axis. Thus, the STAB AUG, instead of augmenting the aircraft's natural stability, would almost completely destroy it. It was not determined whether the wiring error occurred on the squadron level or during the aircraft's recent PAR at NARF. The important facts are that: 1. A simple error of getting two adjacent wires reversed caused a condition to exist in the aircraft which had the potential of causing a major accident. 2. The condition was not apparent with the right generator operating. 3. The loss of the right generator at night or in IFR conditions would have almost certainly caused the loss of the aircraft and, perhaps, the crew, due to pilot disorientation or loss of control.

"During split-bus operations with the left generator in reverse phase, the No. 4 and 6 fuel transfer pumps and the right fuel boost pump were running in reverse. These components are normally checked by the plane captain on external power. (The plane captain's instructions read to check the electrical transfer pumps on external power and the hydraulic transfer pumps after the engines are started.) The hydraulic transfer pumps operate only under any one of three conditions: electrical failure, afterburner operation, and automatic transfer. With both hydraulic transfer pumps inoperative and the electric transfer pumps running backwards, only gravity flow was keeping fuel in the feed tank (No. 1 fuel cell). Although seemingly unrelated at the time, the low fuel light indicated low fuel in the feed cell and prevented a possible flameout by starting the hydraulic transfer pumps. After start, the boost pump pressure gauges both read fuel manifold pressure vice individual pump pressure (masking the improper operation of the right boost pump). All other loads normally carried by the port generator are not

THEY SAID IT COULDN'T BE DONE

believed to be phase-critical; that is, they are not affected by a phase reversal. It then seems that the only preflight check which would have indicated the faulty operation of the left generator is the check the pilot performs by turning off the right generator after start. At that time, the boost pump pressure would drop off to zero and the flight attitude instruments would either tumble or oscillate erratically. (It was not considered advisable to investigate further at the squadron level and endanger critical electric mechanisms further by subjecting them to the stresses encountered by reversing the phase of the power supply at operating speeds.) Even these indications could be easily overlooked, as most pilots make this check rapidly while looking at the GENERATOR CONTROL PANEL to insure that the BUS TIE OPEN light is out, indicating the relay has closed and the left generator has assumed all loads."

This is what the Commanding Officer said about the incident:

Commanding Officer's Comments and Recommendations:

COMMENTS: This Commanding Officer feels particularly fortunate that this incident occurred in daylight with an experienced pilot at the controls. A careful study of all the details of the situation raises several questions:

a. How many apparent "loss of control" and "pilot disorientation" accidents were really a result of similar electrical wiring errors?

b. If a simple wiring error can cause such serious and complex difficulties, shouldn't the system be redesigned to preclude the possibility of the mistake being made again?

c. What is wrong with the backup and warning system in the aircraft when it conceals a malfunction of a component until after a failure of its backup?

d. What can be done to prevent the recurrence of such errors?

RECOMMENDATIONS: In view of the above considerations, it is recommended that:

a. A reexamination of previous accidents and incidents in the "undetermined," "loss of control," and "pilot disorientation" categories should be conducted. This examination might reveal certain similarities between this incident and other unsolved accidents.

b. A design change should be incorporated in the wiring to make such an error impossible.

c. The preflight check procedures and the backup and warning system should be redesigned to check for and

reveal such malfunctions prior to flight. In this instance, the malfunction of the left generator was only discovered when the right generator failed in flight. Since generator phasing is so essential in this (and other) aircraft, a check and warning system must be incorporated to preclude the acceptance for flight of an aircraft with a phasing malfunction.

d. Since many of the conclusions of this investigation are theoretical, an aircraft should be deliberately wired with the left generator out of phase and an investigation conducted under controlled conditions to determine the effects, indications and recommended corrective actions. Such an investigation was not considered prudent at the squadron level.

e. Aircrews and maintenance technicians should be reminded that there is no substitute for thorough knowledge of their aircraft, their job, and the procedures associated therewith. In this case, correct maintenance procedures and thorough quality control could have prevented or detected the error. Although the indications for this malfunction during normal preflight checks are easily overlooked, the out-of-phase condition or, at least, the fact that something was wrong with the generator could and should have been detected by a careful execution of the generator checks.

Analyst's Comment:

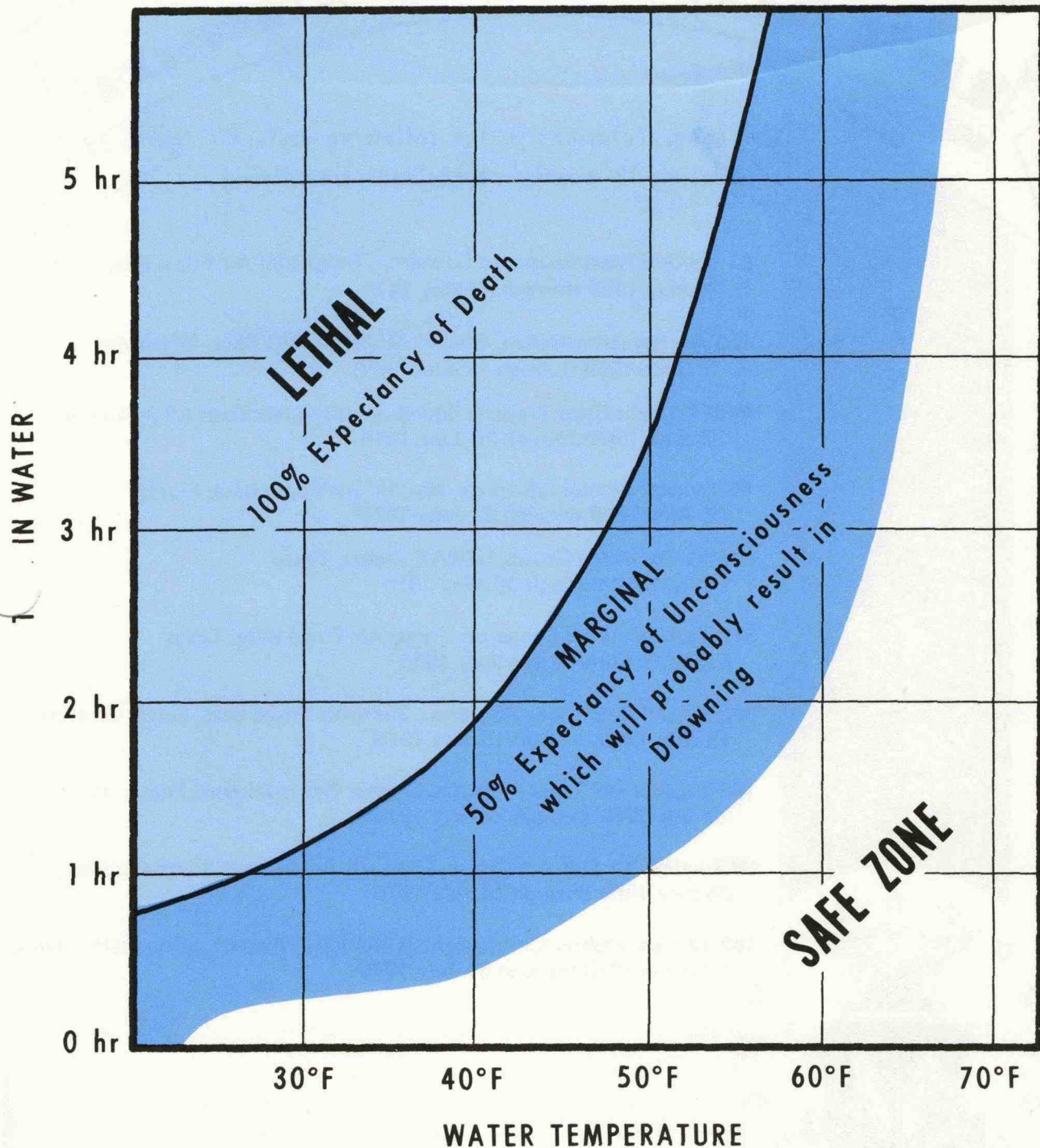
This is the first known mishap of this type in the F-4. However, a very similar incident occurred in an A-6 aircraft as a result of generator phase reversal.

Generator phase reversal was looked into as a possible factor in a recent undetermined F-4 accident. The Naval Safety Center investigator indicated there was no correlation between the two mishaps.

A design change would be the most effective and ultimate means of eliminating this "Murphy." However, a design change requires approval, money and considerable lead time, if indeed it becomes a reality.

Practically speaking, simple human errors do cost us lives and aircraft but that is also the acknowledged reason for proper supervision, use of quality control inspectors, required functional checks, and thorough pilot checks. From the pilot's point of view I urge the post start cycling of the right generator be made slowly with simultaneous check of the ADI and fuel boost pressure gages for indications of phase reversal. An additional means to identify phase reversal would be to activate the seat adjust motor. If the seat raises when it's supposed to lower—phase reversal exists. ➔

TIME OF LIFE EXPECTANCY IN WATER WITHOUT ANTI-EXPOSURE SUIT



Courtesy U. S. Naval Safety Center

Tactical Air Command

Unit Achievement Award

Our congratulations to the following units for completing 12 months of accident free flying :

91 Tactical Reconnaissance Squadron, Bergstrom Air Force Base, Texas
29 May 1969 through 28 May 1970

128 Air Refueling Group, General Mitchell ANG Base, Wisconsin
14 June 1969 through 13 June 1970

4456 Combat Crew Training Squadron, Davis-Monthan AFB, Arizona
27 June 1969 through 26 June 1970

46 Tactical Fighter Squadron, MacDill Air Force Base, Florida
28 June 1969 through 27 June 1970

136 Air Refueling Group, USNAS, Dallas, Texas
1 July 1969 through 30 June 1970

347 Tactical Airlift Squadron, Dyess Air Force Base, Texas
5 July 1969 through 4 July 1970

703 Special Operations Squadron, Shaw Air Force Base, South Carolina
16 July 1969 through 15 July 1970

182 Tactical Air Support Group, Greater Peoria Airport, Peoria, Illinois
23 July 1969 through 22 July 1970

68 Tactical Air Support Group, Shaw Air Force Base, South Carolina
25 July 1969 through 24 July 1970

183 Tactical Fighter Group, Capital Municipal Airport, Springfield, Illinois
1 August 1969 through 31 July 1970



TAC TALLY

AIRCRAFT ACCIDENT RATES

* Estimated

UNITS

MAJOR ACCIDENT RATE COMPARISON

	TAC		ANG		AFRes	
	1969	1970	1969	1970	1969	1970
JAN	6.8	4.8	28.9	5.9	0	0
FEB	6.2	3.9	12.8	2.6	0	0
MAR	6.8	4.6	12.6	1.7	0	0
APR	7.4	4.9	15.1	2.4	0	0
MAY	7.5	6.2	12.9	3.6	0	0
JUN	7.2	5.5	12.6	3.6	0	0
JUL	7.4	5.1	11.3	6.1	0	0
AUG	7.3	5.0	11.5	7.0*	0	0
SEP	6.9		10.5		0	
OCT	7.1		9.9		0	
NOV	6.6		9.4		0	
DEC	6.8		9.5		0	

	THRU AUGUST			THRU AUGUST	
	1969	1970		1969	1970
9 AF	2.8	1.7	12 AF	10.3	8.2
4 TFW	5.5	0	23 TFW	12.7	5.9
15 TFW	2.9	3.7	27 TFW	4.6	10.2
33 TFW	16.9	0	49 TFW	7.2	15.5
354 TFW	0	0	479 TFW	12.4	13.9
4531 TFW	0	6.1	474 TFW	19.9	0
363 TRW	8.6	4.1	67 TRW	0	10.9
			75 TRW	5.6	0
316 TAW	0	0	64 TAW	0	0
317 TAW	0	0	313 TAW	0	0
464 TAW	0	0	516 TAW	5.8	0
68 TASG	—	0	58 TFTW	15.9	16.0
			4442 CCTW	0	9.1
			4453 CCTW	5.0	4.7
			71 TASG	—	0
TAC SPECIAL UNITS					
1 SOW	3.5	7.4	2 ADG	0	0
4409 SUP SQ	0	0	4500 ABW	5.8	0
4410 CCTW	12.3	0	57 FWW	19.1	0

TAC SUMMARY

	AUG 1970	THRU AUG	
		1969	1970
TOTAL ACCIDENTS	4	51	30
MAJOR	3	43	27
MINOR	1	8	3
AIRCREW FATALITIES	0	25	26
AIRCRAFT DESTROYED	3	33	22
TOTAL EJECTIONS	6	28	22
SUCCESSFUL EJECTIONS	6	21	16
PERCENT SUCCESSFUL	100	75	73

FLEAGLE



YOU KNOW GRIFF, AVIATION HAS COME A LONG WAY SINCE WIL AND ORV.

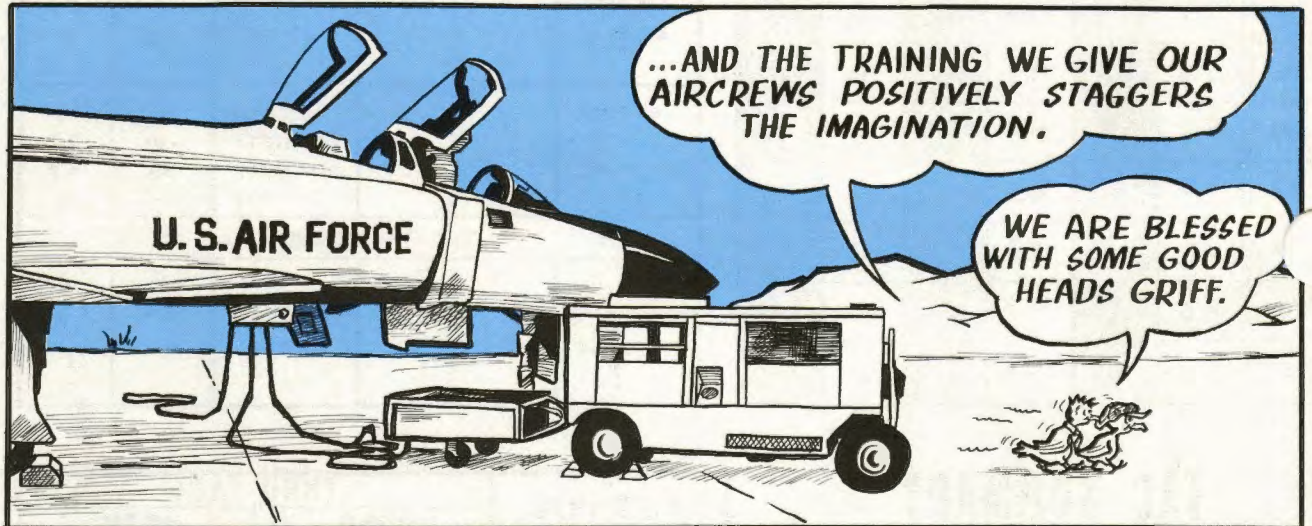
HARDISON



WE HAVE BECOME A NATION WITH THE MOST UP-TO-DATE EQUIPMENT IN THE HISTORY OF THE EARTH.

IT'S PURELY AMAZING ROB...

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...AND THE TRAINING WE GIVE OUR AIRCREWS POSITIVELY STAGGERS THE IMAGINATION.

WE ARE BLESSED WITH SOME GOOD HEADS GRIFF.



HOWEVER, THERE ARE ALWAYS SOME OF OUR JOCKS THAT REQUIRE ADDITIONAL PERSONAL INSTRUCTION.



DO