TAC ATTACK

SEPTEMBER 1969

F-4 FIRES... Page 4

for efficient tactical air power

TAC ATTACK

SEPTEMBER 1969
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TACTICAL AIR COMMAND

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Some Allied Commands use P-R-I-D-E as a manage. acronym — It can kill a Fighter Pilot . . .

current interest

departments

TACRP 127-1

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Angle of ATTACK

if it's not right ....ABORT....

We'll never know how many accidents have been caused by some aviator's act of busting off in an aircraft with a system malfunction. The classic, which will remain ageless of course, is one of our very own – the case of the F-4 jock who went to fly knowing that both of his generators were inoperative. He didn't get far; he wasn't supposed to.

Here's another F-4 example: on takeoff roll, neither burner would light. Throttles were retarded and afterburners were reselected. They still would not light, but the takeoff was continued using military thrust. After cleaning up the aircraft, the front seater retarded throttles to 90 percent. As RPM indicators started down, three rapid bangs and grey smoke erupted from the left engine. RPM would not exceed 70 percent. He got around on the right engine. They suspect the fuel control on number one, and found a bad afterburner igniter on number two.

Another incident involves generator problems after start. This pilot pressed on with his checks till something started burning down below. And then there's another classic: the pilot's attitude indicator problems orginated in the INS; the weather was no problem so off he went.

Incidents such as these make you wonder: What motivates pilots to fly these birds? Are they aware of the obvious accident potential of a second related failure? Suppose you have to divert to a base that can't fix your cripple? Your problems beget greater problems. Twin engine reliability is a meaningless phrase unless you take off with the whole system intact. What good is redundancy in your electronic package, if a part of one is out when you launch?

In a related area, what causes a pilot to remain airborne with a flight control problem and experiment with it to "get more information on the malfunction for maintenance." The outcome of a flight control problem is not predictable – if your bird has this sickness – get it on the ground.

And what's all this accomplishing? By pressing and trying to fly a cripple you may build your total flying time by a hundred hours in a twenty year career – if you make it. But you're not building TAC's combat capability: You're destroying it!

R. L. Liles

R. L. LILES, Colonel, USAF
Chief of Safety

a SECOND LOOK . . . F-4 fires

The accident aircraft was number Three in a flight of four aircraft leading his element on an intercept. He developed radar problems, turned lead of the element over to his wingman, and slipped into a fighting wing position. As he dropped back he saw that he needed afterburner and lit up. As he did, the left fire warning light came on. He immediately pulled the engine out of afterburner, the light remained on so he shut it down. As he turned toward home and declared an emergency the light remained on with no cockpit indications of fire.

Number Four joined up and reported a small fire with smoke, in the area of the left aux air door. The aft section of the left engine was cherry red and there was a hole in the left engine bay door. At 20 miles, the pilot lowered his landing gear – only the nose and right main came down. Four confirmed no left main. He then tried the emergency system but it didn't work either. The crew successfully abandoned the aircraft at that time.

The nineteen minute flight described above constituted TAC's latest F-4 in-flight fire. To date in 1969 we have had three major accidents, one minor accident and four incidents attributed to fires from various causes. From 1 January 1965 to the present the totals are nine major accidents, five minor accidents and twelve incidents. Of our twenty-six mishaps, eight were undetermined and one is still under investigation. We don't intend to get into the nuts and bolts areas such as cause factors and the like in this discussion, work is going on around the clock to resolve this problem. Rather, we will just discuss the other three accidents which have occurred this year and point out some interesting facts gleaned from their reports.

Our first one was a major and occurred during takeoff. The accident aircraft was a wingman. As he released brakes the burners didn't feel quite right and his leader began to leave him. He checked the cockpit and saw a right fire warning light and retarded the throttles to idle. The light remained on so he stopcocked the engine and began to taxi to the left side of the runway. At the time he saw the fire light he heard numerous transmissions concerning being on fire and to get out. The urgency of the calls changed his decision to taxi so he stopped and left it right there.

Our second accident was a minor and also occurred during takeoff, this time the pilot could not abort. Just after the gear came up, the right fire warning ligh illuminated followed by the left. The pilot attempted to bring the right engine throttle out of afterburner but could not retard it past minimum AB. The tower confirmed that he had smoke and fire trailing him so he shut number two down with the engine master switch. That fire light went out as the RPM passed through 12 percent but the left fire warning light remained on. He then pulled the left throttle out of burner, the fire warning light began to flicker at military and would go out with a further reduction of power. Airspeed began to decay so the left afterburner was selected again, the fire light began to come on and off but the pilot had no choice but to accept it if he was to continue flying. On downwind another aircraft joined him and reported no visible fire. He turned base and lowered the gear, half flaps, and landed.

The third inflight fire of the year turned into a major, the narrative reads almost the same as the preceding minor accident. As the gear was retracted after takeoff the left fire warning light illuminated. The pilot stayed in burner and climbed, anticipating ejection. When he was satisfied with his altitude he moved the left throttle to idle and initiated a climbing turn to a downwind leg for a closed pattern. A mild thump was felt in the turn, a chase aircraft reported that his centerline tank had jettisoned. At this time he placed the left throttle to off and that fire warning light went out and the right fire warning light came on. After turning base the pilot made an attempt to restart number one. The restart attempt was discontinued when the chase called that he was burning again. He had the throttle outboard for about five seconds. The landing gear had to be lowered using the emergency system and the landing was completed with no flaps.

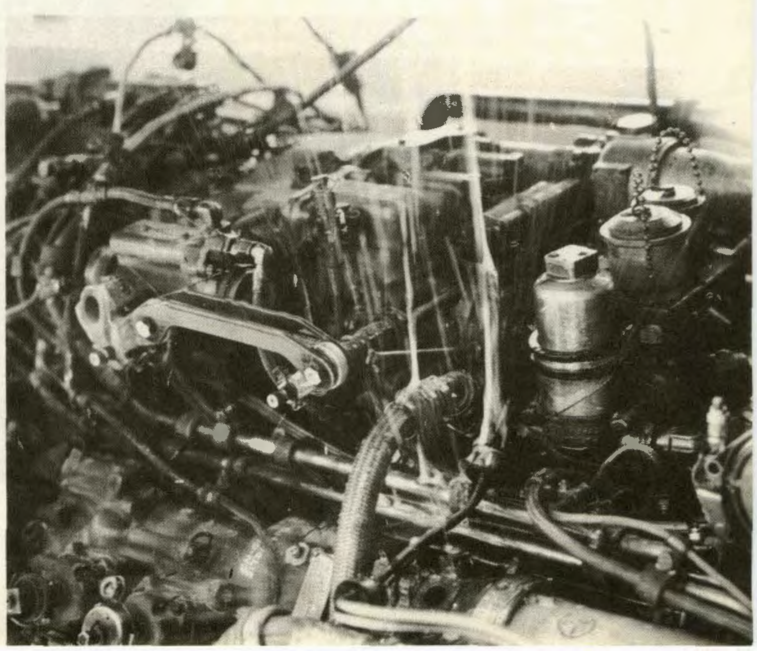
Since our last accident is still under investigation and the first one didn't tell us much, we'll concentrate on the other two, whose reports point out some pertinent facts and indications that you, as pilots, should be aware of. They are the significance of the fire lights at gear retraction, the stuck throttles and some thoughts on twin engine reliability when burning.

A fire light or lights at gear retraction could mean that you have been on fire during the whole takeoff roll. In our second accident for instance, here's what the board determined. "The fire was contained at the point of ignition and drawn forward in the secondary airflow channel by a negative flow of air in the secondary system. This caused damage to the forward section of the engine bay wiring and the QEC portion of the engine. The fire was forced through the air-oil cooler on the front frame, melting the cooling radiator. The fire warning system was triggered when the gear was retracted and a positive flow established in the secondary air chamber by ram air recovery. At this time more air was flowing in the secondary air chamber and intensified the fire in the aft section of the engine bay."

Their second point is also interesting. "It is believed that the intense heat caused the teleflex cable on the fuel control to bind in the teflon lined guide tube in the throttle loop, preventing the pilot from coming out of afterburner range." They addressed this problem further after discovering during the accident investigation that the right throttle which stuck in the afterburner during the short flight was OK on the ground. Two previous incidents of throttles locking due to teflon binding the teleflex cable had occurred at that station. Last fall a throttle stuck following an overheat condition in an engine bay, even though the throttle could be forced below military, the fuel control would not respond. The teflon lining had adhered to the teleflex cable and jammed into the main fuel control. An EUR was submitted at that time and closed this March with no action. The second incident occurred two months later in May when an aux air door failed in the closed position on final approach. The pilot reported the throttle binding, investigation revealed that the teflon had expanded to bind the teleflex cable. We checked our incident reports here and found one more dated February of this year. While in the strafe pattern the pilot noticed that his throttle began binding. His right generator then failed and could not be reset. Next he found that his throttle could not be moved, it was stuck at 90 percent. On post flight inspection the right bleed air duct was found disconnected at the keel causing an overheat condition in that engine bay.

The accident board noted that no mention of this phenomenon was made in the F-4 Dash One. They recommended that until further investigation and analysis of this control unit can be accomplished, a safety

The culprit in one of our in-flight fire accidents. Photo shows ruptured afterburner on/off signal line leaking under 45 psi.



F-4 fires

supplement be published to apprise all aircrews of the possibility of throttle failure under fire or overheat conditions and that the engine master switch may be the only method of shutting off fuel flow. It would certainly seem reasonable that an aircrew on fire, with a stuck throttle, should be aware of this information. Every second of delay increases the possibility that the fire will spread to other hydraulic, fuel or oil lines, or cause a catastrophic failure that will affect the good engine or the structural integrity of the aircraft.

Our last point, your twin engine reliability is dependent on a bunch of variables. There are some things you as a pilot can do and others you cannot. The flame pattern of a fire confined in an engine bay cannot be predicted due to the differences in airflow during various phases of flight and the thrust settings possible on each engine. In our third accident fire damage was found in the unaffected engine bay. We'll let the board tell it, "Severe flame damage was found in number one engine bay, the bottom of the aircraft, and some damage in the number two engine bay. The damage in the left engine compartment was quite extensive. The most severe damage occurred from the ruptured T.E. flap hydraulic line flame source near fuselage station 320. Other damage was found where the flames were drawn across the hydraulic lines at fuselage stations 320 to 330. Some heat damage was also caused aft of the drop center link by fire being drawn across this area toward the main landing gear wheel well. All of the engine access doors and hinges sustained heat damage. Investigation of the right engine bay revealed that an oblong hole was burned in the auxiliary air door of the right engine bay and scorching was pres on the underside of the right engine. Damage was caus in the right engine bay as the flames burned through the keel web and passed outboard across the engine compartment about fuselage station 320. Flame also crossed from the left to right engine bays through the hollow bomb rack support pin. This caused damage to the hydraulic lines and electrical wiring and clamps in the area. The intense torching effect of the fire between fuselage stations 315 to 350 can be further accounted for by the engine bay pressure differential during flight. The number one engine was shut down while number two remained at a high power setting to sustain flight. Under this condition an extremely high velocity air flow would exist from the number one engine bay into number two."

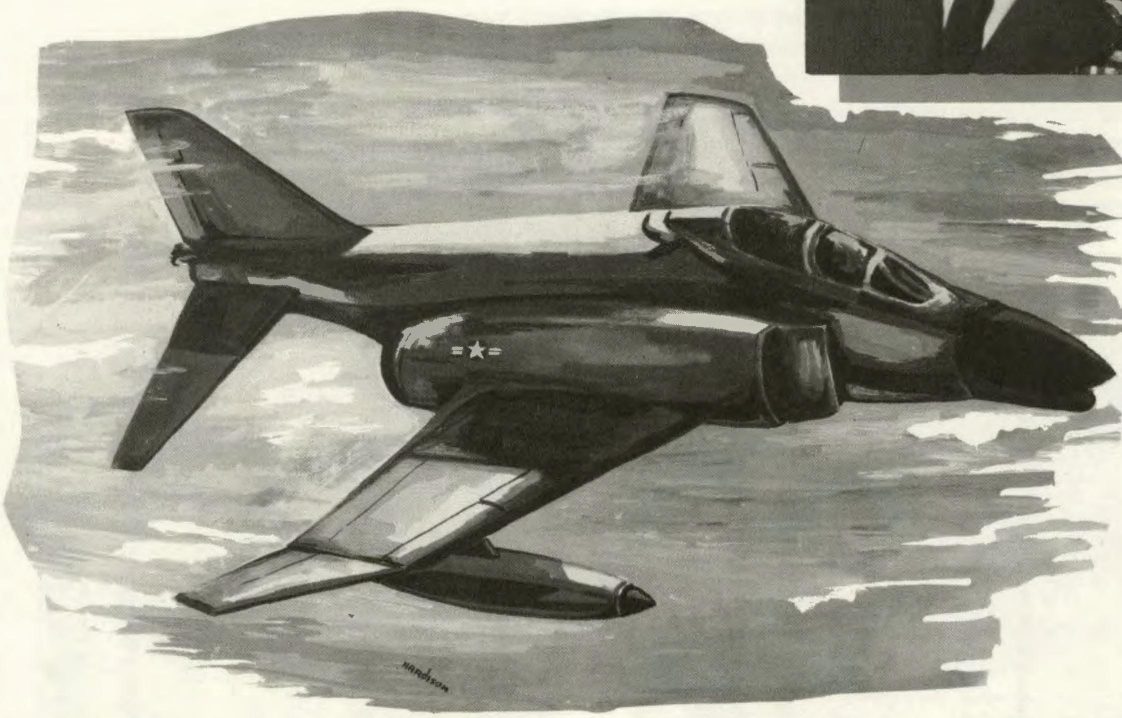
There is another place where fire can cross between engine bays, the centerline keel panels. In one accident report it was recommended that the centerline keel panels which cover the centerline stores jettison breech and the right side keel pin be hinged, as the loss of these frequently removed panels has been a constant problem on the flight line. If they are not on you'll have a big hole connecting the engine bays. This item also happens to be step five on your exterior inspection check prior to flight.

There you have it. About the only sure thing you can say about a fire in flight, is that it will be hot. Since isn't predictable it should be treated like a tim bomb — with respect. By following your emergency procedures and keeping a cool head, the fire may be extinguished. But remember, the airplanes are paid for — if you still have a confirmed fire after you have done all you can, GET OUT. ➤

TACTICAL AIR COMMAND

Pilot of Distinction

Major O. P. Fisher



Major Oliver P. Fisher, Jr. of the 4453 Combat Crew Training Wing, Davis-Monthan Air Force Base, Arizona, has been selected as a Tactical Air Command Pilot of Distinction.

Major Fisher departed McClellan Air Force Base, California, as Flight Commander of two F-4D aircraft on a ferry flight to Southeast Asia. At midpoint in the flight to Hawaii his aircraft experienced double generator failure. His attempts to regain generator power were unsuccessful. He declared an emergency and used Ram Air Turbine power. Major Fisher evaluated the situation carefully and elected to continue to Hawaii. A return to the mainland would require a weather penetration without pitot and bellows heat, cockpit heat and defogging, an approach-end arrestment, possible radio and navigational aids failure.

During the remaining three hours of flight Major Fisher experienced extreme difficulty in maintaining control of his porpoising aircraft due to inoperative stability augmentation and a frozen ram air bellows. He completed a necessary air refueling despite flight control sensitivity problems, heavy frosting inside the canopy, lack of cabin heat, and pressurization loss. Barbers Point NAS was advised of a possible emergency landing and Major Fisher made a successful approach-end arrestment.

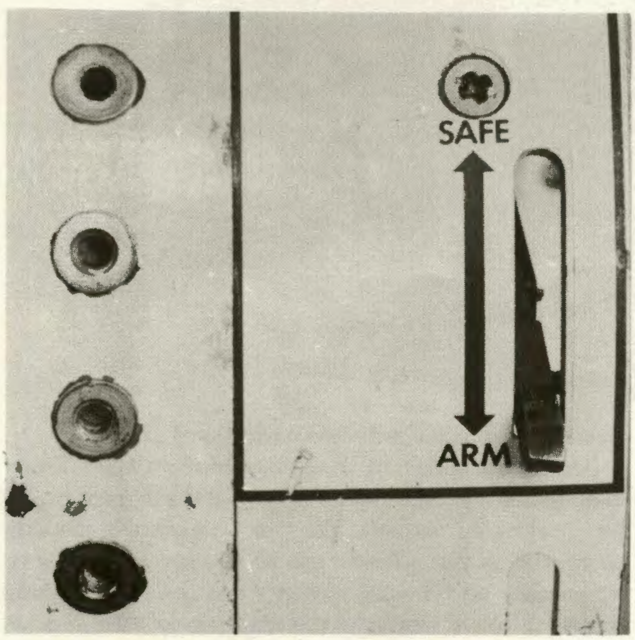
Major Fisher's professional judgment and ability during a critical inflight emergency over water readily qualify him as a Tactical Air Command Pilot of Distinction.

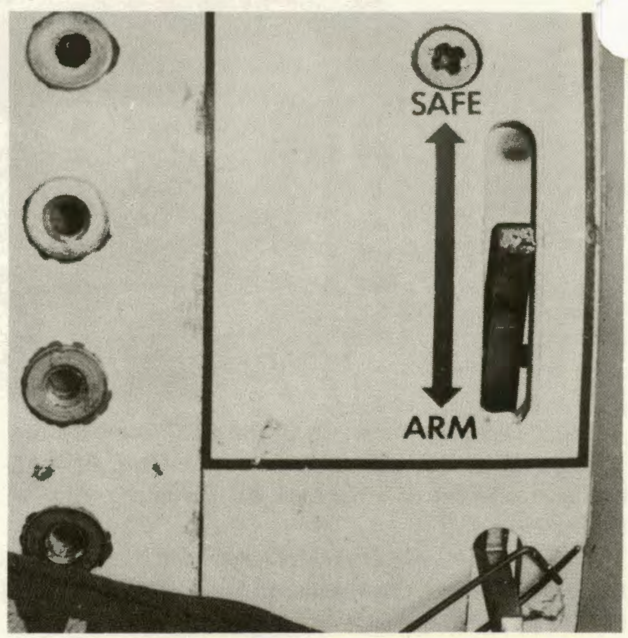
birds & feathers....

During the life cycle of many pieces of military hardware, modifications are made to improve operating and/or safety features. Their function usually remains constant but occasionally handling procedures must be altered. Such is the case with safe-arming devices on the Shrike and Sparrow missile motors.

Modifications to the safe-arm devices have evolved through several generations of motor mods and safety innovations. Shrike and Sparrow missileers currently must be familiar with three existing devices and another which will soon be in the inventory.

Further complicating matters, one arming device is rotated in the opposite direction to arm; cockwise instead of counter-clockwise as for others. This article is not to teach missile men how to operate the four devices, but merely to focus attention on the differences between them.



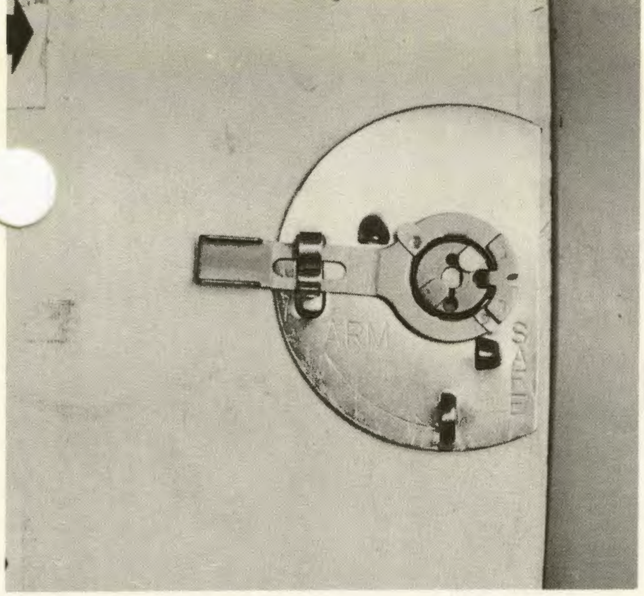


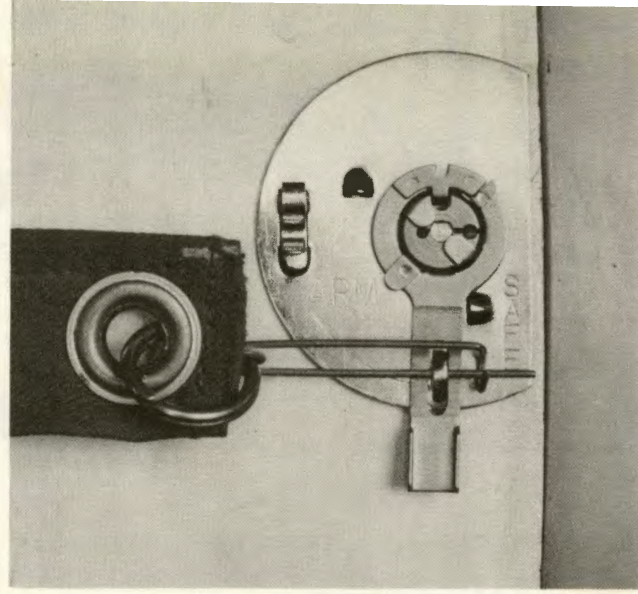
SPARROW Mk 38 Mod 0 thru 3

SHRIKE Mk 39 Mod 0 thru 5

SHRIKE Mk 6 Early Mods

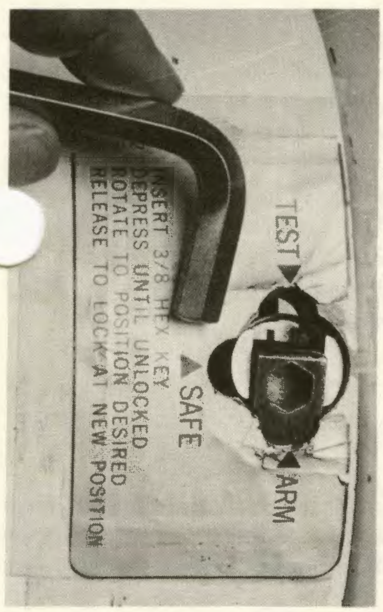
Safe-arm actuator lever moves up to safe and down to arm. It cannot be armed without removing safety pin, and must be in safe position before safety pin can be installed.





SPARROW Mk 6 Mod 3

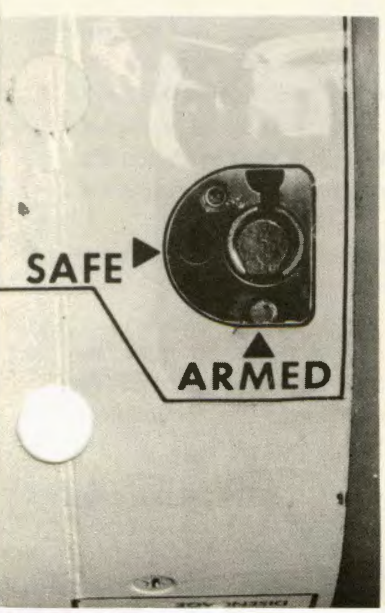
Actuator lever swings clockwise 90-degrees from safe to arm position. The lever must be in safe position to properly install the safety pin. A friction clip holds lever in armed position.



SPARROW Mk 52 Mod 1

SHRIKE Mk 53 Mod 1

Actuator lever is a standard 3/8 inch Allen wrench, turned counter-clockwise to arm. The safety clip can be installed only in safe position.



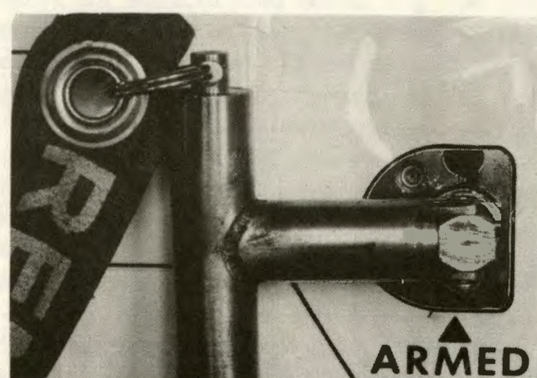
SPARROW Mk 38 Mod 4

SHRIKE Mk 39 Mod 7

SPARROW Mk 52 Mod 2

SHRIKE Mk 53 Mod 2

Engineering change to standardize safe-arm actuators for these models will use a T handle, turned counter-clockwise to arm, and can be removed only in armed position. Visible detent locks all positions.



TAC TIPS

tac tips

...interest items, mishaps

the unbeliever

While on takeoff roll, the FAC noticed a fire warning lite at 80 knots. An abort was affected using full reverse and brakes, whereupon the pilot taxied back to the OV-10 maintenance area to consult with the wrench benders. After some discussion he decided that moisture in the system MAY have actuated the fire lite circuit. Back to the runway he went, this time he only got to 50 knots before the lite came back on. Our hero checked out another steed and went on his way leaving the original Bronco to be re-shoed. All that romping and stomping and taxiing overheated the poor animal's hooves.

A *routine inspection after the first abort would have* shown the material failure of the exhaust pipe supporting system that was porting exhaust gasses to where they could turn on his lite.

p.s. We don't know which engine it was either.

ride 'em

As the RF-4 pulled off target a violent skid was experienced at 540 knots. Control was partially regained and during RTB the pilot explored the extent of his control problems. He pulled the rudder control trim circuit breaker, the ARI circuit breaker and disengaged the stab aug system. The aircraft continued to wander at random through 25 degrees of bank, 10 degrees of pitch and 10 degrees of yaw. When he got home he set up on a ten mile final for landing . . . at a half mile he did not have sufficient control so a go-around was made. He set up for another and had the same luck. He got in the third time, his difficulties ceased when all three gear were on the runway.

The rudder rotary damper was defective and replaced. It was not felt that this would be enough to cause all the problems he had but everything else checked out. Analysis determined that the probable cause of the spastic ride was the rudder actuator. It was replaced and the aircraft passed an FCF.

a sad tail

It was daytime and the C-141 had a pilot and instructor pilot at the controls. It wasn't in Southeast Asia. On their way to the active they encountered four Phantoms on the runway runup pad undergoing a quick check. Moving slow, the many-motored type saw the ground crewmen signaling to him and thought they meant, "you're clear." They didn't and he wasn't. It only required an hour to patch the C-141's wingtip, but the F-4's rudder repair added up to 25 manhours.

Maybe they needed a third pilot?

actual simulation

The OV-10 instructor pilot set up his student for a simulated engine failure on number two. When they entered high key he heard the props break sync as Two's RPM decayed. The IP checked the decreasing EGT, unwinding RPM, generator caution light, and fuel boost pump warning light. The student completed his engine failure procedures, retarding the condition lever to fuel shutoff and feather position. Engine shutdown complete, the IP directed a restart. During the airstart attempt RPM increased to 25 percent, but EGT wouldn't budge. They decided to quit trying and landed single-engine style.

Maintenance troops found metal particles in fuel pump passages when they lifted off the fuel control. Their "simulated" engine failure coincided with an actual.

Don't know how the IP managed to time his simulated/actual so precisely, but his reason for practicing is a good one. It's their fourth fuel pump failure since December.

with morals, for the TAC aircrewman

nice guy

The flight was an instrument check for a student pilot in RTU. After takeoff the student climbed to FL 220 with an intermediate level off at 12,000 for a few minutes. The instructor pilot noted a cabin altitude of 20,000 feet at level off but waited for the student to make an ops check as required by TACM 55-4. He waited too long. After less than five minutes at altitude, responses from the student became unsatisfactory. The instructor pilot then told the student to go to emergency oxygen and to pull and reset the cabin emergency vent knob – the student did not comply with his instructions. The IP then descended immediately to 14,000 feet and the student came back among the living.

A thorough investigation didn't turn up a cause factor for this incident. The cabin pressurization system wouldn't even fail again. The oxygen regulator was replaced and sent off for a TDR just in case. And we are shown again that it doesn't pay to worry more about our manuals than our well being when something ain't right.

double trouble

Parking brakes were set and the right wheel had a chock. A ground crewman pulled the left chock before engine start. The OV-10 pilot cranked number one, got a light, and brought the prop off the locks.

You guessed it. The bird pivoted smartly on its chocked right wheel and nosed into the revetment wall.

The brake master cylinder failed him. And so did the crewman who pulled his left chock before engine start.

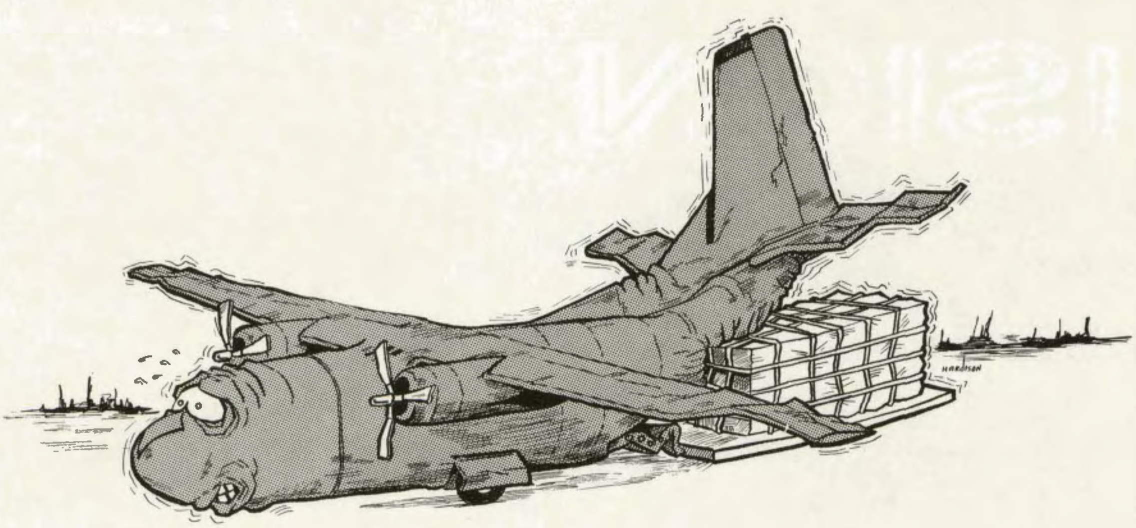
busted bottom

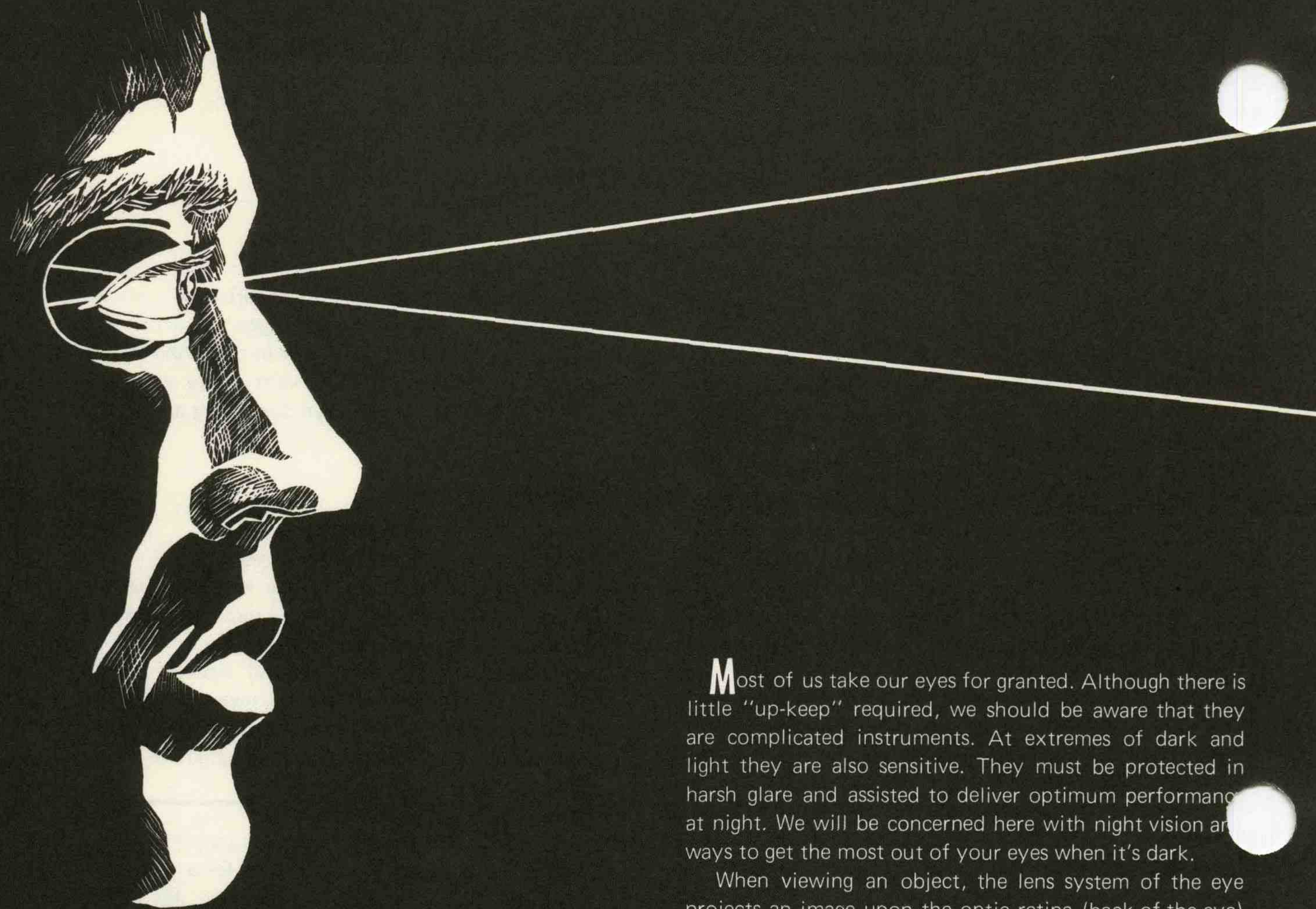
You "just know" how this one's going to end up. But, as always, keep hoping that history won't repeat.

After the flight phase of their training mission, the C-123 instructor pilot asked his student for a speed offload demonstration. The trainee pilot backed the Provider into position, lowered the ramp door, and taxied out from under the cargo load.

The IP wasn't satisfied with the backing performance and pointed out the errors. Then he asked for a second try and requested the loadmaster to monitor the bird's clearance in the rear. On interphone, the loadmaster complied with a 10-foot call, then a 5-foot call, and a frantic STOP! But the bird continued in reverse gear and scratched its back and bottom on the offloaded pallet . . . 70 manhours worth.

Now the squadron commander isn't satisfied with his IP's supervising of students' backing performances . . .





NIGHT VISION

MAJOR ALFRED B. WATSON, JR.
HEADQUARTERS TAC (SG)

Most of us take our eyes for granted. Although there is little "up-keep" required, we should be aware that they are complicated instruments. At extremes of dark and light they are also sensitive. They must be protected in harsh glare and assisted to deliver optimum performance at night. We will be concerned here with night vision and ways to get the most out of your eyes when it's dark.

When viewing an object, the lens system of the eye projects an image upon the optic retina (back of the eye) much as a camera projects an image on film. The retina contains light-sensitive elements known as rods and cones. When light falls on these rods and cones, nerve impulses are generated and relayed to the brain where they are integrated and interpreted as visual images.

All parts of the retina are not alike in their reaction to light. A very small central area, containing only the cone type of receptor, is responsible for maximum visual acuity and color discrimination, but it will not operate under low illumination. This is the focal spot area, the area we read with and on which we form objects in our direct line of vision. It gives us so-called central vision, useful only in daylight.

The remaining peripheral area contains mostly the rod type of receptor with a few scattered cones. It is capable of less acute visual reception and only poor color determination, but it functions under very low illumination. This is the corner-of-your-eye area, the one most stimulated by something moving into the field of vision. It gives us the so-called peripheral vision, useful both night and day.

The human eye is, thus, an eye within an eye. Central sion requires light of 0.001 candlepower intensity or greater. Moonlight is about this intensity. Hence in light less intense than moonlight, there is no central vision. Peripheral vision requires only one-thousandth as great an intensity; 0.000001 candlepower or more. On a dark starlight night, you see only with the peripheral area of your retina. This explains why pilots often complain that they are able to pick up another aircraft at night only to have it disappear when they look directly at it. To keep an object in sight at night, one must learn to look off to the side at about a ten degree angle.

You can determine which type of vision you're using by noting whether or not you have color discrimination. The cones perceive all colors. Rods pick up colors only as shades of gray. Most of the cones are packed in the central area of the retina, so that if color can be recognized, you have central vision; but if everything appears in shades of gray, you have only peripheral vision. You're "on the rods."

Going suddenly from bright light into darkness is a common experience in modern civilization. This occurs on entering a movie theater during the day or on leaving a brightly lighted room at night. In every case, the sensations are the same. At first, almost nothing can be seen. After several minutes, dim forms and large outlines appear, and as time goes on, more details are perceived. This increase in sensitivity at low levels of illumination is called dark adaptation. The central area of the retina adapts to darkness in about eight minutes, but it is useless for night vision. The peripheral area of the retina adapts to darkness in about thirty minutes.

Dark adaptation is an independent process in each eye. It is slow to develop and quickly lost in light. Aircrew members should be so familiar with the location of their equipment and controls that lights are unnecessary in making adjustments in flight. If lights are necessary, the following tips will help protect dark adaptation:

Use as little light as possible.
Use it briefly.
Use red light, if possible.
Keep one eye closed during exposure to light.

Other factors that influence dark adaptation are recent exposure to sunlight, and diet. Individuals exposed to intense sunlight for two to five hours later show a definite decrease in their sensitivity to low light levels, and it may persist for as long as five hours after exposure. So when on the beach or outside on a bright clear day, wear your issue sunglasses — especially if you are scheduled for a night mission.

Your diet should be laced with an adequate supply of vitamin A. It is found in vegetables which are green or have been green at some stage of their development. This chemical is fundamental to production of retinal chemicals which permit the eye to gain it's maximum sensitivity.

Exposure to reduced oxygen at altitude causes an increase in the time required for dark adaptation, and a decrease in ability to see at night. At 12,000 feet, when breathing atmospheric air without supplementary oxygen, night vision is only about one-half as good as at sea level. For this reason, the use of supplemental oxygen from the ground up is necessary in all tactical flights.

Hypoxia resulting from carbon monoxide decreases night vision. Three cigarettes may cause a carbon monoxide saturation in the blood of 4 percent, with an effect on visual sensitivity equal to that of an altitude of 8,000 feet.

Because of the central blind spot (cone area in the retina) under low illumination, do not look directly at objects which you wish to see. This does not seem natural and requires a great deal of practice. Look above, below, or to one side. The eyes should not be held in a fixed position, they are more apt to pick up objects if a roving gaze is used.

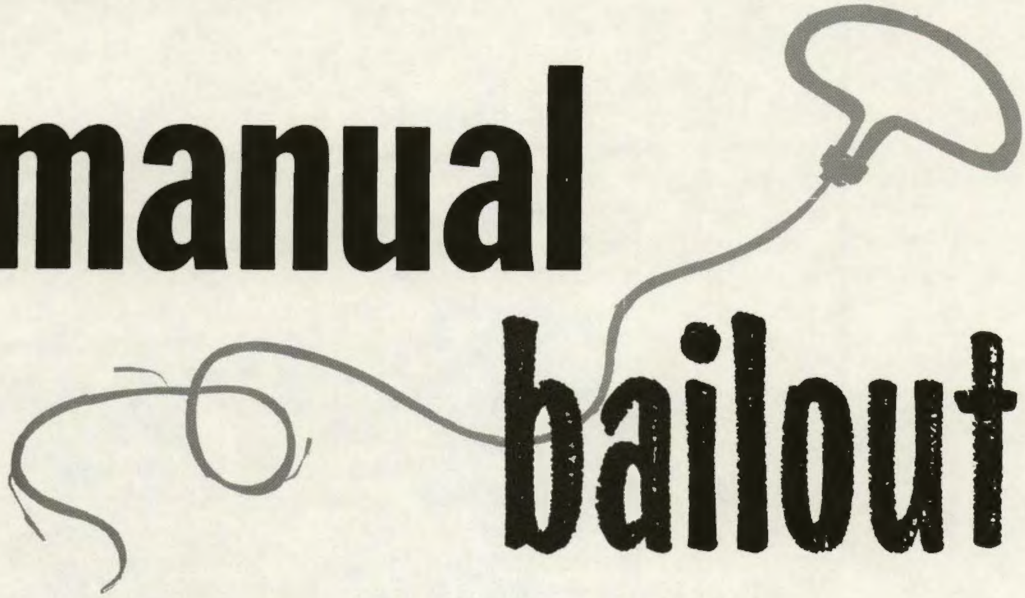
Objects are seen only by contrast at night, as evidenced by the fact that they are lighter or darker than their surroundings. Contrasts are reduced by fog, haze, and dirty or scratched windshields or glasses. For this reason, glasses and windshields must be scrupulously clean for night operations.

Night vision is extremely important in Tactical Air Command operational flying. Night vision is quite different from day vision, and nighttime use of the eyes is quite different from their daytime use. Mere knowledge of the principles and physiology above is not sufficient; practice in the use of the eyes at night is absolutely essential to efficient night vision. →

For most efficient night vision:

Eat a diet with adequate vitamin A.
Avoid lights and bright cockpit lighting.
Make exposure to light as brief as possible, using as low intensity as possible.
Keep one eye closed during exposure.
Keep gaze moving.
Wear sunglasses when exposed to bright sunlight.
Keep glasses and windshield clean.
Use supplemental oxygen from the ground up.
Get adequate rest.
Do not smoke.

manual bailout



The following letter and reply is a kind of thought provoking article that can be very useful in the flying business, and we believe there are many subjects that deserve similar discussions. We welcome readers' inquiry or comment concerning all aspects of flying and hope you will join us in this "open cockpit forum." —ED.

COCKPIT FORUM

Subject: Manual Bailout

Dear Editor,

Regarding the article "On the H-7," in the April issue, I would like to take exception to the portion about manual bailout, which I consider a defect in an otherwise excellent article.

You have made the implication that "going over the side" is an acceptable way of getting out of the F-4, in spite of the fact that the Dash One makes no mention of it. You then went on to refer to freeing the sticker clips and said that it was "recommended" that you break them free.

Manual bailout is a subject that has been given very little thought, and there are very many misconceptions about it. It took me 18 months of fighting these misconceptions before I got the requirement to invert the airplane removed from the Dash One's of most fighter/trainer aircraft. (I wrote the article in the June '68 AEROSPACE SAFETY.)

I am convinced that the present Dash One procedure is the only way to get out of the F-4 if the seat doesn't work; i.e., negative G. I do think, however, that the word could be put out to the troops that the other crewmember, rather than trim, could provide the negative G if he was still aboard the bird. I see two possibilities in this respect.

If the GIB initiates his own ejection and the seat doesn't fire, he pulls his emergency harness release and yells, "Shove it!" The AC pushes the stick into the instrument panel and, after recovering from his red out, ejects. On the other hand, if the GIB sees that the AC initiator or banana links linkage is shot away, he does the shoving after the AC has removed the canopy by one of the alternate means. (Not the normal means, because the GIB wouldn't be around to shove the stick.)

As for freeing the sticker clips, it does seem to make sense. I question, however, the use of the word "recommended." By who? Not the Dash One. If you've gotten to the point of ejection and then find that the seat won't fire, you're hurting and time is important. At the speeds recommended in the Dash One for manual bailout you'll generate several negative G. Multiply the weight of the survival kit times the G and I think you'll come up with a figure that will cause the sticker clips to pop right out. I also think that the added mass of the kit will reduce your rearward vector toward the tail during that first critical second. By the way, your method of getting rid of the sticker clips wouldn't work anyway. Pulling the kit release handle still leaves you "stuck" to the seat. You would have to punch off the kit on either side of the harness to get rid of the sticker clips. One final dig. I wouldn't care to be flung into space at the same time as a survival kit unless it were attached to me. It could give a pretty good knot on the head.

Lt Col R. J. Vanden-Heuvel
390 TFS, APO San Francisco 96337

Thanks for your letter, Bob.

First of all, our phrase "going over the side" was intended as a bit of literary lingo referring to manual bailout, not a literal description of technique. However, your observation suggests that editorial scrutiny of such lingo is in order.

Regarding your comments on sticker clips and our use of "recommended." You're right, the dash one has no mention of the subject in egress instructions. But to suggest that the required information shown in the dash one is also the total desired information then leaves little need for conversation after a pilot elbows his way to the bar.

The "recommended" came from a Martin-Baker rep who thought pilots should be aware that H-7 sticker clips require about twice as much break-away force as the H-5. And we agreed because, unfortunately, the H-5 seat is still being used by most ground egress training shops. This bit of info is not in the dash one and because we believe jocks still man cockpits for their brain power, that power is restricted unless pilots are informed.

You are obviously a believer in this philosophy or you wouldn't be offering the suggestion for Phantom teamwork during a manual bailout. In fact, if suggestions do nothing more than stimulate pilot concern, brainpower judgements, and conclusions, someone has gained.

In this case of manual bailout, it is very probable that lack of information, or lack of information dissemination, is responsible for delaying change in dash one egress techniques from inverted to upright flight. Unfortunately, changing concepts in minds of men is sometimes hampered by an inertia-like force.

Accepting upright over inverted bailout techniques seems to hinge on the concept that Gs are working for you while inverted, and against you when upright. In practice, this is not true, even though on the surface, it appears logical. Why? Probably because it's a conclusion based on insufficient information. So to help in overcoming this brainpower inertia, we choose to add a few words to your comments and the AEROSPACE SAFETY article, which, unfortunately, was badly garbled during printing.

For this discussion let's limit it to an F-4E airborne manual egress at dash one airspeed of 250 knots, and an altitude of about 5,000 feet with no stores.

Fact: Successful manual bailout is accomplished by using those forces that give greatest man/aircraft separation.

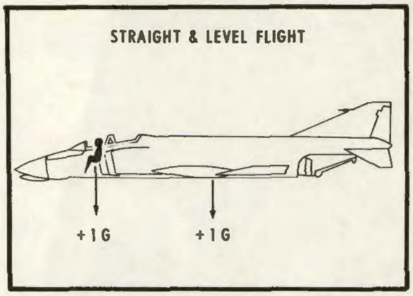
Fact: Straight and level, the aircraft is trimmed to fly at one positive G. Force on the aircrew is also one positive G.

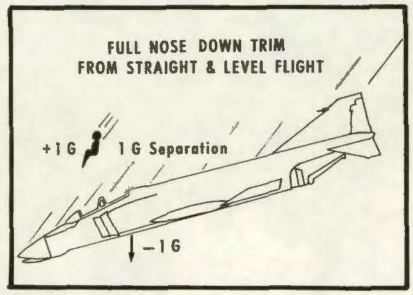
Fact: Using updated dash one procedure (hold stick neutral, full trim forward, disconnect man/seat restraints, release stick), the Phantom will nose over in a one negative G dive, creating a one G separation between aircraft and crew (ref. telecon with McDonnell Aircraft Corp.).

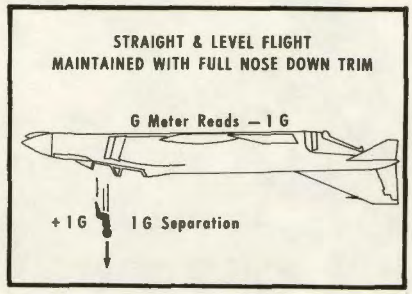
Fact: To fly straight and level inverted, aircraft requires most, or all, forward trim. One positive G still holds for both aircraft and crew while inverted at level flight (though G-meter reads one negative G) so when seat restraints are released, max man/aircraft separation is one G.

Discussion: Now to argue that while inverted with full nose-down trim, added forward pressure on the stick will give more G separation is valid. But the same is true for the upright attitude. So either upright or inverted attitude gives one G separation in the Phantom.

To invert requires considerable more pilot control and time than the upright attitude. And when leaving a sick Phantom, it's not unlikely that control response could be a part of the problem, and time is usually always a problem. So it's obvious that a technique requiring the least







amount of aircraft maneuverability (and time!) is preferred.

Thanks for your comments Col. Vanden-Heuvel. And we hope we've helped some thought processes to change their course. With your letter and, hopefully, those from other concerned jocks, we see this kind of "open forum" a darn good method of beating brainpower inertia.

→

pick-up JUNGLE STYLE

courtesy of:

TAC Life Support School
Homestead AFB, Florida

Rescuing aircrewmen downed in jungle areas can be like a "needle in the haystack" routine, and just as frustrating. Top this problem with removing the "found" through jungle growth and the job is anything but routine. But it can be!

From experience in SEA, equipment and techniques have been developed which assure a high percentage of recoveries for those downed airmen who can give fast and efficient assistance. And it's not unusual for the rescued to be seen for the first time by his rescuers as he slips through the chopper's open door two-hundred feet or more above the jungle floor.

Though a chopper may be loitering only minutes away, he'll be of little help unless you start the ball rolling and follow through with several basic rules. The following pictorial do's and don'ts illustrate critical steps for a fast Pedro recovery.

Pinpointing exact location is the first step for a success jungle or brushy terrain pickup. If unfriendlies are known to be in the area, smoke or flares are risky, leaving the aircrew survival radio the only sure signal device. Downed crewman must then depend on his sight or hearing to direct the chopper to an overhead rescue position.

Mounting the forest penetrator hoist is easy but there are hazards if not done right. When penetrator is within reach, let it touch ground before (above left) making ready to board, otherwise you may feel a stiff jolt of static electricity. Pull out safety strap, slip it over head and under arms, pull down one of three seat flanges and mount (left) holding penetrator tight to crotch. Advise "ready to lift" by radio, or vigorously shake hoist cable. Hug penetrator shaft, head down with face protected by arms (above) and let legs dangle until inside chopper. Do not try to assist hoist operator.

DON'T DO THIS !

Below (left): Using more than one flange for a single rescue causes unnecessary snagging on brush or tree branches. In fact, if time does not permit, safe lift is possible without seat flange, using underarm strap only. **Below:** Never grasp hoist cable above head or turn face upward. Serious injury may result to arms and face during lift through brush and trees.

CHOCK TALK ...incidents and incidenta...

chock talk

FUEL LEAK

Immediately after takeoff, the A-1 jock smelled fuel fumes. He went to 100 percent oxygen, closed his cabin vents and declared an emergency. While taxiing in to the de-arm area fuel was seen leaking from the bottom of the aircraft and the pilot was instructed to shut down the engine. As the mixture control was moved to idle cut-off a fire broke out. The pilot abandoned the aircraft and the fire department quickly extinguished the flames.

The engine driven fuel pump relief valve body was loose and leaked fuel with pressure applied. This part is attached to the fuel pump by four screws secured with safety wire when installed properly. Two screws were fastened and secured, one was attached but loose and not safetied, the other was missing.

UNLOCKED LOCKNUT

On takeoff just after becoming airborne the F-4 wanted to roll right. When the ARI disengaged the roll severity increased. Stab aug was disengaged, the aircraft was retrimmed, and the stab aug was turned back on. As yaw aug was turned on a roll to the right was again experienced, and as roll aug was engaged the roll became more pronounced. The pilot turned the stab aug off again and quit.

At home they found that a locknut on the rudder trim potentiometer had backed off allowing the pot to move out of the null position and place a voltage on the bridge. This caused right rudder to be fed in. They just don't make locknuts like they used to.

STUBBORN LID

After landing the F-4 back-seater could not unlock his canopy. Egress personnel were called and they couldn't get it open either — manually or pneumatically. The egress troops cut a hole in the rear of the canopy and safed the seat. The pilot cut himself out with the emergency canopy knife.

The investigator found a five-eighths nut lodged behind the canopy lock roller. This prevented the canopy from unlocking and WOULD HAVE PREVENTED THE PILOT FROM EJECTING!!! The aircraft had just completed a major phase inspection. Anyone for FOD prevention?

LOOSE FITTING

Forty minutes after takeoff while straight and level at 210 the F-4's right engine began to vibrate. The bus tie open light came on and was reset. The engine was shut down when oil pressures indicated zero. The engine continued to vibrate at windmill RPM until landing. Two pints of oil were left.

A SOAP check showed heavy iron, silver and copper contamination. The subsequent engine inspection revealed failure of number one and two bearings. The bearing failures allowed the compressor to shift resulting in compressor damage and the vibration. Loss of oil was caused by improper installation of a fitting into the oil filter.

NOISY DOOR

During pull-up from his first rocket pass, the F-4E pilot heard an unusual sound — like rushing air. All cockpit indications were normal so a chase aircraft was requested to check over the noisy bird. He reported that the nose gun bay door was partially open. The incident aircraft was slowed and the nose gear lowered to see if it would come down and lock. It did, bending the gun bay door. The unit involved believes that the gun bay door was not properly secured. So they have repositioned the arming crew chief so he can perform a final security check of the door.

LOSE A SOCKET?

After completing a range mission, a flight of F-100s was climbing out to go home. At 15,000 feet they had to light up to make an assigned altitude, Number four could not climb with the rest of the flight due to an aft stick restriction. With the stick as far back as possible the aircraft was in a slight descent. He began wiping out the cockpit and the stick came free.

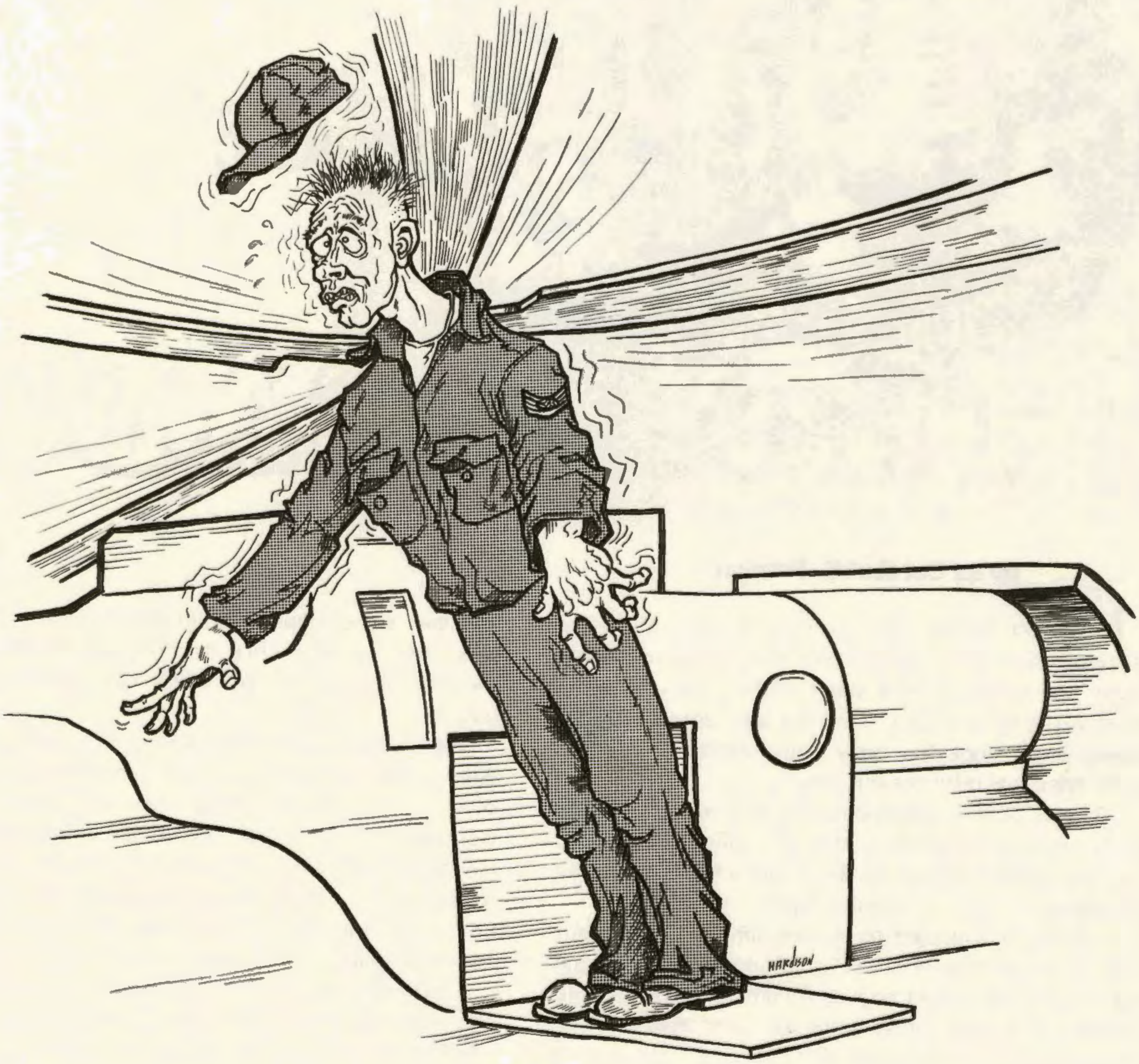
After landing a one and one-sixteenth by one-half inch

ith a maintenance slant.

socket was found between the bulkhead and pivot arm of the slab actuator torque tube. It has not been claimed yet.

RAPPING ROTORS

This sergeant saw smoke coming from No. 1 engine of a CH-3 as the pilot was accomplishing his pre-takeoff checks. He ran to the chopper and visually signaled the pilot to shut it down. As soon as the engine was shut off, the sergeant climbed the left side of the helicopter, opened the engine work platform and mounted it. Just then the main rotor which was still turning, rapped him in the head and knocked him off the platform. He ended up with a hairline skull fracture and head lacerations.



THUNDERSTORMS ARE THOR-HEADS

by Lt Col Carl E. Pearson

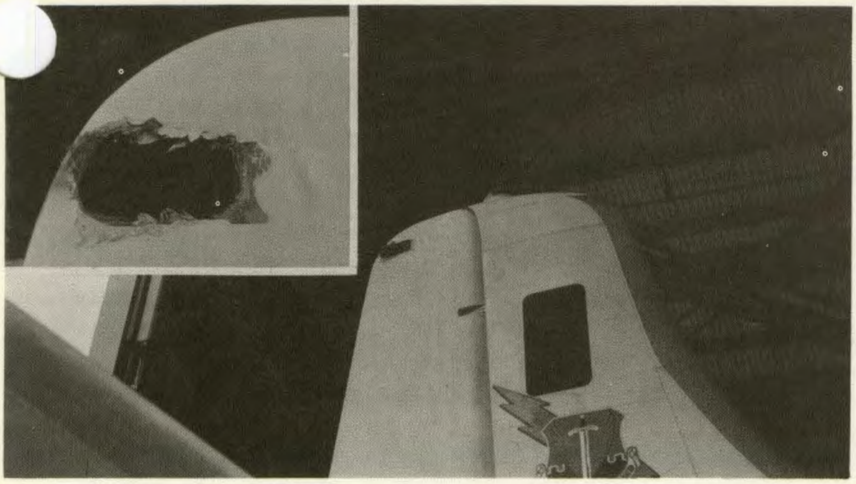
I couldn't believe my eyes. I stared up at the volley-ball size hole in the C-118's fiberglas-fabric-covered rudder and wondered half aloud, "When did it happen? Why? We've been radar-picking our way between precip returns on a scope for many years without a lightning strike. What was different this time?"

"Besides (a little disappointed now!), what happened to my immunity as a safety officer?" Safety types aren't lightning strikees. It's always the other jocks . . . especially the high-speed, slick-performing types.

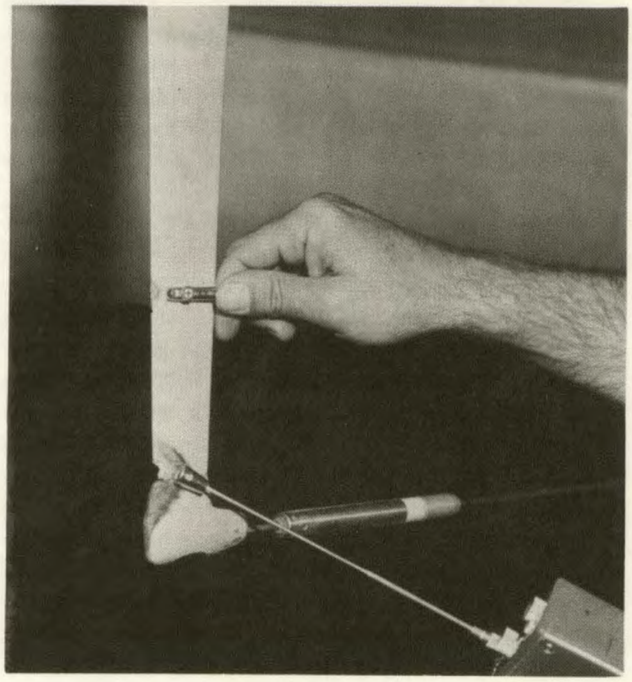
And, you're supposed to be near-blinded by a brilliant flash, feel and hear a booming jolt from the bouncing bolt, experience a slight tingling (Flight Surgeons say mild parasthesia) in your throttle arm, see compasses and RMI cards spin crazily and end up disagreeing. Cheated, all we saw was some cloud-to-cloud flashes that looked like overgrown St. Elmo's fire. And it appeared briefly off to the side of our bird. We didn't even suspect we were barbed.

Here's how it happened. We were cruising at 16,000 feet in an area of few-to-scattered thunderstorms. We had our trusty airborne radar. It's an APS-42. Not a world-beater any longer, but in the skilled hands of a navigator it'll paint precip returns and keep you clear of damaging hail, heavy icing, and storm-cell turbulence. Some sets reach out farther than others. Unfortunately, ours didn't paint much beyond 30-mile range that day.

Obviously, you can't radar paint an area of potential lightning strikes. But they've never been a serious problem before this, so we pressed on. Besides, who ever heard of



air aborting because cumulo-nimbus clouds generate a lightning-strike potential?

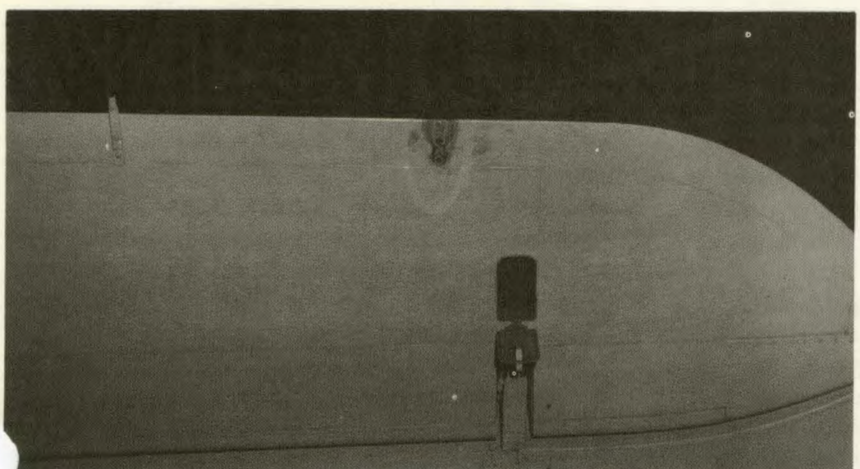


Then the clouds and plot thickened. What had been few-to-scattered upgraded to numerous. We entered a stratus layer drifting between buildups and "nav" radar vectored us between increasing scope returns . . . growing in size and number. Outside air temp recorded a minus-5 Centigrade and light rime ice accumulated slowly.

Cross-checking our scope returns with air traffic control radar, we zig-zagged between returns dotting the [illegible] TV. While driving between two sizable bright spots, [illegible]king about ten miles apart, we encountered a flurry of light snow flakes, light turbulence, and precipitation static on VHF. The snow changed to light ice crystals and lightning flashed several times, seemingly well clear of the bird . . . at least no snap, crackle, pop in the cockpit.

Apparently, that's when thunderous old sorehead Thor tore our tail feathers. Maintenance troops patched up the hole you see in the picture, replaced a burned right aileron static discharger, and cleaned up some scorching on an ADF antenna mast and right elevator.

While the fiberglas fabric patch dried I tried to review



THOR-HEADS

what's written on aircraft lightning strikes. Digging into my trusty old PIF, I found under Rules For Flying Weather (revised January 1, 1944):

"Lightning is of little consequence when you are flying an all metal, closed cockpit plane, which acts as a perfect conductor. Don't worry about it . . . If you are flying an open cockpit plane, or a plane with a plywood or plastic fuselage, better keep away from the lightning."

It didn't say how you know it's there, or how far. Obviously, it was no longer applicable so I retired that sentimental journal and looked elsewhere.

One of the first discoveries: there's not a lot published about the origin and occurrence of lightning discharges of the cloud-to-cloud variety (with airplanes sandwiched in between). On the other hand, cloud-to-ground lightning's been worshiped, studied, coaxed (Ben Franklin!), photographed, and theorized about since man first populated the earth.

Most lightning theories cluster around the idea that cloud-to-ground strikes are a rapid transport of electrons from thunderstorm charge centers back to earth, maintaining its normal negative charge. Estimates vary on the number of clouds involved in the process; anywhere from 300 thunderstorms a day to 1800 at any one moment. For some reason, a daily peak of thundercloud activity throughout the world occurs around 1900 hours GMT (ours hit around 1730Z). Potential differences calculated at 20 to 100-million volts can exist between strongly charged areas in the thunderstorm itself or between the cloud and earth below. Currents in a lightning stroke are estimated at 10,000 to 200,000 amperes at its peak. It takes roughly five seconds after each discharge for a thundercloud to rebuild its electrical force.

The cloud's top has a positive charge and the bottom a negative one . . . except for a puzzling small area of positive charge also sharing the cloud's bottom. Positive and negative charge separation is located near the freezing level.

A thunderstorm appears to achieve its full electrical force at the time building cloud tops reach a level where air temperature is about minus-20 C, and downdrafts and rain fall out of the cloud's bottom.

Which clouds are capable of performing as super-size, combined generators and capacitors? It's the cumulo-nimbus and its slightly younger brother the cumulus-congestus, who is only minutes away from maturing into full-blown nimbus status. And one of these destructive purveyors of lightning strikes can squat on a land area ranging in size from 20 to 200 square mi[les] reaching up from 3000 to 60,000 feet in height. S[ome] grow higher, but who needs it.

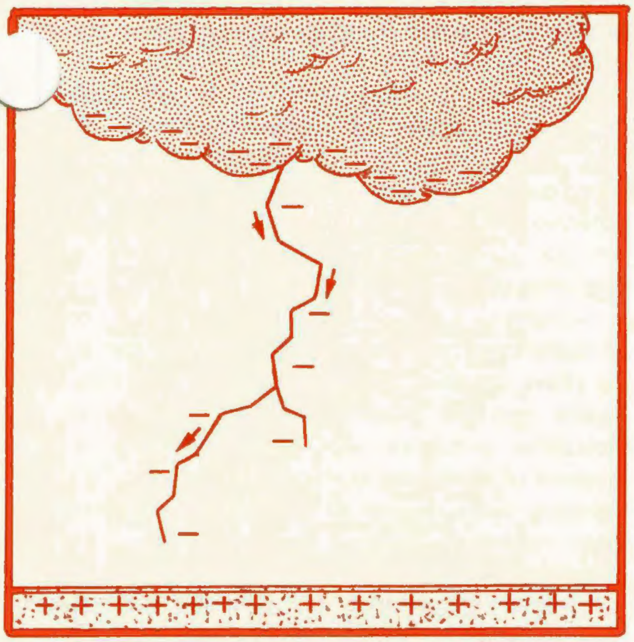
Besides singeing the earth below and nearby rivals in their unfriendly family, the cumulo-nimbus can discharge between oppositely charged centers within itself (you've got to be really mean to hit yourself). Or, on occasion, it sends a "bolt from the blue" wandering thru clear sky for up to 40 miles before fading out . . . just looking for trouble. Its multi-direction discharge capability makes the cumulo-nimbus an unstable, unpredictable electrical octopus of giant proportions.

Scientists can't quite agree on how lightning works, or exactly what it is, but they do describe how it travels between charge centers. It's a crooked, herky-jerky trail, but it's fast! Something called a "step leader" moves out, loaded with negative charge in a stop-and-go column. Estimated speeds vary widely from 130 miles a second to one-sixth the speed of light. It moves about 150 feet and stops — for about 50 microseconds (one-millionth of a second) — then steps out again and pauses. Hippity-hopping, zigging and zagging, this barely visible column of speeding negative electrons ionizes the air surrounding its jerky course, making the air a conductor. When the step leader nears the oppositely charged center, a "welcoming" discharge reaches out to meet th[e] "leader." The instant they join a "wire" runs betw[een] charge centers permitting the negative electrons to dum[p] out, followed almost simultaneously by a brilliant flashback called the return stroke . . . traveling much faster than the step leader. After the return stroke another leader starts down traveling full blower along the still-existing path of the earlier step leader. This established route is still full of ionized air and now the path of least resistance. The second leader touches and zap . . . a return stroke lets go. It appears that the average number of strokes along the same ionized highway is three, however up to 42 repeat strokes have been observed. It's the brilliant, repeating return stroke that puts the flickering in your lightning viewing.

Cloud-to-ground strokes are only a small part of the total electrical display staged by thunderstorms. The great majority of fireworks result from cloud-to-cloud, cloud-to-upper-air, and within-the-cloud discharges. Of lesser frequency is the meandering "bolt from the blue."

Out in hot, arid country thunderstorm bases offer greater ground clearance than those in moist, cold areas. Having longer cloud-to-ground "insulation" to overcome than the short distance within the cloud (or to its close-in neighbor) the airborne rival charge centers trade hammer blows the easier, quicker route, air-to-air.

So, if lightning is a violent electrical discharge between two opposing charge centers, why are airplanes getting hi[t]



A step leader moves out, loaded with negative charge.

A brilliant return stroke, flashes back the step leader's path.

in a seemingly natural process? Most students of aircraft lightning strikes think that it's a case of getting tagged while innocently interrupting someone else's fight. You happened to fly in between two adversaries at the moment one gets close enough to unload on the other. You're accidently skewered as you cruise along, or very near, the lightning's natural path.

Another popular theory has the passing airplane shortening the intervening span of insulating air existing between two trigger-happy charge centers. They're spoiling to draw down on each other, but are out of range until you pass by. Those in disagreement with this idea point out that an aircraft's wing span or fuselage length are comparatively short when related to the several-miles distance separating charge centers. It's not considered plausible that only a wing-span of insulating air has withstood the probing of millions of volts up to the time of the bird's passing.

Still another idea requires the airplane to charge itself through air friction, or flight through a charged region. When it closes in on an opposing charge center the bird discharges to the cloud center, or induces a stroke to itself. Critics point out: most lightning strikes on aircraft result in a visible entry and exit point, supporting the theory that damaging strikes don't terminate on the airplane, but rather end up in other clouds or the ground. Besides, static discharges or aircraft charge potentials generated through friction are considered too small to cause real damage.

A more recent course of inquiry theorizes that airplanes trail a path of ionized particles from engine exhaust stacks while flying between charge centers. This airplane-made ionized corridor provides easier access than the surrounding air, facilitating lightning discharge. However, most birds suffer hits on the nose and wings and strikes to the engine exhaust areas are rare. It's thought doubtful that ionized exhaust gas trails can be sustained in flight for a matter of feet, let alone miles.

Your ground-based or airborne radar can be a valuable assist in avoiding heavy precipitation and storm centers. But, what have you got on board to point out lightning strike potentials? What tells you that fast-growing cumulus you see ahead (or don't) has achieved electrical maturity and lightning strike capability?

One small clue is precipitation static. Its growing intensity on low-frequency or VHF receivers identifies entry into a highly charged region. However, it's not much help if you're UHF-equipped only. When you do hear that annoying, crashing "P" static in your ear binders, you're in amongst them. Whether close enough to be reached by lightning is anybody's guess.

If it's dark enough to see St. Elmo's fire playing luminous games around your cockpit windows (prop tips if you have them), you're again passing through a highly charged region. If along with the "saint" you're seeing an occasional lightning flash, your suspicions are confirmed. Fortunately, you can have both precip static and St. Elmo as unwelcome passengers in your bird and not necessarily find lightning. All you can be sure of is: more-than-the-usual charge is out there.

Outside air temperature is a clue to lightning strike

THOR-HEADS

potential, but a broad one. Most recorded strikes occurred in the minus-to-plus 10 Centigrade range. That's a bunch of altitude for low altitude types, about a 10,000-foot spread. Most strikes occur around the freezing range, which corresponds to the charge separation level in thunderstorms.

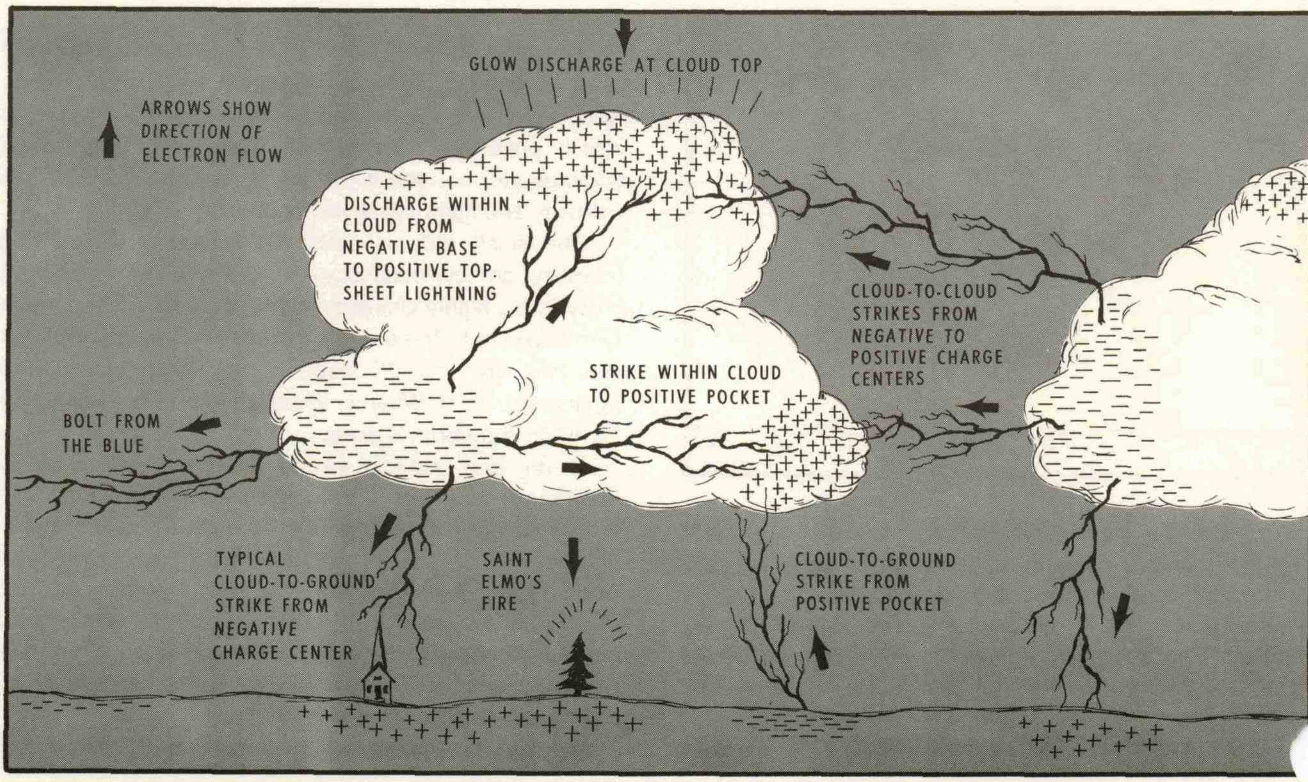
Operating airborne radar as an attractor of lightning strikes is discounted by experts studying the problem. And the recent history of lightning strikes on TAC birds supports that position. The majority of TAC's strikes involved birds without airborne radar, or their equipment turned off. It's calculated that airborne radar equipment may attract lightning if the power flux of our most intense radar beams is increased by a factor of ten. Until that time, using your airborne radar doesn't increase your strike odds . . . especially below 20,000 feet.

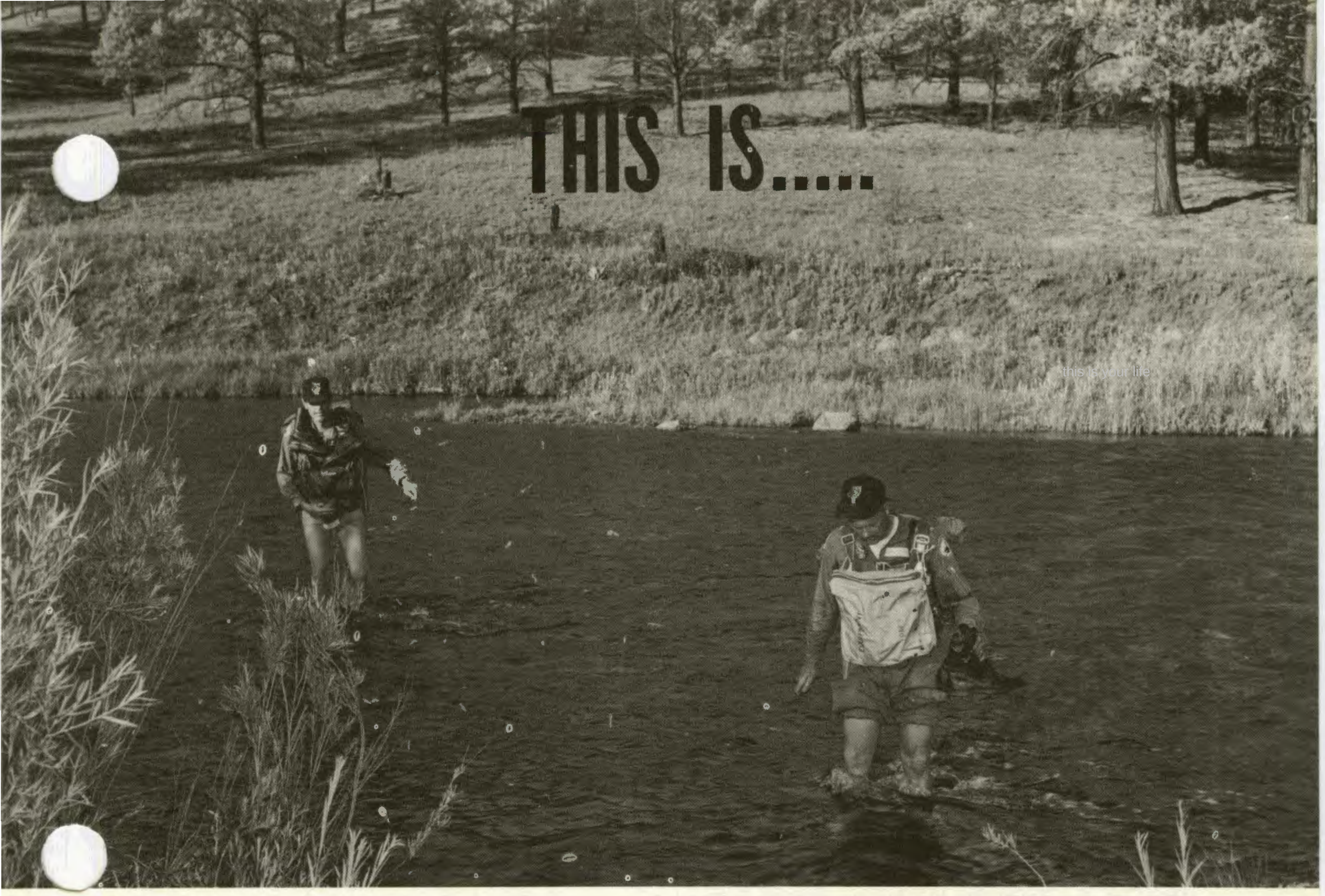
Also part of your statistical considerations: TAC's birds have been hit by lightning while above, below, beside, and inside of clouds; with and without airborne radar; with and without air traffic control radar assistance. Most strikes occurred below 20,000 feet and the under-10,000 altitude caught the biggest share. This included takeoff, climbout, letdown, and approach phases of flight for the high-flying jet set, plus the routine recip traffic cruising below ten.

The awesome power and unpredictable nature of lightning; the limited knowledge available to pilots on "why" lightning strikes; the inability of both ground controller and airborne radar to pinpoint lightning strike potential for flight avoidance; the non-specific, area forecasting of thunderstorm locations; the during-flight upgrading of a "scattered" forecast (up to 45 percent) to a "numerous" (up to 99 percent); these, plus the pressure of operational requirements add up to a tough decision for pilots. Cranking the consideration of a lightning-strike hazard into the planning for hail, severe icing, and turbulence avoidance adds a new dimension, another measure of separation to thunderstorm flying. So far, no lightning strike beyond 20 miles of a thunderstorm has been recorded. Quickly, that adds up to a 40-mile separation between radar returns on your scope in order to clear all the cumulo-nimbus evils, plus Thor's assorted lightning shafts (we're ignoring bolts from the blue).

Forty miles is a thunderstorm clearance luxury that's often hard to find in a few-to-scattered forecast. Let alone, the fearful scattered-to-numerous variety. As we were saying, it's a hard pilot decision.

Maybe you should share it with your friendly ops officer? Some of them look mean enough to be relatives of Thor! ➤





THIS IS..... YOUR LIFE

by Maj Robert L. Jacobs, Jr.
Headquarters SOF

It's getting to be that time of the year again. We're kicking off our winter pitch with personal equipment (life support to the pros). For it is really personal equipment — and it should be a personal thing. Major Jacobs points are valid and unfortunately there are some of you out there who do believe that, "it can't happen to me." Hope we don't have to read about you 'long about the time the ice man cometh. But just in case, the staff of TAC ATTACK would like to wish you all an early Merry Christmas and a Happy New Year. Ed

Some time ago, a major aircraft accident at one of our northern bases brought to light a situation that has existed, in varying degrees, throughout the command for quite some time. It can be classed as a minor vice, but it can be a killer. It's called complacency or simply an "it-can't-happen-to-me" attitude.

Fortunately, the number of personnel who have been in an emergency situation in flight are in a small minority. Those who have actually had to abandon a disabled aircraft are an even more select group. To be even more selective, let's count those who have abandoned an aircraft and lived. Now we have come to a group of personnel that can be a great deal of assistance to their fellow crewmen and the passengers who sometimes fly with them. I will explain how a little later.

The flight that terminated in the accident mentioned above began in a pretty much routine manner and continued to be routine until letdown started to traffic pattern altitude. At this point it dissolved into chaos. The accident board determined that a series of emergencies, five of them, occurred in the space of about ninety seconds. Somewhere in the middle of this sequence, passengers and crew were alerted to prepare for bailout. Fortunately, they did not. The pilots did an outstanding job of regaining control of the aircraft and putting it on the runway. The subsequent collision with a snowbank has nothing to do with my subject, but the preparation for bailout does.

The majority of these men were unprepared to face the hostile climate of the sub-arctic into which they would have parachuted. Only two of the people on board were adequately clothed to combat the cold and one of these two minimally clad people was a passenger! This "combat" is a life and death struggle, with the odds in favor of the cold. Why lengthen the odds with a complacent, "It can't happen to me!" If these men had gone out, the probability was for one or more deaths due to freezing and incapacitating frostbite for the others.

We, as crewmen, complain about our personal equipment. In some cases, it is justified. Nevertheless, USAF and industry are constantly developing new equipment aimed at protecting our most valuable resource . . . you the individual. In most cases, we have the best protective equipment the state of the art permits, but there is a "joker" in the deck. Even though this equipment is available, it is not always used or worn because the individual feels it to be "inconvenient," "uncomfortable," or "unnecessary." This equipment is designed to save your life!! It is inconceivable that anyone would hold his own life or well being so cheaply that he would neglect the very equipment that will keep him alive to complain about it.

We in TAC have a truly world-wide mission in today's scheme of things. We have aircrews flying daily over nearly every continent, facing every deterrent to survival known to man from extreme high altitude to high speed low level; from extreme cold to tropical jungle or waterless desert wasteland. Each situation very obviously presents a different challenge to the man forced to exist in these environments. Although the initial reason for this article was unpreparedness for sub-arctic existence, the same basic premise is true for all environments.

Air Force and TAC have outlined policies procedures in the form of regulations, tech order manuals that, if followed, provide the means to survive. These policies are amplified at the local level where specific guidelines are established for the local unit. All of these emphasize that adequate clothing and equipment must be worn to protect the man against the environment being flown from, flown to, landed in, or overflown. It is almost second nature to prepare for the environment we fly in.

How many of you single engine types would fly without your helmet, mask, and G-suit? At the same time, how many of you have left the sunny southern climate and pressed on to the north in a K-2B and summer flight jacket? Of course it is only a short sprint from your parked airplane to a warm base operations, but it can be a damned long walk home from that snow covered hill you landed on when you punched out!!

So you are a little inconvenienced by that LPU-3 under your arms? Can you swim long enough to wait for the chopper if your raft doesn't work or for some reason gets away from you? Think about it for a moment. When was the last time that you flew fully prepared to face all the elements you might have to live in or with? Don't say "it-can't-happen-to-me," because it can and does to many good men almost every day somewhere on this trou globe.

I know it is true that we in the United States Air Force have the most sophisticated rescue service and system in the world. These people are doing a fantastic job daily in preserving the most costly item in the USAF inventory . . . you. In cold statistical fact, every time they bring one of you back, the USAF has saved several hundred thousand dollars.

Everyone agrees that preservation of our crew resource is of utmost importance. Proper use of life support techniques and equipment is the key to survival – proper use by everyone!! Many of our TAC flights require carrying passengers to support the mission. I will again refer to that northern accident. When alerted for bailout, parachutes and survival kits were distributed to each crew member and passenger. One small detail was missing – knowledge.

When questioned, one of the passengers told the board that he had no idea what to do with it, but he "guessed" that he would carry it out. He "thought" there was some medical stuff in it. To you who have had survival training this is slightly humorous, but when you think of this young airman, scared spitless, about to leave a nice warm airplane to survive in unfamiliar, cold terrain, trying to cling to an ML4 survival kit through opening shock on his first parachute jump, this rapidly becomes a ve un-funny situation. That kit, on the ground, could ma t…fference in whether he lived or died!!

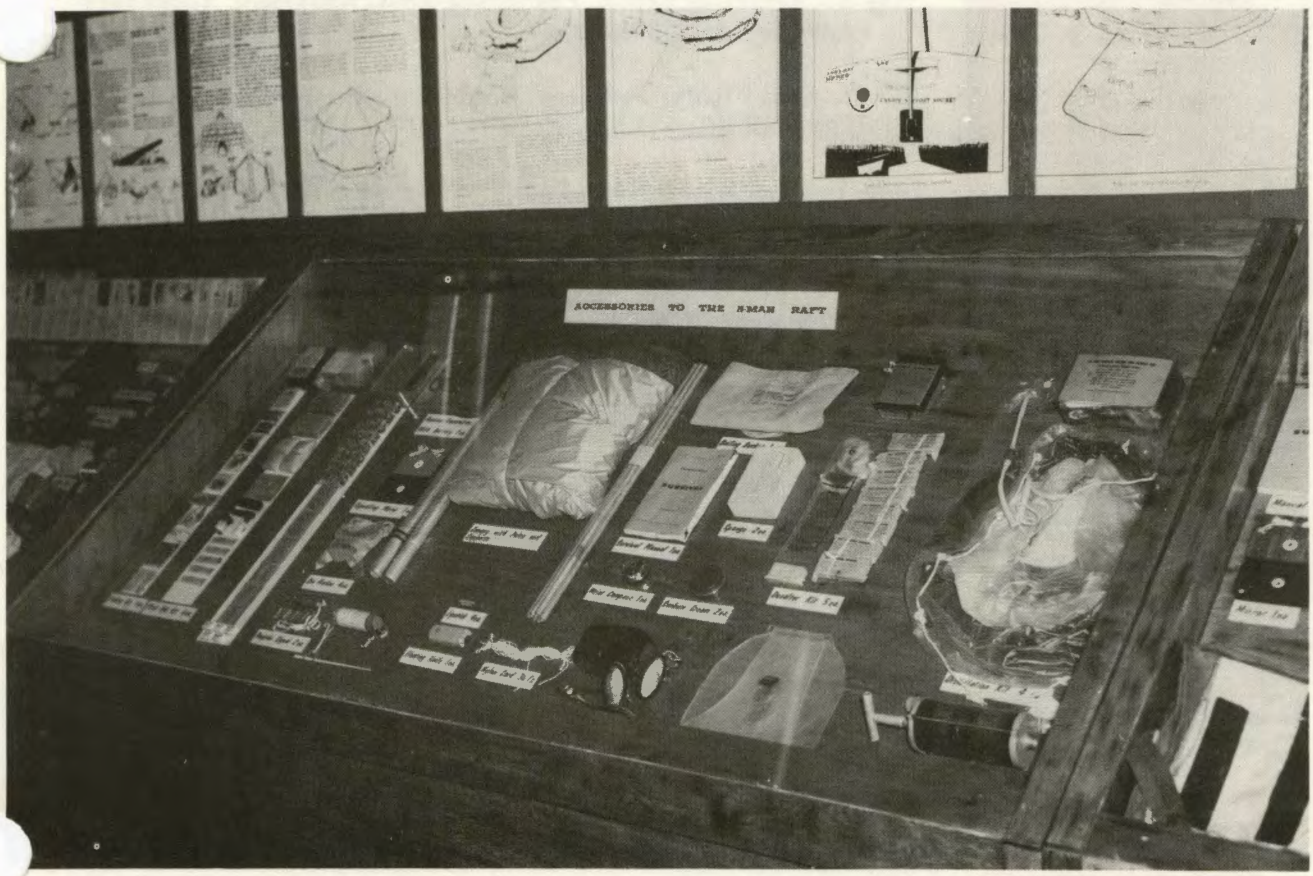
our passenger carrying aircraft checklists require a crew/passenger emergency procedures briefing. I don't believe any of them require a short course in equipment use because checklists are designed to be read to experienced, or at least indoctrinated, personnel. This does not preclude a pre-mission session with your support people. Assuming adequate lead-time, this can be done in every case.

If the aircraft commander or his representative can't find time to do this, check with your friendly Life Support section. We are there to help you. A vigorous orientation program at base level can give passengers an idea of the basics of survival equipment and its use. The cost in time and money to replace a good maintenance team is astronomical. Unit Life Support Officers might check into the feasibility of a brief orientation course for all your people who may fly as passengers. These guys deserve to live as much as you do and that little time in the classroom just might give them the edge they need.

At this point, people who have abandoned an aircraft and lived can be of maximum assistance. There is nothing that can improve on personal experience, to add interest and authenticity to a training lecture. Your unit Life Support Officers can find these people with a little research and put them to work. Enlist their aid by using the silver tongues of persuasion that you all possess. Most of them would be more than happy to pass on what they have learned in the school of hard knocks. Their experiences will be invaluable in your Life Support efforts.

The fact that crews are going out with inadequate clothing is inexcusable. We cannot allow the old nemesis, "it-can't-happen-to-me," to creep in. Nor can we allow "modification" by individuals to suit their idea of necessity. Standardization is the name of the game. Perhaps we TAC Tigers will have to resort to a procedure used extensively by "Some Allied Commands." A crew inspection by the aircraft commander is held prior to flight. If someone shows minus the correct equipment, he doesn't fly. After explaining a few late takeoffs to "the man," folks usually begin to shape up. In short, the situation comes back to the function of supervision from the lowest level to the higher echelons.

All I've tried to say is that survival is everyone's problem. Proper use of published procedures and issued equipment can save your life. Good men have died because they had neglected a seemingly insignificant item when they prepared for their mission. Others lived because they went by the book. IT'S YOUR LIFE!! →



Tactical Air Command

Unit Achievement Award

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

4 Tactical Fighter Squadron, Eglin Air Force Base, Florida
21 April 1967 through 20 April 1968

4449 Combat Crew Training Squadron, Sewart Air Force Base, Tennessee 7 April 1968 through 6 April 1969

4442 Combat Crew Training Wing, Sewart Air Force Base, Tennessee
7 April 1968 through 6 April 1969

319 Special Operations Squadron, England Air Force Base, Louisiana
1 January through 31 December 1968

134 Air Refueling Group, Tennessee ANG, Knoxville, Tennessee
1 April 1968 through 31 March 1969

45 Tactical Fighter Squadron, MacDill Air Force Base, Florida
12 April 1968 through 11 April 1969

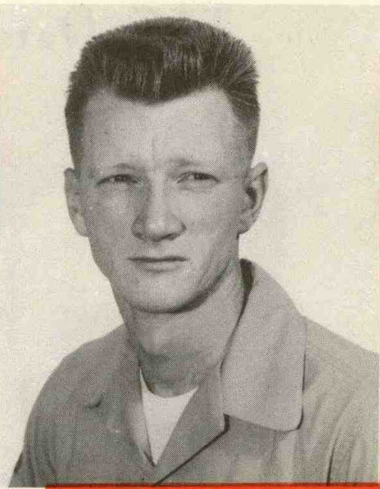
446 Tactical Airlift Wing, Ellington Air Force Base, Texas
21 April 1968 through 20 April 1969

187 Tactical Reconnaissance Group, Alabama ANG, Dannelly Field, Alabama 26 April 1968 through 25 April 1969

179 Tactical Fighter Group, Mansfield Lahm Airport, Mansfield, Ohio
14 May 1968 through 13 May 1969

703 Special Operations Squadron, Shaw Air Force Base, South Carolina
15 July 1968 through 14 July 1969

Tactical Air Command
Crew Chief of the Month



SSgt Benson

Staff Sergeant Lawrence L. Benson of the 4536 Fighter Weapons Squadron, Nellis Air Force Base, Nevada, has been selected to receive the TAC Crew Chief Safety Award. Sergeant Benson will receive a letter of appreciation from the Commander of Tactical Air Command and an engraved award.

Tactical Air Command
Maintenance Man of the Month

MSgt Sullivan

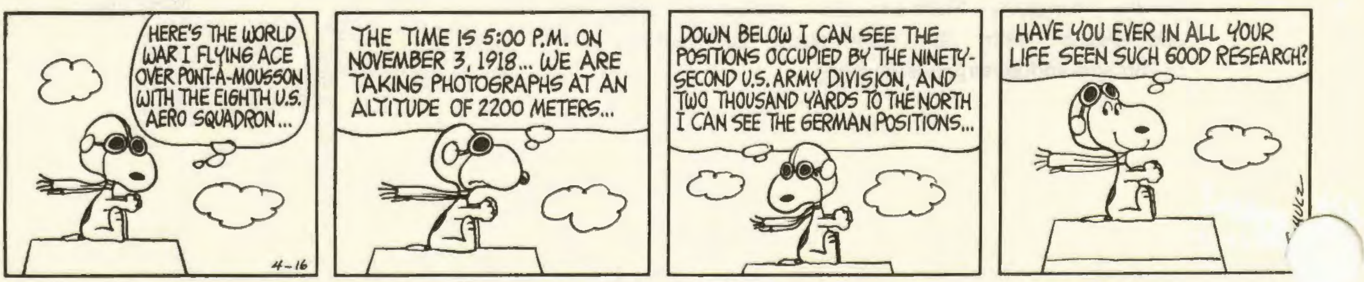
Master Sergeant Harry R. Sullivan of the 15 Tactical Fighter Wing, MacDill Air Force Base, Florida, has been selected to receive the TAC Maintenance Man Safety Award. Sergeant Sullivan will receive a letter of appreciation from the Commander of Tactical Air Command and an engraved award.

TAC Outstanding Flight Safety Officer

Captain Duane J. Kari of the 474 Tactical Fighter Wing, Nellis Air Force Base, Nevada, has been selected as the Tactical Air Command Outstanding Flight Safety Officer for the six-month period ending 30 June 1969. Captain Kari's accident prevention program for a newly formed F-111 squadron was rated "Outstanding" by a recent USAF IG Aerospace Safety Survey. His thorough planning, preparation, and timely execution of tasks to be performed by the unit resulted in a "zero" accident rate. Several unique safety procedures originated by Captain Kari have been adopted by the other F-111 squadrons. For his contribution to safety Captain Kari will receive a letter of appreciation from the Commander of Tactical Air Command and an engraved plaque.

PEANUTS

Courtesy of Daily Press, Newport News, Va.



TAC TALLY

AIRCRAFT ACCIDENT RATES

MAJOR ACCIDENT RATE COMPARISON

	TAC		ANG		AFRes	
	1969	1968	1969	1968	1969	1968
JAN	6.8	5.6	28.9	0	0	0
FEB	6.2	7.3	12.8	0	0	0
MAR	6.8	7.1	12.6	0	0	0
APR	7.0	8.7	15.1	1.9	0	0
MAY	7.2	8.0	12.9	7.5	0	0
JUN	7.0	8.5	12.6	7.4	0	0
JUL*	7.2	9.3	11.7	6.3	0	0
AUG		9.4		8.2		2.3
SEP		9.1		7.4		2.0
[illegible]		9.3		6.7		1.8
NOV		8.6		6.9		1.7
DEC		8.8		7.8		3.2

UNITS

THRU JULY	1969 *	1968	THRU JULY	1969 *	1968
9 AF	3.2	7.0	12 AF	9.9	8.4
4 TFW	6.3	12.7	23 TFW	9.6	14.9
15 TFW	3.3	13.4	27 TFW	5.0	5.5
33 TFW	18.6	11.9	49 TFW	0	0
4531 TFW	0	17.3	479 TFW	14.1	11.9
			474 TFW	17.2	43.8
363 TRW	9.9	4.2	67 TRW	0	15.1
			75 TRW	6.4	0
64 TAW	0	0	313 TAW	0	0
316 TAW	0	0	516 TAW	6.6	0
317 TAW	0	0			
464 TAW	0	0			
4442 CCTW	0	0	4453 CCTW	5.8	12.4
4554 CCTW	0	N/A	4510 CCTW	6.6	4.0
TAC SPECIAL UNITS					
1 SOW	10.2	10.1	4440 ADG	0	0
4409 SUP SQ	0	0	4500 ABW	15.8	0
4410 CCTW	4.1	19.4	4525 FWW	14.6	30.5
4416 TSQ	0	65.1			

* Estimated

In July TAC (gained-ANG included) accidents increased by one over the June total with seven majors. On the plus side, pilot fatalities dropped from five to two which is indeed good news. For the seven-month period this year, we are averaging seven major accidents and three fatalities per month . . . not too good.

For the second month in a row our support losses were a large percentage of the monthly accident experience. We dinged three birds, two during the landing phase and one on takeoff. A C-130 was damaged after running off the runway during a crosswind landing. Our other landing accident was a T-33 that went in during an attempt to bend it around base leg with full internal fuel. The pilot was flying solo and had 30 hours in the airplane. His base turn was begun with about eighty degrees of bank extremely close in to the field. Mobile tried to send him around and he made an attempt to recover, however, he was too steep. Although our takeoff accident involving a T-33 didn't cause any fatalities, it's an extremely tragic one in that there is no jet barrier at the TAC base involved. The pilot aborted at lift-off with an aft overheat light and ended up out in the toolies. Two people almost lost their lives for want of an MA-1 and we now possess a T-bird that's almost a piece of junk.

Our four fighter accidents involved F-4s and F-104s. The bugaboo, F-4 engine fires, got us for one, the other F-4 accident happened on short final when a bird got caught in the wake of a preceding F-4 and stalled in short. We also chalked up another inadvertent ejection out of this one. Impact force punched the IP who was manning the rear office. He made it. Looks as though we also have a new record. This one and the one in SEA make two successful inadvertent ejections in a row.

Our two F-104 accidents consisted of a midair and a flame-out. The midair occurred in a flight of four during a join-up. Three broke into Four to evade Two. The flame-out occurred on the gunnery range. When the aircraft could not be started the crew abandoned it.


when you've lost it...
GET OUT!
HARDISON