flying

SAFETY

MARCH 1983

PROTECTING SAFETY INFORMATION

Temporal Distortions
and the Ejection Decision . . . An Update

A Year End Review

They Don't Build Them
The Way They Used To

A Message From The Director Of Aerospace Safety

■ The number of lawsuits filed as a result of Air Force flight mishaps has increased dramatically in recent years to a point where we can expect virtually every mishap to be followed by litigation of some nature. This fact in itself is not my major concern. What does concern me is that this increase in litigations has been paralleled by an increasing demand for mishap information and a growing problem with unauthorized or inadvertent disclosures of privileged safety information.

As highlighted in the article on page 2, we promise everyone involved in an aircraft mishap that the information they provide will be treated as privileged information and used for the sole purpose of mishap prevention. This promise of privilege, which is vital to our mishap prevention efforts, is accompanied by both a moral and legal obligation to protect this information and insure that it is, in fact, used solely for safety purposes. Each and every time we experience an unauthorized or inadvertent disclosure of privileged information, we violate this promise and face the possibility of losing the executive privilege under which this information is exempted from release.

It is absolutely essential that everyone in the flying and safety business knows and understands the limited-use provisions of AFR 127-4. An unauthorized release, once made, is extremely difficult to undo. The article which follows addresses these problems and describes our current efforts aimed at improving the handling of safety information. I urge you to read it carefully. ■

Gordon E. Williams

GORDON E. WILLIAMS
Brigadier General, USAF
Director of Aerospace Safety

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page 2

page 4

page 17

SPECIAL FEATURES

REGULAR FEATURES

DEPARTMENT OF THE AIR FORCE • THE INSPECTOR GENERAL, USAF

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Protecting Safety Information

BRIGADIER GENERAL GORDON E. WILLIAMS
Director of Aerospace Safety

■ The cornerstone of safety investigations is mishap prevention. During an aircraft, missile, or nuclear safety investigation conducted under AFR 127-4, we strive to find causes and take corrective action. In order to find these causes and to provide for full and frank disclosure by all personnel involved in a mishap, we promise that the information they provide will be used for safety purposes only. The bottom line then becomes this: The information is limited-use data, not releasable outside the Air Force without the express approval of the Secretary of the Air Force. It is privileged.

Unauthorized disclosure of privileged information is a growing problem. One area of concern is unauthorized or inadvertent release of limited-use message traffic. Because of sheer volume and extensive lists of addressees, there is a good potential for inadvertent disclosure or release. One example of this surfaced about a year ago in Little Rock, Arkansas. There, in US District Court, while my staff was presenting arguments against release of privileged information, we discovered that privileged messages had already been released and inserted into the court files. Fortunately, we were able to get court protection from further release.

Oral depositions provide further potential for disclosure. Air Force technicians may, for the first time in their careers, find themselves in a "law office" atmosphere. While they are expecting to be questioned about the particular mishap that is involved in a lawsuit, they may also be confronted with questions about other mishaps that the interrogator suspects are "similar." The potential for a mistake is there, and mistakes do happen. Last year, a missile technician provided attorneys copies of limited-use messages during a deposition. Fortunately, we were able to retrieve them and limit the damage.

As recently as October of 1982, during another deposition, an aircraft technician was asked to provide information about several similar mishaps. There may have been a disclosure there too.

October was a big month at still another location — this time in the US District Court, San Antonio. There, the entire safety report, every page, was filed with the court. The Commander, AFISC, directed a formal investigation to find how that could have happened.

Another problem area is that of the government contractor — people who provide technical assistance to our mishap investigators. We have found instances where they kept copies of reports they had provided the safety board, a practice AFR 127-4 does not allow.

Historically, when disclosures are identified in a court room setting, the Air Force, through the Department of Justice, has sought protection. Until recently, we have been successful. A recent US Court decision in Los Angeles, however, went against us. There, the court ruled portions of a witness statement were releasable. This could be devastating to our safety efforts. We have asked the court to reconsider its decision and are prepared to appeal this decision all the way to the top.

What are we doing to correct the situation? We continue to seek federal legislation which would provide specific statutory protection. We were hopeful of getting the legislation in 1982, but timing prevented full congressional consideration. We will continue our efforts in 1983. During the past year, we have presented briefings to major government contractors on the use and handling of Air Force safety information. This seems to be effective since we know of no disclosures from a contractor during this period. We will expand the scope of these briefings to include other Air Force agencies in the near future. Flying safety officers attending the Flight Safety Officer Course at Norton AFB receive a briefing on privilege and the legal aspects of mishap investigations. We have expanded this coverage to include the Aircraft Mishap Investigator's Course.

I have asked MAJCOM Directors of Safety for their ideas on the ways and means of improving mishap reports to preclude the possibility of including privileged information in otherwise releasable data. In addition, we are taking a hard look at those message addressees to determine their need. As these actions come together, we will change AFR 127-4 appropriately.

There is no substitute for a thorough knowledge of the limited-use provisions included in AFR 127-4. Those who know must teach. Those who don't know must seek guidance — now. ■

THE AFTI/F-16: NOT A FLIGHT OF FANTASY

CECILIA PREBLE
Assistant Editor

■ Often compared to the Soviet MIG fighter which actor Clint Eastwood steals in the movie Firefox, and to Luke Skywalker's spaceship, the AFTI/F-16 is a fantasy come true.

Although the AFTI/F-16 (AFTI for Advanced Fighter Technology Integration) doesn't appear much different from the F-16A, it sports a complex, shaped dorsal fairing (from aft of the cockpit down the top side of the fuselage to the vertical stabilizer) and two vertical canards mounted beneath the engine inlet.

Program management is the responsibility of the Flight Dynamics Laboratory at Wright-Patterson AFB, Ohio. A fact sheet from the Public Affairs Office of Aeronautical Systems Division, Wright-Patterson, states, "Modifications within the cockpit include two multipurpose displays, a wide field of view heads-up display, helmet-mounted sight and associated electronics, voice interactive electronics and added switches and functions to the throttle and side stick controllers."

But before you start thinking CROSSTRAIN read this: The AFTI/F-16 is not a prototype for a new fighter; however, the results of this collaborative effort by the Air Force, the Navy, and NASA are expected to be technological improvements that will be made to fighters such as those in our present inventory.

The AFTI/F-16 will allow increased automation in weapons delivery, leaving the pilot more freedom to concentrate on acquiring the target and looking out for bandits. This flying laboratory claims a superior combat maneuverability which will permit the pilot to deliver weapons while slipping sideways without banking or flying over the target — thereby minimizing his chances of being hit. It performs these activities more quickly than any other fighter. Studies of its automated manuevering attack system (AMAS) indicate that although the AFTI/F-16 will not surpass the current F-16 in bombing accuracy, here, too, pilot survivability will improve. According to ASD, "In the air-to-air mode, AFTI/F-16 is expected to attack better from all angles and maintain a higher kill rate than conventional fighters using standard combat manuevers."

The flying characteristics in the AFTI/F-16 are tailored to the pilot's workload for specific missions. During the more taxing parts of a mission the pilot's tasks are reduced; devices such as the helmet-mounted sight and voice activation activate, permitting him to concentrate on ground targets or enemy aircraft.

The most dramatic feature of the AFTI/F-16 is the voice control system. A specified vocabulary enables the pilot to select weapons and release mode and in the future should allow him to operate aircraft avionics and flight control modes.

The pilot commands the AFTI/F-16 by speaking into his oxygen mask microphone. Each AFTI/F-16 test pilot will have a personalized voice cassette of how he says the command words in the system vocabulary. As he climbs into the cockpit, he plugs in this cassette. From then on, as he gives his commands the voice-command computer matches his words with those on the cassette to decipher his command. And as the tasks are completed, they will be printed on the multipurpose display for the pilot to confirm.

It's difficult to imagine that ten years from now the mind boggling technology embodied by the AFTI/F-16 will be obsolete. But for now it should go a long way toward reducing pilot stress, making the job a little easier, less tiring, while increasing accuracy and improving safety. ■


TEMPORAL DISTORTIONS

and the ejection decision

TEMPORAL DISTORTIONS

And The Ejection Decision. . . AN UPDATE

LT COL DOUGLAS M. CARSON
Directorate of Aerospace Safety

In March 1982, Flying Safety *published Lt Col Carson's article "Temporal Distortions and the Ejection Decision." The article generated a great deal of interest and has been extensively quoted and reprinted worldwide. In this follow-up article, Col Carson fulfills his promise to provide an update on the temporal distortions problem. In particular, he has gathered data from a year-long study of actual ejections, and the information presented is very enlightening.*

■ The first USAF emergency ejection occurred in 1949, when a second lieutenant bailed out of an F-86 with flight control problems. The aircraft was in a rolling vertical dive about 1,000 feet above the terrain when the pilot ejected. He experienced several problems with the ejection itself. The seat became entangled with the parachute risers and hit him on the head. He also lost his helmet, oxygen mask, wristwatch, dog tags, and even his boots. Nevertheless, he survived and became the first US Air Force crewmember to use an ejection seat to escape from an aircraft in trouble.

Later that year, another pilot made a successful ejection and joined the select group of airmen who used an escape system to abandon an aircraft. That brought the total ejection attempts in 1949 to two. The number of successful ejections was also two. This gave the Air Force an ejection survival rate of 100 percent; a rate which was never equaled again.

From that first ejection in 1949 to the end of 1982, this select group of airmen totaled 4,772, excluding combat ejections. Of these, 3,909, or 82 percent, were successful.

Unfortunately, if we look at the ejection survival rate for the last 6 years, we see a less optimistic picture. The overall survival rate was 77 percent. In 1975, the ejection survival rate was 91 percent. By 1980, it had declined to 69 percent. Low survival rates have continued despite the fact that our automatic escape systems have undergone constant improvement since their inception. (The one bright spot is the 1982 ejection survival rate which was 89 percent.)

When reviewing these ejection statistics, the first question that arises is: Why is our ejection survival rate lower than the mid-70's rate when our escape systems are continually improving?

Mishap analysis has revealed that the majority of the ejection fatalities were not due to mechanical malfunctions, but they were the direct result of delayed ejection attempts! If the assumption is made that every person who attempted to eject was trying to save his or her life, this raises another question: Why did one out of every five crewmembers wait too long?

Since out-of-the-envelope ejections usually result in fatalities,

continued

TEMPORAL DISTORTIONS

And The Ejection Decision . . . AN UPDATE continued

safety investigation board members can only speculate on what deceased airmen perceived during the last few seconds of their lives. The single major explanation which has emerged from mishap reports is something called "loss of situational awareness." This is a general term which can partially explain what has happened, but, in my opinion, it doesn't explain why it happened. Why do so many highly trained aviators lose situational awareness in critical emergencies, and what can we do about it? To answer this question, we have to take a look at what happens to an individual who is under stress.

Many current discussions of stress deal with the long-term effects — high blood pressure, ulcers, heart attacks, etc. Let's take a look at what happens to the body in the acute (short term) phase.

In the course of evolution, animals have developed an amazing mechanism to defend themselves against all kinds of assaults. This mechanism is the "fight or flight" response, an involuntary alarm reaction to conditions of acute stress.

When the brain perceives a threat (stress), it reacts by exciting the hypothalamus which, in turn, stimulates the pituitary glands to inject adrenocortiotrophic hormone (ACTH) into the blood. ACTH signals the adrenals to immediately secrete two substances — cortisone and adrenalin. Cortisone's effects are generally of a long-term nature, but adrenalin has immediate effects.

The emergency discharge of adrenalin (a stimulant) increases the pulse rate and blood pressure. Perspiration increases. Sugar levels of the blood are raised to provide additional energy. A tiny muscle in the ear, the tympanic tensor, tightens the eardrum to increase the ability to hear, muscles tighten in preparation for immediate use, physical strength is increased, and the threshold of pain is raised. The body is now prepared to fight or flee.

The discharge of hormones also triggers the entire nervous system which becomes alarmed in preparation for combat. One interesting effect of this remarkable defense mechanism is the little discussed phenomenon of *temporal distortions,* a temporary false perception which changes the

apparent passage of time. When an individual experiences a temporal distortion, time sometimes seems to expand and events appear to happen in slow motion.

The exact physiological process is not precisely understood, but it seems that the brain instantly becomes intensely alert, increases its efficiency, and begins to process information at an accelerated rate. Regardless of the actual process, the phenomenon is real, and the result is that time appears to slow down. Unfortunately, this *survival characteristic* which has proved to be so successful in our natural environment *may be the principal cause of delayed ejection attempts* which are directly responsible for the USAF's 20 percent ejection fatality rate.

The USAF experienced 78 Class A mishaps in 1982, which destroyed 78 aircraft. There were 71 ejection attempts, of which 63, or 89 percent, were successful. The 1982 ejection survival rate was a distinct improvement over the 1980 and 1981 rates of 69 and 79 percent respectively, and, in fact, was the highest rate since 1975 when the USAF had an ejection survival rate of 91 percent.

A five-question survey was prepared by AFISC and sent to each USAF crewmember who made a successful ejection in 1982. The survey had two objectives: (1) To find out if crewmembers experienced a distortion in the apparent rate of time passage during the mishap sequence, and (2) If so, to discover the perceived effect. Although the survey was distributed to a rather small population, the results support the contention that temporal distortions occur frequently under conditions of acute stress.

Of those who responded, 86 percent indicated that they did perceive a temporal distortion at some time during the mishap sequence. Eighty percent of the respondents who experienced a temporal distortion said that the rate of time passage appeared to slow down, and 20 percent said time appeared to speed up.

Interestingly, 50 percent of those who said that time appeared to slow down were able to estimate the change. The perceived changes ranged from 2:1 to 5:1. A change of 2:1 was the most common estimate — it accounted for half of the estimated changes.

If these crewmembers who ejected in 1982 are representative of the overall military aircrew population, over two-thirds of all airmen will experience a perceived slowing in the rate of time passage under conditions of acute stress. That is, over two-thirds of surviving aircrews will perceive it but will still eject in time to save their lives. The one out of every five crewmembers who will not survive because of delayed ejection decisions will quite likely also perceive temporal distortions, but will have been lulled into a false sense of security since this phenomenon is anxiety reducing. The sense of urgency is lost because everything seems to occur in slow motion.

Temporal distortions have not been treated seriously in the past, but now evidence indicates that this phenomenon may be responsible for some delayed ejection attempts. It's time to treat it seriously because it's a killer and has to be recognized as such.

Well, what can you do about it? Here are three suggested rules which might save your life if you find yourself faced with an ejection decision.

- **Recognize the problem.** Realize that this can, and most probably will, happen to you when you're under acute stress. The phenomenon is particularly insidious because the sense of urgency is lost.
- **Make the ejection decision on the ground.** I can attest to the fact that the decision to eject is not an easy one. Believe me, it's the most difficult decision I've ever had to make. The time to make the ejection decision is now, right here on the ground. Don't wait until you're faced with an immediate decision. Plan your course of action in advance, and if the time comes, stick to your plan. It's a lot easier (and faster) to simply execute a well-thought-out decision than to make and then execute a decision when you're under acute stress.
- **Believe your instruments, not your senses.** Treat a temporal distortion like a spatial disorientation. Check your gauges—especially the altimeter. It's critically important to recognize immediately when the aircraft is gone. Remember, those ejection altitudes for controlled and out-of-control conditions are minimum recommended altitudes. Once you recognize the aircraft is lost, for whatever reason, write it off and get out! You've already made the decision; now execute it immediately. Don't waste those few precious seconds. ■

A YEAR END REVIEW

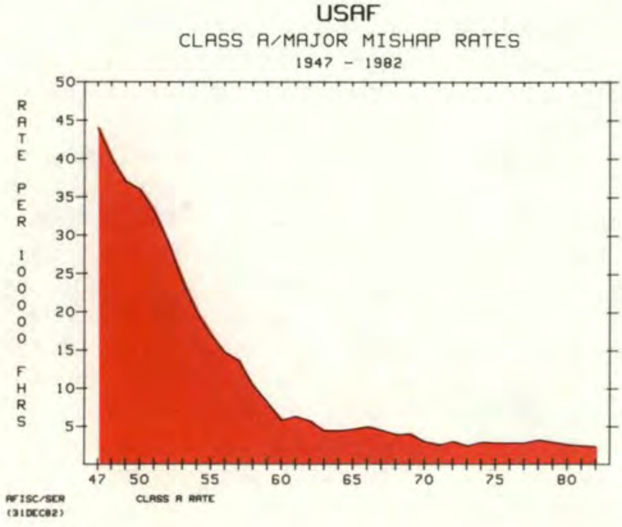
■ The Air Force reached a new safety milestone in 1982 with the lowest Class A flight mishap rate ever. This rate continued the significant decreases in the Class A rate over the previous four years.

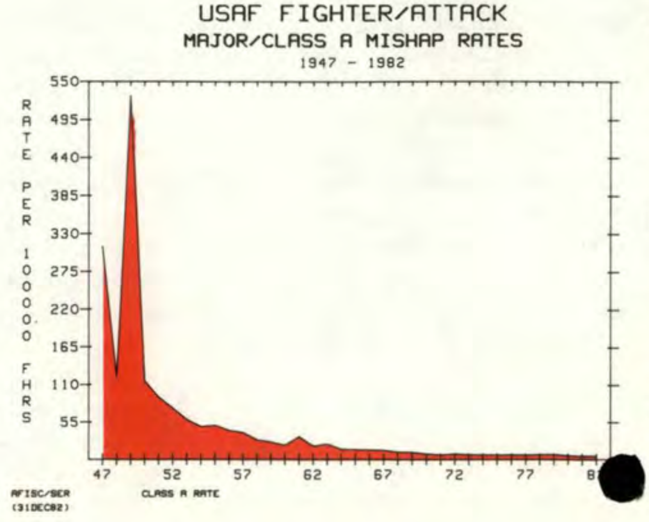
A major contributor to this fine showing was the fighter/attack mishap rate which was also the lowest in history.

Operations-related mishaps also decreased significantly in 1982 and successful ejections showed a marked increase to 89 percent.

Unfortunately, not everything was positive in 1982. There were still a significant number of aircraft destroyed, and 131 lives were lost in flight mishaps. There were also problems in the area of logistics-related mishaps. A future issue of *Flying Safety* will give a detailed discussion of the 1982 statistics.

In addition, starting with this issue, the AFISC safety project officers will analyze their weapon systems and discuss the results of 1982 and the prospects for 1983. In the next few months, articles in *Flying Safety* will cover each of the major weapons systems as well as some of the important initiatives in safety for 1983. ■



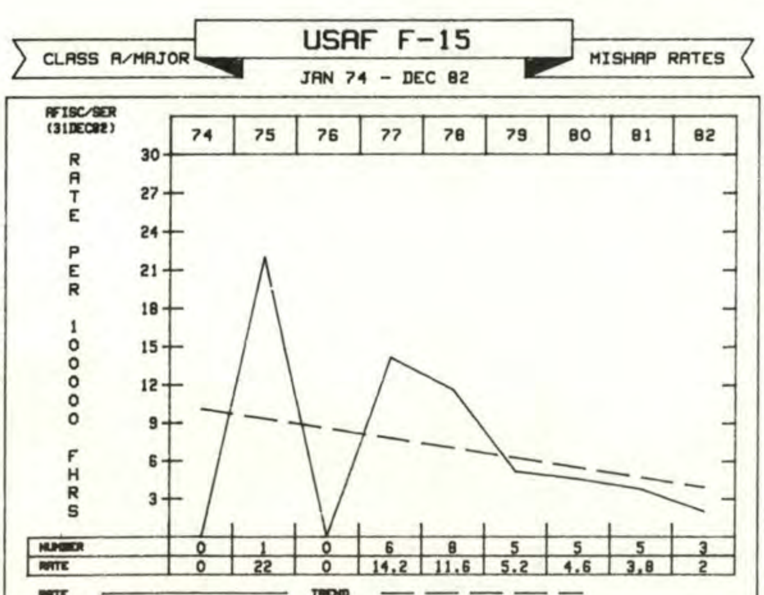


F-15

MAJOR JOHN C. PLUTA

■ The USAF possesses 625 F-15 aircraft including 325 A, 54 B, 210 C, and 36 D models and has contracted to buy 40 aircraft in 1983. F-15 aircraft destroyed in flight since 1974 include 20 A's, 2 B's, and 7 C's. From 1974 through 1978 logistics accounted for 10 of 15 Class A mishaps. From 1979 through 1982, operations accounted for 15 of 20 Class A mishaps with channelized attention/situational awareness a factor 66 percent of the time. (Looks like an area we can work on.)

Although 1982 was not a great year, it was still a very good year for the Eagle. Six Class A mishaps were forecast for 1982, but we had three for the year. One mishap was attributed to logistics factors — a massive fuel leak caused by a loose coupling. In another mishap, a low-time pilot on an exercise scramble apparently had physiological problems during RTB, ceased to answer radio calls, ended up in a steep dive, and rode it in from FL 300. The flight leader made numerous radio calls to pull out and to eject — all to no avail. Two aircraft were lost in another mishap when a midair occurred during a BFM engagement: one pilot ejected successfully and was recovered. In 1982 there were 4 C models destroyed in the three mishaps which resulted in a 2.0 accident rate (compared to 5.9 for all fighters.)



Four Class B mishaps occurred in 1982. Two were caused by improper loading of AIS pods resulting in inflight loss of the pods, one hydraulic failure during taxi which resulted in taxiway departure resulting in minor structural damage, and a lightning strike on a centerline tank with subsequent explosion and fire.

Two areas of concern since 1981 that have fixes on the way are blown tires and landing gear malfunctions. The fix for blown tires consists of installation of a brake pulser to

continued

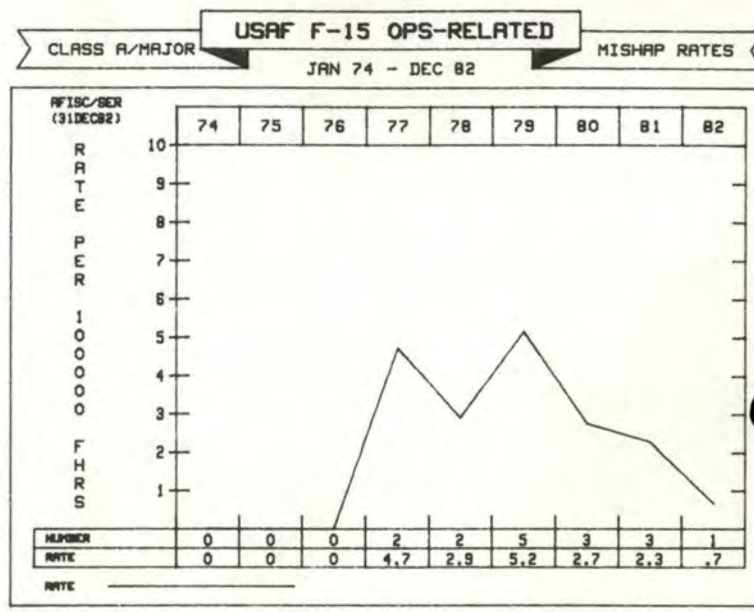
desensitize emergency brakes and improve normal braking. This will be accomplished by TCTO 1F-15-763, programmed to start in May 1983. The fix for landing gear malfunctions will eliminate false indications and gear failure to extend. This will be accomplished by TCTO 1F-15-791, also programmed to start in May 1983.

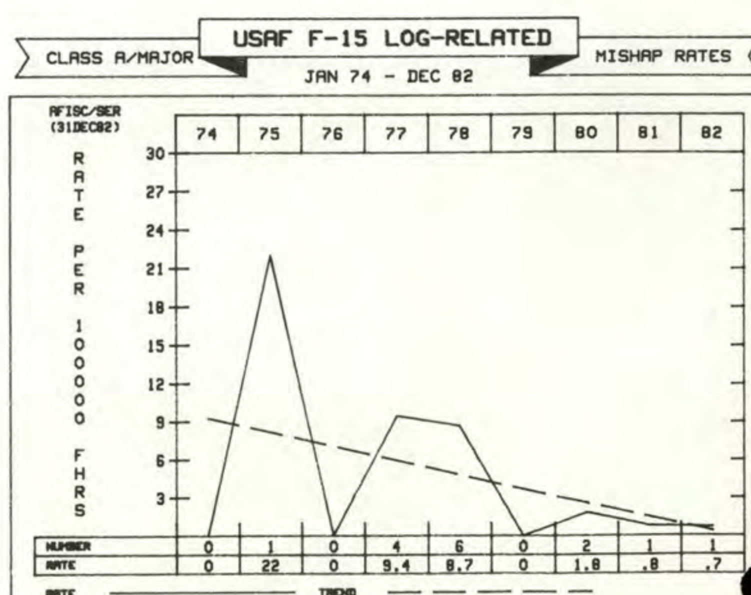
The highest accident potential problem area of 1982 was the stabilator servocylinder input shaft failures. We were fortunate not to lose an aircraft when input shafts failed on two separate occasions — the first resulted in a pretty exciting ride, and the second was detected after engine start. TCTO 1F-15-854 has provided an interim fix with a permanent fix expected in the spring of 1983. The permanent fix will incorporate a dampener designed to reduce vibration of the servocylinder. MCAIR has completed an analysis of a failed input shaft on their "iron bird." The primary finding from the analysis was that the F-15 response to a broken input shaft is "totally unpredictable," and, therefore, pilot procedures cannot be developed for use in the event of an inflight failure.

Stall/stags have continued to decrease with the 1982 level approximately 25 percent below 1981.

Vertical tail delaminations are occurring because of heavy vibrations at high angle of attack. This is not considered a safety problem since aircraft inspection criteria are included in -6 inspection guides, and aircraft are grounded before the delamination becomes a safety factor.

Channelized attention was the primary culprit in 1981 and again in 1982. Let's continue to work on operator-factor mishaps and strive for zero in '83. We almost did it in '82. ■





F-106

MAJOR GORDON N. GOLDEN

■ The F-106 community reached a new milestone in 1982. For the first time since the F-106 entered the active inventory in 1959, there were no Class A mishaps. Good work, guys! On top of that kudo, there have been no operator factor Class A mishaps in the F-106 since 1980.

We have just finished a great year, but don't get the idea that flying a "mature" weapon system doesn't have its share of exposure to mishap potential. AFISC forecast three F-106 Class A's for 1982. Those forecast Class A's didn't come to pass, but there were some hairy Class C's that only quick thinking and skillful pilotage kept from becoming more spectacular.

Two of those were dead-stick landings. One was a flameout on initial as a result of the T-tanks not feeding. The second was an engine failure at 15,000 feet, 15 NM from the departure base due to oil starvation because of a missing lock-ring in the compressor section. Another aircraft with the same engine part missing was saved by an alert F-106 jock who noticed his oil quantity depleting rapidly after take off and made an immediate landing.

There was also a birdstrike at 600 feet AGL and 420 knots that shattered the right windscreen panel, smashed the pilot's mask shell, visor housing and tinted visor and tore the headrest off the ejection seat. It took a cool head to bring that one back.

All totaled for 1982, there were 0 Class A, 0 Class B, and 59 Class C and high accident potential (HAP) reports filed on the F-106. The largest category of mishaps involved engines. There were 15 reports which included the two lock-ring problems, the flameout on initial, five FOD, and two stuck throttles. The next highest number of reports was in the area of flight controls with a total of 10. These reports were almost entirely uncommanded inputs, and no related causes were uncovered by the investigations.

There are a lot of people working to keep the F-106 a safe fighter for you to fly. Some of the fixes in progress for safety related problems include:

- A mod to fix the sagging glareshield problem which started in January of this year.
- A repeater for the master caution light on top of the glareshield which had been completed on 148 aircraft the first part of January.
- A contract for the new HBU-12 lap belt was awarded in June of 1982. The lap belts should start showing up in April.

Keep up the good work and fly safe! ■

C-130 MISHAP SUMMARY	1981	1982
Class A's	4	2
Rate/100,000 Flight Hours	1.1	.5
Destroyed	3	2
Fatalities	39	34
Class B's	2	1
Rate/100,000 Flight Hours	.54	.25
Class C & HAPS	225	262*
Rate/100,000 Flight Hours	62	68
Dropped Objects/Lost in Flight	21	15
Life Raft Deployments	5	8
Flight Control Mishaps	14	12
FOD	15	25
Lightning	21	12
Birdstrikes	27	15
Cargo Leaks	9	9
Two Engine Shutdown/Flameout/ Loss or Fluctuation of Power on Two or More Engines	15	19

*43 Flight Instrument HAPS

C-130

MAJOR JOHN J. COLSCH

■ Although the Class A and B mishap rates show substantial improvement over 1981, the mishap-related loss of resources is high. The two 1982 C-130 Class A mishaps resulted in the loss of 34 lives and two aircraft. Additionally, a USAF C-130 pilot exchange officer was fatally injured in a low altitude parachute extraction system (LAPES) mishap with the Canadian Air Force, and an Army enlisted man was fatally injured in a surface-to-air recovery (STAR) system mishap. Class B mishap damage resulted from a wheel well fire.

When the high accident potential (HAP) special reports of C-130A/B flight instrument failures are removed from the 1981 and 1982 C-130 Class C and HAP statistics, 1981 and 1982 had exactly the same number of reported Class C/HAP reports filed.

Significant downward trends were noted in the numbers of reported lightning strikes, birdstrikes, and dropped objects. The number of reported flight control mishaps decreased slightly. However, there were significant increases in two engine shutdowns/flameouts/loss or fluctuation of power on two or more engines, inadvertent life raft deployments, and engine FODs.

The downward trend of lightning strikes/birdstrikes can be pushed down farther with continued supervisory interest and support in reducing exposure to lightning/birdstrikes, i.e., avoiding thunderstorms and avoiding migratory bird routes during bird migration seasons.

Flight control mishaps/HAPS remain an area of high concern. The 1982 Time Compliance Technical Order (TCTO) for inspection of the elevator cable tension regulators should eliminate mishaps caused by faulty or worn out elevator cable tension regulators. A new C-141/C-130 flight control instrumentation package is expected to be ready in March 1983. This package will be used to isolate causes of uncommanded flight control inputs. When a serious or unusual flight control malfunction occurs, the aircraft will be impounded by the unit to await the arrival of the flight control team and instrumentation package. The team will then, carefully and methodically, analyze the flight control system using the instrumentation package. The present technique of replacing suspected components repeatedly until the system works in accordance with technical orders has not been the optimum method for identifying the malfunction cause. Too many flight control mishap investigations have ended with the cause undetermined.

Also, in an effort to reduce flight control mishaps, a study of the effects of electrical power variances (under voltage, over voltage, phase variances) on the autopilot system has been initiated. Hopefully, these efforts to identify flight control mishap causes will be fruitful.

The increase in two-engine shutdowns/flameouts/power losses continues to be an area of high concern. Of particular concern is the apparent nonchalant attitude of some who shut down the second engine for other than engine or propeller-related malfunctions (generator out, hydraulic pump failures, etc.) when shut down could be safely delayed until after landing. *The loss of one engine constitutes an emergency.*

The decision to shut down a second engine must be weighed in light of the seriousness of the malfunction, aircraft gross weight, and proximity to a suitable landing site. The C-130 Dash One statement about multiple malfunctions and the use of judgment in these situations is critical. Individual and aircrew "what if" sessions can be helpful in identifying decision points. Should the situation arise, a course of action is already decided upon or the factors affecting the situation are known.

In 1982, wing structural integrity became a key concern. TCTOs were distributed calling for inspections of dry bays/dry bay fastener holes, diagonal braces, outer wing fuel tanks, external tank pylon fittings, and C-130A/D center wings. The dry-bay inspections have been completed on the C-130B/E's.

The outer wing inspections of the C-130B/E and the dry bay, center wing and outer wing inspections of C-130A/D aircraft are in progress. Hopefully, these inspections will be

continued

completed by the end of the year. Installation of the new outer wing box modification will begin this fall for the C-130B/E and early H's. The new outer wing box modification will reduce the wing maintenance time and increase the wing life.

Aircrews have expressed some concern over what constitutes an abrupt maneuver. Mr. Leo Sullivan of Lockheed expressed it best when he explained that an abrupt maneuver was any maneuver in which a time delay existed between the flight control input and the aircraft response. For example, an aircraft is banking to the right when an input to make a left bank is made. The input is made so rapidly that the aircraft continues to bank right momentarily before it reverses to begin banking left. This constitutes an abrupt maneuver.

Additionally, Mr. Sullivan explained that the C-130 has always been a transport aircraft. It is not a fighter. The only legitimate distinction between the C-130 and a commercial transport is that the C-130 is built with assault landing and take off capabilities. In flight, it is structurally the same as a commercial transport.

Another area of increased concern are the problems encountered with blue foam. Three instances of fuel tank foam fires were reported in 1982. Two of these mishaps appear to have involved mixing of JP-4 and JP-5. The Air Force has been adding antistatic additive to JP-4 at Air Force installations. However, most C-1[illegible] units operate out of or through bases and airports which don't have JP-4 or fuel with antistatic additive. The result is mixing JP-4 with other fuels without antistatic additive. Refueling pressures must be reduced when refueling C-130s with blue foam installed or anytime the type of fuel is different than the fuel remaining in the tanks.

A TCTO is being distributed which makes a void in the blue foam under the entry point. This void will allow normal fueling pressure provided the fuel has the antistatic additive, and the fuel is the same type as the fuel already in the tank. All other refueling requirements must also be complied with to assure the safe refueling of the aircraft. These requirements include grounding, safety guards, panel monitors, etc.

1982 was a challenging and busy year for the C-130 community, an[illegible] 1983 appears as if it will be just a[illegible] challenging. All involved in the operation and maintenance of the aircraft need to keep a vigilant eye. It is getting older and has seen a lot of hard use, but will provide many years of additional service provided everyone working with it remains vigilant. When a new malfunction or difficulty occurs on one C-130, consider the fact that there are more than 700 USAF C-130s operating which may have the same difficulty. Get the word out to those responsible for the safety and reliability of the C-130 fleet. With a fleet as large and dispersed as it is, communication is the key in preventing individual mishaps from being repeated. Work through your MAJCOM logistics and safety people to the C-130 system manager (Warner Robins Air Logistics Center/MMSF) and C-130 safety action officer (Air Force Inspectio[illegible] and Safety Center/SEFB, AUTOVON 876-2226). ■

Do Your Habit Patterns Work For Or Against You?

CAPTAIN LARRY D. NEW
Nellis AFB, NV

■ Humans are creatures of habit. We are better at doing the things we have done repeatedly, and we often fall back on old habit patterns in a crisis.

Flying is a habit-oriented process. Ideally pilots like flying to go step-by-step, by the numbers as it has many times past. Often, pilots use their habit patterns to their advantage; but too many times habits produce unwanted results. Here are some common, and probably familiar examples.

The first time a habit pattern "bit" me was during pilot training when I was trying to develop habit patterns. One of my habits was to do my pre-takeoff checklist at a certain point on the taxiway for each runway. Just as luck would have it, the day of my contact checkride the taxi routing was changed because of construction, and guess who busted his checkride for not accomplishing his before-takeoff checklist. Pretty dumb, right? Well, maybe not. . . .

What about the flight lead who almost always flies as number one or number three? The day he's number two, he crosses under to the outside of a three-ship rather than the inside, so the flight ends up echeloned 1-3-2!

How about Eagle pilots who don't open their air refueling door after an air refueling sortie, because it's a checklist item they usually skip over as not applicable? There are some more subtle examples.

You're approaching initial with your formation echeloned left for the anticipated right break you've always done, when the tower controller says, "Winds two two zero at twelve, altimeter two niner eight zero, expect left break for runway two one left." You hear everything but "left break." Your mind hears just what it expects, and tunes out everything else. It may

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Do your habit patterns work for or against you?

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take longer to perceive an unfamiliar element added to a familiar message, and you may not perceive it at all.

What causes these mistakes? We are creatures of habit for both physiological and psychological reasons. We have been trained at the basic animal level to do some of the things we do. In many cases, our habits result from the same conditioned response type training used for laboratory rats and monkeys. Perform in the proper manner and you will be rewarded. Find a way to remember the pre-takeoff checklist and you'll pass.

Psychological study tells us that we remember better those things we have repeated numerous times before, like the items we always do in the after landing checks. Subconsciously, the mind is stimulated by the familiar more readily than the unfamiliar, e.g., hearing only the part of the transmission we expect to hear.

Psychologists also say each individual's personality may affect his propensity to adapt. People have personalities varying from rigid to flexible which affect their reactions respectively. All these human traits (plus more) not only affect, but many times determine the way we act under given circumstances.

Habits frequently help pilots during time-critical or task-overload situations. Not having to think about actions in a traffic pattern such as what to do if you're too fast, too slow, too high, or too low comes in handy when you're trying to cope with an inflight fire. You already know what to do out of habit. This is because habit actions use the cerebellum which is fast reacting, and not the cortex which is available for other thoughts. However, your habits can bite you in other ways during the same inflight emergency.

Let's say during those hundreds of previous traffic patterns you always configured for landing in the same place. Now an inflight fire occurs just before you would normally configure; so you don't configure in the normal place, because you're busy coping with a critical situation. Do you think you'd tend to land gear up? Of course you would.

We can't change ourselves, so what can we do about it? We could just throw up our hands and say we're all human so we're going to make these mistakes.

You could say that, but, personally, I'm enjoying myself here, and I'd like to minimize those mistakes. Recognizing that we can and do react habitually is the first step to fighting this dilemma. I recognize it because I've seen all these mistakes made, and I don't believe they were made intentionally. Once you admit you are likely to make mistakes as a result of habit, there are a few ways you can be on guard and minimize those mistakes.

As in many other aspects of flying, a good rule of thumb is watch "flight complacency." There are many things we do automatically while flying. Some things are done automatically because of task loading. That's fine and we all need to be able to do that; but be on guard for doing things without thinking about them when you aren't busy doing anything else. FIGHT COMPLACENCY.

On the ground, periodically reevaluate your habit patterns. Things you ought to flag are Dash One, checklist, procedural changes, etc. If you don't consciously highlight a procedural change, you're apt to continue that procedure according to old habits.

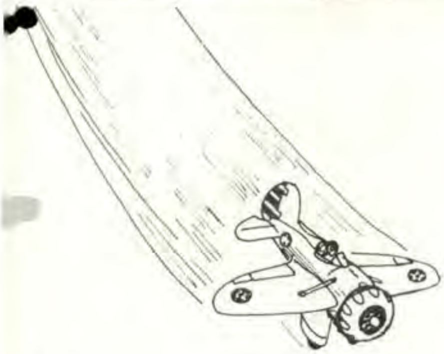
This philosophy can apply to training, too. Remember when your high school football coach said, "You'll play the game just like you practice?" Likewise, in the heat of aerial combat you're going to revert to habit patterns to accomplish many tasks. Ask yourself if you're really training like you would fly under fire. You'll probably find your responses are often negative.

In addition, beware of occurrences that break the normal sequence of events, or any habitual pattern. Anytime this happens, be alert for errors of omission, starting when the unusual event occurs.

We are habitual creatures by nature, and we can't change it. It has been and will continue to be demonstrated, sometimes with disastrous results. But with a little effort, some of the mistakes can be avoided. First, recognize and be conscious of the problem. Then, be on the alert for areas where you may make mistakes. Being aware of the problem and guarding against complacency is probably the best way to make habits work for you and not against you. ■

They don't build them the way they used to.

JOSEPH F. TILSON
Structures Engineer
Directorate of Aerospace Safety



■ Luke Skyjacker pushed the nose of the new XP-29 over into a vertical dive and spoke into his mic to his friend Sniveling Jack who was standing by with three fire trucks and a 6-pack. "I'm going for a 9 G pullout," he said. "If this baby keeps her wings, we'll win the contract." Between swallows, Sniveling prayed for Luke. He knew it took guts to do this. Besides, if it didn't work, then he was scheduled for the next flight. Maybe he would request an extra fire truck (a backhoe would be more in order).

It hasn't been too long since this test scenario was more truth than fiction. In those days, low cost and high speed were the goal. Mission mix, performance, maintenance, reliability, structural efficiency, and fatigue life were not even in the designers' vocabulary. Well, we've come a long way, and you, the operators of today's aircraft, are benefactors of professional design which considers all mission usage from the drawing board to the target for the life of the system. "Then why did this piece of modern technological junk fall apart when I leaned on it a little hard?" you say. There are many specific answers to this question and rarely do any of them reach back to the design engineer. Perhaps a brief look into the development process will give you some perspective of these failures and their origin.

At the start of the design process, a collection of mission requirements people (managers, engineers, users, salesmen, etc.) assemble to formulate the need for a specific type of aircraft. It is this august body that firmly establishes the range, payload, performance, life, etc., of a new aircraft. When they finish with their coffee and cheese blintzes, they turn their "requirements" over to the

continued

They don't build them the way they used to continued

aerodynamicists and structural designers. If the "requirements package" is not requesting a supersonic cargo aircraft capable of unrefueled flight around the world and winning the 500 km closed course at Reno on Sunday afternoon, the engineers proceed.

The aerodynamicist takes the weight, propulsion, and performance data and determines what the maximum external loads must be under a wide range of maneuvering conditions. Using these external loads, the structural designer develops a series of internal geometries which will support these loads and distribute them in an efficient manner. Efficient manner means failsafe, lightweight, low cost, long life, easily inspected, and easily repaired. Those structural engineers who satisfy all these criteria go on to build new aircraft; those who don't go into designing plastic toys or bomb shelters.

Once the structural design team knows what the internal loads are to be, they formulate the "operational requirements stress" (strength required) for each part of the structure. Assume for the moment we are talking about one specific point on the aircraft, such as the lower front spar cap at the fuselage attachment rib. Given mission operational requirements, the team determines the maximum stress at that point to be a value represented by point "A" in Figure 1. Obviously, since all pilots fly differently, there is a bell-shaped distribution about that point. Luke Skyjacker with his guts (and no brains) requires a strength slightly above point "A" and Sniveling Jack requires a lesser strength to the left of point "A." In between are all manners of heroes, the majority of which will fly at or near point "A." Now the structural design engineer is no dummy; he graduated magna cum lousy from Plentifish University, and he was taught in basic design that if you design to a given strength (point "A") and half the operators require more than that, then you are going to prang half of the operators. Therefore, he gives himself an edge. The structural design team decides to design to a strength at point "B." Now, since all production people don't cut, drill, fasten, prime, and finish in the same way, there is a bell-shaped distribution about point "B" also. Half the parts are stronger than "B" and half are weaker than "B." Ha — and you thought that 50 percent margin of safety was all yours to use as you see fit. (See "Betting the 50," *Aerospace Safety,* May 1980.)

If all operators used the aircraft the way the design requirements package said and all fabricators built the hardware as designed, there would be no problem. However, the real world looks more like Figure 2. You'll note that the operational requirements curve has shifted to the right, and the design stress curve has shifted to the left. The shaded area under the two curves is where we get into trouble. It is impractical to design in such a way as to insure the curves never cross. At the risk of appearing ridiculous, such a thought implies designing to strengths 200, 300, or even 400 percent stronger than required. This means 200, 300, or 400 percent overweight, and it's back to designing bomb shelters.

Figure 1

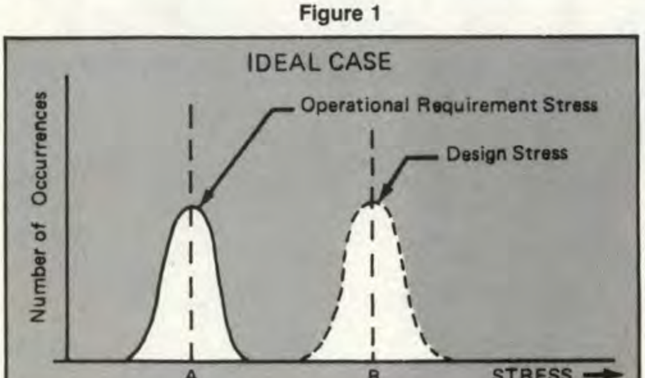
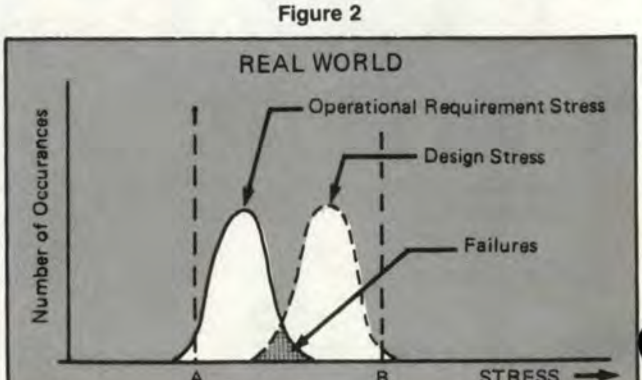


Figure 2



Conversely and equally ridiculous, one might consider identifying and firing the 50 percent of the pilots who violate the design requirement at point "A." (Unfortunately, both of these options have been considered at times.)

We must live with reality and learn how to keep that shaded area to a minimum. To do this, we must understand what factors drive the curves to the right or left and what controls we have over them. The following are a few examples of things which move the design stress curve to the left.

- Strength Degradation — wear, corrosion, fatigue, physical abuse, severe temperature/humidity environment.
- Faulty Design — insufficient material, defective material properties, defective loads analysis, defective fatigue analysis, faulty usage requirements model.
- Faulty Manufacture — defective tools/procedures for cutting, drilling, finishing, fastening, heat-treating, dimensional control assembly, and inspection.
- Faulty Maintenance — improper ground handling, assembly/disassembly, system checkout, lubrication, record keeping, and repair.

The following are a few examples of factors which move the operational requirements stress curve to the right.

- Uncontrolled Overload — gusts, lightning, acts of God, etc.
- Operating Error — conscious intent, faulty judgment, control system malfunction.
- Operating Overload — a conscious management decision to (mis)use equipment in a manner for which it was not designed, unconscious change in mission profiles, or a conscious change in mission profiles without proper structural analysis.

We have come a long way from the simplistic approach of Luke Skyjacker. The designer and manufacturer are aided by computer-controlled precision which was undreamed of 10 years ago. However, the performances we require are hundreds of times more demanding than those of the much beloved old C-47. Two of the largest areas in which we can improve safety are maintenance and operations. Hundreds of millions of dollars are being spent training and equipping maintenance personnel.

Particular attention is focusing on the area of nondestructive inspection. Early detection of structural cracking can lead to inexpensive repair and early revision to the structural design and analysis data. Most structure expends 90 percent of its life before a crack starts and 10 percent afterward. If we can detect the crack early, we can ream the hole oversize and remove the crack, almost doubling the life at very little cost.

The area of operations is one which costs very little and can lead to large rewards. Prayer may be an answer to uncontrolled overload, but we chose to address operating error and operating overload here. You aircrew members hear a great deal about technique and judgment in overloading your aircraft. The designer has done much to provide you cues to help minimize this. However, even with the sophisticated warning systems on the F-15 and F-16, it is still possible to cause an overload. Remember, once the structure has been overloaded, it is no longer what the designer analyzed, and your warranty is worthless as far as the original margins of safety are concerned.

The other part of operations about which I have seen nothing written involves management. The decision, conscious or otherwise, to change mission profiles without checking with competent design authority is extremely hazardous. Operators who are flying the "guns jinkout" maneuver would be wise to check with your system manager (SM) or system program office (SPO) to see if the airframe has been analyzed structurally for the way you are flying the maneuver. Note, I did not say the way the maneuver is supposed to be flown. Remember, it is a desperation escape maneuver, and if you repeatedly violate the envelope in practice, its design strength isn't going to be there when you need it. While you may safely recover from a subsequent departure, the damage you impose on the airframe is not recoverable and will be cumulative. One day it may reach up and bite someone who is flying it in accordance with the book. Then you may make the profound statement, "Why did this piece of modern technological junk fall apart when I leaned on it a little hard?" ■

DECISION LOGIC IN AN EMERGENCY

■ Something goes wrong with your aircraft and you decide that it's time to take it home and give it back to maintenance. Once you've made that decision you are faced with another, "Should I declare an emergency?" Granted, the decision is easy in some cases. If you have only one engine and it quits or if two of your four engines are burning you don't need to give the decision much thought.

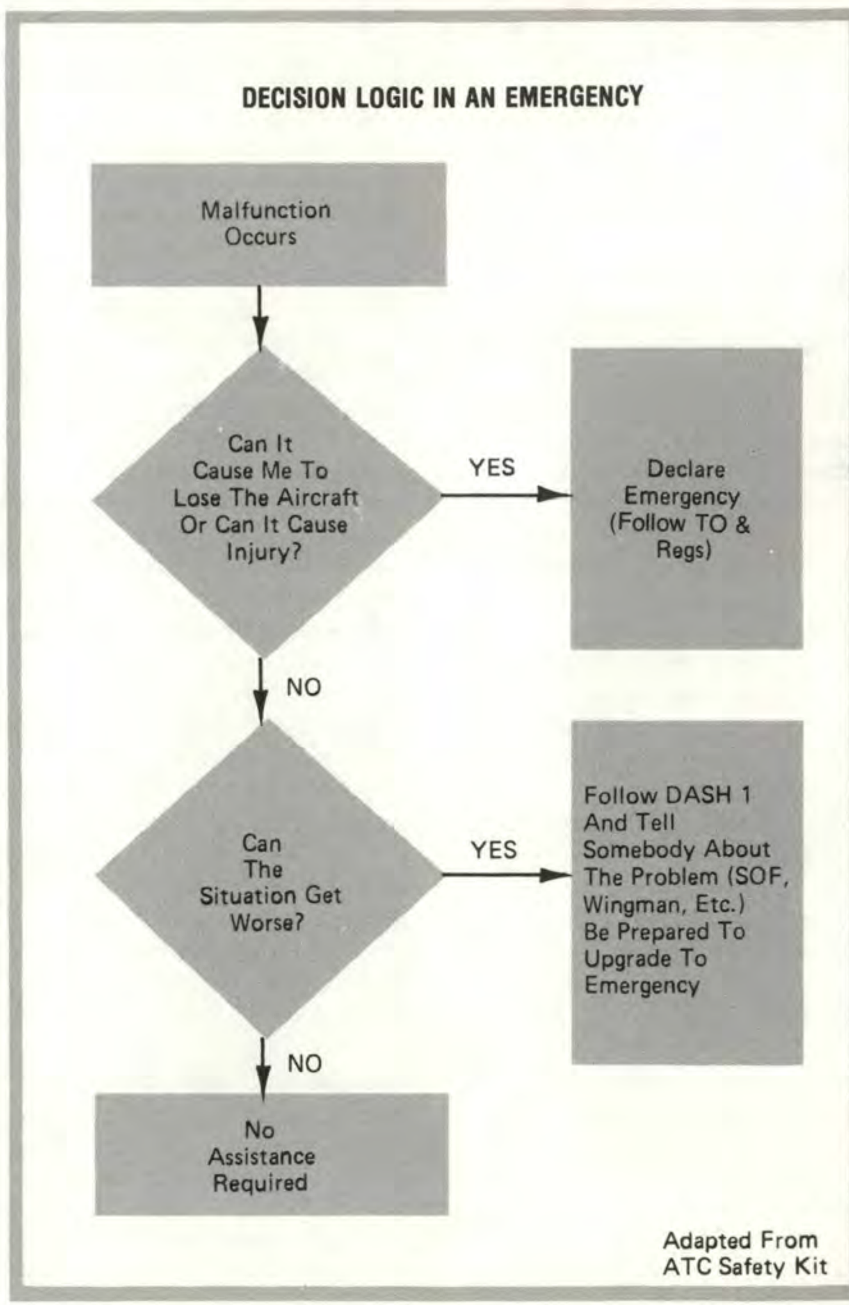
But all too often the malfunction falls in a very grey area where the guidance is not so clear cut. Now the decision must be based on pilot knowledge and experience. The question then becomes how do we get that knowledge and experience.

Captain Jeff Schantz, an FSO at ATC headquarters, offers these three alternatives.

▪ **Method 1.** Write all possible aircraft malfunctions in tabular form. Then highlight the emergencies in red and lesser emergencies in yellow. Don't highlight items which you can handle in the cockpit. Organize the tables in volumes for ready reference, Vol. I, Engines, Vol. II, Hydraulics, etc. About 20 volumes should do it.

▪ **Method 2.** Carry a yardstick to measure how deeply the seat cushion is ingested. As a guide, use one inch or less for no assistance, up to six inches for a minor problem, and over six a real emergency.

▪ **Method 3.** Use the following decision logic table. ■



Adapted From ATC Safety Kit

BUT IT'S NOT THAT COLD

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This article completes a series dealing with cold weather survival. It concerns cold, wet conditions and provides some answers to questions posed in the first article, "You're Next," *(Flying Safety,* December 1982).

■ In last month's article "It Happened," we discussed ways to survive in arctic or artic-like areas. Although extreme cold should be a major concern, it should not be your only consideration in preparing for winter survival. Temperatures above freezing in conjunction with rain and wind can be as much a threat to your life as subzero temperatures, if you're not prepared.

The first article, "You're Next," outlined a story of a bomber crew that bailed out 250 miles north of the border between Canada and the United States. The time of year — September. The weather — cold and raining.

Three of the crew succeeded in linking up. Miraculously, none were injured after their descent into the trees. The first four days they stayed where they were. They were wet and had trouble sleeping. Starting a fire was next to impossible because the wood was wet and they had no idea where to find dry wood. They finally succeeded by using the insect repellent from their jungle kits to help them start the wet wood. They used their parachutes for some protection by draping them over trees and around themselves, but the loose nylon leaked continually. Understandably, they were very depressed.

On the fourth day they decided to head east, because they believed the Atlantic Ocean to be in that direction. Was this the right decision? Consider what they had. Before egressing the aircraft, the

continued

radio operator managed to transmit their location and receive a confirmation from their base. They were on the shore of a small lake. The surrounding area had a thick underbrush which made walking difficult. The cloud cover was at tree level most of the time.

Obviously, because of the weather, air search was unsuccessful. But the lake afforded them plenty of water and an open area for signaling when the weather broke. One individual had left his parachute and jungle kit where he landed and was never able to find them, therefore rations were minimal. By staying put they would have been able to conserve their energy and plan for rescue when the weather broke.

As they traveled east, two of the men made the most of the birdshot in their pistols to kill small game. This was not nearly enough to control their hunger or replenish the calories they were losing from the cold and extensive walking.

With the nights came severe cold, so they huddled together to conserve as much body heat as possible. To compound the problem, one man was without a jacket.

On the fifth day the cloud cover broke. They saw four different aircraft and one even came within a quarter of a mile. Their traveling

had brought them to another lake where they stood on the shore shouting and waving at the aircraft. None of them thought to use something reflective or to stretch a parachute along the shore to signal the aircraft. Those four airplanes would have stood a much better chance of finding them had there been a more visible signal. Instead, they spent another night out.

They continued traveling the sixth day and camped that night by the shore of another lake. The morning of the seventh day they were awakened by the sound of a motor. They ran to the shore and again started waving and shouting. The plane came towards them but never saw them and turned away. By this time they were seeing many aircraft, all of which continued to fly right on by, making their depression that much worse.

That afternoon they were camped on top of a large hill when again they heard an airplane motor. This time they had a fire going and remembered to throw pine boughs on it to create smoke. The plane started to fly away when it suddenly banked and flew directly at them. They had finally been seen.

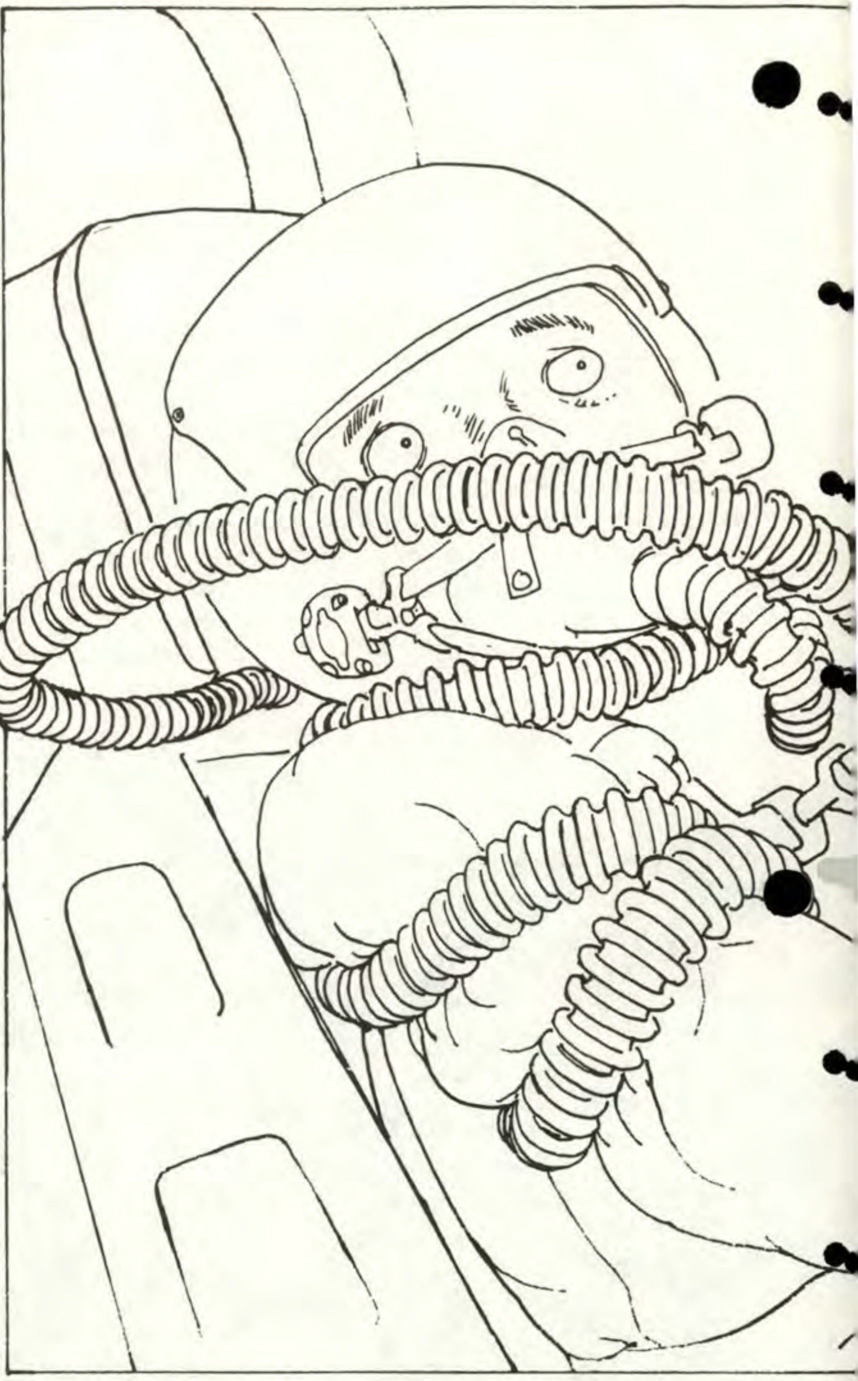
The rescue plane dropped packages and messages and they were told to walk back to the last lake. There a plane with pontoons landed and picked them up.

These three men survived for seven days in a harsh environment on practically nothing but luck and the will to live. Many mistakes were made, and we hope that future aircrews can learn not to repeat these same errors. When these men finally did things right, they were rescued very quickly!

Being properly prepared with equipment and knowledge is the only sure way to survive an unexpected stay on the ground. Don't wait until you're in that situation. Decide now what you would like to have with you and what you need to know for such an emergency. Get ready ***now***, before your next flight. ■

Making Mistakes

SQUADRON LEADER MARK A. LEWIS, RAAF
Directorate of Aerospace Safety



■ Not so many years ago, I was a student pilot about to embark on my wings test. Naturally, I was quietly confident of my ability and knew that I would do well. I managed to hide these feelings by behaving like a nervous jellyfish with two left tentacles. My nervousness increased when the chief flying instructor, who was to judge my performance, was nearly an hour late. This meant that after enduring a morning of inactivity, I was suddenly late and trying to make up time. A rapid preflight and the test was on.

The departure went well, and it was a beautiful day, so I was starting to feel pretty good. The voice from the back said, "OK, Bloggs, show me your aeros." I remembered my pre-maneuver checks, and a clearing wing over, then selected my line feature and pulled into a loop. I suddenly realized that I had forgotten to plug in my G suit, and my career flashed before my eyes.

To correct this error, I would need to interrupt the aerobatic sequence, release the control column, and use both hands to plug it in. My thoughts were that the testing officer would realize I had done a poor preflight by not connecting it prior to take off. I didn't want him to know that I was guilty of such poor airmanship, so I decided to "tough it out" and continue on without a G suit working for me. This was not the best decision under the circumstances, but it seemed good at the time.

So, on with the aerobatics. Barrel roll, vertical eight, and the voice from the back says, "What's that noise?" That noise was a "clunking" caused by my G suit connection banging between the ejection seat and the side of the cockpit. Terror filled me again, and when the voice from the back said, "Taking over," I fumbled, furiously trying to connect the hose without appearing to move, while the voice from the back tried to reproduce the noise. Well, as luck would have it, I was unable to connect the hose, and the voice in the back said, "handing over."

More aerobatics and more "clunking" followed.

Finally, the voice in the back said, "There's something wrong with the aircraft; I'm going to declare an emergency, and we'll go back." I decided that now was the time to try and recover the situation, so I mumbled something about suddenly realizing what the problem was. The voice from the back was very angry. He did not believe that I had "just discovered" the problem. I had a lot to learn about being a plausible liar too, it seemed. A veritable torrent of abuse rained down upon my head, and I started to lose interest in my test.

The test continued. I flew with the extra burden of what I had done and with an angry testing officer. My performance suffered badly during this flight because of my feelings of guilt and self recrimination. I was unable to forget this example of poor decision making, so I continued making mistakes. Eventually, the ordeal ended, and, happily, I passed the test. I went on to become a "voice from the back" in my own right after some years in the operational world.

I have often thought back over this particular lesson as I have watched pilots and copilots create hazardous situations where there was no need for them. If you make a mistake, that makes you as human as the next guy, but don't make it worse than it is by trying to hide it. A testing officer is impressed by the way you control the aircraft and that includes how you cope with the unexpected human error. People are always willing to help you correct mistakes, and testing officers are people, too. In my case, the smart solution was a simple "My G suit is disconnected, handing over while I reconnect it." This would have prevented the wasted time and effort I caused.

I hope that you think of my experience the next time you recognize that you have made an error in judgment. We are all prone to such errors, but you can minimize their effects if you obtain help to correct them before they develop into something more serious. The embarrassment you prevent may be your own. ■

X-COUNTRY NOTES

MAJOR WILLIAM R. REVELS
Directorate of Aerospace Safety

■ Recent calls and letters to Rex indicate a continuing interest by many units in adding the Rex Riley award to their list of accomplishments. For those interested in the Rex Riley program, some background information follows which should answer most questions. For more specific details call or write to Rex at any time.

Background

The Rex Riley Transient Services Award program was established in the early 1950s to recognize Air Force installations providing outstanding service and facilities for transient aircrews.

Although enjoying several different names over the years, the program has survived and still serves as a mark of distinction for Air Force airfields throughout the world. The goal of the program is mishap prevention through the recognition and improvement of USAF transient services.

We feel that one of the mainstays of any installation aircraft mishap prevention program should be the facilities that are used by transient aircrews. Not only are we interested in the obvious flight line hazards and operations, but we also attempt to evaluate (and improve) facilities which could be classed as irritants. These include flight planning, messing, transport, billeting, and other areas which could directly, or indirectly, affect aircrew frame-of-mind or fatigue levels. In short, we are targeted to seek out and bring attention to any condition which could increase the probability of a mishap.

Eligibility

As a minimum, bases must meet the following criteria in order to be eligible for evaluation under the Rex Riley Transient Services Award program.

- Active USAF, AFRES or (AF) ANG installation, listed in the IFR supplement as possessing facilities to serve transient aircraft and crews.
- Available hours to transients a minimum of 8 hours per day and five days per week.
- Have no continuing OBO or other major limitations to transient aircrew arrival or service. (NOTE: PPR status is not an automatic ineligibility factor. Many installations are using PPR as a valid management/sequencing tool. A permanent PPR restriction will be evaluated by the Rex Riley program director for determination of eligibility.)

The award program is administered by the Safety Education Division of the Air Force Inspection and Safety Center. Although not a formal IG-type inspection, the evaluations are carried out on a no-notice basis using extensive checklists. Evaluators look at such areas as Base Ops facilities, billeting, availability of meals and transport, and transient servicing and maintenance. The goal is to visit/revisit every Air Force base serving transient aircrews within recurring two-year periods.

Entitlements

Units selected for the Rex Riley

Transient Services Award will be added to the award lists published in *Flying Safety* and *Maintenance* magazines. They will remain on the list and move upward as seniority is increased.

In addition, a certificate suitable for Base Ops display will be forwarded to the commander of the unit responsible for airfield management, (mini-certificates for other base agencies are available from "Rex" upon request).

Transient alert personnel are authorized to wear Rex Riley patches at the unit commander's discretion.

Standardized design is provided but units are responsible for the local procurement and expense of patches should they be desired.

Removal

Bases having the award removed will receive a letter of explanation, and the base's name will be deleted from the next list published. Removal will result from:

- An unsatisfactory evaluation.
- The advent of continuing or permanent restrictions published by a base which severely limit the availability of services to transients. (As determined by the Rex Riley program director.)
- Transient Alert personnel are involved in a mishap or allow a safety of flight item to go uncorrected.
- A base is closed.
- Should a Rex Riley base undergo a drastic change to operations, i.e., MAJCOM change, or military transient alert to contract maintenance, a reevaluation must be accomplished to retain Rex Riley status.

Letter to Rex

Occasionally Rex receives a report on superior services at a base which is not on the current award list. Such a report recently arrived which identifies the Luke AFB transient team as an outstanding

continued

REX RILEY
Transient Services Award

LORING AFB	Limestone, ME
McCLELLAN AFB	Sacramento, CA
MAXWELL AFB	Montgomery, AL
SCOTT AFB	Belleville, IL
McCHORD AFB	Tacoma, WA
MYRTLE BEACH AFB	Myrtle Beach, SC
MATHER AFB	Sacramento, CA
LAJES FIELD	Azores
SHEPPARD AFB	Wichita Falls, TX
MARCH AFB	Riverside, CA
GRISSOM AFB	Peru, IN
CANNON AFB	Clovis, NM
RANDOLPH AFB	San Antonio, TX
ROBINS AFB	Warner Robins, GA
HILL AFB	Ogden, UT
YOKOTA AB	Japan
SEYMOUR JOHNSON AFB	Goldsboro, NC
KADENA AB	Okinawa
ELMENDORF AFB	Anchorage, AK
SHAW AFB	Sumter, SC
LITTLE ROCK AFB	Jacksonville, AR
OFFUTT AFB	Omaha, NE
KIRTLAND AFB	Albuquerque, NM
BUCKLEY ANG BASE	Aurora, CO
RAF MILDENHALL	UK
WRIGHT-PATTERSON AFB	Fairborn, OH
POPE AFB	Fayetteville, NC
TINKER AFB	Oklahoma City, OK
DOVER AFB	Dover, DE
GRIFFISS AFB	Rome, NY
KI SAWYER AFB	Gwinn, MI
REESE AFB	Lubbock, TX
VANCE AFB	Enid, OK
LAUGHLIN AFB	Del Rio, TX
FAIRCHILD AFB	Spokane, WA
MINOT AFB	Minot, ND
VANDENBERG AFB	Lompoc, CA
ANDREWS AFB	Camp Springs, MD
PLATTSBURGH AFB	Plattsburgh, NY
MACDILL AFB	Tampa, FL
COLUMBUS AFB	Columbus, MS
PATRICK AFB	Cocoa Beach, FL
ALTUS AFB	Altus, OK
WURTSMITH AFB	Oscoda, MI
WILLIAMS AFB	Chandler, AZ
WESTOVER AFB	Chicopee Falls, MA
McGUIRE AFB	Wrightstown, NJ
EGLIN AFB	Valparaiso, FL
RAF BENTWATERS	UK
RAF UPPER HEYFORD	UK
ANDERSEN AFB	Guam
HOLLOMAN AFB	Alamogordo, NM
DYESS AFB	Abilene, TX
AVIANO AB	Italy
BITBURG AB	Germany
KEESLER AFB	Biloxi, MS
HOWARD AFB	Panama
GEORGE AFB	Victorville, CA
PETERSON AFB	Colorado Springs, CO
CLARK AB	Philippines
MOODY AFB	Valdosta, GA

unit. The following letter from the 301st Fighter Squadron, NAS Miramar, CA, highlights their achievement. Hats off to the Luke Transient Alert folks.

"I would like to express my sincere appreciation to the Luke Air Force Base Transient Alert staff for their exceptional efforts in the support of a VF-301 aircraft on 25 July 1982.

"Because of earlier servicing delays during a return cross-country flight, one of VF-301's F4S aircraft arrived at Luke Air Force Base just 20 minutes prior to scheduled base closing. Both aircrewmen were needed at NAS Miramar the following morning. With only a single call from base operations, the Transient Alert staff was waiting for the aircraft with a fuel truck and full ground support equipment. In an impressive demonstration of efficient and safe operations, the aircraft was fueled and started within 10 minutes permitting the aircrew to continue their journey before the base was closed. The professional teamwork and cooperative attitude displayed by the Transient Alert crew were truly above and beyond the performance encountered during operations away from home.

"It is with pride that I offer a sincere "well done" from the Fighting 301 'Devil's Disciples.' "
T.F. LEONARD
Commanding Officer

Trip Reports

DYESS AFB TX Services at Dyess are excellent, with fine facilities and highly motivated personnel.

Transient Alert at Dyess has recently completed a changeover from military personnel to a civilian contractor. The new organization is adapting nicely to transient support and will provide quality service for your next stopover.

ANDREWS AFB MD Andrews has a well-planned and well-organized service organization which serves the aircrew admirably through all the phases of a stopover. Transient Alert, Base Ops, billeting, and food services are excellent, with helpful personnel and good facilities. You can expect a fast turnaround or a pleasant RON if the time permits. Remember that Andrews has a high volume of DV's — a call ahead will insure your needs are expected and planned for.

TINKER AFB OK Tinker continues to provide the excellent service which is well known among transient aircrews. Transient Alert has recently converted to a civilian contract operation. Although manning has been cut from the previous military level, experience is high and service has not suffered. You can still expect quality support at Tinker.

For questions or comments about the Rex Riley Transient Awards program contact AFISC/SEDJ, Norton AFB CA 92409, AUTOVON 876-2113. ■

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UNITED STATES AIR FORCE

Well Done Award

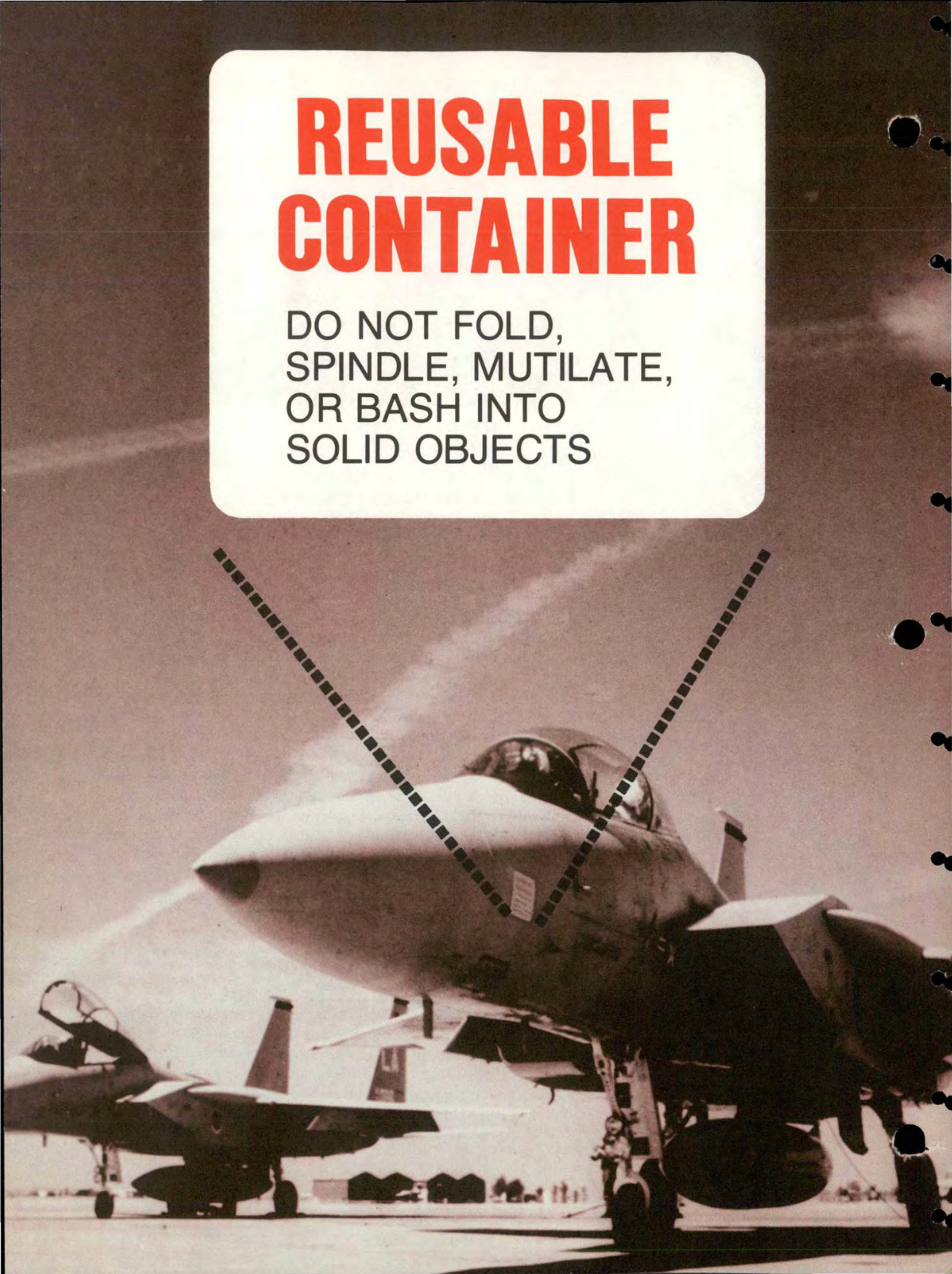
Presented for outstanding airmanship and professional performance during a hazardous situation and for a significant contribution to the United States Air Force Accident Prevention Program.

FIRST LIEUTENANT
Wesley A. Miller

CAPTAIN
Fred A. Shirley

347th Tactical Fighter Wing
Moody Air Force Base, Georgia

■ On 28 April 1982, Lieutenant Miller and Captain Shirley were flying an F-4E aircraft on an aerial combat tactics sortie. Upon entering the MOA, Lieutenant Miller started a slight climbing right turn and selected full afterburner. The crew heard a loud explosion from the rear of the aircraft, and the aircraft then entered into a series of violent, uncommanded pitch, yaw, and roll maneuvers, resulting in inverted flight. It then pitched up again, pinning the crew to the canopies with 6 negative Gs. Lieutenant Miller pulled the throttles out of afterburner, hit the emergency quick release lever and brought the aircraft back to wings level flight. He observed the left engine fire and overheat lights illuminated as well as the overheat light on the right engine. The left engine was secured and lead was advised of the situation. The crew turned the aircraft toward base and prepared for a possible ejection. Lead then informed the crew that a small amount of flame was visible in the aft portion of the aircraft and that they should climb and consider ejection. Suddenly, the overheat light on the right went out and the right fire light illuminated. Heading toward the controlled bailout area, the fire light on the right engine went out. With the right engine now indicating normal conditions and good hydraulic pressure, they decided to make one attempt to land the aircraft. Because of limited radio capability, Lead informed Lieutenant Miller and Captain Shirley they were cleared to land. Lieutenant Miller maneuvered the aircraft into position for a steep, fast, low-power straight-in approach and lowered the gear, flaps, and hook. They discussed their ground egress options and completed the single-engine barrier engagement checklists. When the aircraft touched down, the aft portion burst into flames. As the aircraft engaged the barrier, the flames moved rapidly forward on the fuselage stopping just aft of the rear seat. Lead, from a chase position, informed them they were on fire and to get out of the aircraft. Lieutenant Miller secured the right engine and joined Captain Shirley in an expeditious ground egress. The prompt, decisive actions and superior airmanship of Lieutenant Miller and Captain Shirley prevented the loss of a valuable aircraft and averted possible loss of life. WELL DONE! ■


REUSABLE
CONTAINER
DO NOT FOLD,
SPINDLE, MUTILATE,
OR BASH INTO
SOLID OBJECTS