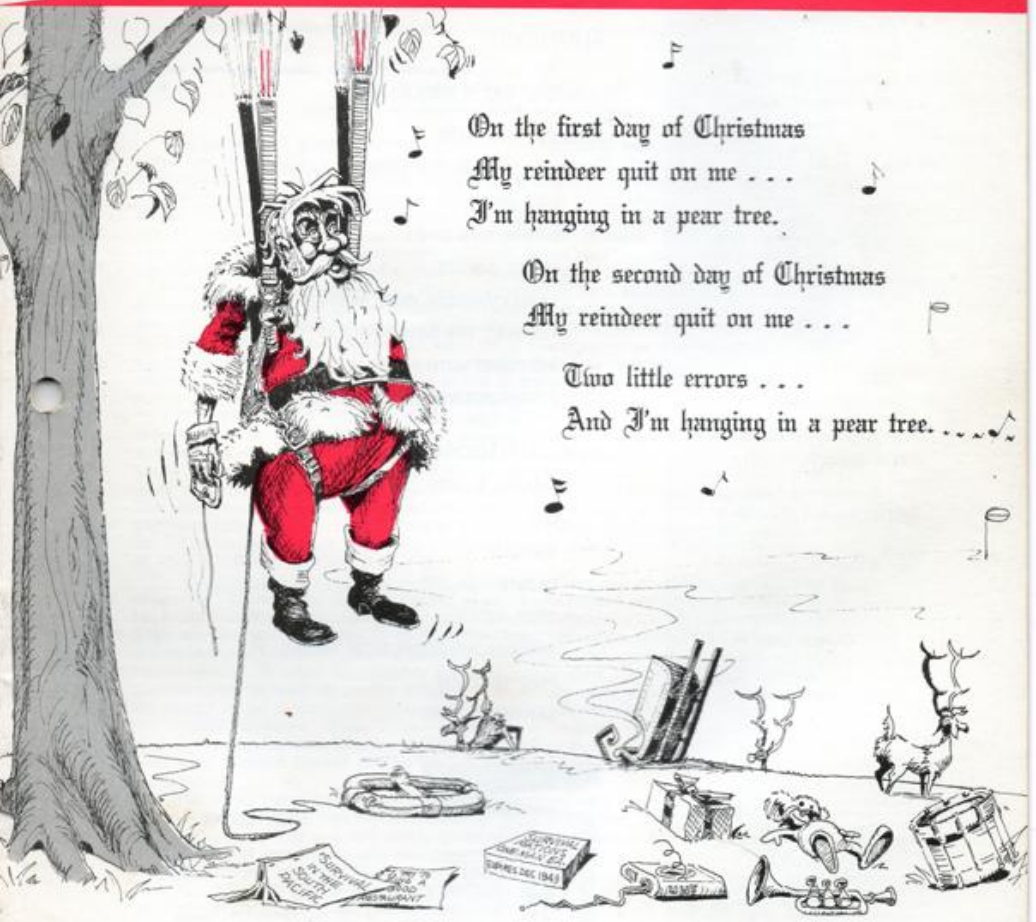
18 MME-OM

Interceptor



DECEMBER 1968

Have a Safe, Happy Holiday and a Prosperous New Year

FOR THE MEN RESPONSIBLE FOR AEROSPACE DEFENSE

Interceptor

volume 10
number 12

ADCRP 127-2

spotlight

The mental and moral, like the muscular powers, are improved only by being used. J. S. Mill

departments

special features

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Hq ADC Field Printing Plant
Ent AFB, Colorado

OUR COVER

Happy Holidays from the INTERCEPTOR Staff

memo

from the CHIEF OF SAFETY

THE BEAST OF BURDEN

Whether it is generally realized or not, the burden of responsibility in this aerospace age weighs heavily on each of us. For some, responsibility falls into the category of supervision and decision making. For others, it simply entails doing the job assigned. For all, it demands going about our daily business in a competent manner. Failure to do so on the part of a **single** individual can start a chain of events which adversely affects the overall effort and consequently mission effectiveness. Look at it this way. Our pilots fly complicated, demanding aircraft. What may be regarded as a small, insignificant "goof-up" down the line can very easily blossom into a full scale catastrophe at another time, in another place. What may seem to be a humdrum or nonessential task may, in reality, be the cornerstone on which a matter of life or death for someone else depends. The individual who overtorques a fuel line fitting or performs an inadequate preflight, or impatiently signs off a discrepancy as ground checked OK may never become aware of the major role he played in causing an accident. The reason for this is that great difficulty exists in tracing a small cause which has produced such a final and devastating effect.

The professional relationships involved in operating a sophisticated aerospace defense force are far reaching. Never take anything for granted, least of all the relative value of your position in the overall effort. To do otherwise is to invite disaster. Underestimating the degree of responsibility which has been entrusted to you presents a tempting opportunity to reduce your share of the workload proportionately. The slack must be taken up somewhere else and so the buck is neatly passed to the guy next door. Maybe he can't handle it or is unwilling to do so, and the beat goes on. (Let 'em catch it at postflight, preflight, or last chance inspection.) This results in what I call the "floating obligation."

The law of gravity applies to just about everything and eventually the "floating obligation" descends to its final resting place, a convenient corner pocket occupied by individuals for whom the much-abused term "professional" is an understatement. They are the hard core who, by past performance, have demonstrated an exceptional willingness and ability to take on added responsibility and, what is more important, accountability. It takes an unselfish breed of cat to stick his neck out in the competitive arena in order to get the job done. Especially since it is so much easier on the image to go through the motions of accepting responsibility and then legislate the liability elsewhere. There is no need for me to be more specific on this point, except to say that in some instances, if the skill and cunning applied to eluding obligations were directed toward getting the job done, the regulation files could be reduced significantly.

For some, the pressure may continue to increase, with concurrent exposure rate. If you have the feeling that you've become a "pack animal" or "beast of burden", hang on tight, because you are that much closer to indispensability. Do you know that we recently lost an interceptor and two crew members for the lack of one cotter pin in the flight control system? With fewer "Beetle Baileys" and more responsible citizens, our workload will be easier and the success rate higher. Rest assured that in the long run hard work and perseverence will not go unnoticed and will pay dividends when least expected.

COL H. C. GIBSON

HOT LINE

T-33 TAKEOFF

An extremely critical phase of flight in the T-bird is right after takeoff during gear retraction. Speed is building slowly and there isn't a great deal of altitude available. If an engine failure should occur, the pilot must make a split-second decision to eject or stay with it. This decision, to a large extent, will depend on pretakeoff evaluation of such things as acceleration and type of terrain off the end of the runway. On a cold day, you can expect speed and altitude to increase in your favor. Rising terrain or high trees at the far end work against you.

The most important factor in ejection after takeoff in a T-33 is speed. Equipment design requires a minimum of 120 knots for reliable parachute deployment. If you don't have the speed, then you need altitude above ground to compensate. Exactly what the altitude requirement is for speeds below 120 knots cannot be predicted at this time. Suffice it to say that the magic figure for success is 120 knots (zero sink rate) at any altitude. To eject at 100 feet and 120 knots is within the capability of the equipment. To eject at 300 feet below 120 knots may not be. A more detailed discussion of this type is contained in this issue under the title "Bailout."

F-102 EJECTION SYSTEM

A contract has been awarded to develop a qualified 0 to 450 knots, ground level, high sink rate capability egress system for the F/TF-102. Modification will include:

1. A seat stabilization system to control seat rotation.

2. A seat retardation system to provide a positive forced separation velocity between seat and crewman sufficient to prevent seat-man-parachute collision.

3. A parachute deployment system that is effective through full deployment of the main parachute canopy and which deploys main parachute canopy in downstream direction.

After modification, F/TF-102 aircraft egress system will be capable of:

1. Recovery from a 0-450 knots ground level ejection.

2. Recovery from a 90 degree bank attitude at 200 feet altitude at 140 knots.

3. Recovery from a 10,000 feet per minute sink rate at 200 feet altitude at 140 knots.

Programmed time frame has not been established as of this date.

T-33 OXYGEN SYSTEM

The T-33 is old and getting older. Hypoxia incidents are on the increase in the bird. The oxygen system is tried and true, but parts are wearing out. Extra careful attention should be given to oxygen checks or someone is going to get hurt.

DRAG CHUTES AND MOISTURE

With the winter season here, it's time for a reminder to pilots that if the drag chute compartment isn't covered during a heavy rain and a high altitude mission is flown, the chute may freeze. Chances are better than even that it won't deploy on landing. Keep this in mind on final approach.

DUAL HELMET VISORS

ADC has submitted procurement requests for the tinted/clear visor combination. Aircrews flying jet aircraft will be authorized to wear the visor; however, it is intended that issue be based on individual preference. No information is available on when the visors will enter the inventory.

HELP!

With the recent unit deactivations and transfers, many of you have been or will be cleaning out closets and old file cabinets. If you should come across any old editions of INTERCEPTOR Magazines we would sincerely appreciate receiving them to help bolster our depleted files. We are particularly short of the following issues: All of 1959 except November; 1960: March, April, July; 1962: October and December; 1963: August; 1965: December; 1966: May and August; 1967: January and April; 1968: March.

a salute

TO THE LITTLE GUYS

. . . an overdue recognition of those support units which, while not flying as much as the better known units, have achieved an outstanding flying safety record.

SPECIAL RECOGNITION

4650 Combat Support Squadron

While flying thousands of hours each year in support of the ADC mission, the 4650 Combat Support Squadron has not had a reportable aircraft accident in its more than NINE years of existence.

Over 9 Years

*4625 Spt Sq, Adair
*4626 AB Sq, Topsham
*4629 Spt Sq, Luke
4632 AB Sq, Oklahoma City
*4648 Spt Sq, Gunter

*No aircraft accidents since date of organization.

Over 7 Years

4630 Spt Sq, Goose Bay

Over 5 Years

4624 AB Sq, Hancock

Over 4 Years

4638 AB Sq, Fort Lee
4684 AB Gp, Sondrestrom

as of: 31 October 1968

OPERATIONAL READINESS INSPECTION TEAM

HQ, ADC

"HELP! WE'RE BEING NAPED"

Has your fighter unit been NAPED yet? For several months now, Nuclear Attack Preparedness Evaluations (NAPEs) have been conducted in conjunction with ORIs. So, if you're an interceptor unit, you've either been NAPED or will be. Air National Guard units are excluded, for now.

We have had the usual acceptance pains associated with something new thrown into the program. Several units were rated unsatisfactory and numerous discrepancies were noted in their programs. For those units, being NAPED turned out to be very painful. Funny how the word gets around. Upon reinspection, units found the secret in developing a satisfactory program. Now that NAPE is here to stay, the wise units have discovered that it can be handled with only a few errors and that an outstanding rating is not inconceivable. It takes planning, practice, and most of all, a good attitude from the commander on down. Did you ever see any successful program that didn't require these ingredients?

ADCM 355-6 establishes the objectives and procedures for Nuclear Attack Preparedness Evaluations. What we're looking for during an ORI is "your unit's ability to perform your assigned mission under nuclear attack conditions." NAPE is usually conducted during the air battle phase of an ORI. The interceptor reliability phase may be used if your unit's ORI does not include an air battle phase. Regardless of which phase is used you can expect to be operating under simulated nuclear attack conditions before the first interceptors are airborne. You can expect to be operating under NAPE for approximately six hours. The time element depends on the size and location of the unit being evaluated.

Our evaluators use ADC Form 411, Nuclear Attack Preparedness Evaluation Summary and Checklist, as a guide. There are numerous goodies on this form. For your unit's NAPE capability to be considered satisfactory, there are a number of essential conditions that must be met. You must be able to recover from initial effects and to operate under fallout. Listed in the Form 411 are six individual capabilities that must be met to successfully pass the evaluation. These individual capabilities are termed "mandatory items." Failure of any one of the six "mandatory items" will insure a rating of "unsatisfactory."

We have NAPED enough units now to identify primary causes for failures. These have been:

- Exposure control organization and calculations were not adequate or accurate.
- Dispersal of combat essential equipment was not accomplished.
- Radiac monitors did not have knowledge of assigned instruments.
- Command post display of personnel status was not accurate.
- Aircrews did not use best protection available.
- Dose rates not disseminated to all points requiring this information.
- Damage assessment teams were not dispatched.
- Disaster control center not adequately manned.
- Exercises had not been conducted.

"THE SARG AND I THOUGHT WE'D ADD A LITTLE REALISM TO THE FALLOUT PORTION OF THE EXERCISE SIR, IT WAS HIS IDEA!"

The question of nonplayers needs to be addressed. Ideally, all personnel in combat and combat support areas should be considered players. However, since the war is simulated, a number of activities take place that would not take place in the real thing. The team chief will coordinate a nonplayer list with your unit before the exercise starts. Examples of nonplayers are: "Last Chance" and cursory inspections — check, repair, loading of evaluators — debriefing — mobile control, etc. The fast rule is nonplayers cannot be used for duties except those that caused their excusal from player status.

We have not observed a unit that enjoyed being NAPED. This includes the re-NAPE when they fail. We have noted several units that recognized a successful program as a necessity. One unit commander had evidently found an effective avenue to success. One of his troops was heard to say, "I sure hope we pass this ——— NAPE or we'll be out here this weekend practicing again." Needless to say, that unit passed and they knew why — Planning, Emphasis, and Training, Training, Training.

The only way to really enjoy being NAPED is to be sure you have a good program. So let's all recognize that, to a large degree, it is an attitude — a desire to do a job right. "Heck, yes, we can hack it!" is the attitude required to pass NAPE. "It can't be done" or "It's too painful" is for those who either haven't tried it or are not willing to put out the effort. So remember, when NAPE is inevitable, relax and enjoy it!"

THOMAS WILLE, Colonel, USAF
Team Captain, ADC ORI Team

BAILOUT

by **Mr. Roger G. Crewse**
Hq ADC (ADCSA-N)

In recent months, fatalities associated with our aircraft accidents have increased significantly. The primary reason for this is the lack of success in our ejections.

Several years ago, we completed a study on ejection experience. It covered a five year period ending in 1965. During that time, we found that 171 ejection attempts were made. Forty-seven, or 27% of these, resulted in fatalities. From the beginning of 1966 to the present time, fifty-five aircrew members have ejected from our aircraft. A total of six, or 11%, were fatally injured. In 1967, for instance, thirteen ADC and two ANG ejection attempts were made. Only one out of the fifteen was unsuccessful. Overall improvements have undoubtedly been made. However, our concern at the moment is with this year's experience. Thus far in 1968, eleven ADC and six ANG ejections have been attempted; five, or 30%, have been unsuccessful. Our rate should be better than it is.

During the last few years, great improvements have been made in ejection equipment. With the exception of the B-57, all of our ejection-equipped aircraft have zero altitude capability in straight and level attitudes. The T-33, F-100, F-101, and F-104 require a minimum of 120 knots for a successful zero altitude ejection. The F-102 seat has a zero altitude with 90 knot capability. The F-106 with its force deployed canopy has a zero/zero capability. The B-57 seat is not as efficient as the rest in that it requires an altitude of 150 feet, straight and level, with 120 knots minimum airspeed.

It all adds up to this: Successful ejections can be made throughout the entire flight regime of our fighter aircraft, regardless of the type of emergency or where it develops, provided that airspeed and altitude can be controlled and the zero lanyard, where applicable, is hooked up.

Some examples of the problems this year are as follows:

• A T-33 pilot experienced engine vibration shortly after becoming airborne. He correctly diagnosed his problem as a turbine blade failure. He jettisoned his drop tanks and indicated over the radio he would return to the base and land. At approximately 300 feet in the air, still slightly on the rise, he reported that he would have to eject. The canopy came off, at which time the aircraft pitched over to an almost vertical dive. The pilot did not eject and was fatally injured in the crash. The investigators found that the pilot had raised the arm rest to a midpoint which was far enough to eject the canopy. He had not squeezed the trigger. Two possibilities immediately come to mind as to why he interrupted his ejection sequence. The first is that his primary aircraft (F-106) was equipped with a single motion ejection seat. Perhaps a strong habit pattern developed over the years in his training caused him to forget the requirement to squeeze the trigger. This does not explain, however, the fact that the arm rest had not been raised to the full up position. A more likely reason for the interrupted sequence is that as he initiated the ejection, he let loose of the stick. The aircraft attitude then changed abruptly, nose down. This occurred because all stick forces were not trimmed out. The trim actuator was found in an almost neutral position. When he pitched over, the pilot then knew even if he ejected, it would not be successful. He therefore interrupted his ejection sequence, grabbed the stick, and attempted to level the aircraft once again. This was not possible due to low airspeed, very near stall, and the aircraft struck the ground before any positive response could occur.

• The next example concerns an F-104 pilot who had entered an initial and made a normal VFR pattern to the downwind. As he turned from downwind to base, he experienced a split-flap condition. Because of the peculiarities of this flap system, he lost control of his aircraft in the roll axis. A pitchup probably resulted shortly afterwards because of his efforts to maintain control. The pilot ejected with a high sink rate, with an aircraft attitude far from wings level, and with very little forward speed. The aircraft struck the ground with almost no forward velocity and in a flat spin. The pilot was found separated from the seat with the pilot chute out and the main chute streamed. He almost made it.

• Our third fatal accident involving ejection concerned an F-106B with two pilots undergoing Air Combat Tactics. The aircraft was observed throughout its maneuvers by a wingman. At the point of engagement with two F-104s, the 106B broke right and down from 22,000 feet. He was observed to roll under to wings level after approximately 120 degrees of turn. The nose was still down about 70 degrees. He rolled back to the left and turned another 45 degrees at which time he reversed his turn once again to the right, still nose low 70 degrees. His wingman, who was in trail, noticed the ground coming up rapidly and initiated a recovery. At the same time he called for his leader to pull up. Almost instantaneously with the transmission, the wingman observed the two seats eject from the aircraft. The speed at the time of ejection was estimated over mach one; the attitude, wings level, nose down 70 degrees; at an altitude of between 6,000 and 10,000 feet. The investigation revealed that the front seat pilot had initiated the ejection. The rear seat pilot was found out of his seat with the drogue-gun fired. The front seat pilot was still in his seat. Among the many factors that may be involved in this accident, two strong possibilities exist. The first is that both pilots in the heat of battle lost track of their position until the wingman transmitted a warning. The second is that for some reason the pilots were unable to control the aircraft in pitch and were in fact doing their best to pull out and just waited too long.

• One final example — this accident did not result in fatality, but was extremely close and at least one aircrewmember may not fly again because of his injuries. This accident concerned an F-101. The pilot experienced an emergency at high altitude which involved a utility hydraulic system failure. When the hydraulic system completely

failed, the pilot had extreme control difficulties in the roll axis even though the primary hydraulic system was still operating. While at altitude, the aircrew decided not to hook up their zero delay lanyards because of the possibility of a high altitude ejection. The pilot fought the flight control difficulties all the way down to final approach. With the gear down at approximately 200 knots, 300 feet altitude, he found he could no longer maintain aileron control of the aircraft. Both crewmembers ejected in about a 40 degree bank. Neither had their low altitude lanyard hooked. The RIO's chute did not fully deploy, but he landed in some trees which probably saved his life by breaking his fall. He sustained major injuries. The pilot was more successful, but sustained back injuries.

Four of the major problems which have caused our ejections to be unsuccessful are included in these examples.

In the T-33 accident, two factors were critical. Both involve airspeed. First, when the engine performance deteriorated after takeoff and the pilot allowed his speed to fall below 120 knots, he made a decision whether he knew it or not. The reason for this is that tests identified the 120 knot minimum as that speed which will guarantee chute opening within the time period provided by the trajectory of the ejection seat alone. If the basic airspeed of 120 knots is not available, then it takes longer for the chute to open. The force of the airstream over the pilot chute is reduced and more time is required to fully deploy the main chute from the bag. This holds true in all ejection equipped aircraft which have a minimum airspeed tied to minimum altitude. The F-106 is the exception because of the force deployed canopy.

Suppose you don't have 120 knots? Perhaps you are as low as 100 knots, as the T-33 pilot could have been. How much more altitude do you need in proportion to a certain reduction in airspeed? According to the experts, a chute/dummy combination was dropped from a helicopter at zero forward airspeed. From the time the ripcord was pulled to full chute deployment, 400 feet was required. While the altitude required for full chute deployment at zero forward speed and zero sink rate seems to be 400 feet, the time increase (therefore altitude increase) for chute opening, in relation to reducing speed by increments below 120 knots, is not specifically predictable. It is sufficient to know, however, that an increase does occur. If you allow the airspeed to bleed-off to 100 knots, T-33 ejection ground rules no longer hold true and no one can say what minimum altitude is required.

Secondly, the problem with attitude change at very low airspeed is a real one. Depending on fuel load, all stick forces cannot be trimmed out at speeds of 120 to 130 knots. At speeds below this, even with full trim, it is obvious that stick forces will remain. Therefore, if ejection is necessary, when airspeeds are low and altitude marginal, the aircraft must be flown with the left hand while ejecting with the right hand. Otherwise, an abrupt pitch change will occur and zero sink rate will be lost. If for some reason the zero sink rate is not possible or airspeed is below 120 knots, or a combination of these two factors exists, then the aircraft should be landed straight ahead in the overrun or approach zone. Successful ejection is highly unlikely under these circumstances, barring a miracle of some sort.

The unsuccessful F-104 ejection is slightly more disturbing in th as soon as control loss began, the pilot had to diagnose the cause immediately. To be successful, ejection would have had to take place by the 45 degree roll point. After the pitchup, the pilot was beyond the capabilities of his ejection equipment. He didn't have 120 knots; he had a high sink rate; the attitude at ejection could have been inverted as far as we know; and his altitude was well below 1,000 feet. When this accident occurred, the Dash One indicated, or inferred if you like, that aircraft configuration for landing should be made prior to turning base leg. This is good advice for all of our aircraft. Specifically, gear, flaps, and speed brakes should be activated as early in the pattern as practicable. Bleed-off to approach airspeed should be delayed until the final approach has been well established. Even on final, gradual reduction prescribed approach speeds will provide additional margin for neutralizing rate of descent in the event an emergency is encountered. Successful ejection is then possible. Primarily involved in the 104 accident is that control loss was experienced at a lower altitude than it might have been; that despite the altitude disadvantage, if initial pilot action did not cure the problem, immediate ejection still would have been within the capabilities of the equipment.

The F-106B accident in which the two fatalities occurred on ejection is difficult to discuss because all of the facts aren't in. At the time of this writing, the board had not completed its investigation. If the two pilots did lose track of the altitude while maneuvering for an attack, then the fatalities were inevitable. At the time they determined they were in trouble, it wa already too late by some 2,000

000 feet for their ejection equipment to save them. If they were having control problems, while we can appreciate their courage, it must be observed that an aircraft out of control at 15,000 feet is not going to get any better at 10,000 feet. Below 10,000 feet even if the controls had suddenly returned, recovery was improbable. A quick look at the dive diagram will support this fact. In addition, altimeter lag will occur and may exceed 2,000 feet, depending on the rate of descent.

It is particularly disturbing to note that in the F-106, six ejections have been attempted since January 1967 and only three of these have been successful. The three fatalities occurred in situations where the aircraft was descending rapidly to a point below the capabilities of the equipment. A fellow once observed many years ago that the two most worthless things to a pilot are the altitude above him and the runway behind him.

The last example we covered concerned the F-101 crew who successfully ejected at an extremely low altitude in a 45 degree bank. As mentioned previously, the RIO landed in trees with a parachute which was not fully deployed. It needed about one more second, and that is what the zero lanyard would have given.

Considerable smoke has been generated concerning the wisdom of using the zero delay lanyard in aircraft where its use is prescribed. A comprehensive study of many ejections revealed that seat/man/chute involvement is more likely to occur with the lanyard hooked than unhooked. For a while in the T-33, the lanyard wasn't used at all. This also may have been true of other aircraft types. While intentions were undoubtedly the best, we are sure that it fogged aircrew thinking concerning the use of the lanyard. This, in turn, allowed two dangerous situations to develop. The first is that habit patterns of long standing were interrupted. The second is that fear of injury was put in the minds of our aircrews by the suggestion of increased possibility of man/seat involvement. As a result, there may be some truth to the statement that AF crewmembers are not too worried about being killed, but they sure don't want to be hurt.

With the exception of the F-106, the pilot handbooks of ejection-equipped aircraft indicate that if you have time and you are above 10,000 feet, you should disconnect the lanyard. This infers once again that the possibility of injury is increased with the use of the lanyard. But the basic fact which should be remembered is that the zero altitude capability of the seat is predicated on the zero lanyard being hooked (F-102 excepted).

During our research, we noticed that the F-101 ejection experience differs considerably from the other fighter aircraft. Since 1966 twenty ejection attempts have been made in the F-101. All have been successful. We took a hard look to see if we could tell what was different between F-101 accidents and those involving other aircraft. The first thing immediately apparent was that there were no delayed decisions. Some of the ejections were extremely low, but these occurred because the emergencies developed at low altitude and the aircrews responded instantly. From January 1966 to the present time there has not been an F-101 emergency which occurred at altitude and was parlayed into a low altitude ejection because of a delayed decision.

We further looked at all fatal accidents involving the F-101 during the same period. From 1966 to the present time there have been only three fatalities associated with sixteen major accidents. One of these occurred in a midair collision where one aircrewmember was fatally injured at the time of impact. The other two occurred when the aircraft flew into the ocean on final approach. Only one F-101 accident has occurred since 1966 where the aircrew was unaware that a crash was imminent. That fact alone is essentially the difference between 101 accidents and all of the others.

Five fatalities have resulted from F-102 accidents since 1966. In two of them the pilot did not know he was in trouble and flew either into the ground or the water. During the same period six fatalities have resulted from F-106 accidents. Three of the pilots involved did not know that a crash was impending and either flew into the ground or the water. Of eleven fatal accidents involving the Deuce and the Six since 1966, six of them or 55% occurred with the pilots unaware that they were in trouble.

We can't help but believe that the RIO in the back seat of the F-101 is paying pretty close attention to what's going on. We also think he helps crystallize the ejection decision earlier so that the extreme limits of equipment capability are not tested. The performance characteristics of the F-101 may also precipitate early ejection decisions since those which were out of control at 15,000 feet have been promptly and smartly abandoned because the aircrews knew full well that even if control was regained they could not make a pull out.

In summary, none of our fighter aircraft should kill you if you know you are in trouble. You have control of the ejection decision. You

have control of the zero delay lanyard, and you know the capability of your equipment. In all but the T-33, the minimum airspeed prescribed for ejection is academic because only the T-bird can be flown level below 120 knots. When the airspeed is bleeding to 120 knots at low altitude, you have arrived at your ejection point. If a zero sink rate cannot be maintained or you are below 120 knots, then landing straight ahead is probably preferable to ejection, depending, of course, on the terrain.

At low altitude, sudden control loss in any axis must be dealt with at the onset by an immediate decision to eject if your initial control attempt is not successful. Distractions or inattention at low altitude is a problem in a single-seated fighter. Just how we go about preventing those accidents which occur because aircraft are flown inadvertently into the ground or water is difficult in that we don't know precisely what these people were doing when they crashed. These types of accidents have occurred during day, night, good weather and bad, but in all instances they were in the clear at the time of impact. All were in the takeoff or landing phase of flight except one which occurred during a low altitude intercept. About the only quick and dirty advice we can give in this area is don't allow yourself to become distracted from the basic problem of flying your aircraft at low altitude, regardless of the requirements levied on you by control facilities or malfunctioning equipment.

The final clincher: Several years ago an F-104 pilot had a series of problems develop which are hard to believe. While at 25,000 or 30,000 feet, the fire warning light came on. At that time the Dash One called for throttle to idle and if the light stayed on, stop-cock. It did, and he did. Without the engine running, fire or no fire, he was in trouble. He finally attempted an air start, regardless of whether the burner ring-ended up around his neck or not. Because of a problem which had nothing to do with fire, he couldn't get the engine started. At about 16,000 feet, he ejected. In those days the ejection seat in the F-104 went downward. It had webbing on each side to keep the pilot's arms from thrashing around. After ejecting, the pilot heard the timer rundown and click, but the parachute didn't open. He discovered he was still in the seat. He tried to push it away, but couldn't because he was hung up on the webbing. He fought the webbing for some time and finally pulled the ripcord. Nothing happened. He reached back with both hands and fished the silk out of the bag into the airstream. The chute opened, and when it did, his helmet came down over his eyes. When he got to where he could see again, he looked up at the canopy and saw to his horror that the seat was tangled in the shroud lines approximately four feet above his head. He had little time to worry about that problem because in about three seconds he hit the ground. His landing was successful. He had no injuries aside from a slight concussion caused by the seat striking him on the head.

a salute

. . . in recognition of outstanding achievement in accident free operation.

Over 6 Years

132 Ftr Gp, Des Moines

Over 5 Years

62 FIS, K. I. Sawyer
112 Ftr Gp, Greater Pitt
162 Ftr Gp, Tucson

Over 4 Years

48 FIS, Langley
4600 AB Wg, Peterson Fld
114 Ftr Gp, Sioux Falls
414 Ftr Gp, Oxnard
148 Ftr Gp, Duluth
141 Ftr Gp, Spokane

Over 3 Years

408 Ftr Gp, Kingsley
4677 DSES, Hill

Over 2 Years

5 FIS, Minot
4603 AB Gp, Stewart
101 Ftr Gp, Bangor
103 Ftr Gp, Bradley
147 Ftr Gp, Ellington
159 Ftr Gp, New Orleans

Over 1 Year

1 Ftr Wg, Selfridge
49 FIS Griffiss
52 Ftr Gp, Suffolk
75 FIS, Wurtsmith
343 Ftr Gp, Duluth
551 AEW&C, Otis
4713 DSES, Stewart
4758 DSES, Holloman
124 Ftr Gp, Boise
125 Ftr Gp, Jacksonville
142 Ftr Gp, Portland
169 Ftr Gp, McEntire

as of 31 October 1968

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we point with

F/L PETER E. GRIFFITHS (RCAF)
37 AIR DIV, GOOSE

LT COL ALEXANDER MACDONALD
178 FIS (ANG), HECTOR FIELD

MAJOR ARTHUR H. ASPINALL
444 FIS, CHARLESTON AFB

MAJOR WILLIAM W. DUTCHER
444 FIS, CHARLESTON AFB

MAJOR RICHARD W. CARTER
408 FTR GP, KINGSLEY FIELD

MAJOR ROBERT J. STAFFORD
408 FTR GP, KINGSLEY FIELD

CAPT RALPH L. DAVIS, JR.
328 FTR WG, RICHARDS-GEBAUR AFB

CAPT LEE V. GREER
328 FTR WG, RICHARDS-GEBAUR AFB

PRIDE 1968

CAPT CHARLES E. ANDERSON
4758 OSES, HOLLOMAN AFB

MAJOR HOMER T. BAY
444 FIS, CHARLESTON AFB

MAJOR JOE L. MEYER
444 FIS, CHARLESTON AFB

MAJOR JACK F. WALKER
5 FIS, MINOT AFB

CAPT LAWRENCE D. HAIGHT
318 FIS, MCCHORD AFB

MAJOR HAROLD E. PEMBERTON
95 FIS, DOVER

CAPT STEPHEN B. CROKER
4782 CCTS, PERRIN AFB

CAPT NORMAN V. BAIER
DET 1, 4650 CMBT SPT SQ, STEWART AFB

POOPED PILOT

The B-57 is holding over Andrews after a four-hour flight from a Texas base. The weather lifts to just above minimums and the pilot is cleared for GCA. Penetration and approach are normal until one-half mile from touchdown when the aircraft descends below glide path. The controller orders a go-around. Something goes wrong . . . it was a cause undetermined accident . . . somewhere during the go-around a wing struck a tree with loss of the aircraft and crew.

What happened? Why did this aircraft and its experienced pilot crash? And what could be done to prevent such an occurrence in the future? This pilot was a 40-year-old standboard check pilot with beaucoup hours and was as current as anyone could be. But, he had a demanding desk job and on that last day of his life he had put in eight hours at the desk. Then after arriving at the Base Ops, he waited four hours for the Washington DC area weather to improve before starting his night instrument flight.

Somewhere at a crucial moment during his go-around, he erred. Accidents are often determined to be due to structural fatigue of an aircraft hard part; was this accident also due to fatigue? Fatigue, mental or physical, of the aircraft commander?

Fatigue in man, what is it, how do we measure it, and how is it related to aerospace safety? Let's divide fatigue into two major components. Physical fatigue is sor

ing we can understand and actually measure with some degree of accuracy. After so many push-ups, the muscles undergo certain biochemical changes and the end point of their activity is at least somewhat predictable. Mental fatigue is much more nebulous and is difficult to predict and measure. We have all experienced it, but we often underestimate it. The psychologists who try to measure such things talk about "performance decrement." They also talk about "end spurt" which, applied to aviation, would mean that the experienced and disciplined pilot at the end of a long flight can somehow erase the effects of fatigue for a short period to perform his crucial approach and landing duties in a precise manner. But can he? Can you and I? Is the lack of this end spurt activity what caused the B-57 accident?

Let's run over the factors involved in mental fatigue. Lots of things affect it. It even relates with physical condition and the airman in top physical shape will usually have better mental stamina. Of course a good night's sleep the night before a flight is a prime factor. Lack of emotional problems at home or on the job help, but this is sometimes easier said than done. Real professionalism in the cockpit, knowing our bird inside and out and blindfolded goes a long way in diminishing cockpit fatigue. Flying with a hangover is dynamite because this puts a pilot in the cockpit with marked performance decrement even before the chocks are pulled.

What about the use of "go pills" when fatigue becomes critical? Air Force policy has varied on this, and there is variation between the major air commands. *ADC says no!* There is no question that these drugs (dexidrene, amphetamines, etc.) are effective central nervous system stimulants and will increase wakefulness and decrease fatigue for a period of time. But these drugs are tricky and the feeling of euphoria and well-being that they produce may contribute to a serious lack of judgment that overshadows their value as stimulants. Let this pilot-physician tell you a little personal confession to illustrate this point:

"Several years ago I was primarily flying a desk long hours each day and struggling to keep up my flying time on weekends. A friend from the big hangar and I took a trusty U3A for a weekend and put a solid 12 hours in the cockpit on Saturday. Sunday we were up bright and early making holes through the clouds. Twenty hundred that night found us refueling at Sewart AFB, tired, but only three hours from home. We decided we should be back at work in the morning. Bolling was only three hours away, we needed some night time, and a little fudging on AFR 60-7 would probably go unnoticed. Besides, I had a five milligram dexidrene tablet in my pocket that I popped into my mouth before I climbed into the left seat. While climbing out I felt my fatigue melting away, replaced by a cheery feeling of well-being as the effect of the medication took over. Even the night and broken cloud layer didn't seem as dark.

"Time went by quickly and after holding at only two altitudes at Springfield we were cleared for a Washington National type approach to Bolling. Bolling tower answered our call with "Roger, Air Force 692, cleared to land Runway 34. Wind from 60 degrees with marked shifting, and gusts up to 14 knots, patchy ice on runway. Andrews is clear and transportation is standing by." What the tower was trying to tell me was that the field was open, but anyone with any sense would proceed to Andrews. You who flew at Bolling in the good old days will know why. Runway 34 was the short one with the over-the-hill approach that at night always was a bear. However, in my artificially stimulated and euphoric state, this was strictly no sweat. After all, I was an old pilot and the U3 was almost a toy aircraft.

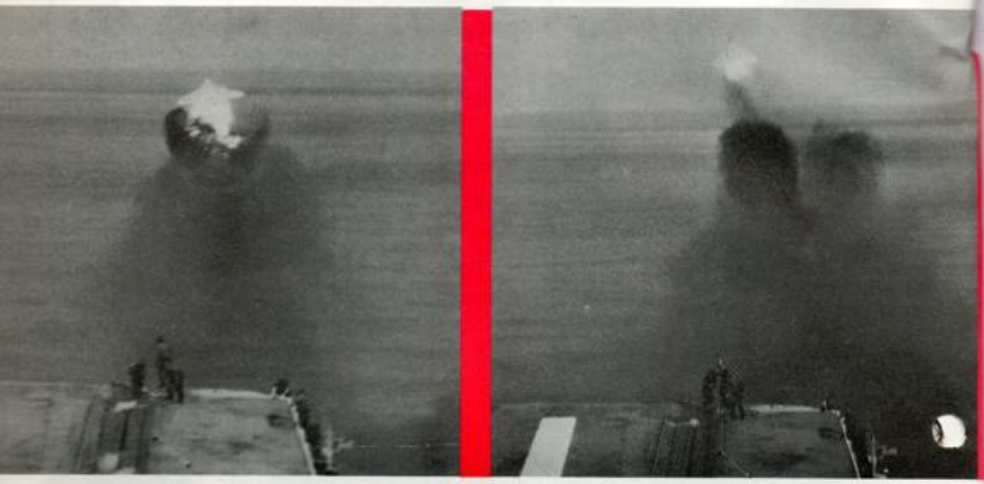
"All went well until just at the instant prior to touchdown, a severe gust hit us at a 45 degree angle and we hit in a crab, nose wheel first. The only thing that saved us from wiping out the little bird was the patch of ice we lit on. It gave us a rather wild sleigh ride, but we ended up with gear intact. Sure, we made it OK, but without that damn pill we would have made a nice comfortable landing at Andrews or, better yet, we would have sacked out at Sewart and made the return flight in the morning. Now, I'm a believer, no 'go pills' for the pooped pilot."

To put it in perspective, you don't want to fly a bird with known "structural fatigue" of a drive shaft or flap actuator. Pay just as much attention to human fatigue in that vital control mechanism, the pilot.

ABOUT THE AUTHOR

Dr. Lovell is both a rated pilot and a flight surgeon. He entered military service with the National Guard in 1940. He attended flying school and was a combat B-25 pilot with the Seventh Air Force in the Pacific in WWII. Returning to civilian life in 1960, he is currently a pathologist in Seattle, Washington. His article "The Heart of the Matter," published in the November 1967 issue of INTERCEPTOR, has been widely acclaimed.

LANYARD



The bull horn in Ready Room One aboard the USS Intrepid squawked, "Pilots, man your planes!" Four of us stood up, checked our Mae Wests, took one last glance at the spotting board for aircraft location, and hurried out onto the flight deck. My aircraft was spotted just aft of the #2 elevator on the port side.

This was our first flight since leaving New York Harbor and six days of shore leave—I was anxious to go. About fifty carrier landings were already in the log book and I wanted as many as possible before deploying to the Mediterranean which was scheduled the succeeding month.

Now back to the business at hand—external preflight was completed—no problems. As I entered the cockpit and I began strapping in, I noticed that during our stay in New York the Zero Delay lanyard modification had been completed; however, there was no lanyard in my aircraft to clip to the modification bracket. Having been without this particular safety device my first six months of flying with the Navy, I asked the crewchief where the lanyards were. His reply was "Hangar deck three" which is downstairs and at the stern of a carrier.

Right here I paused and considered how much trouble it would be for him to get me a lanyard versus incurring the wrath of a certain Air Boss for being late for catapult launch. The F4Ds were always first off the cat which meant precise timing and no deck foulups by pilots or deck crews.

I turned to the crewchief and demanded that he go get me a lanyard. This decision beyond a doubt saved my life.

I completed my cockpit check, snapped the lanyard in place, cranked up, and contacted my wingman on launch frequency. Wings were spread and locked. I taxied up and over the catapult shuttle ramp and felt the catapult bridle cinch me tightly to the starboard cat. In this unique position for an Air Force pilot, I again remember checking by "feel" the lanyard. With a quick glance at the engine instruments, head back, and a salute to the cat officer, I was on my way.

At the end of the catapult stroke airspeed was a good 160-165, rot

LOGIC

by Major N. E. Price
Hq ADC (ADCIG)

tion was normal—gear coming up —BLAM!!!! A quick glance at the instruments indicated that I was on fire, a continuing sweep of rearview mirrors indicated nothing but smoke and flames. By this time I was already fighting that panicky feeling that is automatically associated with a severe emergency of this nature. Here I was, strapped to a brightly burning piece of airplane full of fuel, about 75 feet in the air at 15-20 knots above stall, and losing power.

My only chance was space — space between me and the Atlantic Ocean. Water at 150 knots is somewhat other than soft. I had no intention of trying to ditch that piece of flaming debris. So I eased back on the control stick, got that nose up — up some more — up still more — at the first prestall shudder I yanked that face curtain for all its worth. I was out and tumbling in the air and smoke. Knowing the ejection altitude couldn't have been much above 200 feet, I had some agonizing seconds waiting for the parachute to open. Then everything seemed to happen at once — I felt a firm tug from the chute and found myself under water. I pawed for those CO^2 lanyards and shortly was afloat. I pulled my mask away from my face enough to get some air and found it was difficult to breathe. I was coughing up blood and my body was numb from the waist down after impacting the water at about 100 knots. Dazed and realizing I was going into shock, I relaxed as much as possible.

Just about then the carrier's chopper rescue crew came to my aid and together we disentangled parachute and communications lines from around my body. After the previous 30 seconds of events, things were going my way at last, or so I thought. After getting on the hoist I was feeling a bit better. However, as I approached the door of the rescue chopper, the rotor blast and associated aircraft movement caused me to swing and spin. My first contact with the aircraft was with my helmet against the door. *Had I not retained my helmet* no doubt I would have had a large scalp wound added to my other injuries. This I didn't need.

To complete this dialogue, I did recover and return to flight status after a lengthy hospitalization.

Some one hundred carrier landings later I returned to the USAF.

Now, what does all this mean? I was lucky — yes! I'll be the first to agree with you. Did I do everything absolutely correctly? I seriously doubt it. I don't remember trying to pull my ripcord! ! However, I do remember thinking of the lanyard as I pulled the face curtain — hoping it would work.

Ejection from a controlled or an emergency situation is a bit abnormal, as a matter of fact it's a somewhat violent experience. I'm not trying to add any additional fear to anyone's concept of what an ejection would be like. In fact, I hope that by passing on a down-to-earth pilot's impressions, a better understanding of what to expect and most of all, what you the aircrew should do prior to ejection to increase *your* individual chance of survival.

After thirteen years plus as a single engine fighter pilot I have developed a few ideas concerning emergencies and specifically *pre-ejection attitudes*. I'm not talking about the attitude gyro or the attitude of the aircraft, but the aircrew's own personal attitude on ejections and how these relate to personal equipment.

Like most pilots that fly ejection-seat-equipped aircraft, I had flown for several years and experienced several real emergencies without having to use an ejection seat. First there was the F-86, then the F-102, and the F-104. At this point my aviation experience changed quite drastically with an assignment to the U.S. Navy as an Air Force exchange pilot. This meant a different personal equipment, different ejection procedures, and certainly a completely new concept of departures (catapult) and arrivals (arresting gear) at a not too stationary airfield.

This new environment coupled with my previous use of zero delay lanyards in the Air Force prompted my action in demanding that lanyard aboard the USS Intrepid.

Each of us no doubt commit small errors concerning our personal equipment; however, it is sheer stupidity to casually pass up a major survival item or ignore a life and death procedure. That's just plain unprofessional.

What do carrier operations and catapults and Navy airplanes have to do with Air Force or ADC or your personal equipment? Nothing, technically! But the series of events I experienced does — explosion, fire, power loss, no altitude can happen to anyone flying jet aircraft. We've all heard the old cliche "out of airspeed and ideas." It's the ideas portion that I would like to discuss.

First, let's talk personal equipment — not technically — but

general. Rocket seats, butt snappers, ground level ejection capability, drogue guns for faster chute deployment are all associated with today's safer jet aircraft. Most of these latest devices are available to you and me on any UE aircraft and even some on the old T-bird.

Not a single one of these tested and expensive mechanisms is worth a darn if you, the aircrew, let an emergency situation develop beyond your or the equipment's capability, or you simply don't bother to use what's available.

I personally feel that sometimes during initial pilot or R.O. training that each individual must decide for himself what his reactions will be to a serious emergency. This, I'm convinced, was the key to my successful ejection that July afternoon from a Navy F4D. The pilots in the Navy Squadron I was assigned to had discussed many times what to do under circumstances which would precipitate an emergency ejection. These discussions along with past experience, Dash-1 recommendations, plus equipment limitations, and even Murphy's Law, should be considered in determining when to bring ejection into proper focus. The guy on a clear day at 38,000 with a pilot-induced flameout who definitely has an emergency still has several minutes of time left to make a decision. Place this same individual in the GCA pattern at 2000 feet, and he had better have had some previous thoughts about his own reactions or he may buy a piece of real estate permanently trying to make up his mind. From 2000 feet down, statistics get rapidly worse against the possibility of survival. In almost all cases the aircraft is going to end up a crumpled piece of aluminum. Don't be a part of that smoke column — set your own ejection minimums prior to flight, not after the fact. In no case should they even be lower or in conflict with either Air Force recommendations or your individual emergency situation. ★

Major Price completed pilot training in November 1955. A tour at Moses Lake, Washington, in F-86s was followed by assignment to Tyndall as a weapons supervisor in the F-102 and F-104. Then an exchange tour with the Navy in F4Ds; two Mediterranean cruises later he was again assigned to Tyndall AFB. Major Price departed Tyndall in May 1966 for the 64th Fighter Interceptor Squadron at Paine Field, Washington. He flew a Deuce across the Pacific in June 1966. Shortly thereafter he took command of the F-102 unit in Udorn, Thailand. Returning to CONUS, Major Price has been assigned the ADC ORI Team since July 1967.

DOWN and out

T-33 ENGINE FAILURE

The mission was an administrative flight. Preflight inspection, engine start, and taxi were normal. No unusual engine noises or disturbances were noted by the ground crewman. Weather was good and the aircraft was cleared for takeoff without delay.

Approximately 46 seconds after brake release, the pilot advised the tower that he thought he had thrown a bucket and was returning to land. Upon tower's request, he repeated his transmission and declared an emergency, stating that he had a rough engine and that he had thrown a bucket. Altitude at this time is estimated to be 50 feet above ground level (AGL). The tower cleared him for a closed pattern and after a short pause, cleared him to land. The pilot continued flying straight ahead and 21 seconds after declaring the emergency, he jettisoned his tip tanks. The left tip tank impacted 3440 feet from the departure end of the runway and 240 feet left of extended runway centerline. The right tank impacted at 3560 feet and 180 feet left. Estimated altitude at time of tip tank jettison was 200 to 250 feet (AGL). At this time the aircraft was observed by witnesses to be in a slight climb altitude. Very little altitude was gained. Approximately twenty-six seconds after tank jettison the pilot stated that he was going to bail out.

Witnesses observed the aircraft's nose to lower momentarily to straight and level flight, the canopy to separate, and the aircraft to immediately nose over abruptly to an almost vertical dive to impact. The aircraft crashed 6750 feet from the departure end of the runway. The pilot did not eject.

Estimated altitude during canopy separation was 300 feet (AGL). The canopy was observed to fall with the aircraft. Witnesses stated that they heard the engine making a noise as if it were bogging down. Just prior to canopy separation, witnesses stated that engine noise stopped. They further stated that they observed no smoke or fire prior to impact. Although the pilot had stated that he was going to return to land, all subsequent actions indicated that, due to progressive loss of thrust, he decided to either attempt a straight ahead landing or gain enough altitude for a safe ejection. Dropping his tip tanks was the proper procedure for either action. Examination of the wreckage revealed that the landing gear and flaps were retracted. This fact, plus the fact that there were numerous trees along the flight path, would indicate that he did not intend to land straight ahead. The progressive loss of thrust caused by the failure of the bucket prevented gaining significant additional altitude prior to reaching a stalled or near stalled condition. Transcript of the control tower tape showed that 26 seconds elapsed between the transmission that the tips were going to be jettisoned and the bailout transmission. During this time the aircraft flew a distance of approximately 5,000 to 5,500 feet. Since the winds were light, the true airspeed would be the same as the ground speed. The average TAS was between 124 and 136 knots. The TDR revealed that the engine sustained massive damage and that it was at a very low rpm at impact. Since witnesses state that the flight path was level or slightly climbing during this 26-second period, the true airspeed prior to entering the dive would have been somewhat lower than the average airspeed. This evidence all points to the probability of a stall or impending stall just prior to the dive.

The board considered the desirability of an earlier ejection. Based on available evidence it decided that had the pilot known that he would suffer a complete loss of thrust, he would have probably initiated the ejection sequence immediately after jettisoning the tip tanks. However, not knowing that complete engine failure was imminent, he would be expected to attempt to gain maximum altitude for subsequent actions. As the situation rapidly deteriorated, he was forced to attempt an ejection at a critically low altitude and airspeed. The board attempted to determine the reason for failure of the pilot to eject from the aircraft. Investigation revealed that the egress system of the aircraft was operational and capable of ejecting the pilot from the aircraft. The canopy was fired from the aircraft. All available evidence indicates that most probably the pilot raised the armrest enough to blow the canopy, but did not squeeze the ejection trigger. The follow

reasons were considered as to why e pilot did not initiate this action:

• Difficulty locating the trigger due to possible disorientation caused by negative "G" forces as the aircraft went into a dive.

• Due to negative "G" forces and/or wind blast, as the aircraft went into a near vertical dive, the pilot lost his grip on the armrest handle as he opened his hand to grasp the trigger.

• The pilot was in the process of raising the right armrest as the aircraft stalled, and instinctively reached for the stick to pull the nose of the aircraft up to facilitate the ejection, and struck the ground before ejection sequence could be continued.

• The pilot pulled the alternate canopy jettison "T" handle, just prior to the aircraft nose — over, and did not have time to raise the armrest and squeeze the trigger prior to impact. The board cannot completely rule out this possibility, but consider it the least possible cause.

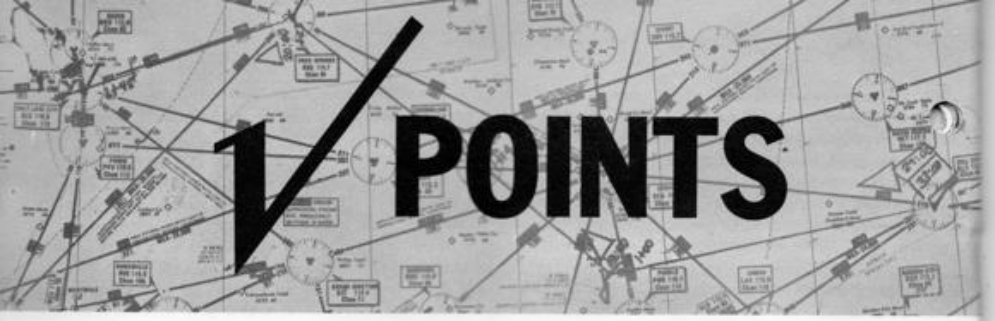
• The pilot was also current in the F-106 aircraft, which incorporates a single motion ejection system. (Raising either armrest accomplishes canopy and seat separation.) Due to momentary confusion, the pilot could have hesitated before squeezing the trigger, expecting the seat to fire.

• There was insufficient time to complete the ejection sequence once it was started.

In any event, based on available evidence, not more than 3 seconds elapsed between the time the canopy was fired and the aircraft struck the ground. This is based on witness testimony that the canopy separated immediately prior to the aircraft abruptly nosing over. Ejection at this point, using a one motion ejection system, would have probably increased the pilot's chances for survival. Estimated altitude at this point was 300 AGL, and estimated airspeed from this point to impact, 120 knots. Due to the fact that any one, or a combination of the above possibilities, could have prevented ejection, the board was unable to determine a most probable cause.

Investigation for the cause of the accident was primarily centered around the engine since the pilot had reported a rough engine and probable bucket failure immediately after takeoff. Removal of the tail pipe showed a failure of one turbine bucket approximately ⅛ to 1 inch above the bucket platform. The missing portion of the failed turbine bucket was found 5500 feet down the active runway and 16 feet left of the centerline.

The accident report has not been fully staffed at this time. The findings of the board are not yet official.



V POINTS

We would sincerely appreciate your inputs mailed directly to: The Editor, INTERCEPTOR, Box 46, Ent AFB, Colorado 80912.

V

The season is here for fun and good cheer,
Of parties and presents untold,
But we must not forget that the parties beget
Highway carnage as the evenings unfold.

It's often been said, as we muse o'er the dead
That driving and drinking don't mix,
But we don't often think as we take that last drink,
That we, too, might get into a fix.

So drink it up fast, it might be your last,
The party has come to an end,
And so has your life, and maybe your wife,
Just ahead, where the road makes a bend.

As I survey the scene where the car did careen,
And my friend met his early demise,
I think of my task, when his young children ask,
If his having that last drink was too wise.

I know that you feel that this story's not real,
And the moral isn't for you,
But I question that fact, for we've all done that act,
And gotten away with it, too.

The odds are too great, and in every state
The record gets worse every year,
So this season just think 'fore you take that last drink,
Of the effects of some more Season's "cheer."

(BGB)

V

"Podunk metro, this is Joy 07. What is your latest observation and 30 minute forecast for Mudville AFS?" This type of question is asked frequently of the weatherman, especially during the winter season when generally adverse weather conditions exist. This information, as requested, is readily available to the forecaster. Unfortunately, however, the "latest' observation for some DOBs and joint-use bases might **not** reflect the latest changes in the weather. At these bases, limited manning caus

by certain economy-forced reductions, allows for only hourly observations and a few "special" observations (taken between the hourlies) instead of a continuous weather watch as is desirable. A consolidated effort is necessary to help alleviate this problem. Division weather personnel will maintain close telephone contact with observing personnel at DOBs and joint-use bases in an attempt to obtain the latest weather changes. This information is passed to the division controllers who in turn relay it to FIS personnel. Therefore close coordination is required between the FIS CAC and the division controllers at all times and especially prior to training missions and recovery of any aircraft. By working together, this problem can be overcome and thus help make this winter flying season a safer one. (4WW)

One of our EC-121 units recently experienced five inadvertent inflations of LPU-3/P life preservers during flight. Investigation of the remaining serviceable life preservers in the unit disclosed nine cylinders had the seal partially penetrated by the inflating needle. Inadvertent inflation of these vests while worn by pilots, especially in jet fighters, during critical maneuvers, would constitute a critical safety hazard. A UR has been submitted; however, in the interim period, it would behoove Commanders of units who use these items to have them checked. (ADCSA)

MAINTENANCE TROOPS . . . A clean shop is not always an efficient shop, but an efficient shop is always a clean shop! (ADMME-DC)

Did you know that if you have not completed your annual physical examination within the three months prior to your birthday you are automatically suspended the next day after your birthday? Only a favorable recommendation from the USAF Military Personnel Center and an FEB can get you back on flying status (para 2-29m, AFM 35-13). (ADCSG)

Peripheral vision is insensitive to red light. That is one of the reasons that taxiway lights are a color other than red. (ADCSG)

BLUE ZOO

. . . SO THIS KAMIKAZE PILOT ASKS THE TOWER FOR LANDING INSTRUCTIONS ON RETURNING FROM HIS 240TH MISSION!

safety officers' FIELD REPORTS

F-101B, STIFF CONTROLS. After climbing through approximately 14,000 feet, the pilot noted the flight controls to be quite stiff in pitch and the ailerons felt as though they were binding. A precautionary landing was initiated and just prior to landing, control forces returned to normal. The flight controls were checked completely in accordance with applicable T.O.s and no discrepancies were noted other than excessive moisture throughout the system. Suspected cause factor was icing in the system. Heavy rain had occurred prior to this flight and during climbout. Aircraft was subsequently test flown without any flight difficulty.

F-101B, ARMAMENT DOOR. After approximately 30 minutes of a cross-country flight the pilot felt a slight yaw, similar to that induced by armament door rotation, followed immediately by engine vibrations and compressor stalls of the right engine. Just prior to retarding the throttle, the right engine began to operate normally again. The pilot requested his lead aircraft to make a visual inspection and it was discovered at this time that the armament door had rotated approximately 25-30 degrees. The door remained open and upon landing it was discovered that six pieces of luggage were missing and the right engine had considerable FOD damage. Cause is undetermined. Extensive investigation of the rotary door system has failed to reveal any malfunctioning components. It is suspected that a possible transient malfunction of the rotary door selector valve, such as a sticking spring in the limit section, could have caused this incident.

F-101B, FUMES IN COCKPIT. A precautionary landing was made at end of a normal intercept mission due to fumes and smoke in the cockpit. The RH engine oil pressure was above normal. Investigation revealed that the RH air oil cooler had a pin hole leak in the core. The cooler was replaced. The oil pressure indicator was adjusted. No further problems have been encountered.

F-106A, COCKPIT FIRE. Approximately 40 minutes after takeoff on a night flight in the weather, an electrical fire developed in the cockpit on the left console. An aircraft emergency was declared and immediate recovery initiated. Recovery was made without incident. Investigation revealed a broken electrical terminal for the console light below the RAT handle which was repaired and corrected the malfunction.

F-102A, HOT COCKPIT. Shortly after takeoff the pilot realized the cockpit was getting hotter, despite his attempts to regulate the temperature automatically. He switched to manual control without results. The cabin air circuit breaker was in. The pilot selected RAM, but did not notice improvement. He made an uneventful precautionary landing. A check of the cockpit after shutdown revealed the canopy defog switch on. Engine runup was performed with the switch off and no problem was found.

F-102A, COMPRESSOR STALL. During snap-up against target at 44,000' throttle was stopcocked at 39,000' to clear compressor stall. Aircraft attitude was slightly nose high and was rolling to the left. Minimum air speed was 170 KIAS. Outside air temp 50 degrees C. Normal airstart accomplished at 30,000'. Investigation could not reveal any discrepancy with the engine. Stall was probably pilot induced.

F-106, BINDING STICK. The pilot experienced a stick bind in the roll axis during takeoff. The controls were freed by pressure and the flight was conducted without further mishap. Cause: A small fiberglas glare shield support assembly was found under the right cockpit console. This piece of fibreglas lodged between the floorboard and the aileron control rod, and caused the momentary stick bind.

F-101B, BROKEN BURNER PRESSURE LINE. While cruising at 25,000 feet with engine rpm stabilized approximately 86%, the #1 engine rpm dropped to approximately 70% and 600 PPH fuel flow. Airstart ignition was activated with negative results noted. A recheck of EGT confirmed that the engine was still running. Number one throttle was reduced to idle position and the emergency fuel control selected. Engine response returned to normal. An uneventful precautionary landing was made at home base. Investigation revealed a broken PT-4 (burner pressure) line which caused the fuel control to sense a reduced need for fuel and reduced the flow to minimum.

THE WAY THE BALL Bounces

ACCIDENT RATE

1 JAN THRU 31 OCTOBER 1968

	ADC	ANG
Thru October 1968	4.3	4.6

MAJOR — ALL AIRCRAFT

ON TOP OF THE HEAP

MO	ADC	MO	ADC	MO	ANG
61	62 FIS	42	408 Ftr Gp	82	132 Ftr Gp
57	414 Ftr Gp	42	4677 DSES	69	162 Ftr Gp
54	48 FIS	29	4603 AB Wg	67	112 Ftr Gp
52	4600 AB Wg	24	5 FIS	57	141 Ftr Gp

ACCIDENT FREE

BOX SCORE

ACCIDENTS FOR Oct / CUM TOTAL	1st AF	4th AF	10th AF	ADWC	4600	ANG
CONV	1 / 2					
T-33	/ 1	/ 1				
F-100						
F-101	1 / 3	/ 1	1 / 1			
F TF-102	/ 2					/ 5
F-104	/ 1					
F-106	/ 1			1 / 2		
B-57						
F-89						
EC-121						

MINOR ACCIDENTS THIS PERIOD — 2
MINOR ACCIDENTS CUMULATIVE — 8

CUMULATIVE RATE

1 JAN THRU 31 OCTOBER 1968

	ADC	ANG
JET	5.3	4.9
CONVENTIONAL	2.0	0

BY AIRCRAFT		
T-33	2.2	0
F-89		0
F-100	0	
F-101	10.5	
F TF-102	7.1	6.5
F-104	21.6	
F-106	6.4	
B-57	0	
EC-121	0	

RATE = MAJOR ACCIDENTS PER 100,000 FLYING HOURS

we point with

Captain Norman V. Baier
Det 1, 4650 Cmbt Spt Sq
Stewart AFB, NY

PRIDE

C-119J, RUNAWAY PROPELLER

Captain Norman V. Baier, the aircraft commander, and his crew had just taken off from Suffolk County Air Force Base, New York, on a scheduled mission in a heavily loaded C-119J. Immediately after the ADI switches were turned off, a loud explosion was heard on the right side of the aircraft. The number two engine propeller had oversped to 3650 rpm. The C-119J Dash One states that in this extremely critical condition, an attempt to feather should not be made and that 3100 rpm should be maintained. Capt Baier responded instinctively to his training and the Dash One procedures by retarding the throttle on the right engine to hold 3100 rpm. At this time the aircraft had reached approximately 300 feet of altitude. Efforts to stabilize the rpm at 3100 resulted in further overspeeds and it was found that at best 2800 to 3200 rpm could be maintained, and a positive torque of 75 PSI.

Captain Baier did not want to risk resetting the ADI on the number one engine at this extremely critical altitude, so he maintained maximum dry power on number one and jockeyed the number two throttle to get the most out of it and stay below 3100 rpm. The aircraft would not accelerate or climb, therefore wide smooth turns were made around a 300-foot traffic pattern which resulted in a successful landing.

Investigation revealed that the torque piston assembly, number two blade fixed helical gear had sheared. Efforts to feather the propeller may have resulted in the remaining three blades going into feather, or the broken pieces could have jammed the complete assembly.

"We Point with Pride" to Captain Norman V. Baier for his flawless display of professionalism, during a critical phase of flight, which saved an expensive aircraft, its crew and cargo.

Captain Baier's capable crew consisted of 2Lt Robert E. Grisnik, Copilot, and Sgt Donald C. Lagowski, Flight Engineer.

AFTER BURNING

Address your letters to The Editor, INTERCEPTOR, Hq ADC (ADCSA-E) Ent AFB CO 80912
To be published, your letters must be signed,
but names will be withheld upon request.

PARACHUTING TRAINING

I am certain that each of us who has had the privilege of receiving instruction from Master Sergeant Glendon B. Dustin joins with the editor in saying "sorry about that". (Afterburning, October 1968.)

It does seem a shame that this outstanding NCO should feel limited in the degree to which he can give of himself and his exceptional qualifications. Based on my experience as a student under Sergeant Dustin at Tyndall LSTS in 1966, I should like to make the following observation: I am convinced that, in spite of Sgt Dustin's [illegible]d reservations, his students climb [illegible] ladder as well prepared as any in the Air Force to face the challenge of that fateful "first step".

I, for one, wish him good luck in his continued efforts to improve his ability to "throw a nickel on the grass".

Major James T. Doran
75 Ftr Intcp Sq
Wurtsmith AFB, MI

***Agreed!**

FOR UNIVERSAL SAFETY

Recently, while flying as a passenger on an Air Force C-118, I had the opportunity to read a copy of INTERCEPTOR and was very much impressed with its content.

Although our air support roles differ considerably, I found that the majority of articles in the magazine had a universal aviation appeal and would be beneficial reading for crew members of all services. I would like for my aviators to have the opportunity to read your excellent publication, for I believe that this magazine would tremendously contribute to our accident [illegible]vention program. To this purpose, [illegible]quest that this headquarters be included in distribution for 40 copies. To ensure widest dissemination, the Group Aviation Safety Officer will supervise distribution to the assigned subordinate units.

Col Kenneth D. Martel
Commanding
15th Combat Aviation Group
APO New York 09025

***Thank you for your kind words. Your copies are on the way.**

JUST LET US KNOW

We of the Physiological Training program in ATC frequently find many excellent articles in your publication INTERCEPTOR that are easily used in the Undergraduate Pilot Training program as additional reading and supplementary study areas. Your articles on parachuting and spatial disorientation are especially interesting to the student pilot and are directly applicable to courses presented here.

Our problem, however, is that we must use "midnight requisitioning" to get our copies. Would it be possible to add us to your mailing list for one copy a month?

Capt Robert W. Krutz, Jr.
USAF, BSC
Aerospace Physiologist
3640 USAF Hospital (SG-PT)
Laredo AFB, Texas

***Copies are always available for use in the safety education field.**

FOOD PROCUREMENT

Reference your November issue, article entitled "Food Procurement" should have been entitled "Out to Lunch," because whoever wrote it must have been. For example, the author stated "that anything which swims, flies, creeps, or crawls is a source of food." What was really stated here was that you shouldn't eat rocks and expect to subsist. Now I really needed to know that.

And the part about catching birds with a fishline — whatsamatter with catching fish with a fishline?

And the rabbit being the easiest animal to catch! How many little bouncing bunnies has the author caught in his survival snares and traps? My son and I went out last weekend equipped with 12 gauge shotguns, a dog, and a picnic lunch, and never touched a hair on a hare (pun). Maybe we should have tried a fishline, huh?

Another quote from your article, "All salt water fish can be eaten raw" has got to be in error. I know from an old salt water uncle of mine that many salt water fish are extremely poisonous!

I liked the part about the banana, too, oh, I liked that! I agree on the pemmican and this is the real reason I'm writing this letter — I hope you will pass on the following recipe for improving the taste of pemmican to your survival types (it's from my salt water uncle):

Ingredients:
One (or two) GI Pemmican Bars
Two Nails (preferably rusty)
One rock (to hammer nails)
One large hickory or oak plank

Drive nails through pemmican onto hardwood plank. Place plank with bars faced inward, next to large open bonfire. Allow cooking time of at least four hours, with occasional turning of plank.

To serve, throw away pemmican, nails, and eat the plank. Wait eight hours, and if you don't get sick, eat the nails. Cheers!

Name withheld on request

***'Nuff said.**

On the third day of Christmas
My reindeer quit on me . . .
Three colonels calling . . .
Two little errors . . .
And I'm hanging in a pear tree.
On the fourth day of Christmas
My reindeer quit on me . . .
Four frantic seconds . . .
Three colonels calling . . .
Two little errors . . .
And I'm hanging in a pear tree.
On the fifth day of Christmas
My reindeer quit on me . . .

Five Boards Convened . . .

Four frantic seconds . . .
Three colonels calling . . .
Two little errors . . .
And I'm hanging in a pear tree.
On the sixth day of Christmas
My reindeer quit on me . . .
Six violations . . .

Five Boards Convened . . .

Four frantic seconds . . .
Three colonels calling . . .
Two little errors . . .
And I'm hanging in a pear tree.

On the seventh day of Christmas
My reindeer quit on me . . .
Seven days of questions . . .
Six violations . . .

Five Boards Convened . . .

FORTISSIMO

Four frantic seconds . . .
Three colonels calling . . .
Two little errors . . .
And I'm hanging in a pear tree.
On the eighth day of Christmas
My reindeer quit on me . . .
Eight evasive answers . . .
Seven days of questions . . .
Six violations . . . WITH FEELING.

Five Boards Convened . . .

Four frantic seconds . . .
Three colonels calling . . .
Two little errors . . .
And I'm hanging in a pear tree.
On the ninth day of Christmas
My reindeer quit on me . . .
Nine nasty findings . . .
Eight evasive answers . . .
Seven days of questions . . .
Six violations . . .

Five Boards Convened . . .

Four frantic seconds . . .
Three colonels calling . . .
Two little errors . . .
And I'm hanging in a pear tree.
On the tenth day of Christmas
My reindeer quit on me . . .
Ten flights for testing . . .
Nine nasty findings . . .
Eight evasive answers . . .
Seven days of questions . . .
Six violations . . .

Five Boards Convened . . .

Four frantic seconds . . .
Three colonels calling . . .
Two little errors . . .
And I'm hanging in a pear tree.
On the eleventh day of Christmas
My reindeer quit on me . . .
Eleven lousy landings . . .
Ten flights for testing . . .
Nine nasty findings . . .
Eight evasive answers . . .
Seven days of questions . . .
Six violations . . .

Five Boards Convened . . .

Four frantic seconds . . .
Three colonels calling . . .
Two little errors . . .
And I'm hanging in a pear tree.
On the twelfth day of Christmas
My reindeer quit on me . . .
Twelve months of grounding . . .
Eleven lousy landings . . .
Ten flights for testing . . .
Nine nasty findings . . .
Eight evasive answers . . .
Seven days of questions . . .
Six violations . . .

Five Boards Convened . . .

Four frantic seconds . . .
Three colonels calling . . .
Two little errors . . .
And I've been hung from a very tall tree ! !

PLINK PLANK PLUNK