Interceptor

JULY 1968

ADC'S GLOBAL CAPABILITY . . . *see page 8*

FOR THE [illegible]PONSIBLE FOR AEROSPACE DEFENSE

Interceptor

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ADCRP 127-2

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Ent AFB, Colorado

spotlight

Liberty means responsibility. That is why most men dread it.
— Bernard Shaw

departments

special features

OUR COVER

ADC now has a global fighter capability. This subject is discussed in this issue by some of those capable individuals who helped to prove that capability.

memo

from the CHIEF OF SAFETY

Col H. C. Gibson

COMMON SENSE

As your new Chief of Safety for the Aerospace Defense Command, I'd like to say that I'm glad to be aboard. I've got a tough act to follow and I realize that.

Our accident rates for the Command are at their lowest in history and I'd like to congratulate our people for their fine efforts. We're not through yet, though. Our efforts will continue towards *prevention* of accidents and statistically we *can* improve. I'm no stranger to the Aerospace Defense Command and certainly not a "newcomer" to the flying game. I must admit that I'm somewhat new to the Safety racket, but I fully intend to be up to speed with all you Safety experts in a short while.

Safety to me is "common sense." All the other high-sounding principles and theories and slogans and directives and checklists, I believe, can be reduced to this lowest common denominator. The continued vigorous application of common sense — "using the old noggin'" — this, to me, is the mark of any man. It separates us from the lower animals. The professional has learned to use his head. In the Aerospace Safety business, we've got a lot of "good heads."

I'll be seeing you.

COL H. C. GIBSON

HOT LINE

STEERING PHENOMENON

One of our Safety types sent in the following: "An F-102A aborted a takeoff due to loss of nose wheel steering. After temperature and EPR check for takeoff, brakes were released and a slight turn to the right confirmed nose wheel steering and slight turn to the left corrected directional control; but rather than straightening out, the nose wheel appeared to be about 10 degrees left and the aircraft continued in a gentle arc to the left. A/B had not been selected and the throttle was retarded immediately. At 10 degrees F, enough thrust had been obtained in 60 feet of travel that the right tire had balded from attempted directional control and stopping. The span of time was seconds from brakes release to aircraft stopping 90 degrees to the runway heading in the width of 150 feet. Pilot had lost nose wheel steering capability even though he had given right rudder to correct the turning moment, and right braking (tire marks on runway) had no effect on nose wheel to caster for directional control. Nose wheel steering button had not been depressed and because of the apparent rapid trip to the boondocks, the pilot really didn't have much time to experiment. Investigation reveals that if a pilot uses a heavy foot and overcontrols the rudder pressure in the opposite direction quickly enough, he will disconnect the mechanical linkage from the detent position and nose wheel steering will be lost unless the rudder pedals are exactly aligned with the nose wheel deflection to recapture the detent position. If he over-shoots on the rudder pedal position because of panic, the nose wheel remains locked (as in this case, 10 degrees left) with hydraulic pressure and even full opposite brake will not swivel the nose wheel. Hard braking would only tend to scrub the nose tire sideways in an attempt for directional control. The only way to relieve this locked up nose wheel is to depress the nose wheel steering button. This will relieve the hydraulic pressure by electrical sequence and allow the nose wheel to caster for directional control with brakes, or to reposition rudders and nose wheel alignment while keeping the nose wheel steering button depressed. This could have caused a serious accident had a formation takeoff been planned, as the wing man was positioned on the left side, and the only thing that prevented the formation departure was the fact that the wingman had a clean aircraft. We rebriefed all of our pilots on this phenomenon that took us seven years to discover accidentally."

OXYGEN DEPLETION

One system of primary importance is aircraft oxygen for aircrew use. An F-101B experienced complete oxygen loss and radar operator had severe hypoxia symptoms. Radar operator's personal lead oxygen hose failed at one of the four clamped points about 20 minutes after takeoff. This allowed entire aircraft oxygen supply to vent into cockpit. Cabin altitude was approximately 15,000 and radar operator was without oxygen for 10 to 15 minutes. Pilot noticed oxygen quantity had dropped from 7.5 liters down to 2 liters. Aircraft was headed toward home and descent started down to cabin altitude of 10,000. Radar operator informed pilot that he was suffering from hypoxia symptoms. Descent was continued down to aircraft altitude of 8,000 before symptoms began to disappear. Emergency landing was made. Radar operator was uninjured. Incident report and an emergency UR were submitted.

HUMP PILOTS ASSOCIATION REUNION

The twenty-third Annual Reunion of the China-Burma-India Hump Pilots Association will be at Kings Inn, Crockett, Texas, August 23-25, 1968. Contact Herb Fisher, Aviation Department, The Port of New York Authority, 111 Eighth Avenue, New York, N. Y. 10011. Phone (212) 620-8396.

"Say again all after Mayday"

by Capt James A. Haaland, USAF MC
Office of the Command Surgeon, Hq ADC

Many wise men agree that the greatest problem facing the human race has been the ageless one of two or more people trying to communicate. Why should this problem be so insoluble? We have written and spoken languages with which to communicate, eyes with which to read, mouths with which to speak, ears with which to hear, and brains with which we integrate thoughts, sights, sounds, and speech. The ability to hear the spoken word accurately is indispensable to aircrewmen in their routine duties.

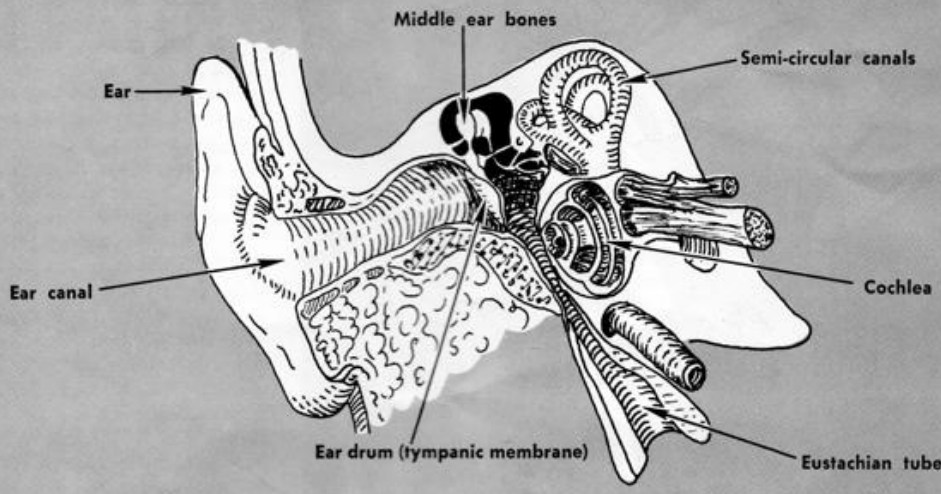
NOISE, one of those WWII gremlins that has become a supergremlin these days, can interfere with the aircrews' ability to communicate both now and later. Now, because they are unable to hear or be heard, and later, because they can develop noise-induced hearing loss. This, then, makes NOISE one of the occupational hazards for aircrews and the ground crews that support them.

NOISE is simply unwanted sound. Therefore, any sound which interferes with communication can and should be labeled NOISE.

There are two types of sound: subjective sound which originates from within the human body, e.g., ringing in the ears, and objective sound which is fluctuations in pressure of the ambient air that are heard by the human ear. In order to be heard, these fluctuations must be of sufficient intensity to stimulate the hearing receptors of the inner ear, which will be discussed below. Also, in order to be heard, these fluctuations must contain those frequency components which fall between sixteen cycles and twenty thousand cycles per second range, which is the spectral range of human hearing. Of primary concern are those frequencies that encompass the range of human speech, i.e., five hundred to forty-eight hundred cycles per second (cps).

Ultrasonic fluctuations are those above twenty thousand cps. They

Figure 1 • CROSS-SECTIONAL DRAWING OF THE HUMAN EAR



cannot be heard by man and probably exert no ill effects on hearing in man.

The risk of hearing loss due to NOISE is dependent on the following factors:

• *The intensity of the noise exposure.* This is usually expressed as pressure level in decibels (db's) which has a reference of 0.0002 dynes/cm², i.e., zero decibels is a sound pressure level equal to two ten-thousandths dynes per square centimeter. Whenever decibels, which are not absolute measuring units such as degrees or inches, are used, definite reference levels must be specified (see Table 1).

• *The frequency spectrum of the NOISE exposure.* This is usually expressed in cycles per second (cps) by octave bands.

• *The duration of the NOISE exposure.* The shorter the duration of exposure to high intensity NOISE, the less the damage risk to the individual.

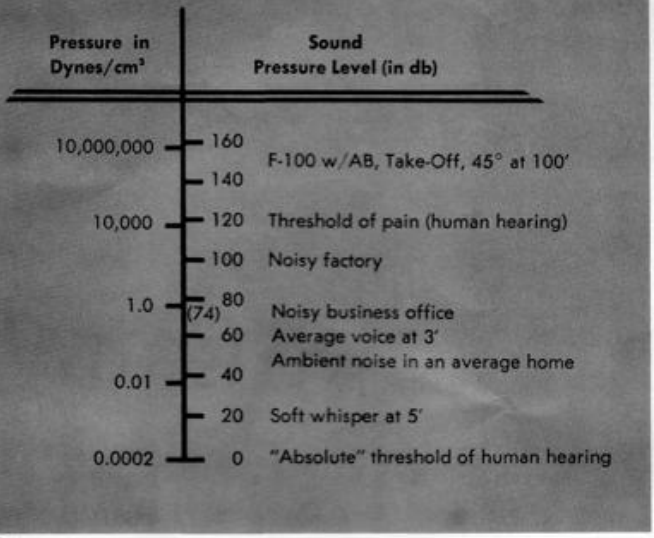
Figure 1 depicts the cross-sectional anatomy of the human ear. The inner ear contains the semicircular canals and adjoining structures, which aid us in spatial orientation, and the cochlea which contains the receptors for hearing. These receptors change pressure fluctuations into nervous impulses. This is the area that becomes either temporarily or permanently damaged due to exposure to high intensity NOISE.

Obtained during physical examinations, the audiogram reflects the threshold of hearing of the examinee, which is the sound pressure level (in decibels) it takes for an individual to barely perceive sound at six different frequencies, ranging from five hundred to six thousand cycles per second. USAF hearing standards are listed in Attachment 12, AFM 160-1, Medical Examination and Medical Standards. These are the maximum allowable losses of hearing acuity accepted by USAF.

Losses greater than this require further medical examination, diagnosis, and disposition as outlined in AFR 160-3, Hazardous Noise Exposure. These detailed examinations are done at designated Diagnostic Hearing Centers. After it has been determined that NOISE was the cause of an aircrewman's hearing loss, an inflight evaluation can be done by a flight surgeon. If there is still a question as to whether the aircrewman is or is not a hazard to flying safety, he can be referred to the USAF School of Aerospace Medicine for a final examination and recommendation, which is sent to the Surgeon General for final disposition of the case.

The hearing threshold of a given individual may shift temporarily

Table 1 • SOUND PRESSURES AND SOUND PRESSURE LEVELS



to NOISE exposure, but forty-eight hours in a quiet environment will usually return that individual's hearing threshold to what was previously normal. Repeated exposures to sound pressure levels above eighty-five db over several months or years will eventually cause permanent hearing loss because the cochlea has been damaged beyond repair. Usually this loss is at or near four thousand cps. Continual NOISE exposure will extend the damage, however, to both higher and lower frequencies in addition to increasing the loss at the four thousand cps frequency! The lowest frequencies are affected least. Considerable damage can take place before an individual is aware of it because speech reception is not seriously altered until the hearing loss is greater than thirty db in the speech frequencies (five hundred, one thousand, and two thousand cps). One ear may hear a little better than the other, but both will exhibit loss of hearing due to NOISE.

The primary sources of NOISE found within the cockpits of jet-propelled aircraft include aerodynamic disturbances and other forms of aeroelastic disturbances which result from the operation of different environmental control systems. NOISE associated with aerodynamic disturbances results when the outer sections of the fuselage, canopy, or windshield encounter aerodynamic loadings which are imposed by the surrounding atmosphere through which the aircraft travels.

Noise measurements made inflight in the cockpits of twenty different types and models of jet aircraft with internal or semi-internal fitted single or dual engines ranged from a low of 96 db to a high of 109 db, well above the maximum allowable sound pressure level of 85 db.

There are three methods of controlling the exposure of an individual to NOISE:

- NOISE reduction.
- Reduction of exposure time.
- Personal protective devices.

The first two methods must be taken into consideration in engineering design of future systems. The third method can be used in and around the present systems which are known to produce hazardous NOISE. This is done by wearing ear plugs, ear muffs, or both. The ear plugs must form an air-tight seal in order to obtain the full noise exclusion of which they are capable. These are available in the Military Public Health Section of the Base Flight Surgeon's Office. Depending on the frequency, the ear plugs attenuate from twenty-four to forty dbs. Combined with ear muffs, they provide from 35 to 56 dbs of sound attenuation.

Loss of hearing sensitivity occurs naturally with increasing age. Other causes of hearing loss include: infection, trauma, and drug toxicity. Any loss due to these reasons will be additive to NOISE-induced hearing loss.

The risk of damage to YOUR hearing is with YOU daily. The means of preventing this damage are available. Discuss with your flight surgeon any problem you may have with hearing or NOISE-hazardous areas. ★

Ed. Note: For further information, the following references are suggested: AFR 160-3, Hazardous Noise Exposure; AFP 32-2-1, Noise Guide for Air Base Commanders; AFM 160-1, Medical Examination and Medical Standards; Audiology Handouts from USAF School of Aerospace Medicine; and Textbook of Otolaryngology by D. D. DeWeese and W. H. Saunders, published by C. V. Mosby Co, St. Louis, Mo, in 1964.

"ADC'S GLOBAL CAPABILITY"

The 318th FIS at Osan, Korea

The date, 9 July 1968, will mark five months of TDY for the airmen and officers of the 318th Fighter Interceptor Squadron, the first Aerospace Defense Command F-106 unit to deploy overseas. It was not too long ago that many USAF "experts" scoffed at the concept of Global Air Defense, and with the F-106 no less, ADC's electronic monsters that many thought were best located across the street from the Hughes factory and around the corner from the depot. There they are, five thousand miles from both, with the best F-106 OR rate in the Command for February, March, April, and May. If the thought crosses your mind that some of the machines are not up to par, you're invited over to fly them and see.

There are several good reasons for this. Foremost, of course, is that when a unit is TDY, something occurs that unifies the outfit and inspires the men to put out their best. They will work around the clock when needed and just give 100% everyday. The absence of the stateside attractions no doubt helps, e.g., no commisary runs, hunting and fishing seasons, visits from mother-in-law, etc.

For many men this deployment, sudden and with almost no notice, presented personal problems of no small stature. Five of the aircrews are recent returnees from the Far East. Over 70 airmen had also just returned from SEA. Some of them had no time to get settled

McChord or find housing for their families. The hardships inflicted by the suddenness of this operation were many. It would do little good to expound on them here. Suffice it to say that, as in all large scale unit movements, they encountered the usual number of family crises and busted bank accounts.

Being designated a deployment unit, the 318th FIS and the 325th Fighter Wing maintenance organization had its plans worked out in January 1968. But implementation was something else again. When the order came through, it deviated from the basic plan to the extent they had to start from scratch in many areas. The final days of preparation, packing, crating, shots, processing, were 18 hour days full of frustration, changes, regrouping, and masterful over-supervision by every headquarters that could squeeze into the act. No time was allowed for lengthy farewells and bon voyage parties. They were not told their final destination, but the Pueblo affair gave them a clue. The first destination was Naha, Okinawa. From there they would be redeployed.

Just trying to plan the navigation for each leg became a tedious and frustrating chore. Each day brought new changes. The unit finally relaxed and waited it out. When they got within the 48-hour period, they started seriously to work with the navigation computer printouts and to prepare the pilots' flight planning materials.

There was little concern about the readiness of the aircrews. The flights across were routine formation, aerial refueling, and recovery. They do point out with great pride that all 318th FIS aircraft made it off and were in first class condition at the tanker rendezvous. The airborne spares called for by the plan were not needed and returned to the mainland. The SAC tankers were

"En garde, world!"

"We don't have to shovel this much snow back at McChord!"

My body's 10,000 miles from home, but my mind's not!
Heh heh heh heh heh heh . . .

"Johnny-on-the-Spot" and the trip across was uneventful; long but uneventful.

Six hours after departure, Diamond Head loomed on the horizon. The recovery and reception at Hickam was efficient and hospitable. Eighteen aircraft landed in condition to go again. A night in Honolulu was delightful, but dampened by the thoughts of the morrow's journey.

The guy who decided the "Sixes" should skip Guam and press on to Okinawa was a sadist of the worst sort. Looking back on it, they say that it seems like a bad dream, but 10½ hours it was, lounging on that soft, luxurious survival kit so thoughtfully provided.

Performance of the aircraft engine-wise was near perfect. Those who were concerned about oil consumption over that length of time need not worry any longer. Some birds took little or no oil at destination. The In Flight Refueling systems were all good. Some birds siphoned fuel a lot and occasionally would not fill up to the brim before

The alert shack — "Somebody wake up Cunneely and we'll go fly."

disconnect. But none caused any major difficulties. Some pilots just had to make more hookups than others. That at least helped kill time. The weather was good most of the way. A few hookups were made in the weather, but were no big problem.

Arrival at Naha was a glorious moment. There were josans with leis and champagne and all kinds of dignitaries. But it didn't take long before they pointed the direction to the alert hangar and it was then they new for sure they had arrived.

A week in Naha, on alert, finally ended with orders to deploy to Osan, Korea. This trip was about 1½ hours. The "Birds" arrived in a snowstorm with temperatures slightly below zero. The alert shack, ops building, and PE section were still in construction; Koreans were frantically raising plywood/tent buildings. Cots were unfolded, mattresses inflated, followed by a frantic search for blankets. There are few 318th pilots and ground crews who will not long remember the first

A little bit of worldwide ADC

Happy arrival at Naha after 10.5 hours from Hickam — Major Laeshe receives a little "pick-me-up" from Col Angier

Lt Col "Gene" Cunneely, their Ops, conducts morning Kimchi session

The Leader, Col Fred O'Connor, 318th FIS Commander

Osan

month of alert at Osan. With blankets, the cold would still numb them. Aircraft, parked on open hardstands, had canopies frozen shut, dead batteries, and ice-covered windshields. Crew chiefs had to run the ground power units continuously through the night to insure their condition and to charge the aircraft batteries. Working conditions were as rugged as the men had seen. They were cold all the time and tired, too. Vehicles were in short supply as was about every item they had at home base and took for granted. Perseverance, patience, hard work, dedication, and a sense of humor were the qualities that carried the men through the winter.

If this tale is beginning to sound a little melodramatic, we hasten to add that things at Osan are greatly improved. The weather since March has been warm, sunny, and dry for the most part. Living and working conditions have developed into e isfactory accommodations, mos it through self-help. They still have no Aerospace Ground Equipment or Armament & Electronics building. The alert commitment is still heavy, but that's the name of the game. The flying is great with every variety of training mission including close air support, fighter escort, MIG cap, and the usual air defense intercept exercises.

The unit concentrates over half of their training sorties to ACM continuation. They have had excellent opportunity to fly simulated aerial combat against the F-5 (ROKAF), F-4, F-102, and F-105. The consistently successful results against these aircraft are a tribute to the ACM program we have in ADC.

The interceptors are under the operational control of PACAF, but there are several other headquarters around that own a chunk of them, too. Since no Far East command has any directives on F-106s,

adhere to ADC manuals in their ...y training. Most of the headquarters people are TAC types with little or no ADC experience; some education was necessary. GCI control is performed by ROKAF personnel monitored by USAF directors. The controllers are good and little difficulty is encountered there. It's like going back in time to ADC before SAGE. However, IFR recovery systems and overall communications need modernization.

Base facilities are fairly good, a 100% improvement from the Korea you old heads recall of 1950 - 1954. Pools, golf course, cafeteria, base theater, radio station, TV, and clubs with floor shows twice a week are available. Off-base recreation is nil. Morale is high despite long hours and never-ending alert. Both pilots and maintenance people are proud of the F-106 and the respect with which it is looked upon by the other units over there. The 318th FIS has ...wn the TAC fighter troops that ADC has a first line fighter aircraft and aircrews who know how to fly it at its maximum, day, night, and in the weather.

All in all, this first deployment has given the 318th FIS, ADC, and the Air Force a great deal to think about. Some conclusions can be reached, and could be stated thus:

- Global air defense is a proven concept and should open up new vistas for ADC and other overseas commands who find the need.
- The F-106 is the most versatile; fighter in the USAF inventory. Its range, endurance, performance qualities, ECCM features, engine performance, all-weather weapons control system, and aerial refueling capability earn it that accolade.
- And lastly, a buck ninety per diem just won't hack it, unless, of course, you don't eat, don't drink, or don't do anything that's fun. ★

SSgt Dale Barr and TSgt Bill Miller, the Life Support Section

Formation at Osan

EJECTION UNDER FIRE

Here's a story on what can happen when the comfort and security of the cockpit must be abandoned because of an unexpected malfunction, in this case the loss of aircraft control. The ejection can be considered successful from the standpoint that the pilot got out and was rescued safely. But that's as far as it goes. There was a lot of opportunity available for a less fortunate outcome.

The pilot of an F-102 went out to his aircraft wearing the green summer flying suit. The orange type was not yet available to his unit. In his lower right leg pocket, he had put a leather case containing the five mandatory survival items. Survival vests were not issued equipment. Since the mission was to be flown primarily over water and the weather was good, the pilot left his flight jacket behind thinking that it would only get in the way if he did have to bail out. Normally, he wore it all the time. After preflighting the aircraft, he climbed into the cockpit, giving the ejection seat hoses and connections a cursory look as most pilots do, since it's almost impossible to determine whether everything is hooked up correctly or not.

An interesting sidelight here is that ten days prior to the accident, this particular aircraft was recovered at another base because of a broken throttle lever. A maintenance man was dispatched from the home unit to replace the throttle quadrant. For ease of maintenance, the survival kit and ejection seat were removed from the aircraft by unauthorized personnel. When the throttle quadrant was replaced, qualified personnel from the recovery base re-installed the egress system but not the survival kit. The aircraft was then flown back to its home station where it received a quality control inspection and was placed on alert posture until the day on which the accident occurred.

Before the pilot sat in the seat, he visually checked that the survival gear was secured to the parachute. He got in, adjusted his equipment, inserted the gold key, and made sure the zero delay lanyard was stowed and not attached to the "D" ring. The aircraft was equipped with the high impulse seat. The start, taxi, and takeoff were normal. While airborne, the flight controls were pretty sensitive and later, during a WSEM pass, the aircraft went out of control and into a flat spin. After unsuccessful attempts at recovery, the pilot decided to get out at about 12,000 feet. He was almost sure he lowered his visor, but couldn't remember locking it. He sat back in the seat, pulled his feet back, put his head against the headrest, and pulled the handles up. The canopy apparently left as advertised. The pilot then squeezed the trigger and was ejected out of the aircraft without feeling excessive forces. As he went up he could see a powder burn on the back of the airplane extending rearward from the canopy a[illegible]. Shortly after getting into the [illegible] stream, he received a severe blow on the back of the head. It knocked his helmet off and threw him out of the seat. The thought crossed his mind at the time that the seat/man separator was a little violent. He found himself freefalling through the air, so he stabilized himself in a sky-diver type position, face down with arms extended outward. After waiting a short period of time, he realized that his parachute should have already deployed. He pulled his legs together, grabbed the "D" ring with both hands, and yanked. The chute opened without excessive shock. His helmet continued downward as far as the oxygen hose would let it go and then it snapped back. He caught it between his knees and held it there. After checking the chute canopy, he activated the life preserver and fastened the strap across the front. Then he reached back for his survival kit and fo[illegible]

missing. He had lost his right glove during ejection and could feel that a good portion of the back end of his flight suit was also missing. His right upper arm was bleeding badly.

As he approached the water, he put his arm through the left riser, opened the left guard, and put his thumb on the release ring. When his feet hit the water, he pulled the release and threw his arm out. He then released the right side and paddled away from the chute. His helmet was still between his knees, so he picked it up and saw that the bayonet connectors were in place, the chin strap still fastened, and the nape strap in position. There was a split in the back. He put the helmet on and noticed that the seat belt seemed to be wrapped around his neck. The ends of the shoulder harness and the gold key were still connected.

After paddling around for a while, the pilot decided to get the survival kit out of his right leg pocket. It was gone. Realizing that he might need a signalling device, he reached for and found the SDU 5/E strobe light. He thought of his URT-21 beacon radio and tried to reach it, but couldn't. He didn't want to unfasten his chute harness since the life preservers were the only things holding him up. He located the white flexible antenna coming from the beacon and yanked on it hoping to activate the radio in the event the automatic function didn't work. The pilot retained his boots during the ejection. They presented no problem in the water and kept his feet warm. He took his left glove off because the water made it slippery and it was difficult to operate the strobe light.

A wingman came down and circled overhead. About a half hour later, numerous rescue aircraft arrived on the scene. A helicopter flew over the pilot several times and he waved the strobe light without any apparent effect. The sea was choppy

and the helicopter pilot had spotted an inflated life raft which was several hundred yards from the downed pilot. Another aircraft pinpointed the pilot's position and notified the helicopter. A sling was lowered, but because the injury to his arm began to hurt by this time, the pilot couldn't get into it A helicopter crewman jumped into the water and helped him into the collar. He was hoisted up and flown back to a hospital. Time spent in the water was about two hours and thirteen minutes.

In retrospect, it's not at all difficult to follow a sequence of events which could easily have resulted in loss of the pilot's life, anywhere along the line. If night or weather conditions had been present in the rescue area, only a miracle would have saved him. When a pilot steps into the cockpit, there are many things which he takes for granted, like the engine will run properly during the flight, the gear will extend, and the egress and life support systems will function if needed. What happens when he suddenly finds himeslf without benefit of those necessities which he counted on so heavily for so many years? It boils down to this: his life may depend on those precautions which he entrusted to no one but himself. It just makes sense to be prepared, regardless of how inconvenient or unnecessary the extra effort may seem.

The only evidence available for investigation and analysis was the pilot's personal equipment, and therefore only theoretical conclusions on what took place during ejection could be made. Examination of this equipment indicated that a flash fire or small explosion of undetermined origin occurred in the area of the aft part of the seat well and survival kit. Although the pilot stated that he did not see evidence of fire or smoke in the cockpit prior to ejection, the fire had to have time to burn the lap belt ballistic hose, survival kit webbing straps, lap belt, and the shoulder harness sufficiently to allow them to part. The fire most probably ignited before the seat left the aircraft.

The possibility of rocket malfunction or incorrect installation was ruled out because if this had occurred, there would have been rocket propellant or propellant residue on the equipment which was recovered. Tests showed there was none. The most probable explanation for the fire or explosion was the presence of an oxygen leak in the survival kit area, which could have been set up when the kit was removed and reinstalled by untrained personnel after the emergency landing ten days prior to the ejection. Examination of other aircraft cockpits revealed evidence of oil and/or oily residue in the air conditioning duct outlet holes. Putting the pieces together, it was concluded that most likely, with the availability of oily and other combustible material in an oxygen enriched atmosphere, an explosion occurred which was ignited by gasses passed into the area by the firing of the M1A1 extractor. The explosion was in all probability preceded by a flame front which caused burning and weakening of the lap belt, shoulder harness, and survival kit connecting straps.

The lap belt ballistic hose was broken by the force of the explosion and when the initiator fired, the pressure of released gasses inflicted the injury to the pilot's arm and deposited residue from the ballistic charge on the forearm. The blow to the back of the pilot's head could have been caused by seat/man involvement or canopy, survival kit, or unknown debris from the aircraft.

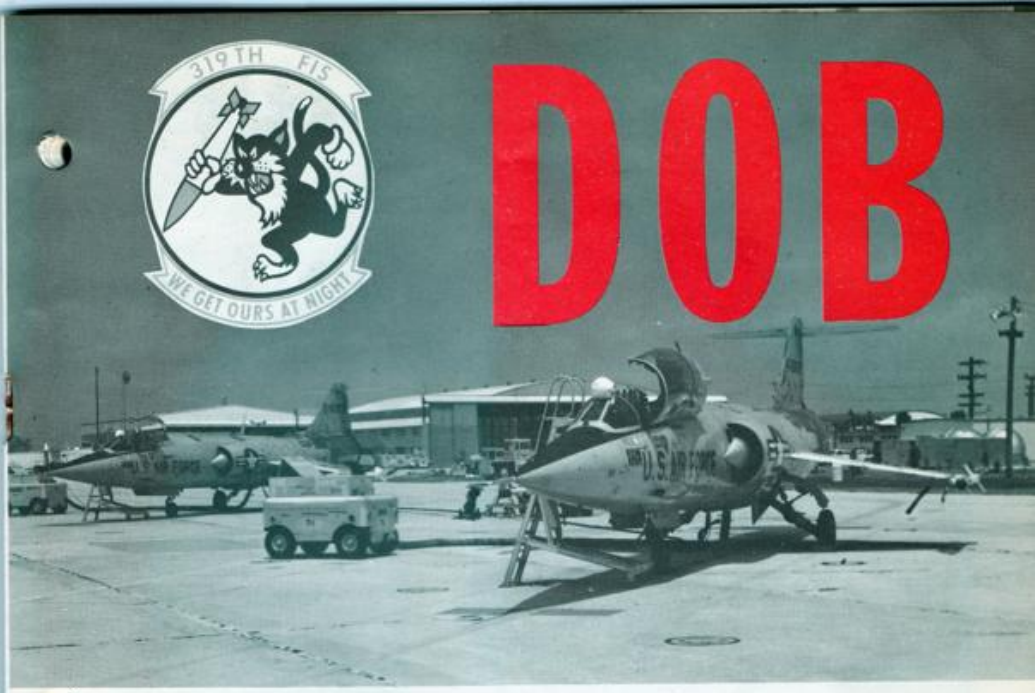
The rescue team believed that an orange flying suit would have greatly increased the pilot's chances for an earlier pickup because the green flying suit which he was wearing blended with the water. Had the pilot worn his flight jacket, medical authorities were convinced that injury to his arm would have been considerably less severe and that he would have been more comfortable in the 52° temperature water.

All personal signalling devices which were put in the right leg pocket were lost. All units have now been advised that the five mandatory items are to be carried in a vest or distributed throughout the crew member's flight clothing. Packets or kits are easily lost due to their weight. The new ADCR 501-7, soon to be published, recommends that a vest be used on all ejection seat flights since it is superior to flight clothing pockets for retaining equipment. The vest has not been made mandatory because some combinations of crew member size and cockpit configuration preclude its use.

Even if the pilot had been able to reach the URT-21 locator beacon, it's unlikely that it would have aided in the rescue. It was determined the beacon was inoperative. Further investigation revealed that the pilot's parachute was 11 days overdue for repack and that the personal equipment section was unaware of the 21-month shelf life on URT-21 batteries. Consequently, all batteries were over age and when tested their output was below minimum acceptable.

The moral in this ejection episode speaks loud and clear for itself. You never know the time, day, or place when trouble in bunches (see Down and Out, this issue) will force a fast exit from the comfortable "greenhouse." Then, a new adventure begins, the outcome of which may very well depend on attitudes and preparations developed long before the moment of truth. Survival is an extra-tricky business when all you have left is your hat and spats. So, wear the jacket, distribute the goodies, and take nothing for granted.

DOB



A fresh bunch of "Sidewinders" for the weapons storage area

Located some 180 miles away from their home base at Homestead Air Force Base, Florida, is Detachment Number 1 of the 319th Fighter Interceptor Squadron, a typical "flyin', fightin' " parcel of the instantaneously mobile Aerospace Defense Command team. The new ADC fighter interceptor mission utilizes this unique method of tactical versatility known as the Dispersed Operating Base (DOB). The geographical locations of many of our fighter units dictate the use of the DOB for complete coverage of an assigned area of responsibility and to insure a better chance of survivability from attack. It additionally provides the aircrews and ground crews with the continuous training inherent in a highly mobile outfit.

At these DOBs a full time NORAD

2 104s ready for T/O as seen from Mobile Control

The mob at the DOB — maintenance crews in alert lounge in Trailer #1

alert posture is maintained. Other DOBs are established and maintained with a full-time capability to assume on short notice a NORAD alert status.

The 319th Fighter Interceptor Squadron's Commander is Colonel Walt Meyler whose number one "honcho" at the DOB is Major Jim Pierson. Major Pierson's Detachment Number 1 is continuously exercised as is the whole system. Routinely two F-104 "Starfighters" deploy on a daily basis to the DOB from their main base while conducting a profile intercept training mission. After their recovery and turnaround at the DOB, the fighters leap

Det. 1 main facilities: Trailer #1 houses CAC and alert crew lounge. Trailer #2 has unit admin commander's and supervisors' offices and alert aircrew sleeping quarters.

Major Bob Kronebusch, 31 FIS Ops Officer, inspects the M-61 "Gatling Gun" on Starfighter preflight.

CMSgt Bore, Detachment NCOIC, reviews aircraft forms with maintenance line chief TSgt Marvin Johnstone.

off on a practice scramble and conduct more local training under the 32nd Air Division's SAGE control. They then recover again at the DOB, turnaround and redeploy to the main operating base for their third training sortie of the day. In this type of daily operation, everybody gets into the act.

Frequent NORAD exercises and evaluations stage additional F-104s into the DOB for sustained operations —— and it is then that the value of regular training becomes obvious with faster and safer aircraft turnaround, weapons loadings, and well-oiled scrambles and recoveries.

Bunker in weapons storage area

"2 on five!" Eager alert pilots Kronebusch and Pierson

Crew chief Sgt Eckhardt helps pilot strap in on practice scramble.

SSgt Bob Martin receives aircraft status over the radio in Combat Alert Center. Trailer #1

OPERATIONAL READINESS INSPECTION TEAM

HQ, ADC

"SOMETHING BORROWED, SOMETHING BLUE"

"Something Borrowed"

It is the security inspectors' turn to print some words of wisdom in this venerable journal. This project is relished as we hate to work hard on inspection so perhaps this article will help commanders and system security officers to avoid ORI/CI inspection write-ups. We tried in the December 1967 issue to tell people that there were a lot of writeups on security boundaries. The article went into detail as to what was required for security boundaries and why. Since the article was published, there still have been deficiencies with security boundaries including two limiting factors. So we will fall back in this article and use a new approach.

Let's take a look at some of the many good ideas that have been noted in security during our inspections. Yes, Virginia, we look for and report good items in our reports. You probably don't believe this after reading our blue books and some of these articles. We report these good items with the intended purpose of spreading the "good word" to other units. These good comments aren't covered in much depth as space is limited, so you may have to contact the unit to obtain further details.

So you won't think we are putting up smoke signals, let's see what some of the units are doing that may be of value to you.

The Combat Alert Center personnel at the 49th Fighter Interceptor Squadron, Griffiss Air Force Base, New York, had devised a simple testing box that greatly aided their training program. A Plexiglas answer sheet, with holes for correct answers, was prepared for each test, a sheet of paper was inserted to cover the answer sheet, and then a Plexiglas answer sheet (same as a standard answer sheet) was inserted on top. These items were inserted into the test box. The test taker punches his selected answer on the standard answer sheet and immediately knows whether he has selected the correct response as the pencil will punch through the paper and test answer sheet if correct.

The Comox Canadian Forces Base built a training mock-up of their base which was used in security police training classes. The mock-up was an excellent aid in training classes on security alert team deployment, mass loads, and emergency security operations. Students were allowed to actively participate in training classes by working on practical problems at the training mock-up.

The 147th Fighter Group (ANG), Ellington Air Force Base, Texas, constructed an excellent system for marking the boundaries of their alert, mass load, and turnaround areas. Individual stanchions were made of plastic tubing which were inserted into a base plate. The base plate was bolted to the ramp at predesignated locations. A flashing red light was attached to the top of each stanchion. The wire providing the current to the lights was attached to the rope that defines the boundary. The system was relatively simple, light weight, and easily maintained.

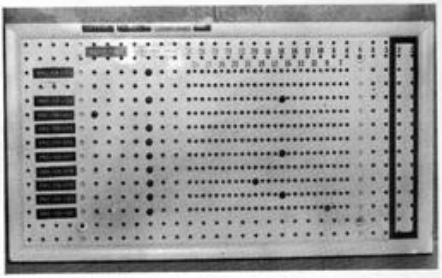
The 57th Combat Support Squadron, Paine Field, Washington, had large pictures of the current alert pilots posted near the security badge rack at the entry point to the alert area. Entry controllers used the pictures in rapidly identifying the pilots during scrambles.

The 132d Fighter Group (ANG), Des Moines Municipal Airport, Iowa, had constructed an excellent plotting board for portable radio utilization. Pegs were moved along the board indicating the number of hours of utilization for each radio.

Paine's alert pilot identification system.

Simple, but effective, flashing light security boundary conceived by the Ellington ANG.

Mockup of Canadian base is outstanding training aid for security people.



Des Moines Guard keeps track of their portable radios with this board.

These are just a few of the many good ideas we have observed. Looking back through the dusty files of old blue books, one can see the writeups that could have been avoided if supervisors had instituted the good ideas outlined above.

"Something Blue"

There has been an increase in the number of deficiencies noted in preventive perimeter security. The preventive perimeter is formed during emergency security operations by stationary security guards at key vantage points along the perimeter of the base. At one unit, a preventive perimeter guard could not be located for over 30 minutes. He had been relieved from post but neither central security control nor the sector security alert team for his area knew that he was not on post. Several units have not provided the preventive perimeter with means of communication. Whistles and even flares have not proved effective at some bases. One of our security inspectors thought a guard was going to "hyperventilate" from blowing on his whistle. At another unit, a flare was fired and it took about 30 minutes for the security alert team to arrive at the scene.

It may be of value for commanders to go out to the preventive perimeter during a base alert. Are your guards posted at optimum locations along the base perimeter? Have high points such as hills and natural cover such as ditches been considered for use as preventive perimeter posts? Are guards trained for their duties, provided with written instructions, armed properly, and do they have an assured means of communication? Is there a sector security alert team for each sector and do they check guards on a frequent basis? Has the area between the preventive perimeter and internal restricted areas been checked by security forces? These are a few of the things that should be checked prior to the ORI team's arrival. Correcting problems on the preventive perimeter will prevent inspection writeups but more importantly, it may save your base from actual security threats and sabotage.

TOM WILLE, Colonel, USAF
ADC ORI Team Captain

V POINTS

This section of the magazine has been designed for you. Be you a headquarters type at any level, a commander, safety officer, pilot - interceptor, transport, light aircraft - radar intercept officer, mechanic, a civilian in industry, weatherman, doctor, designer, or Indian Chief. This is your corner.

We solicit your ideas, items, notes, photographs, sketches, and pictures. The writing should be less than a paragraph - preferably a sentence or two.

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

V This command recently experienced an incident involving possible LOX contamination. A B-57 crew, on 100% oxygen, detected an unusual odor and experienced possible hypoxia shortly after takeoff. The aircraft had returned from several days in maintenance, and the oxygen system had been depleted. The system was not purged before flight. Maintenance personnel should heed T.O. 15X-1-1 (paragraph 8-24) wherein it states: "When aircraft liquid oxygen systems have been opened, due to replacement of any part of the system, all openings will be immediately plugged or capped to prevent the entrance of contamination. When the system has been opened or if the liquid oxygen supply has been depleted and the oxygen system is reduced to zero pressure, hot gas purging will be accomplished." (ADMSS-OF)

V How much electric current does it take to electrocute a person? Only one-tenth of an ampere for a second or longer. Most appliance circuits handle at least 15 amperes. (WGMME-Q)

V Hot Starts. . . . Type Jet A-1 fuel is not an alternate fuel for T-33A, F-102, and F-106 series aircraft. Due to the low vapor pressure of the fuel it may cause engine hang-up on start and the EGT to rise beyond limits. When used as an emergency fuel and a successful start is made, normal operation can be expected. (WGMME-Q)

V May 15, 1936. The War Department gave high priority to research and development of a pulse-echo method of aircraft detection. (ADC-PS)

T-33A Fuselage Fuel Quantity Indicators. . . . Current practices of many organizations who adjust the fuselage tank fuel quantity indicators to read "FULL" are in error. The maximum indication should be 88 gallons. T.O. IT-33A-2, paragraph 4-843L states: "For final adjustment, rest float on bottom stop and turn 'empty' adjustment screw until pointer is directly over EMPTY mark. With float held tightly at its top position, turn adjustment screw until pointer is directly over the 88 gallon position." The fuel servicing requirements of 95 gallon in the fuselage tank has not changed and fuel system operation remains the same as described in the aircraft Dash One. (WGMME-Q)

Here is a situation the Auditors have been picking up in their inspections: Refueling personnel and crew chiefs are having problems finding the AF Form 1239, Avfuels Identaplate, the use of which is now mandatory when issuing aviation POL products. It is usually kept with the AFTO 781 binder, but paragraph 1-73 of T.O. 00-20-5 says this about it: "If the AFTO Form 781 binder is frequently removed from the aircraft for debriefing or other purposes during the period when the aircraft is normally refueled, the local commander or maintenance officer may determine a suitable location in the aircraft for storing the identaplate. The location chosen will be one that makes the identaplate readily accessible to maintenance and fuel servicing personnel and which is not subject to temperatures in excess of 165 or below —65 F just prior to use of the identaplate in the imprinter." If the identaplate is located other than with the AFTO Form 781 binder, the "location information will be stenciled on the left side of the fuselage below the aircraft identification data." (ADMSS-OF)

Paper clothing may become a fire hazard if laundered, drycleaned, or soaked by rain, reports the U.S. Public Health Service. Such treatment may remove whatever flame-retardant finish the garment may have had originally.

T-33A Wiring Changes. . . . These technical order compliances are being completed during T-33 limited IRAN programs (rewiring) as scheduled by AFLC:

- T.O. IT-33A-638 directs removal of the student lockout system for aircraft serial number 50-385 and subsequent. The noticeable changes will be the removal of the circuit breakers and button switches.
- T.O. IT-33A-639 provides an improvement in DC power distribution in aircraft serial number 50-385 and subsequent. Modification includes removal of bus tie relay circuit breaker in the forward cockpit and on the engine section junction box, the external power interlock circuit breaker will be removed.
- T.O. IT-33A-640 is being scheduled for all T-33A-15 aircraft. The present inverter wiring will be replaced for greater load capacity and relocates the main inverter DC feed wire so that it will not induce undesirable transients into the communications system. The main inverter circuit breaker will be removed from the right console in the forward cockpit and installed in the radio "J" box on the main inverter rack. (WGMME-Q)

April 12, 1965. A Viet Cong mortar attack on Tan Son Nhut AB at Saigon wounded 10 members of the ADC Big Eye detachment. (ADC-PS)

DOWN and out

F-102 OUT OF CONTROL

The pilots of a flight of three aircraft were briefed for a radar intercept mission. Formation procedures were included. The pilots then went out to their aircraft. All aircraft equipment functioned properly for the number two pilot except that the automatic flight control system would not engage. The first two aircraft took off in formation while number three took 20 seconds spacing and joined up on climbout. Close formation was maintained to 15,000 feet and tactical formation to 37,000 feet.

During the climbout, the pilot of the number two aircraft felt that his flight controls were somewhat oversensitive because he had a slight amount of difficulty maintaining proper formation position. He assumed the aircraft had the pre-Hep valve type flight control system which is characterized by sensitive controls, and he therefore believed the aircraft was in satisfactory condition. The other two pilots stated that his formation flying appeared normal. After reaching 37,000 feet, the flight leader signaled his wingmen to fall into trail position. The pilot of number two had WSEMs loaded on rails, 1, 3, 4, and 6. To avoid degrading the quality of the evaluator checks on the scheduled evasive, ECM, and chaff target, the pilot took spacing on the lead aircraft to attempt two WSEM passes. The first pass was completed without difficulty using the front bay WSEMs. He again took spacing and descended to 35,000 feet for the second pass. He locked on at approximately 3 NM, selected afterburner, and accelerated until the overtake reached about 50 knots at which time he terminated afterburner operation. Indicated Mach was .88 with approximately 300 KIAS. The steering dot was erratic and the pilot thought of aborting the mission. As the attack progressed, he applied back stick pressure to try to center the dot. The aft bay doors opened normally and he heard the rails coming out.

As the rails hit bottom, the aircraft started a corkscrew type roll to the right. The airplane appeared to roll about the longitudinal axis, and was completely unresponsive to the controls. The pilot tried to apply aileron against the roll, but couldn't stop it. Then he applied stick pressure to the right, intending to continue the roll in order to roll out in an upright position, but still no effect from stick movement. The aircraft continued to roll about three times, and then, with plenty of airspeed left, the roll stopped and the nose pitched up violently. The airplane stood on its tail until it felt like it backed into a spin. An attempt was made to neutralize the controls, both rudder and ailerons, with no effect. A flat spin to the left developed, but no abnormal "G" forces were present.

The pilot started a spin recovery, locked his shoulder harness, and throttled back. He retained his tanks for a short time, hoping the airplane would recover; but it didn't, and he then jettisoned them. He observed the tanks float by the cockpit. In an effort to clean up the airplane, the pilot used the procedure to retract the rails and doors in the event that they were still down and causing some problem with recovery. He selected snake position, de-armed, and hit the retract button. After this he neutralized the controls for a short time and re-applied the spin recovery with half aileron into the direction of spin. Still no response.

At this point, the pilot observed the tail pipe temperature climbing out of limits even though the throttle was retarded. He shut down the engine so that it wouldn't be damaged in the event a spin recovery could be effected. No other engine or hydraulic malfunctions could be detected from instruments. He lost power to his radio and put the emergency AC on the bus. The engine was windmilling between 20-30% RPM and the emergency AC came on the line with TR fail.

Intermittently during the spin, the pilot neutralized controls and reapplied the recovery procedure without results. The airspeed indicator read zero throughout the maneuver. Several times the pilot thought about pulling the dragchute handle, but decided to wait. At about 12,000 feet, he heard one of his wingmen calling for him to eject. Realizing that he had altimeter lag, he initiated bailout procedures at about 11,000 feet and left the aircraft about 10,000 feet. The initial ejection sequence appeared normal to the pilot although he began to experience great difficulties after leaving the aircraft. Subsequent investigation revealed that problems he encountered in life support and survival equipm

areas began prior to or during the initial ejection sequence. it was considered of sufficient importance by the INTERCEPTOR to be the subject of another article in this issue entitled, "Ejection Under Fire."

During investigation and analysis, an attempt was made to determine why aircraft control was lost. In order to spread the word around and stimulate thought for future reference, some of the possibilities which were discussed and investigated follow in order of probability:

1. Erratic electronic signal application in the pitch and/or yaw damper system.

a. Improper input signals from the following sources could cause a serious control surface deflection.

(1) Failure of the roll rate gyro or roll rate channel in the demodulator. Gyro failure could produce an erratic signal to the aileron/rudder yaw control circuitry. This erratic signal should affect both elevons and the rudder. The result would be a coordinated roll in the commanded direction of the erratic signal. The rolling action, uncorrected, could result in an aerodynamic coupling that might induce a severe pitch up condition.

(2) Failure of the pitch gyro or pitch channel in the demodulator unit was discounted since the erratic signal should provide only a nose up or nose down signal, affecting both elevons in the same direction of movement. This would only induce a pitch up or pitch down with no loss of lateral control.

(3) Failure of the right hand calibrator amplifier could produce an erratic pitch or yaw correction to the right elevon that could not be overcome by the application of an opposite aileron input by the direct manual mode of operation. Furthermore, the application of opposite aileron would not overcome the total movement of a pitch signal (right elevator up) thereby resulting in an up elevon condition on both elevons. This would result in the inducement of a pitch condition which may cause the attitude of the aircraft to increase to the stall point.

(4) Failure of the linear feed back potentiometer in the elevon servo actuator would prevent the generation of a null of feed back signal to the calibrator amplifier which would then allow the servo actuator to keep the control open until full deflection of the surface occurs. Again, application of opposite aileron through the direct manual mode of operation would result in the "up elevon" condition described above.

b. Each of these malfunctions can normally be overcome by disengaging the yaw and pitch damp system, by application of higher than normal stick forces, or immediately application of available trim action.

2. Mechanical failure; linkage breakage, fore and aft of the "T" mixer bellcrank.

a. Linkage failure forward of the "T" mixer was discounted. This type of failure would result in a "free stick," i.e., sloppy—with no centering—in either the pitch or roll axis. Since the pilot indicated the stick felt normal but not responsive, it was concluded this situation did not exist.

b. Linkage breakage aft of the "T" mixer assembly was eventually discounted because of the supposed aerodynamics maneuvers encountered. However, to simulate a failure in a mechanical portion of the system the elevon push/pull rod was disconnected and vibrated by hand. Whenever the elevon was slightly above the neutral position, the elevon eventually would creep to the "full up" position. This condition would normally cause a climbing roll, but in historical cases where controls were severed, the aircraft performed a quick wing over and descended in a nose down spiral. To simulate another mechanical malfunction, the bolt connecting the servo actuator and the control valve was removed. Nothing happened until a stick movement was made. The stick movement, a very light force aft, caused the elevon to deflect to the "full up" position since the affected valves had lost their fixed reference point, which prevented a mechanical follow-up "stop" action to the control valve. It was also agreed that a mechanical failure would generally cause an uncoordinated maneuver. The pilot's testimony indicated that the induced roll started slowly, increased in intensity, but appeared and felt completely coordinated throughout the gyration until pitch up occurred.

3. Hydraulic component failure, system failure, and/or contamination.

a. A complete component failure would undoubtedly lead to a system failure or loss of hydraulic pressure. A component failure should cause loss of hydraulic fluid or pressure. If an internal failure occurred, generally only one system would be affected and control would be available through the other system. Furthermore, loss of pressure should be easily noted by activation of the hydraulic pressure warning light and the system pressure gauge. An internal failure with a resultant fluid bypass should also cause activation of the overheat light.

b. Complete system failure, one or both, was discounted because of the complete lack of warning system activation. It was considered doubtful that all indications of system failure, i.e., light activation and pressure gauge, would simultaneously malfunction. Furthermore, complete failure of both primary and secondary systems is highly improbable.

c. The probability of system contamination was thoroughly dis-

cussed. Samples from the hydraulic power carts and hydraulic servicing units proved to be free from contamination. If contamination was a fault, it was agreed that it might have occurred later in flight. Classically, aircraft systems which are contaminated usually cause erratic hydraulic valve operation, wallowing around all axes of control, generally results in overheated fluid, and normally causes hydraulic pressure fluctuations.

4. External damage.

a. Loss of WSEM/ballast in-flight: recorded instances of WSEM loss in flight show no damage occurring to the aircraft. Though slightly possible, this was discounted.

b. Though minor damage may be incurred by extension of launcher rails without snubbing air, evidence does not point to a line break or loss of air pressure. Further, air loss would result in a low pneumatic pressure warning light. Loss of launcher rails in flight has not occurred. An unsnubbed extension may be able to throw a WSEM from the launcher rail.

5. Internal fire and explosion. Fire of unknown origin causing an explosion which caused control system malfunctioning is possible but unlikely. Fire and/or explosion would most probably cause activation of the fire loop warning system and result in a mechanical failure which was previously discussed. A fire causing wire damage could also be responsible for the generation of erratic electronic signals to the yaw and/or pitch damper system which could be overcome by disengagement of the damper system. Fire in an area where flight control rods and valves are located should cause actuation of the fire loops.

The most probable cause was considered to be an erroneous electronic signal input into the pitch and/or yaw damper system of an undetermined nature resulting in an uncontrollable maneuver terminating in a flat spin. ★

safety officers' FIELD REPORTS

F-101B THRUST FLUCTUATIONS. Aircraft was in cruise condition at 20,000 feet, 3000 PPH fuel flow on each engine, when the No. 1 engine began to surge. Fuel flow fluctuated 300 PPH, EPR varied .1 in response to fuel flow changes, and pilot could feel the thrust increase and decrease. Pilot varied power setting and found that the engine was normal at both higher and lower power settings. Precautionary landing was made without incident. No malfunction could be found. Aircraft was flown on a FCF and was completely normal. The aircraft has flown seventeen times since then with no repeat.

F-106 STUCK THROTTLE. Throttle stuck at 90%, the aircraft engine was shut down using the fuel shut-off valve. Cause: A nut and bolt on the throttle friction lock loosened jamming the throttle.

F-106A WINDSHIELD. The right windshield outer layer cracked while cruising at FL 350 at .93 Mach. An aircraft emergency was declared and a precautionary landing completed. Investigation revealed materiel failure of the windshield from an unknown cause. The windshield was replaced.

F-106A OIL LITE. The oil pressure low warning light flashed several times at 49,000 feet with military power. The oil pressure was observed fluctuating between 35 and 40 psi. An aircraft emergency was declared and immediate recovery initiated. Within about three minutes the oil pressure indicated steady within normal limits and remained there until engine shutdown. Investigation revealed the engine oil pressure transmitter was defective.

F-104A OIL LOW LEVEL INDICATION. Oil light came on at Mach 1.7. Indicator remained between one-third and one-half for remainder of flight. Landing was without incident. Oil quantity was checked immediately after flight and indicated 26 pints on the dip stick. Sizable oil leak was evident in the engine compartment and maintenance found that the oil dip stick Hose Assembly was leaking. Hose assembly was removed and replaced. It was noted that while the oil quantity was being checked, considerable difficulty was experienced in getting the dip stick into the hose. It would go down about 6 inches and stop. Only by reaching through the access panel on the other side of the fuselage and holding the line straight could the dip stick be pushed all the way into the line. Hose assembly was split open to determine cause of leak. Hose was found worn through from the inside out by frequent jabbing of the interior surface with the tip of the dip stick. All flight line personnel were briefed to not force the dip stick into the line. The illumination of the low level light and the low quantity indication on the oil quantity indicator was a result of a malfunction of NOQIS. This aircraft had 5 prior flights where the NOQIS gave an erroneous low quality indication. Engine was removed and replaced and engine bay coax lead replaced. FCF was performed on 10 February and NOQIS malfunctioned again at Mach 2. On this flight indicated quantity dropped to one-half for 30 seconds and then returned to three-quarters for the remained of the flight. Lead from the indicator in the cockpit to the engine bay was then replaced. FCF was again performed with no malfunction of NOQIS.

F-106 SPEED BRAKES. Speed brakes would not fully close after being opened during intercept training. Aircraft was recovered at home base without further incident. Cause: Wire to 30° limit switch broken.

F-106 WINDSHIELD. Left windshield cracked through outer ply all panels. Landed without incident. Suspect overheat from anti-ice system. Replaced windshield and checked out NESA system.

T-33A GEAR DROPOUT. Aircraft departed a base enroute to home station. Ten miles north, pilot leveled-off at 12,500, 94% RPM. Right main gear assembly dropped, indicators showed gear up and locked. Flight was aborted, aircraft returned to base of departure where gear was cycled, indicated down and locked with confirmation received from mobile control. An uneventful landing was accomplished. Investigation revealed excessive play in the right main gear uplock.

F-104A THRUST FLUCTUATIONS. During climbout at approximately 10,000 feet and .9 Mach, pilot noted sudden drop in EGT from 670° to 570°C. EGT drop was accompanied by sudden drop in thrust. EGT remained at 570 momentarily and then returned to normal. EGT and thrust fluctuation occurred again and precautionary landing was made. Maintenance found throttle out of rig which resulted in the fuel control operating intermittently in and out of the temperature limiting range. Throttle was re-rigged and FCF performed wih no further problem.

F-104A ZERO FUEL QUANTITY INDICATION. After one hour of flight, pilot entered initial with 1300 pounds fuel remaining. After rolling out on downwind, he noted fuel quantity indicating zero pounds. He declared an emergency at that point and made an uneventful landing. Leads to the fuel quantity indicator were found looped over the nozzle position indicator leads. Leads were repositioned and system has since operated normally.

T-33A UNSAFE GEAR. Pilot entered normal traffic pattern for full stop landing. Upon lowering gear, the nose and right main gear extended normally; the left main gear showed unsafe. Hydraulic pressure normal. After all attempts were made to obtain a safe condition, the pilot had the tower check condition of gear. The tower stated gear appeared safe. Pilot made a precautionary landing without further incident. Cause Factor: The stud between gear uplock mechanism and gear uplock actuator left wheel well was fractured.

F-101B ANGLE OF ATTACK TRANSMITTER. Ten minutes after takeoff at 25,000 feet, the AFCS and altitude hold was selected. Flight was normal for about five minutes and then the aircraft violently nosed over. AFCS circuit breaker was disengaged with no effect. The pusher was disengaged and aircraft control was accomplished. An operational check of the pusher angle of attack vane revealed that it was feeding maximum angle of attack signal to the computer at 7.5 degrees causing pusher engagement. The pusher angle of attack transmitter was replaced, the pitch control system was recalibrated, and the aircraft was released after a successful FCF.

F-102 COLD SEAT. Approximately 5 minutes after takeoff, pilot felt extreme cold on seat. Oxygen system turned off and landing accomplished OK. Cause: Seat Kit Oxygen regulator personal leads not properly seated.

safety officers' FIELD REPORTS

F-102 FUEL UNBALANCED. During a radar training mission, pilot detected an unbalanced fuel feeding discrepancy and accomplished an uneventful precautionary recovery at home base. Inspection revealed the left drop tank did not feed properly and fuel valve was adjusted.

TF-102, DRAG CHUTE. Drag chute failed to deploy on landing following a transition training mission. Inspection revealed no malfunction of the drag chute or the drag chute equipment; the pilot had failed to pull the control handle to the full aft position due to the fact that the TF drag chute handle is harder to operate because of the linkage on both sides of the cockpit.

TF-102A, UNSAFE GEAR INDICATIONS. When the gear was retracted after takeoff, an unsafe indication was received (warning lights and horn). The handle was moved back to the down position and both main gear indicated safe. The nose gear green light did not illuminate and the warning lights and horn continued to indicate safe. The handle was raised again, unsafe indications were received, and the emergency extension system was used without effect. The nose gear light would not press to test good at any time, but landing lights were operative and the gear appeared to be in the down position. An uneventful precautionary landing was made, after which three broken wires were discovered in the nose gear indicating system. Two wires were to the nose gear position switch, and one was in the switch itself. The switch and the majority of wiring in the nose wheel indicating system were replaced as a result of this discrepancy. Multiple retraction tests revealed no further discrepancies.

T-33A, SIPHONING FUEL. Fuel began siphoning from the right leading edge tank on takeoff. A precautionary landing was made, after which it was determined that the fuel cap was loose. The cap and filler neck were examined and were in good condition. A positive locking of the cap could be felt when it was installed.

T-33A, FUMES IN THE COCKPIT. Climbing through 6,000 feet, both pilots noticed an odor similar to battery acid in the cockpits. The loadmeter indicated and there were no indications of a malfunction, so the climb was continued. Shortly thereafter, the pilots' eyes began burning, further indicating the presence of fumes. A precautionary return to the base was made and a safe landing was accomplished. Postflight inspection of the aircraft revealed no visible discrepancies and an extensive ground run-up check was conducted and no similar difficulties were experienced. The aircraft was released and subsequent flights were conducted without difficulty.

F-104A, THRUST FLUCTUATIONS. Pilot felt engine surges and noted rpm fluctuation from 95 to 100% rpm with throttle in full military. Rpm variation was accompanied by EGT and nozzle area fluctuations. Throttle was retarded below the temperature limiting range and all fluctuations ceased. Precautionary landing was without further incident. Aircraft was run on trim pad but malfunction could not be duplicated. Temperature amplifier was replaced as a most probable cause of engine thrust fluctuations. Aircraft has flown since with no further problems.

TF-102A, CRACKED WINDSHIELD. Twenty minutes after takeoff, the pilot was completing a radar intercept at 34,000 feet, when the left windshield panel failed in a clear spider-web pattern. Emergency procedures were followed and a precautionary landing was made without further difficulty. The NESA control box was checked and no discrepancies in the NESA system were found. The failure appears to have resulted from an internal short of the NESA wiring in the panel. The failed panel was replaced.

B-57A FIRE WARNING. Pilot was preparing to terminate a mission after 2 hours and 27 minutes of flight. The pilot elected to fly a visual pattern with a low approach and then shoot a closed pattern with a full stop landing. On the go-around from the low approach, the No. 2 engine fire warning light illuminated at 175 knots. The No. 2 throttle was retarded and the fire warning light went out. A check of the engine instruments revealed that the EGT was slightly high but all other indications were normal. An emergency was declared and the landing was accomplished without further incident. Investigation revealed that the constant speed drive aircraft generator aft bearing had failed causing the generator to overheat. This overheat condition triggered the fire warning sensing bulb which is located next to the generator.

THE WAY THE BALL Bounces

ACCIDENT RATE

1 JAN THRU 31 MAY 1968

	ADC	ANG
Thru May 1968	3.3	5.8

MAJOR — ALL AIRCRAFT

ON TOP OF THE HEAP

MO	ADC	MO	ADC	MO	ANG
56	62 FIS	47	4600 ABW	77	132 Ftr Gp
52	414 Ftr Gp	38	18 FIS	64	162 Ftr Gp
49	48 FIS	37	408 Ftr Gp	62	112 Ftr Gp
47	87 FIS	37	4677 DSES	52	141 Ftr Gp

ACCIDENT FREE

BOX SCORE

ACCIDENTS FOR May / CUM TOTAL	1st AF	4th AF	10th AF	14th AF	4600	ANG
CONV						
T-33		1				
F-100						
F-101	1	1				
F TF-102	2					3
F-104						
F-106	1 1					
B-57						
F-89						
EC-121						

MINOR ACCIDENTS THIS PERIOD — 2
MINOR ACCIDENTS CUMULATIVE — 4

CUMULATIVE RATE

1 JAN THRU 31 MAY 1968

	ADC	ANG
JET	4.6	6.3
CONVENTIONAL	0	0

BY AIRCRAFT

T-33	2	0
F-89		0
F-100	0	
F-101	7	
F TF-102	15	8
F-104	0	
F-106	4	
B-57	0	
EC-121	0	

RATE = MAJOR ACCIDENTS PER 100,000 FLYING HOURS

we point with PRIDE

Major Robert J. Stafford
408 Fighter Group
Kingsley Field, OR

Major Richard W. Carter
408 Fighter Group
Kingsley Field, OR

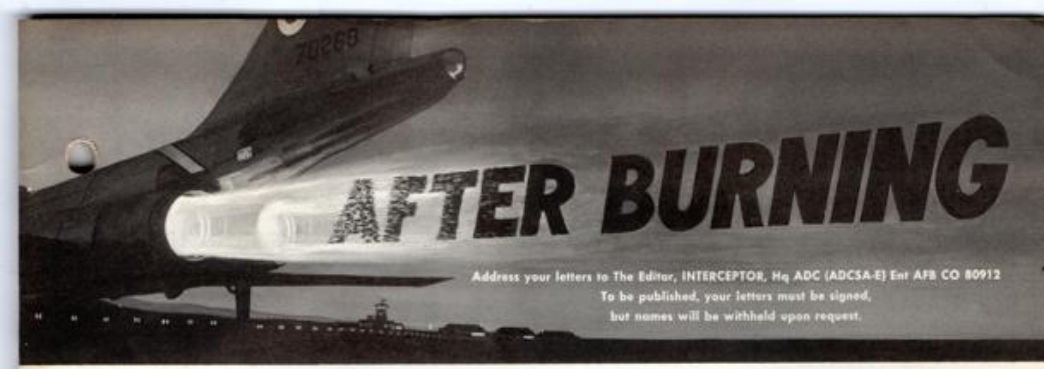
F-101B DOUBLE GENERATOR FAILURE

Major Richard W. Carter, pilot, and Major Robert J. Stafford, RIO, experienced an almost unheard of double generator failure while flying an F-101B on a radar training mission. They were flying at 35,000 feet over a solid undercast when both generators failed. The aircrew immediately turned off all electrical equipment except the UHF radio. Upon determining that the generators would not reset, Major Carter declared an emergency. At this time, he also advised his wingman who was acting as target. By transmitting a tone on their UHF radio, the aircrew enabled their wingman to receive a bearing on them by using the ADF position of the UHF radio. This was necessary because the two aircraft were too far apart for visual contact, and Major Carter's aircraft was not being skin painted by ground radar.

After the wingman confirmed the bearing, Major Carter turned off the UHF radio and the battery to conserve the remaining battery life for eventual gear and flap extension. A join-up of the two aircraft was effected by using the last known bearing information, dead reckoning, and finally contrails. This was done in spite of approaching darkness and the fact that Major Carter was flying instruments by partial panel in a thickening cirrus overcast.

At destination, a weather formation penetration and approach were made without speed brakes to conserve battery life. When the flight was 15 NM on final, the tower advised that the runway lights had failed. By this time it was 30 minutes past sunset, but the decision was made to land in the remaining twilight since the nearest alternate was nearly two hundred miles away. A successful landing was completed although not enough battery life remained for selecting nose wheel steering. Post-flight investigation revealed that both generators and generator control panels were burned out and the right constant speed drive unit had failed internally.

Major Carter and Major Stafford saved a valuable interceptor aircraft and possibly their own lives. By exercising decisiveness in judgment and outstanding professionalism in airmanship when their problems were most acute, they truly earned the "We Point with Pride" award.



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.

THE FIGHTER PILOT

Would it be possible to obtain a copy of Captain Ray Tucker's interpretation of "The Fighter Pilot"? I read the reprint in the Kincheloe AFB paper and would like a copy to keep for my son. My husband was Captain Iven Kincheloe, a Korean war fighter pilot and I believe Captain Tucker's description is quite good and applies to all fighter pilots and what they are and stand for.

Mrs. Dorothy Kincheloe
Customer Relations
Lockheed-California Company
Burbank, California 91503

***We are proud to send you the copies as requested and we agree with your evaluation of the description.**

FOR T-BIRD JOCKS

I have read with interest the two articles on spinning the "T" in the February 1968 INTERCEPTOR Magazine. You will note on page 9 where Mr. LeVier mentions in his paragraph number three (center column) that the T-33 with 22° of up elevator "spun beautifully and recovered in less than a turn."

It has been my experience with our T-33 aircraft modified with the 26°+2°—0° of elevator up travel that the aircraft spin is much more easily broken if the stick is eased forward about one inch from the rear stop. If the stick is held at the full aft stop, I have found some T-33s that take as much as three turns before the spin will break. I had always wondered about this slow recovery and feel that Mr. LeVier's article clarifies the reason rather well. I expect that our Air Force types do not spin the T-33 aircraft too frequently anymore and therefore have not fully uncovered this problem area. I suspect now that the ones that gave me trouble had 28° of up travel and that the rudder was blanked out to some extent. It is felt that this information should be passed back through AFLC channels and perhaps the spin recovery technique or maximum elevator up travel should be modified. 26°+0° would probably be satisfactory.

We receive your magazine regularly and find it most informative. It also keeps me up on some of the old ADC outfits I was assigned to in the late '50s and early '60s.

Colonel Emmett S. Barrentine
Director of Materiel
Hq 27 Tac Ftr Wg
Cannon AFB NM 88101

***We are inclined to agree with the Colonel from TAC and our Lockheed people tell us that if he wishes to get the T.O. changed from 26°+2°—0° to 26°+0° up travel, he should submit AFTO Form 22 through channels in accordance with T.O. 00-5-1, Chapter 8-35.**

AND A REPORT FROM UDORN

Request that seven copies per month of INTERCEPTOR be sent to the Director of Safety, 432 Tactical Reconnaissance Wing, APO San Francisco 96237. The 432 TRW is located on Udorn Royal Thai Air Force Base in northeast Thailand.

I feel that our safety record under the circumstances, i.e., combat, rapid expansion, crowded conditions, a large amount of air field construction, etc., has been excellent (no accidents in the last six months). I feel that this excellent record has been achieved, in part, by getting "the word" to all concerned with the flying operations. So, consequently, I am always in need of current material. Your excellent magazine will be of great help in helping me do my job and as you can tell from the above, HELP, I can always use.

Major John W. Wall
432 TRW, Box 30
APO San Francisco 96237

***That's our mission, and we always welcome ideas for specific coverage from the field.**

A REPORT FROM IZMIR

Greetings from the land of the Sultans: Sunny Izmir by the Sea. First off, a request. In your April issue you allow as how there are jim dandy copies of the "Fighter Pilot" available by calling you. However, since our autovon over here consists of a couple of outdated pigeons who are restricted to "in country" communications I have appointed myself a committee of one to write you in behalf of all the ADC refugees here in the headquarters and place an order for 10.

At this point I might say that we appreciate the INTERCEPTOR here at 6 ATAF and look forward to them each month. Not only does it keep us up dated on safety items and operations in ADC, but helps us maintain a "position" on many of the troops in the command.

Please give my very best to the troops back there and we will be looking forward to our copies of "Fighter Pilot."

Col Franklin C. Crain
Det 5, 1141 Sp Acty Sq
Box 2118
APO New York 09224

***We'll do our best to keep you posted. The "Fighter Pilots" are on the way.**

the Cold Hard Facts...

IDENTIFICATION DATA (Read AFM 36-10 carefully before filling out any item.)

1. LAST NAME—FIRST NAME—MIDDLE INITIAL	2. AFSN	3. ACTIVE DUTY GRADE	4. PERMANENT GRADE
KNOWITALL, JOSHUA G.	FOD00000	MAJOR	2/LT

5. ORGANIZATION, COMMAND AND LOCATION	6. AERO RATING	CODE	7. PERIOD OF REPORT
Commercial Airline Liaison Secret Command Hong Kong Airfield	Aviator	?	FROM: July 1964 THRU: June 1968
	8. PERIOD OF SUPERVISION		9. REASON FOR REPORT
	Undetermined		Upcoming court martial

II. DUTIES—PAFSC 0000 . **DAFSC** 0001/2. PRESENT DUTY: Instructs stewardii in hand to hand combat (for Vietnam?). Conducts classes on martini mixing, military style. Acts as personal bodyguard for stewardii after duty hours in foreign ports. Reads the riot act to military passengers on R&R flights. Searches for and confiscates live contraband on return flights. Repairs Seeko watches.

III. RATING FACTORS (Consider how this officer is performing on his job.)

1. JOB CAPABILITY					
NOT ○ OBSERVED	CANNOT RECOGNIZE BUILDINGS. ☒	CRASHES INTO BUILDINGS TRYING TO JUMP OVER THEM. ☐	CAN ONLY LEAP OVER SHORT BUILDINGS. ☐	NEEDS RUNNING START TO LEAP OVER TALL BUILDINGS. ☐	LEAPS TALL BUILDINGS WITH A SINGLE BOUND. ☐
2. PERFORMANCE OF DUTIES					
NOT ○ OBSERVED	WOUNDS SELF WITH BULLETS. ☒	CAN SHOOT BULLETS. ☐	NOT QUITE AS FAST AS A SPEEDING BULLET. ☐	IS JUST AS FAST AS A SPEEDING BULLET. ☐	IS FASTER THAN A SPEEDING BULLET. ☐
3. ADAPTABILITY					
NOT ○ OBSERVED	HATES PILOTS. ☒	HAS TROUBLE FLYING. ☐	ONLY FLIES AS HIGH AS TRANSPORTS. ☐	DOES NOT LEAVE ATMOSPHERE WHEN FLYING. ☐	FLIES HIGHER THAN A MIGHTY ROCKET. ☐
4. LEADERSHIP CHARACTERISTICS					
NOT ○ OBSERVED	NEVER HEARD OF LOCOMOTIVE. ☒	GETS RUN OVER BY LOCOMOTIVE. ☐	LOSES TUG OF WAR WITH A LOCOMOTIVE. ☐	AS POWERFUL AS A LOCOMOTIVE. ☐	MORE POWERFUL THAN A LOCOMOTIVE. ☐
5. HUMAN RELATIONS					
NOT ○ OBSERVED	TALKS TO WALLS. ☒	TALKS WITH ANIMALS. ☐	TALKS WITH HUMANS. ☐	TALKS WITH THE GODS. ☐	GIVES POLICY GUIDANCE TO THE GODS. ☐

AF FORM NOV 99 88 PREVIOUS EDITION OF THIS FORM WILL BE USED UNTIL STOCK IS EXHAUSTED. OFFICER EFFECTIVENESS RT