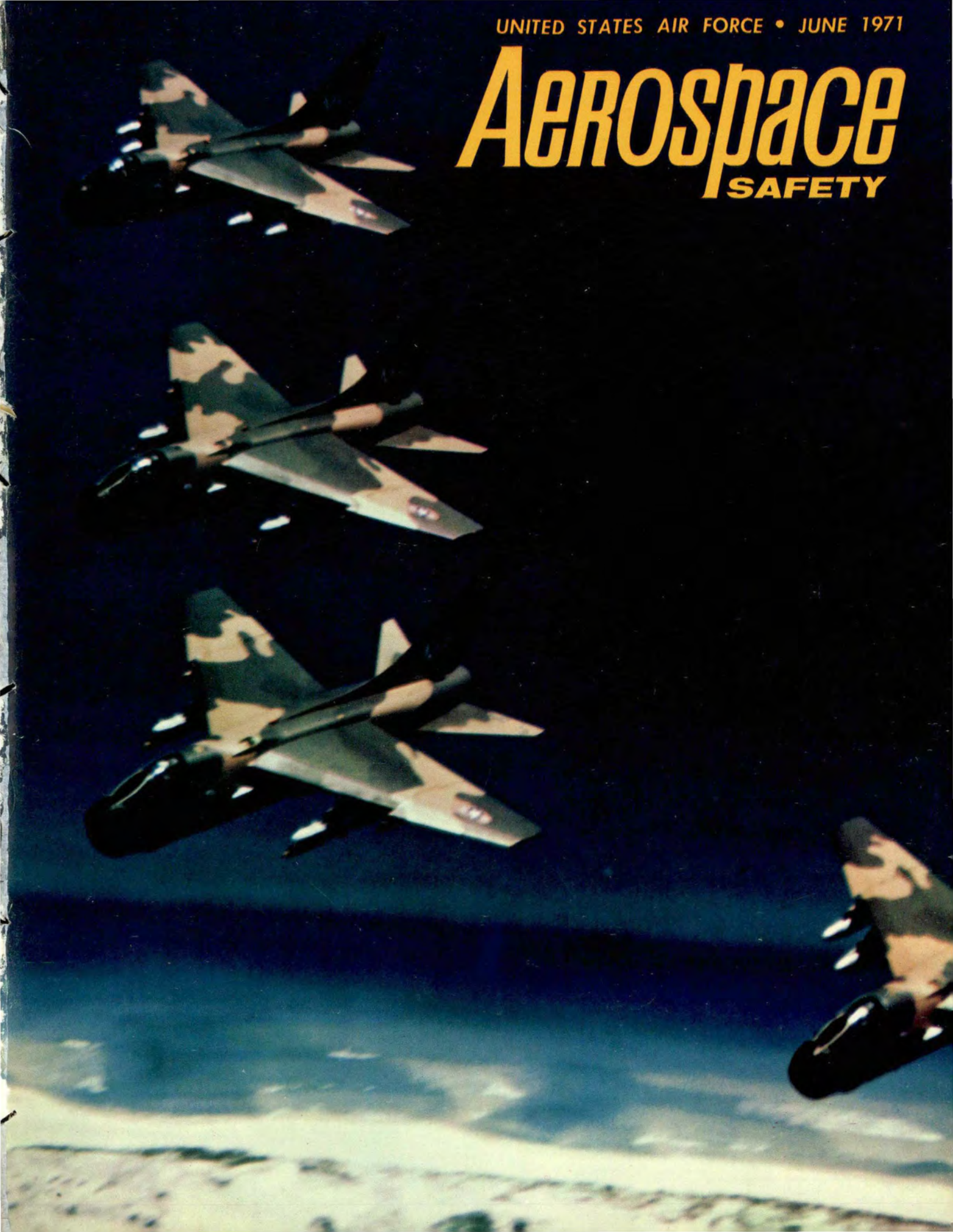
UNITED STATES AIR FORCE • JUNE 1971

Aerospace SAFETY



COVER PHOTOGRAPH BY TSGT EDDIE P. BOAZ, AEROSPACE AUDIO VISUAL SERVICE.

UNITED STATES AIR FORCE

JUNE 1971

Aerospace SAFETY

FOR AIRCREWS, MAINTENANCE & SUPPORT TECHNICIANS

SPECIAL FEATURES

REGULAR FEATURES

DEPARTMENT OF THE AIR FORCE • THE INSPECTOR GENERAL, USAF

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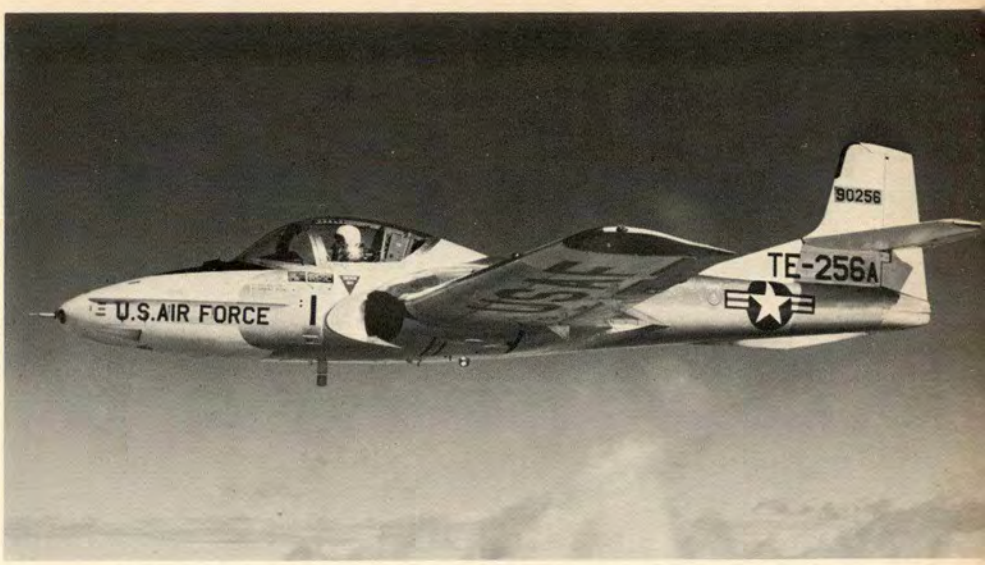

they said it couldn't be done

LT COL LARRY T. COOPER
Directorate of Aerospace Safety

Is it possible to operate a large fleet of jet aircraft for one year with brand new student pilots, fly almost a half million hours, and log almost a million landings without a major accident? Many folks within the aviation community would answer this question with a firm negative. Others might say that the irreducible minimum (a small number of accidents slightly above zero) has already been achieved.

Well, ATC recently confounded everyone. As of 1 May 1971, the US Air Force T-37 trainer fleet completed one year without a major aircraft accident. Since 1 May 1970, the fleet of 800 aircraft (all assigned to twelve ATC bases) flew 488,600 hours on 389,678 sorties and logged 970,298 landings. This number of hours without an accident may not be impressive to some transport or bomber units, but considering the number of sorties and landings, the T-37 achievement becomes more meaningful.

In order to put this accomplishment in better perspective, consider that during this period some 4909 student pilots successfully completed T-37 training. That's a bunch of students. When you consider the fact that most of them had only 16 to 30 hours light aircraft time (T-41) prior to the T-37, and the "tweety bird" was their first jet aircraft, the achievement is even more significant.

It required outstanding maintenance practices on everyone's part, from the crew chief and specialist to the highest level of supervision. And let's not forget the flying safety officers who established outstanding safety programs at every base.

This remarkable achievement could not have been possible without the very best of command control and supervision; maintenance; training; standardization; operational procedures; pilot discipline; and support activities at all levels. Every officer, airman, and civilian associated with the T-37 program is to be congratulated. They have proved that it can be done. ★

management and command responsibility for PILOT FATIGUE

PILOT FACTOR, lack of judgment, false pride, crew rest, eight hours of uninterrupted rest, alertness, progressive unconscious lowering of performance standards—all words addressing fatigue associated accidents. Mountains of articles and words have been written about this subject, many by authors who have not experienced nor even ventured into the real world of the deployed aviator. To whom do they direct most of these articles in the cause of accident prevention? Yes, to the pilot. Consequently, the pilot eventually becomes inured to these constant exhortations on a subject which is not always under his control. A great wash of euphoric platitudes falls on deaf ears when the written admonishment belies the situation.

The often overlooked problem of fatigue is not only a responsibility of the individual, but of command. It is quite simple to blame the pilot, although the pilot's unfortunate experience may have been a result of what he thought was aggressive, unflagging devotion to duty. Therefore, it is a necessity for those in authority to be cognizant of fatigue potential. Factors influencing pilot fatigue are generally well known—individual physical fitness, time of day, type of operation, length of flight, landing platform, weather, conscientiousness in performing primary and collateral duties, state of training, degree of experience, rest, rest environment . . . to name a few. Additionally, poor morale and a resultant lack of motivation create a strain which makes an individual much more susceptible to fatigue.

These multiple factors interact in varying degrees on different individuals, consequently the fatigue factor cannot be compared by one in command as to how he might feel. Moreover, the commander may feel impelled to drive his personnel even harder as the pressures and commitments rise. Some staff planners and managers who were once the operators may lose sight of the requirements and actualities involved in producing certain desired functions. The squadron may reach a point where it no longer has sufficient time for flying, duties and rest. Not only does fatigue ensue, but hasty action may accompany it. Not only do the pilots show the strain, but it becomes evident in the men.

THE LEADERS within some of these operating organizations advise their people to catch a nap when the opportunity allows. In "Space Medicine" Armstrong notes that physical fatigue may be alleviated by a brief nap but mental fatigue is not significantly reduced without a relatively prolonged period of sound sleep. But the pace established under the foregoing circumstances eliminates any possibility of proper rest.

It is not unusual within the military to sustain a high tempo of operations while overlooking the effect on participating individuals. A blind "can-do" attitude is dangerous, ill-advised, and uncalled for. "Can-do" is an essential element under the right set of circumstances; however, it should not become the daily standard because it sacrifices efficiency, safety and material condition of equipment. To maintain such a pace when pilots are flying and working far beyond reasonable standards and maintenance personnel are pushing themselves into a state of exhaustion can and frequently does prove expensive. The pilot eventually becomes overextended physically and mentally. He is subjected to the pressure of accelerated flight ops and a total increase in work load for such reasons as short training cycles, impromptu scheduling, competition, poor availability of aircraft and parts, questionable training for training's sake, desire on the part of some individuals to make their mark and a variety of other valid and invalid circumstances. As a consequence, the deleterious effects of fatigue may frequently be overlooked by the planners, the managers, the commanders, and the pilot himself. Since fatigue is difficult to recognize, and may be no more tangible than a flight surgeon's training lecture, the cumulative result in extreme cases can be outright lethargy, wherein even the inherent desire for survival is depressed.

ALL COMMANDERS must consider the implications and consequences of fatigue in accelerated and extended operations, and in those operations during which exceptionally exacting demands are made on individuals.

Additionally, it is felt that better long-range planning and anticipation are necessary to avoid periods of accelerated operations and ensure a more even distribution of the workload. This workload must be scrutinized critically for fatigue inducements and these possibilities must be eliminated or reduced wherever and whenever possible. The breakdown of planning must be avoided. Otherwise factors begin to interfere with the current operation to the degree that the pressure is on.

There has always been a stigma attached to the slightest lack of a hard-charging, overzealous "can-do" attitude. This stigma will never be eliminated. Therefore, exhortations that individuals recognize and admit fatigue accomplish little. Senior commanders must provide limitations for the operating commander during accelerated operational training periods, considering the personnel and material means at their command. Under military commitment operations, the chain of command must include fatigue considerations in their planning for mishap prevention.

It is incumbent upon the commander, the supervisors and a man's own friends in the operating unit to be alert for fatigue in individuals and to promptly cope with it. The fatigued individual should not be queried as to his capability for continued activity, for his answer will generally be of the "can-do" variety. He must be cancelled from the flight schedule, or told to hit the sack and get some rest.

Positive, realistic action at all levels of planning and supervision is required to minimize hazards and prevent occurrence of fatigue factor accidents.

(WEEKLY SUMMARY, U.S. Naval Safety Center)

REDUNDANCY ALONE

LT COL DAVID L. ELLIOTT, Directorate of Aerospace Safety

The following concerns an aircraft accident in which two barriers, back to back, failed to save an aircraft.

The hook of the accident aircraft was observed to be down about 2000 feet prior to crossing the BAK-12 cable. The hook struck the top of the cable about 2.5 feet to the right of the runway centerline, cutting several strands and leaving an imprint of the hook on the cable. The aircraft then passed over the barrier and headed for the MA-1 cable.

By this time the aircraft was traveling at about 100 knots, at a gross weight of approximately 41,800 pounds. The arresting hook engaged the MA-1A cable about 3.5 feet to the right of the centerline. The engagement was initially successful; however, shortly after the engagement the cable failed. The aircraft was destroyed.

The accident board observed several successful barrier engagements on the BAK-12 system after the accident. The hooks of these aircraft were observed to track well with only minor bouncing on the runway. This indicated that, properly engaged, the BAK-12 would have arrested the accident aircraft. There was also no indication of a hook failure. The hook pressure was measured at approximately 1000 pounds after the accident.

Although the groove under the cable had been repaired two months earlier, the BAK-12 cable had worn a new groove about ten inches wide and 1 7/16 inches deep at the runway centerline. These measurements were determined during a grooving inspection made by the barrier crew three days prior to the accident. By coincidence, the cable clearing above the runway was also measured as 1 7/16 inches during this inspection. This is 1/16 inch less

ISN'T ENOUGH

than the minimum required by TO 35E8-2-5-1.

The accident investigation board concluded that the groove under the cable contributed to the unsuccessful BAK-12 engagement. The fact that the cable was rigged 1/16 inch below the minimum runway clear-

ance required was considered a minor factor. The most probable cause was that as the aircraft wheels passed over the BAK-12 cable, fluctuations were induced and the cable was almost below the level of the runway as the hook arrived. Under this condition, with the cable partially within the groove, the accident aircraft hook deflected the cable down and under the hook.

The 175-foot long MA-1A barrier cable is attached to ship anchor chains. TO 35E8-2-2-4, dated 28 Mar 69, requires the chains to be connected to the swaged ends of the cable with a two-plate or "sandwich" type connection. However, on this particular MA-1A barrier, one end of the cable was found to have been connected to the chain with only a single plate. It failed at this point, shortly after engagement. This barrier had provided previous successful engagements, but could not withstand the load imposed by the accident aircraft due to the inadequate connection.

Increased reliability afforded by redundancy is based on the individual reliability of both the primary and backup systems. In this case the reliability of each barrier was low enough to assure, sooner or later, an unsuccessful engagement.

Grooving under barrier cables greatly increases the probability of an unsuccessful engagement. There will, of course, be successful engagements but once in a while a failure. In the case described, the failure did occur, a reliable MA-1A was

not available as a backup and the aircraft was destroyed. This looked like an excellent barrier setup. However, once in a while the conditions will be right for just what happened here. ★

DANGEROUS CA

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Richards-Gebaur AFB, Mo.

Have you ever violated a regulation? While thinking over the necessary rationalization to answer that question, let's make it more specific: Have you ever violated one, the violation of which must be reported to HQ USAF by priority message?

Let's shelve this question for a minute and ask another: What are dangerous materials? Obviously, explosives are dangerous materials. There are others, and their "dangerous" characteristics are fairly obvious. Or are they? Air Force Manual 71-4, "Packaging and Handling of Dangerous Materials for Transportation by Military Aircraft," defines dangerous materials: "Any material that, because of its properties, is flammable, corrosive, an oxidizing agent, explosive, toxic, radioactive, or unduly magnetic." (Unduly magnetic is construed to mean that sufficient magnetic field strength is present to cause significant navigational deviations to the compass sensing devices of an aircraft.) (AFM 71-4, Chapter 1, Para 1-1, f.)

With this definition in mind, the obviousness of the "dangerous" characteristics becomes questionable. Some of the less obvious items that are included under dangerous materials are carbon remover, liquid cement, cleaning compound, gasoline, lighter fluid, aerospace ground equipment with fuel in tanks, radar magnetrons, wet plate batteries, some paints, some motion picture film, aircraft magneto assemblies, and hydraulic brake fluid, just to mention a few.

Perhaps you agree with this list, and are familiar with the packaging and labeling requirements of AFM 71-4. Perhaps you, as an aircraft commander, take all the necessary steps to insure that these items, when part of your aircraft cargo, are inspected to assure compliance with requirements of AFM 71-4. Your responsibilities, however, do not stop here.

You, the aircraft commander, are also responsible in part for compliance with AFR 55-14, "Operational Procedures for Aircraft Carrying Dangerous Materials as Cargo." This regulation assigns responsibilities to major commands, base commanders and aircraft commanders. One of the aircraft commander's responsibilities is to accomplish the backup notification procedures, contained in paragraph 4. This consists primarily of identifying your cargo in the "Remarks" section of the DD Form 175 as "dangerous" along with necessary description and instructions.

Another aircraft commander responsibility is to notify, by telephone, the first base of arrival of the nature of his cargo, if the planned ETE is less than one hour.

As a final backup, you must verify receipt of your dangerous cargo message with approach control or tower at least 10 minutes before your actual arrival.

RGO "hot" or "cold"

Now that we've briefly looked at a few of the requirements of AFR 55-14, let's look at paragraph 7, the last one in this regulation: "Landing Without Advance Notification." "When a commander is advised that an aircraft carrying dangerous material has landed without advance notification or that the control tower was not notified as required in paragraph 4, he will advise the applicable service headquarters by priority message."

Assuming that there have been violations of AFR 55-14 (and there have), and that some of these have been willful violations, the natural question which arises is "WHY?"

To answer this question, follow Captain Joe Goodguy as he attempts to fly a mission with dangerous cargo on board, "by the book." When he picks up his cargo, he and his loadmaster inspect the cargo for compliance with AFM 71-4. In this case it is fairly simple, a radar magnetron for a fighter aircraft. The box has been properly marked and labeled. Joe knows that his command post has sent the required predeparture message IAW AFR 55-14. He enters the proper statement in the "Remarks" section of his DD Form 175. The ETE for the flight is more than one hour, so he does not have to make a telephone call. The proposed flight plan was accepted by center, so there is nothing left for Joe to do except to confirm receipt of his message with approach control or the tower. Approach control does acknowledge receipt of the "dangerous cargo" message. Every special requirement of fulfilling his responsibilities for his cargo has been met so far.

On final approach, however, Joe notices the flashing red lights of some emergency vehicles at the approach end of the runway and on several adjoining taxiways. During his landing rollout, he becomes the leader of an interesting looking parade. Soon he is following a "Follow Me" out into the boondocks. He had requested minimum ground time, and is somewhat surprised to be taxiing to the South 40. He is parked in the "Hot Spot," that beloved area devoid of anything worthwhile, including any transportation to base operations. Eventually, after a lengthy wait for wheels, a lengthier wait for refueling, and being subsequently downloaded after air freight discovered his aircraft, Joe had to taxi to the main terminal area to make room for another aircraft with "hot" cargo. He did discover, after conversations with tower, ground and operations that he was parked in the boonies because of his "hot cargo." He showed operations personnel his copy of the DD Form 175, which identified his cargo as "dangerous," and further described it as "magnetic, isolated taxiing and parking not required." The reply given him was "All hot cargo onloads and offloads in the hot cargo area."

Mission Delay: More than one hour. Reason: Overreaction. Result: Guess what items Joe is not going to include in his DD Form 175 tomorrow with a similar load? Further result: Willful violation of AFR 55-14.

What is the solution? Joe sees an immediate one by no longer identifying his cargo as dangerous, unless he is carrying explosives. He is now caught in a vicious cycle: He will no longer call anything *dangerous* except for the more obvious items; base operations will receive no more "dangerous cargo" messages unless explosives are being carried. Therefore, receiving bases will continue to *overreact* to the lone aircraft commander who is the next to call a magnetron *dangerous*.

Again, what is the solution? Education and practice. Aircrews should be made aware of the requirements of AFR 55-14, coupled with a working knowledge of AFM 71-4. Base operations and tower personnel should be made aware of the same requirements and look for specific descriptions. "Dangerous Cargo —Magnetic," and "Dangerous Cargo—Class B Explosives" are not in the same category and do not require similar handling.

Finally, as in many other systems, practice makes perfect.

Aircrews, after many flights with strict adherence to AFR 55-14, will no longer be gunshy of placing the required remarks on the flight plan. Ground personnel will no longer overreact to "Dangerous Cargo" arrival messages, being aware of the many types of dangerous cargo and their varying restrictions.

It all makes for safer operation. ★

THE I.P.I.S. APPROACH

By the USAF Instrument Pilot Instructor School, (ATC) Randolph AFB, Texas

INDEX TO IPIS APPROACH ARTICLES

Here's an index to all IPIS Approach items that have appeared in AEROSPACE SAFETY since inception of this feature in January 1965.

Copies of all IPIS Approach articles to date are available from the USAF IPIS (FTYI), Randolph AFB, Texas 78148. ★

A-7 DEBRIS CONTROL

FOD continues to be a major Air Force headache. Here's how one manufacturer attacks the problem prior to delivery of a new aircraft.

Loose debris and/or foreign objects in aircraft offer one of the most common aircraft safety hazards. This problem is one of constant concern to Vought Aeronautics and that concern has led to the development of a Debris Control Plan. The purpose of this article is to describe the Vought Debris Control Plan and, hopefully, to promote a general understanding of the factors involved in limiting the incidence of foreign objects in our airplanes. The plan is based on keeping debris out of the aircraft from sub-assembly to pre-delivery, systematic removal of debris during the manufacturing process, redundant inspections, and constant updating of the plan by the continuous use of aircraft debris history.

Since debris-avoidance is more an attitude than a procedure, motivation has been periodically stimulated by showing all affected personnel a professional film produced by Vought Aeronautics. The film, which was made as a result of a debris-related inflight incident, is entitled "You Bet My Life"; it recently received a first place award at the Industrial Management Society industrial film competition in Chicago. It has also been provided for use by Customer personnel and other airframe manufacturers.

Aircraft compartment cleanliness is checked prior to every compartment closeout in subassembly, final assembly and at airport operations. In addition, a roll-over fixture is used to make hidden material accessible on the entire fuselage. Routine area inspections during airport operations are supplemented by x-ray of the cockpit area during Preflight Control Inspection and again during pre-delivery operations.

All foreign material that is found on the film by the x-ray technician is identified, listed on a Quality Assurance form, and accounted for to the satisfaction of Quality Assurance representatives.

Additional supplementary inspections during airport operations consist of "Cockpit Under Seat" inspections just prior to the first flight and again in Pre-delivery. This inspection is a visual check of the area under the seat, with high-intensity lights and mirrors through the rudder pedal and console accesses with the seat raised to the top of its travel.

The most extensive supplementary inspection is conducted after the initial flight of the aircraft and before the first Customer flight. This inspection has been named the "Negative G" check and is designed to remove all foreign material which

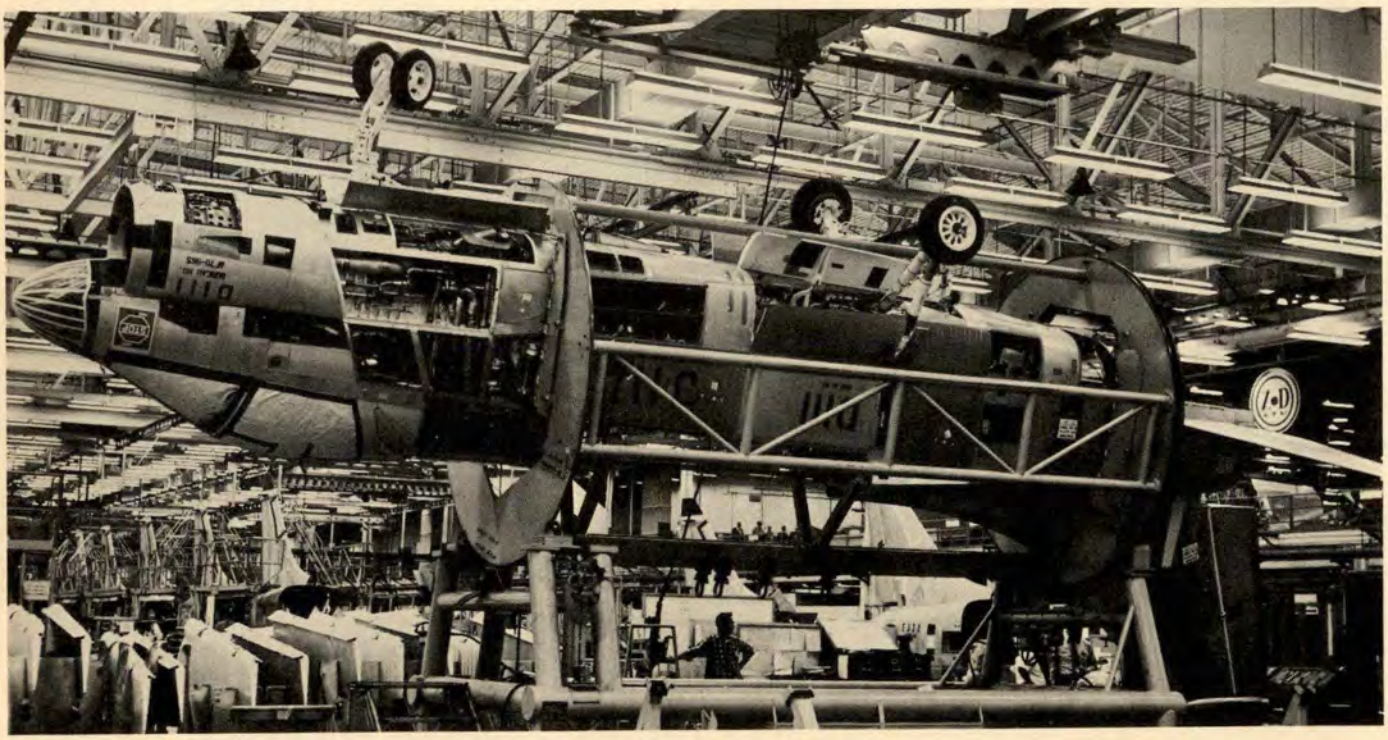

Figure 1. Roll-over Fixture

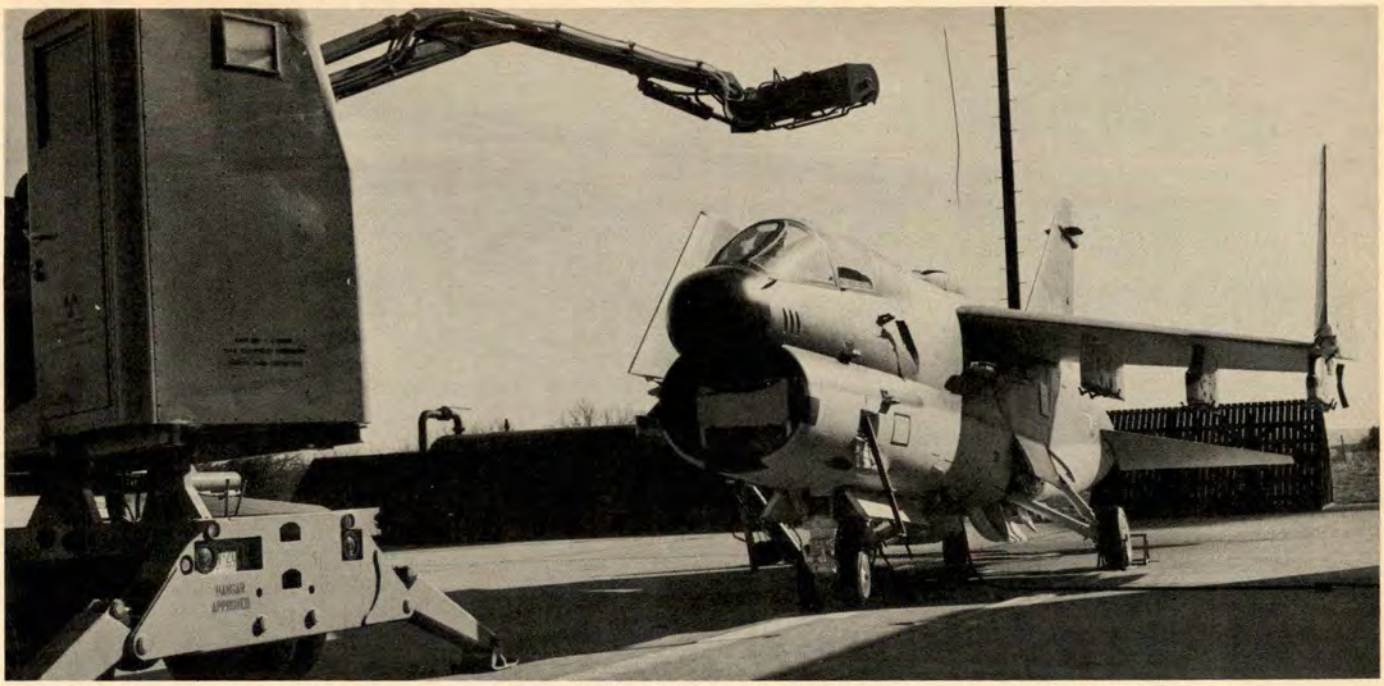

Figure 2. X-raying the Cockpit Area

has become accessible due to changes in gravitational force direction and magnitude during flight. The inspection is accomplished by opening approximately 60 critical areas and removing any foreign material which has been dislodged or made visible by the "Negative G" maneuvers.

During Pre-delivery operations, a special inspection is conducted to check the condition of certain critical compartments. This check measures the effectiveness of the debris control on the "as delivered" airplanes. Compartments are added to these checks when Customer reports indicate that excessive debris has been found in a delivered airplane. Similarly, compartments are deleted when inspection history indicates that the compartments are consistently acceptable when inspected during Predelivery operations.

The effort expended by Vought Aeronautics to control A-7 debris is only a beginning of the debris control effort which will be required to keep the aircraft clean. The problem of debris-avoidance exists throughout the "life" of every aircraft, as long as maintenance is performed by personnel using normal tools, techniques and hardware. Much can be achieved by motivation and training of personnel to prevent introduction of foreign objects. For this reason, Vought Aeronautics has not only rescheduled the showing of the film "You Bet My Life" to Vought Aeronautics Manufacturing and Quality Assurance personnel, but has also provided a copy of the film to various U.S. Navy activities and to the first U.S. Air Force A-7D Tactical Fighter Wing at Myrtle Beach AFB. ★

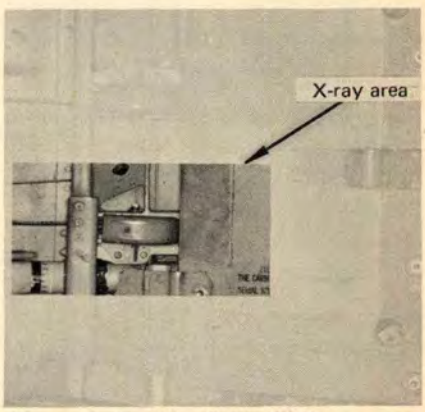

Figure 3, Rudder Cable Pulley Housing With Ejection Seat Removed

Figure 4, X-Ray Showing Rivet Stem Inside Rudder Cable Pulley Housing

PIREPS

expanding to fill the need....

In the sometimes vague and often confusing mass of weather information to which the pilot has access, there is one phrase which always catches our attention—PIREP. Here is on-the-spot, timely information from somebody who's *there,* and he's speaking—through the weather reporting system—in words we can understand.

PIREPs are enormously beneficial to the weather briefer. Benefits accrue not only from the on-the-spot character of the report—which makes it about as reliable as talk about the weather can ever be—but also from the timeliness—what the computer people call "real time" (which means *now).* In addition, PIREPs provide the sole source of

PIREPS PIREPS PIREPS

information on the *now* weather between ground reporting points.

Recognizing the need for incorporating this valuable information into our weather service program, the FAA has taken steps to improve and augment existing PIREP procedures, and launched an ambitious program of PIREP automation. First, though, let's take a look at what happens when you introduce a PIREP into the system—to an en route controller, for instance:

- The information is immediately available to pilots flying in the same area, provided they are in contact with ARTC. In addition, the controller passes the information to the Flight Service Station for that area.

- The FSS operator, whose primary duty is to brief pilots—both before and during flight—immediately incorporates the information in his briefings. He also passes the information along, via the teletypewriter net, to other Flight Service Stations and to the forecast office. In this way, your PIREP is rapidly and efficiently processed throughout the system, where all agencies, including our Pilot-Forecaster Service, have access to the information.

Still, there is much room for improvement and expansion. Recognizing this, the FAA has taken the following steps:

- An order has been issued to all tower chiefs at airports serviced by scheduled air carriers, requiring them to solicit airline cooperation in providing cloud base and top data whenever the ceiling is below 5000 feet overcast. At other airports, tower personnel have been directed to request this information at two-hour intervals from any aircraft under their control. Hopefully, pilots will also provide information on other significant weather, such as icing or turbulence.

- FSS personnel will solicit PIREPs when any of the following is occurring or forecast within the station's PIREP area: turbulence (including clear air turbulence of moderate or greater intensity); thunderstorms and related phenomena; visibility less than five miles; or ceilings below 5000 feet. CAT reports will be relayed to the ARTC center and transmitted on the weather teletypewriter circuit as an urgent PIREP.

In order to systematize the contribution of PIREPs, and make this valuable information readily available to all users, the FAA has established an experimental program along the following lines:

At selected VOR sites in the FAA Eastern Region, a receiver, recorder and transmitter will be installed. Two scheduled operators, whose planes regularly transit the selected VORs, have agreed to participate. When over the VOR, pilots for these selected airlines (one in the high altitude structure, one in the low) will transmit a PIREP in the blind on a discrete frequency. The PIREP will be automatically taped and rebroadcast continuously on the VOR frequency, and the associated FSS will copy the PIREP and disseminate it in the normal manner. When the next report is made, the previous report will be automatically erased.

By the time this issue of the magazine goes to press, the first unit will have been installed at the Millville, New Jersey, VOR for a three-week test. If test results are good, three additional systems will be activated for a six-month test. Equipment being used in the tests is off-the-shelf, but a successful six-month test will result in the issuing of specifications for more sophisticated equipment.

Ultimately, of course, the system will be expanded nation-wide. And anyone headed toward a VOR will be provided with *now* information on the weather waiting for him. ★

(Based on a presentation by Mr W. H. Boatright, Chief of Flight Service Station Operations and Procedures Branch, Air Traffic Service.)

ASKING FOR IT

MAJ THOMAS D. MILLER
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The many flying regulations and restrictions imposed on us as aircrews by our higher echelons of command are generally initiated in the interest of safety to conserve our resources, both human and material. We in military flying must absorb and apply the knowledge gained from the experiences and mistakes of ourselves and others in our profession, in order to fly safely and effectively, whatever our mission may be. When we ignore directives and regulations, fail to use good common sense, attempt to fly beyond our capabilities, deviate from established emergency procedures, or inadequately flight plan, we are, in the vernacular, "Letting it all hang out" or "asking for it."

ALTHOUGH each type of aircraft has its own peculiarities, the fighter business probably offers a greater scope and range of accident potential than any other. In fighters the crew composition is smaller, speeds faster, altitudes higher, engines fewer, and much equipment inaccessible to the crew; in short, a very demanding mission which can only be accomplished effectively by a true professional. I am not implying that bomber, transport, tanker, trainer, or even base operations flying is a "piece of cake," by any means. Each requires its own unique skills to safely accomplish the mission.

The single cockpit pilot (A-7, F-5, F-100, F-106, F-102, etc.) probably has the most demanding flying job in the Air Force, thereby the greatest opportunity for personal error. He is his own pilot, copilot, navigator, weapons systems operator, air refueler, etc. The GIB, WSO, Nav, or IP in the rear seat of the F-4 helps take the load off the aircraft commander, thereby through good crew coordination producing a more effective combat aircrew. Operating a one- or two-man aircraft does not especially mean in itself that the mission is more hazardous or less safe. It just means that you are forced to be more aggressive and do more on your own to get safely from point A to point B without an unexpected stop in between.

Although this article is directed primarily at fighter pilots, it applies just as well to any other type of aircraft. Think back and recall the last time "You asked for it."

* * *

The Form 70 was *almost* finished but he was in a hurry, so he bugged out without completing it. Unexpected head winds left him no margin on fuel for the long hop and a suitable airfield was not within range when he flamed out. Only desert and mountains. **"He asked for it."**

* * *

He failed to check the 781 thoroughly. Missed the delayed discrepancies, lack of an inspector's signature on maintenance performed on his aircraft, and the absence of a fuel entry. Flamed out two miles after takeoff. **"He asked for it."**

* * *

The TACAN was out on the cross-country flight and the *inertial* wasn't too good either. Left engine oil pressure was also fluctuating. They decided to save the

writeups until they got home rather than have to RON at a base without maintenance for their type of aircraft. They were 40NM off track on the last leg home when the left engine froze. **"They asked for it."**

* * *

The destination base went below minimums and they didn't *really* have enough fuel to make it to their alternate. They almost made it, but **"They asked for it."**

* * *

The RTU student was very weak in the Air Refueling Phase, but since he was a lieutenant colonel, his captain instructor pilot let him get through with a few words of warning. One month later, the former student had to bail out returning from a combat mission because he could not make a tanker hook-up. **"They asked for it."**

* * *

The young pilot was impressing his rear seater with his skill at flying low level. They scraped off their external tanks, the tips of the slab, and had tree limbs imbedded in the pylons when they landed. They were lucky! **"They asked for it."**

* * *

As the pilot rolled in for a heavyweight night dive bomb pass, he felt the aircraft shudder, ignored it, and continued to try to pull the pipper to the target. The altitude was too low to initiate a recovery from the spin. **"He asked for it."**

* * *

He forgot to change the switches between events on downwind during a night gunnery mission. Tried to do it turning base leg and got disoriented while looking at the DCU-94 on the right console. He made one swing in the chute before hitting the ground. Lucky? **"He asked for it."**

* * *

He had a bad head cold, but it seemed to be breaking up. Besides, he had to get a high altitude intercept mission in before the end of the half. On letdown he encountered severe sinus pains and an ear block resulting in a ruptured ear drum. **"He asked for it."**

* * *

If you've worked around aircraft for any time at all, I'm sure you can add many experiences of your own to the list. Many little errors eventually add up to back you into a corner, whether in the air or on the ground. Be professional in your flying and later they won't say about you—"Well, he asked for it!" ★

A BILINGUAL GLOSSARY FROM NEW ZEALAND ATC

Aircraft	Der fliegenwagen
Light aircraft	Der klienen fliegenwagen
Jet transport	Der gross fliegenwagen mit sckullschplitten schreemen spittenfirenbakof, ensmoken
Propeller	Der airfloggenfan
Control column	Der puschenpullen schtick
Rudder pedals	Der tailschwingen werks
Pilot	Der tailschwingen puschen pullen werker
Student pilot	Der dumbkopf lernen fliegen
Instructor	Der dumbkopf schtuk mit der dumbkopf lernen fliegen
Air traffic controller	Der schweinhund ubbenzie taur watchen aller oder dumbkopfs fliegen
IFR	Lissenwaitenhopen fliegen

(Journal of Air Traffic Control)

(CHINA-BURMA-INDIA)
HUMP PILOTS ASSOCIATION

26TH ANNUAL REUNION
RAMADA INN
COCOA BEACH, FLORIDA
AUGUST 19, 20, 21, 22, 1971

For Information Contact:
Dr. William Jackson
917 Pine Blvd.
Poplar Bluff, Missouri 63901
Telephone: (314) 785-4896

UNITED STAT

1970 Safe

Secretary of the Air Force Safety Trophy

☆

TACTICAL AIR COMMAND

Best overall accident prevention program of all commands with 200,000 or more flying hours per calendar year.

TAC's well defined and effective accident prevention program reduced the command's major aircraft accident rate to a record low. TAC flew 700,000 hours while maintaining a combat ready status and supplying a continuous flow of skilled aircrews to Southeast Asia. The success of the command reflects strong leadership, effective management and a high degree of motivation among all TAC personnel.

☆

AIR FORCE COMMUNICATIONS SERVICE

Best overall accident prevention program of all commands with less than 200,000 flying hours per calendar year.

AFCS's aggressive accident prevention program attained a zero accident rate in both the major and minor flight accident categories, in addition to a zero explosives accident rate. This was the sixth consecutive accident-free year for the Air Force Communications Service, attesting to the high degree of professionalism within the command. In view of the diversity of the flying mission and the ground environment of the worldwide operation, the record of accomplishments was outstanding.

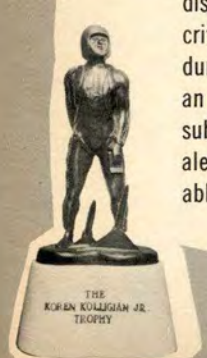
☆

Koren Kolligian, Jr., Trophy

LT COL ROY L. ST. MARTIN

The Koren Kolligian, Jr., Trophy has been awarded to Lieutenant Colonel Roy L. St. Martin in recognition of his outstanding feat of airmanship in successfully coping with an emergency while participating in aerial flight.

On 14 August 1970, Lieutenant Colonel St. Martin distinguished himself by displaying exceptional airmanship in coping with a unique and extremely critical system failure in an SR-71 aircraft. Consecutive failure of all redundant channels of the stability augmentation system placed the aircraft in an academically unflyable position from which loss of control, ejection, and subsequent loss of a valuable aircraft were imminent. Through his exceptional alertness, appropriate corrective action, and with extraordinary skill, he was able to recover the aircraft.



Maj Gen Benja Memori

STRATEGIC A

Through a well defined and man Strategic Air Command established a rate of 0.6 in 1970. This accomplish flying 700,000 hours in its all-weath performance of aircrew and mainte leadership and effective management.

ES AIR FORCE

ty Trophies

Chief of Staff Individual Safety Trophy

☆

Col Roy H. Crow

As Director of Safety, Hq 15 Air Force, SAC, Colonel Crow pursued an aggressive safety management program that significantly reduced accident rates. In addition to his other accomplishments, Colonel Crow established the 15th Air Force Deficiency Review Panel, an effective management program which meets quarterly to review action taken at all levels of command.

☆

Maj William M. Thompson

While serving as Safety Officer, Hq ATC, Major Thompson's devotion to duty and superior managerial abilities produced an accident prevention program for Air Training Command that is considered outstanding. Major Thompson also spearheaded numerous projects that decreased the accident potential within the undergraduate pilot training program.

☆

MSgt Darrell E. McNeese

Due to the leadership of MSgt McNeese, the ground safety program of the 381st Strategic Missile Wing, SAC, was greatly improved during 1970. In addition, he established a safety program for another unit that was adopted in all safety functions of the Eighth Air Force.

☆

SSgt William L. Wilt

As Ground Safety Superintendent, 1956th Communications Group, AFCS, Sergeant Wilt demonstrated outstanding devotion to duty and ability to initiate substantial changes in the accident reporting and analyses procedures of AFCS. As a result, substantial reductions were made in command accident rates with corresponding savings of Air Force resources.

☆

amin D. Foulois
al Award

IR COMMAND

ged accident prevention program, the n all-time low major aircraft accident ment occurred while the command was ner global operations, a tribute to the nance personnel supported by strong

☆

Colombian Trophy

463D TACTICAL AIRLIFT WING

The Colombian Trophy is awarded to the 463rd Tactical Airlift Wing, Clark Air Base, Philippines, for meritorious achievement in flight safety during 1970. The wing attained one of the most outstanding safety records in the Air Force as well as noteworthy achievements in operations and mission accomplishment. During 1970, the wing flew more than 53,000 hours of which more than 34,000 were in a combat environment. The wing overcame the limitations imposed by operating into and out of remote landing strips in Vietnam, under all weather conditions. These outstanding accomplishments were attained through the combined efforts, unsurpassed skill, and dedication of the unit's assigned aircrews and support personnel.

SAFETY

FLIGHT

AAC 21st Composite Wing, Elmendorf AFB AK

ADC 57th Fighter Interceptor Squadron, Keflavik NAS Iceland
49th Fighter Interceptor Squadron, Griffiss AFB NY

AFLC Sacramento Air Materiel Area, McClellan AFB CA

AFSC Directorate of Flight Test, ASD, Wright-Patterson AFB OH

ATC 3575th Pilot Training Squadron, Vance AFB OK
3515th Pilot Training Squadron, Randolph AFB TX
3535th Navigator Training Wing, Mather AFB CA

MAC 40th Aerospace Rescue and Recovery Wing, Ramstein AB, Germany
1st Aerial Cartographic and Geodetic Squadron, Forbes AFB KS
89th Military Airlift Wing, Andrews AFB Wash DC

PACAF 460th Tactical Reconnaissance Wing, Tan Son Nhut AB RVN
1st Special Operations Squadron, Nakhon Phanom Airport, Thailand
21st Tactical Air Support Squadron, Cam Ranh Bay AB RVN
463d Tactical Airlift Wing, Clark AB, Philippines

SAC 307th Strategic Wing, U-Tapao Airfield, Thailand
100th Strategic Reconnaissance Wing, Davis-Monthan AFB AZ
379th Bombardment Wing, Wurtsmith AFB MI

TAC 57th Fighter Weapons Wing, Nellis AFB NV
317th Tactical Airlift Wing, Lockbourne AFB OH
474th Tactical Fighter Wing, Nellis AFB NV

USAFE 525th Tactical Fighter Squadron, Bitburg AB, Germany

AFRES 906th Special Operations Group, Clinton County AFB, OH

ANG 140th Tactical Fighter Group, Buckley ANGB, CO

AWARDS 1970

MISSILE

AAC 21st Avionics Maintenance Squadron, Elmendorf AFB AK

ADC 84th Fighter Interceptor Squadron, Hamilton AFB CA
62d Fighter Interceptor Squadron, K. I. Sawyer AFB MI
46th Air Defense Missile Squadron, McGuire AFB NJ

AFSC Space and Missile Test Center, Vandenberg AFB CA
Air Force Eastern Test Range, Patrick AFB FL

PACAF 432d Tactical Reconnaissance Wing, Udorn RTAFB, Thailand
388th Tactical Fighter Wing, Korat RTAB, Thailand

SAC 320th Bombardment Wing, Mather AFB CA
321st Strategic Missile Wing, Grand Forks AFB ND
381st Strategic Missile Wing, McConnell AFB KS
1st Strategic Aerospace Division, Vandenberg AFB CA

TAC 57th Fighter Weapons Wing, Nellis AFB NV

USAFE 32d Tactical Fighter Squadron, Camp New Amsterdam, The Netherlands

ANG 124th Fighter Group, Gowen ANG Base, ID

MAINTENANCE QC–
THE BAD GUYS???

MSGT DAVID MAC NEVIN, 516 Tactical Airlift Wing, Dyess AFB, Tex.

Aircraft Maintenance Quality Control is known by many names, such as *spies, ratfinks and bad guys.* Does QC, which Air Force Manual 66-1 calls the "eyes and ears of the Chief of Maintenance," deserve these many epithets? Does it really improve efficiency of a maintenance unit? How does QC affect flying safety?

Well, from the viewpoint of one maintenance type who has worked the flightline, in a Field Maintenance Aero Repair Shop, on a Phase Inspection Dock, and as a Quality Control Inspector, the answers depend not so much on the QC section, but on the support the section gets from the Chief of Maintenance, the wing and squadron commanders, and the supervisors and workers actually performing maintenance on Air Force equipment.

People filling the QC slots are supposed to be the most qualified individuals, in their AFSCs, available. In most cases they are, but in the few cases where they aren't, why aren't they? Did the flightline or shop supervisor pass off a "deadhead" to get the man out of his hair? Did the squadron commander approve the man's selection? If so, who is responsible for a poor Quality Control Program?

Take another view. Are QC reports being looked at carefully by all agencies concerned, up to and including the squadron commanders and the Chief of Maintenance? Is positive and lasting corrective action being taken to correct problem areas and deficiencies discovered and reported by QC? If not, how good is the QC program, and once again, who is falling down on the job?

Overheard all too often: "We can't let QC pull an Operation Readiness Inspection on that aircraft today; they might ground it, and we have to fly it tomorrow." If a red cross condition exists, do we *really* want to ask a crew to fly it? Shouldn't it be found and repaired even if it does cause a late takeoff or even a cancellation? Certainly if we think of it, we realize how unrealistic it is even to try to keep QC from getting that ORI.

QC people are human and subject to the same failings and inadequacies as you or I. Certainly there are rotten apples in some barrels, but how did they get there? Someone put them there. For the most part, our QC inspectors are dedicated professionals doing a tedious and often thankless job, trying to make our work areas safer, assuring the flight crews of the best possible aircraft. By being honest and "telling it like it is," they are helping to insure a quality end product. That is what it's all about, isn't it? A quality product? The end product may be AGE, an aircraft, or a component being repaired in the field, but it still boils down to this: We're being paid to do a job; if we do that job to the best of our ability, suddenly the ratfinks (QC) aren't such ratfinks after all. If we all pull together toward the same goal, that of the best quality aircraft, AGE, or other components that we can produce, this Air Force will continue to be the greatest place in the world to work, regardless of where in the world you are. ★

tech

An article titled "Maintenance Technical Orders" appeared in the 12 Feb 71 issue of *TIG Brief*. It read as follows "The Air Force's position on the use of maintenance technical orders was recently reemphasized to the major commands and will be further clarified in a soon-to-be-published revision of TO 00-5-1." (See TO 00-5-1, dated 1 Dec 70, and change one dated 1 April 71.)

"Technical orders must be in the possession of, and used by, the mechanic at the job site whenever procedural-type maintenance is being performed."

The question immediately raised is "How?" How, for instance, would a hydraulic mechanic handle a TO while he is up in a wheel well removing and reinstalling a retracting cylinder? Must he hold the wrench in one hand and the TO in the other? Obviously not.

In simple terms, the USAF policy is this: the mechanic must have the TO, or the abbreviated checklist, *at the job site*. In the case of our hydraulic mechanic, the TO will be at the airplane with him—not back in the shop. If the work is being performed in the shop, the TO will be on the bench next to the job, not in the bookcase across the room. Of course, just having the book with him is not enough. He must refer to that portion pertaining to the job he's doing.

The trouble is, the more often we perform a particular task, the better we do it; and the better we do it, the less we tend to rely on checklist procedures and step-by-step instructions. Our daily lives are filled with hundreds of complex tasks which we accomplish without the help of a tech order—why should the job be different? It's not —we could all use a bit more checklist in our daily lives too. Ever left your lights on and come back to find your battery dead? Has the kid forgotten his lunch money lately? Ever been nearly run down by a conscientious motorist who was trying to fasten his seatbelt as he drove down the street?

We can get away with not using the TO for awhile, perhaps. But sooner or later there'll be a change which isn't obvious; or we'll be distracted in mid-job . . . and we'll stumble.

What will the stumble cost? Time? Effort? Money? Our life? Someone else's life?

Will that B-nut back off and allow fuel to gather in the lower compartment? Will that brake line come loose at a critical moment? Will an aileron bind up the first time the pilot breaks left? All the right answers can be found in the TO. ★

(Failure to use tech data is a frequent discrepancy written up in Unit Effectiveness Inspections.—ed.)

data

OVER-EAGER BEAVER

In military flying there are times when you just gotta go . . . but this wasn't one of them.

The T-38 student pilot was taking off on a solo mission. After flap retraction, he noted that the aircraft was nose-heavy and that full aft trim would not correct the situation. The elevator trim was operating, but did not have enough nose-up trim authority, and the student had to hold constant back pressure. *The student felt this was not critical enough to warrant aborting, and continued on his transition mission.* After a couple of maneuvers, the student rolled in from 15,000 feet to pick up airspeed for a loop. Approaching 500 knots, he applied back pressure, hesitated a moment, then reapplied back pressure, and the airplane entered a series of violent pitch oscillations. The student released back pressure, but oscillation continued. The general flight path of the aircraft was downward, so the student seized the stick and tried to freeze it slightly aft of neutral. This produced a massive nose-up oscillation which drove the student's head down to his knees. As airspeed decreased, the aircraft became controllable, and recovery to normal flight was made some 3000 feet AGL. (We don't know how low he got during the roller-coaster ride.) The student declared an emergency, performed a controllability check and landed back at home station.

Investigation revealed a broken flap/slab interconnect cable, which did not allow the slab to reposition after flap retraction and accounted for the nose-heavy tendency. Investigation also disclosed minor skin damage from overstress (the G-meter was pegged on both ends of the scale: +10G to −5G).

This was one lucky young fellow, and we'd hope that airing his story would give pause to over-eager beavers everywhere. If it doesn't fly right, stop and get it fixed!

Ops

OPS CHEC

The C-141 was on the last leg home, one hour out of its departure base, cruising peacefully at flight level 330. "George" was doing his usual sterling job, and the copilot had stepped to the back for a cup of coffee. As the airplane crossed a mandatory reporting point, the pilot directed "George" into a 30-degree bank to turn to a new heading, and then turned his attention to transmitting the position report. "George" chose this moment to take a dive. By the time the flight engineer noted the unusual attitude and alerted the pilot, the big bird had smoothly transitioned to steep bank, nose low, descending at about 11,000 fpm and accelerating through .85 mach. Recovery was uneventful, with altitude loss of about 6000 feet. A Dash-3 inspection revealed no damage to the airplane.

The incident report listed pilot inattenion as a contributing cause. Admittedly, the pilot let it get away, and there's no telling how far things would have gone if the flight engineer hadn't been alert. Still, it was two in the morning, and night flight over open water offers some awfully sketchy outside references. And pilot inattention didn't have a darned thing to do with the autopilot malfunction.

What did? Let's see . . . .

Two days before, the autopilot had been written up as "erratic in all modes. Frequently bounces the aircraft with abrupt control inputs." Corrective action read, "Autopilot vertical gyro removed and replaced. Ops checked good on ground." It was signed off by an Airman First Class.

topics

KED OKAY

One day prior to the incident the autopilot was again written up, this time for commanding an abrupt climb. Corrective action, by a Sergeant, read, "Suspect improper switching sequence by operator (!) . . . Ops check IAW . . . ."

That same day the autopilot was *again* written up, this time for commanding an abrupt left bank. Corrective action, by the same Sergeant, read "Could not duplicate malfunction. System ops checked IAW . . . ."

Let's take a look at TO 00-20-5, which contains a note under the paragraph on Corrective Actions: "A flight crew-reported discrepancy will not be cleared as 'cannot duplicate malfunction' until all possible trouble-shooting actions have been taken. If the specialists or mechanics experience difficulties in duplicating a malfunction on the ground, they will request assistance from higher skill-level personnel. Malfunctions of this nature should be thoroughly discussed with flight crew personnel upon landing or at the debriefing meetings to isolate the reported problem."

We frankly doubt that any of the sensible actions required by that note were accomplished. We're fairly certain that the pilot who was suspected of having "improperly sequenced" his autopilot switches would have had something to say about it during the debriefing—if there had been one. Apparently, in this case, there's a maintenance facility that didn't do all it could to support safe mission accomplishment.

NOMEX FLYING SUITS

Accident statistics indicate that FIRE was involved in 65 percent of the survivable, takeoff phase, aircraft mishaps during the past two years. Six individuals lost their lives as they attempted egress from burning aircraft. Nomex flying suits have saved lives and reduced injury during egress from burning aircraft—HOWEVER, some crewmembers are not wearing these suits when they are available. The new AFSC Supplement to AFM 60-16 will make the wearing of Nomex flying suits *mandatory where they are available*. The subject is one of expressed interest on the part of USAF/IG and can be expected to be a special interest item for future inspections. Like seat belts in automobiles, Nomex flying suits are provided to save lives and it is regrettable that their use can only be insured through the use of regulations.

(Air Force Systems Command Safety Management Newsletter)

AIRCRAFT TIRE INFLATION

In the past few weeks one major aircraft accident and several incidents occurred involving both new and rebuilt tires. Under-inflation was evident in most failures. It is imperative that aircraft tires be inflated properly for gross weight of aircraft prior to each flight. If tires are operated on one mission under-inflated, damage will result and the tire can fail on a later mission even though properly inflated. With hot weather approaching, tire problems will be compounded if tires are not inflated to proper pressures before each mission.

(AFSC Safety Management Newsletter)

OPS topics

UNAUTHORIZED EQUIPMENT—COCKPIT

After an F-84 crashed while conducting a simulated attack on a bridge, the primary cause for the accident was assessed as pilot factor because the evidence strongly indicated that he had entered a maneuver from which recovery was impossible. However, the accident investigation team found, in the wreckage, a cigarette lighter that did not belong to the pilot. Although the lighter was apparently not a contributing factor in this accident, such objects complicate the investigation of an accident. This gives us at least two good reasons for cockpit cleanliness:

1. To prevent an accident,

2. To not make an accident investigation more difficult than it is.

Lt Col Leland P. Kriner
Directorate of Aerospace Safety

AW-W-w-w!!

The message traffic the other day contained an interesting but somewhat startling account of a bird strike.

QUOTE: Small bird impacted left lower windscreen in a right climbing turn out of traffic at 2700 feet, 240 KIAS, species unknown. Insufficient remains for disposition. UNQUOTE.

We keep telling those birds not to keep their heads down in VFR weather!

FLIP CHANGES

Departure Notification: Civil airports do not automatically notify FSS of an aircraft's departure time as military fields do. It should be noted that this includes stop-over flight plans and that after each takeoff from a civil field the pilot must contact FSS and pass his actual takeoff time. (FLIP Planning Section II, N&S America, Section II, Par 1, D.).

Canadian Cruising Altitudes: Canada has extended the use of 1000 feet of vertical separation for IFR flights up to FL 290 and redesignated cruising altitudes. This eliminates the possibility of opposite direction traffic being at the same altitude in the area of the boundary between US and Canadian airspace.

BLAME IT ON THE WIND!

After a T-38 out-'n-back, maintenance found a broken nose gear strut door. We imagine they found it rather quickly, because they must have been looking all over the aircraft for the Form 781. It seems that, since the canopies were left closed because of gusty winds at the turn-around base, transient alert stored the forms in the nosegear well. We sort of regret that the forms stayed with the airplane when the gear was lowered because we could have made a funny about a *very* exceptional release. Do you suppose using the checklist for preflight might have prevented the incident?

NUCLEAR SAFETY AID STATION

AID THE MISSION BY SUPPORTING THE AID PROGRAM

HELP!

Believe it or not, there are several thousand people in the Air Force who devote all of their efforts to insuring that each piece of equipment provided the user in the field is designed to be easily maintained, efficient, and safe. Also many people devote their efforts to ensuring that technical data and instructions for inspecting, maintaining, and operating the equipment are safe, efficient, and within the capabilities of the individuals who perform these functions.

In spite of all these efforts devoted toward making the individual's job easier and safer, frequently he is provided with deficient equipment and/or procedures. In most cases the burden of bringing these deficiencies to the attention of people who can correct them falls on the guy who has to maintain and operate the equipment. This is a pretty big pill for him to swallow at times, but we have not reached the stage where first production results in perfect equipment and procedures. The best way we know of to correct deficiencies that could affect nuclear safety is to report them in accordance with AFR 127-4. So look around; if you see a deficiency, report it!

THE OTHER GUY

On a midwest road the reentry vehicle convoy was proceeding with due caution. As they passed a farmer's field, dense clouds of lime suddenly swirled across the road, markedly reducing visibility. The convoy slowed to 7 mph, but a civilian vehicle approaching did not take proper precautions and a collision occurred. Due to the alertness of the convoy in slowing for an unusual situation, there were no injuries and only minor damage was incurred. We commend those convoy drivers for observing speed consistent with driving conditions, and remind you to watch out for the other guy.

GUIDANCE AND CONTROL OUT

Have you ever experienced a power steering or power brake failure on your automobile? If so, you were probably startled and perhaps a little scared. A reentry vehicle tractor in convoy recently lost its power steering due to a loose screw on the pulley. In this instance no problems were encountered in stopping. However, one can imagine the accident potential if it had happened on a dangerous curve or a narrow road. Remind your vehicle maintenance personnel to make a closer check of these items which are essential to safe operation. Don't permit negligence to cause you to lose your guidance and control system.

REX RILEY'S CROSS COUNTRY NOTES

• The two letters from the field reprinted in our March issue generated quite a bit of comment from our readers. All good. A letter from a flight surgeon pointed out the need for recognition of the troops responsible for transient services, especially where they have been identified as performing outstanding work. A feature story in the local weekly concerning a base which is on the "Recommended List" gave a deserved pat on the back. Does your base transient service rate this kind of publicity?

• Rex is turning more attention to VOQ and TAQ. After a recent evaluation of eight bases, we are happy to report that these facilities

were generally good. We hope this is a trend throughout all our bases.

• Release of recent information by DOD indicates that some of our installations will be closing their doors before long. We are printing a letter from one of these that demonstrates an attitude we think is becoming contagious throughout the Air Force.

"Just finished reading your Cross Country Notes in the March issue and I must say that I am ashamed of the treatment some of our flight crews are subjected to on their cross country flights. We here in the Transient Alert section at Perrin Air Force Base feel that they deserve the very best that we can give.

"We are proud that we have been the recipient of the coveted 'Rex Riley' award since January 1954 to the present. Prior to this time we were also proud to meet the Duncan & Heinz preferred list of better bases. From January 1954 to March 1971 we have handled 33,932 transient aircraft and have made many friends.

"Due to our phase out and scheduled closure 30 June 1971, we realize that the March issue is probably the last time Perrin AFB will appear on your honor roll. I would like to make one request if you have the space in your fine magazine. Please let the flight crews know how much we have enjoyed their visits to our base and hope that other transient alert crews take better care of them than the ones mentioned in your March issue.

"A fond farewell to you, Rex, and all our friends throughout the services.

EARL G. EVERHART
Foreman, Transient Alert Section
Perrin AFB, Texas"

My congratulations to Perrin for the fine service provided to all transient aircrews. We never doubted that quick, courteous service was available at your base. Everyone will miss this handy and efficient cross country gas stop. It's obvious, Mr Everhart, that your performance as transient services foreman was no less outstanding than it was during your active duty in the Air Force.

Best of luck to you and your fine group of transient service troops.

Rex

THE

REX RILEY
Transient Services Award

LORING AFB	Limestone, Me.
McCLELLAN AFB	Sacramento, Calif.
MAXWELL AFB	Montgomery, Ala.
HAMILTON AFB	Ignacio, Calif.
SCOTT AFB	Belleville, Ill.
RAMEY AFB	Puerto Rico
McCHORD AFB	Tacoma, Wash.
MYRTLE BEACH AFB	Myrtle Beach, S.C.
EGLIN AFB	Valparaiso, Fla.
FORBES AFB	Topeka, Kans.
MATHER AFB	Sacramento, Calif.
LAJES FIELD	Azores
SHEPPARD AFB	Wichita Falls, Tex.
MARCH AFB	Riverside, Calif.
GRISSOM AFB	Peru, Ind.
PERRIN AFB	Sherman, Tex.
CANNON AFB	Clovis, N.M.
LUKE AFB	Phoenix, Ariz.
RANDOLPH AFB	San Antonio, Tex.
ROBINS AFB	Warner Robins, Ga.
TINKER AFB	Oklahoma City, Okla.
HILL AFB	Ogden, Utah
YOKOTA AB	Japan
SEYMOUR JOHNSON AFB	Goldsboro, N.C.
ENGLAND AFB	Alexandria, La.
MISAWA AB	Japan
KADENA AB	Okinawa
ELMENDORF AFB	Alaska
PETERSON FIELD	Colorado Springs, Colo.
RAMSTEIN AB	Germany
SHAW AFB	Sumter, S.C.
LITTLE ROCK AFB	Jacksonville, Ark.
TORREJON AB	Spain
TYNDALL AFB	Panama City, Fla.
OFFUTT AFB	Omaha, Nebr.
ITAZUKE AB	Japan
McCONNELL AFB	Wichita, Kans.
NORTON AFB	San Bernardino, Calif.
BARKSDALE AFB	Shreveport, La.
CHANUTE AFB	Rantoul, Ill.
KIRTLAND AFB	Albuquerque, N.M.
BUCKLEY ANG BASE	Aurora, Colo.

Tech topics

briefs for maintenance techs

MOVE AND / OR SECURE OR TOW

While a C-135 was taxiing onto a parking spot, its jet blast blew over an MD-3 and caused an MA-1A to roll 20 feet. How did it manage to do something like that? Here's how. The MD-3 and the MA-1A had been pre-positioned near another C-135. The pilot of the taxiing C-135, following the directions of the marshaller, applied additional power to Nr 3 and 4 engines to enable him to make a sharp left turn and maneuver into position. When the additional power was applied it blew over the MD-3 and caused the MA-1A to take off. Simple as that.

When marshalling aircraft, ground personnel must take precautions and either secure or move all equipment that will be affected by the jet blast. If this is not possible, have the engines shut down and tow the aircraft to the spot.

* * *

OFFLOAD ACCIDENT

While a C-130 crew was performing a combat cargo offload, a loadmaster was injured. The sequence of events leading up to the accident was as follows: The C-130 was loaded with five 463L pallets in wide configuration. The number five pallet was offloaded without incident. During preparation for the offload of number four, the loadmaster encountered difficulty in shifting the pallet toward the rear of the aircraft. Unable to move the pallet by himself, the loadmaster asked for help from a cargo handling specialist. As soon as the number four pallet was in position for offload, the loadmaster signaled the flight mechanic to have the pilot move the aircraft forward. As the aircraft moved forward the number three pallet started moving aft. The loadmaster, noting that it was about to hit the cargo handling specialist, leaped forward and knocked him out of the way. His quick action saved the cargo handling specialist, but the pallet hit the loadmaster's foot. Ouch! ! Had the loadmaster followed the checklist, the number three pallet would have been locked down and the accident would have been avoided.

* * *

LOOSE PANELS CONTINUED

The T-38 had no indications of a problem in flight; however, on postflight the crew chief discovered the horizontal stabilizer panel in the following condition: the forward one-third was folded back and torn on both sides. Investigation of the aircraft records revealed that, on the day prior to the incident, the aft section had been removed for replacement of the afterburner fuel control. When the panel was replaced only two of the 30 fasteners were properly secured. Maintenance people goofed. Their goof was compounded when the loose panel was not discovered on preflight by the pilot.

* * *

RUN AWAY

An O-2 was scheduled for an engine run in an attempt to duplicate a malfunction reported on the previous flight. According to the writeup, "when engine was fully warmed up it would not reach full RPM."

Two men were assigned to perform the ops check, a runup man to run the engines and a prop man to observe and try to determine the cause of the malfunction. In accomplishing the before starting en-

gines checklist, the parking brake knob was pulled out but the brakes were not pumped. Both engines were started and the front engine was operated at 1800 rpm to provide positive airflow for the rear engine. After the engines had reached normal operating temperature the rear engine was accelerated twice to maximum power for approximately five seconds, then reduced to 1800 rpm. While decelerating the second time the aircraft started moving forward. Power was not reduced to idle until the aircraft had moved approximately 10 feet. A 45 degree right turn was made to avoid a row of parked aircraft 75 feet ahead. However, the aircraft traveled another 65 feet before colliding with another O-2. During the time the aircraft was moving, the operator was trying to apply the brakes. The mixture levers were finally pulled to cutoff just prior to making contact with the other bird.

Cause of this mishap was the operator, but how about supervision? He was not checked out in accordance with AFR 60-11. The chocks were not properly positioned, the brakes were not properly set. In short, this operator should not have been allowed inside the cockpit, especially with the engine running.

* * *

NEGLECT

The NCO supervisor instructed the airman to disconnect the comfort pallet of a C-141 to prepare it for removal. The airman proceeded to disconnect the vent line, the waste drain and the tiedown chains. At this time the comfort pallet was offloaded and ten pallets of cargo were loaded. As the load crew was installing the barrier net, sparks were observed coming from two broken wires which were shorted against the cargo rails on the right side of the aircraft. Power was removed from the wires and the necessary repairs made.

We're sure you've guessed how the wires got broken: the sergeant in charge had given the airman insufficient instructions on how to do the job and the airman neglected to disconnect the electric leads to the comfort pallet. The warning note in TO 1C-141A-2-2, "Pull comfort pallet circuit breakers" was not complied with either. Thus, the airman failed to both unplug the pallet and pull the CBs.

Had these two broken wires gone undetected, they may have led to a major inflight emergency. Just one more example of why we *must* follow the TO.

* * *

POOR WORK AND QC, TOO

At FL 390 the T-38's right engine fire light came on. The pilot retarded the throttle to idle and the light went out; however, approximately two minutes later, the light came back on. The engine was then shut down and a single engine landing made without further difficulty.

The air inlet duct (PN 3-51016-1) had been bent during previous maintenance and did not fit properly with the aircraft inlet. Ram air bypassing the engine was sufficient to cause the fire light to illuminate. This incident highlights the need for more careful work and better inspection.

* * *

HE LOST HIS MITTEN

After engine start on an F-5, a maintenance man disconnected the power unit and went to the front of the aircraft, where he noticed that the cockpit steps were still extended. He signaled the pilot and was in the process of closing the steps when a leather glove was sucked off his right hand and into the left engine intake. After engine shutdown the left engine inspection door was opened and most of the glove was found lodged against the front stators. A portion of the glove and the wool liner went through the engine, necessitating an engine change.

* * *

F-100 RIGHT TURN ONLY

Preflight, start, taxi, takeoff, climb and cruise to the training area were all normal. Then the pilot discovered that he could move the left rudder pedal only one inch. The mission was terminated, an emergency declared and a straight in approach and landing made without further difficulty. The problem was that the right hand center pedestal door (PN 223-53198-51, TO 1F-100D(1)-4) was incorrectly installed with a loose mounting screw. The incorrect mounting caused the right rudder pedal to catch on the door when the pilot applied left rudder.

* * *

MAINTENANCE FACTOR

While practicing GCA low approaches an F-4 crew heard and felt an explosion and the IP saw a flash of fire on the left side. The left engine RPM decreased to 65 percent. The aircraft commander selected full afterburner on the right engine, retarded the left engine to idle, and selected half flaps. All instruments on the left engine were normal at idle. Mobile control informed the crew that sparks were coming from the left auxiliary air door and the left tailpipe, but there

Tech topics

was no evidence of fire. An emergency was declared and a single engine landing was accomplished without further incident.

Maintenance bought this one. Two forward mount bolts of the upper engine mount sheared due to stress caused by damage received during installation. One bolt was ingested into the engine and one was found in the engine bay.

* * *

CAUTION! DANGEROUS TURN

After completing the green run, the maintenance crew of an F-4 was leak checking the refrigeration package and engine boundary layer control ducts. With both engines running at idle, two men were stationed under the aircraft for leak checks, one at door 16 and one at door 6R. The mechanic by door 6R wanted the left engine accelerated. In the meantime the man in the cockpit had noted vibration in the right engine. When he received a signal to accelerate, he thought it was for the right engine and proceeded to run the engine up to military power to check for engine roughness.

The mechanic under the right side of the aircraft, startled by the right engine being run up, turned toward the engine intake and was sucked up against the protective guard. A flashlight was drawn from his hand and ingested into the engine. The man was taken to the hospital where it was determined he had no serious physical injury. The engine compressor didn't get off so lightly. It received extensive damage from the ingested flashlight.

Lack of adequate communication caused this incident that could well have resulted in a fatality. Supervisors, take a look at the training program for personnel who participate in operational checks with the engine running. Be sure that every man is aware of the dangers involved and correct procedures to use.

* * *

SAFETY WIRE?

As the pilot rotated the aircraft for takeoff, he felt a binding in the stick. Too late to abort takeoff, the pilot gingerly held what he had and, once clear of the ground, cycled the stick back and forth a few times until the binding disappeared. After landing, investigation disclosed a well-battered, bent-up, half-used roll of safety wire (!) lodged in the stick well area. Records showed no maintenance in this area during the previous ten months, so the culprit goes undetected. We just hope he took better care of his next roll of safety wire.

* * *

GO-I-TIS

Sometimes it's best to shut down and start over, even if it means getting off late. To fully understand that statement read the following incident.

While attempting to strap into the back seat of an F-4, the GIB discovered that the inertial reel would not unlock. He accepted the condition based on the fact that he could still sit erect in the seat. However, after engine start, he could not find the garter clamp on the right upper leg restraint so he unstrapped and climbed out to allow the crew chief to look for the missing clamp. Because of the late arrival of the starting unit, the aircraft commander did not shut down the engine and advised the crew chief to be careful of the head set extension cord. After the garter clamp was found, the GIB strapped back in and found the inertia reel had withdrawn further so he had to "scoot" down considerably to fasten the shoulder harness. The crew chief again attempted to help the man release the harness and, in an attempt to get more slack in the headset cord, gave it a tug and flip. The connection came loose and the cord moved in the direction of the intake; three to five feet of the cord was sucked into the engine.

Did the pilot have go-i-tis? If not, why didn't they shut down and investigate the inertia reel problem?

* * *

FALSE ALARM

During FCF at FL 430, .95 mach, full afterburner, the F-4's right engine overheat light came on. Throttle was retarded below 90 percent and the light went out. All other engine instruments were normal and the return to base was accomplished without incident.

Investigation revealed one broken and several bent pins on the cannon plug to the fire warning and overheat control panel. You spark chasers must exercise caution and be sure that all electrical connections are made properly.

Toots

is interested in your problems. She spends her time researching questions about Tech Orders and directives. Write her c/o Editor (IGDSEA), Dep IG for Insp & Safety, Norton AFB CA 92409

Dear Toots

TO 00-25-4 exempts AFSC aircraft from scheduled IRAN. We have an aircraft presently over two years overdue IRAN. How long can this aircraft be flown and still be considered safe without going to IRAN?

Concerned
Kirtland AFB, New Mexico

Dear Concerned

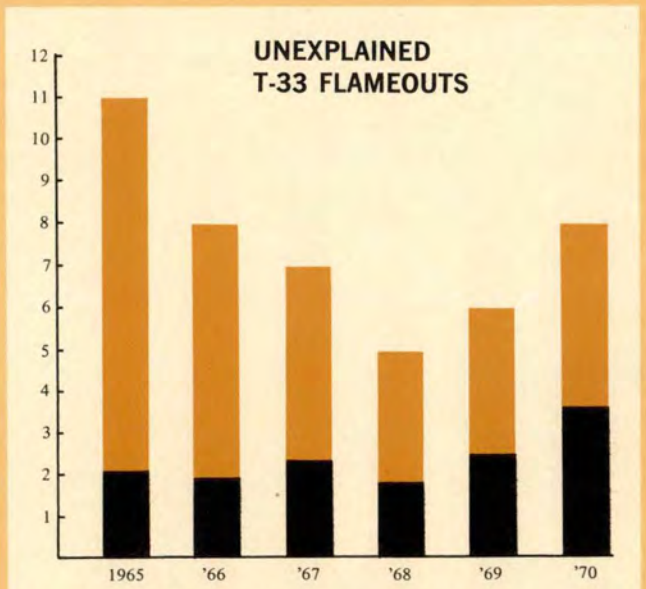
I passed your question on to the OPR at AFSC Headquarters. According to them, in consideration of AFSC's mission, they have not established an IRAN requirement for AFSC aircraft. TO 00-25-4 thus excludes them. However, if AFSC feels that the condition of an individual aircraft warrants this inspection and repair, AFSC Headquarters can request that the aircraft be inspected. Such a request should be submitted for the fiscal year in which the IRAN will be required.

Toots

* * *

ERRATA

The legend on the chart, page 19, April issue was somewhat garbled. For you folks concerned with the T-33, we have redrawn the chart and corrected the legend. Sorry about that.—ED.



Color bars indicate number of unexplained flameouts. Black portion indicates rate per 100,000 flying hours.

mail call

MISSED APPROACH POINT

Reference the IPIS Approach in the February issue; the missed approach point (MAP) for a localizer approach would not normally be at the end of the runway as stated. AFM 55-9, para 957, states, "The missed approach point is on the final approach course not farther from the final approach fix than the runway threshold." Thus, while a pilot could be required to execute a missed approach at the end of the runway due to lapsed time from the FAF, the middle marker would normally be the MAP since it is an ancillary component of the ILS (LOC). Also, since the missed approach slope begins at the MAP, elapsed time should be measured from the OM to the MM and a missed approach commenced at that time in the event the MM is off the air. Incidentally, I doubt the existence of either an ILS or LOC approach that doesn't utilize a MM for MAP.

Not meaning to nit-pick, I think the IPIS Approach is a fine section in a fine magazine that should be read by all pilots.

Maj Clyde W. Picht
1904 Communications Sq
Malmstrom AFB, Montana

We went back to the experts for an answer to your letter. Following is their reply:

You can determine where the missed approach point (MAP) for a localizer (LOC) approach is by comparing the distance on the timing block to the distance shown in the profile view. In our example, the timing is based on 4.8 NM. The profile view shows 4.1 NM from the OM to the MM and 0.7 NM from the MM to the runway threshold for a total of 4.8 NM. Virtually all localizer approaches are this way, yours at Malmstrom being exceptions. The approach designer considers two MAPs when the ILS and LOC missed approach points do not coincide.

The missed approach point for an ILS is the intersection of the glide slope and the decision height. If the approach has a middle marker, it will normally be fairly close to this point. At Norton AFB, the MM is 2402 feet short of the MAP. If you started your missed approach at the MM, you would be 126 feet above decision height. At Reese AFB the MM is 1738 feet beyond the MM. Reliance on the MM would place you 76 feet below DH when you started your missed approach.

A quick review of US approaches shows at least five different ILS installations where there is no middle marker. All five provide decision heights of 200 feet above touch down zone. There are many others with no MM which would have 250 foot decision heights. Approval of an approach without a MM does require a waiver from Headquarters, USAF.

In summary, for an ILS approach begin your missed approach when at DH. For a LOC approach begin your missed approach as indicated on the approach plate (normally determined by timing from the outer marker).

* * *

FUEL SYSTEMS REPAIRMAN

While reviewing your excellent articles in the March issue, I came to an article in the Tech Topics column, "Human FOD," and was rather taken aback when you referred to a Fuel Systems Repairman as a Fuel Cell Maintenance Man.

We, the Fuel Systems Repairmen here at U-Tapao, highly resent being referred to as Fuel Cell Repairmen since our AFSC (424XO) is highly complex, and we do much more than maintain fuel cells. The term "fuel cell," is described in TO 1-1-3, page 2-1, para 2-2, as "Removable fuel container constructed of fabric nylon and gum stock." Since we have a much larger area of responsibility than rubber tanks, we would appreciate being referred to as Fuel Systems Repairmen and not the antiquated term of Fuel Cell Repairmen.

Sgt Kenneth L. Williams
307 FMS
U-Tapao Afld, Thailand

Sorry. We'll try to do better next Time.

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UNITED STATES AIR FORCE

WELL DONE AWARD

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

LT COL Leroy L. McCampbell

LT COL Edwin L. Proctor

1st Composite Wing, Andrews AFB, Washington, D.C.

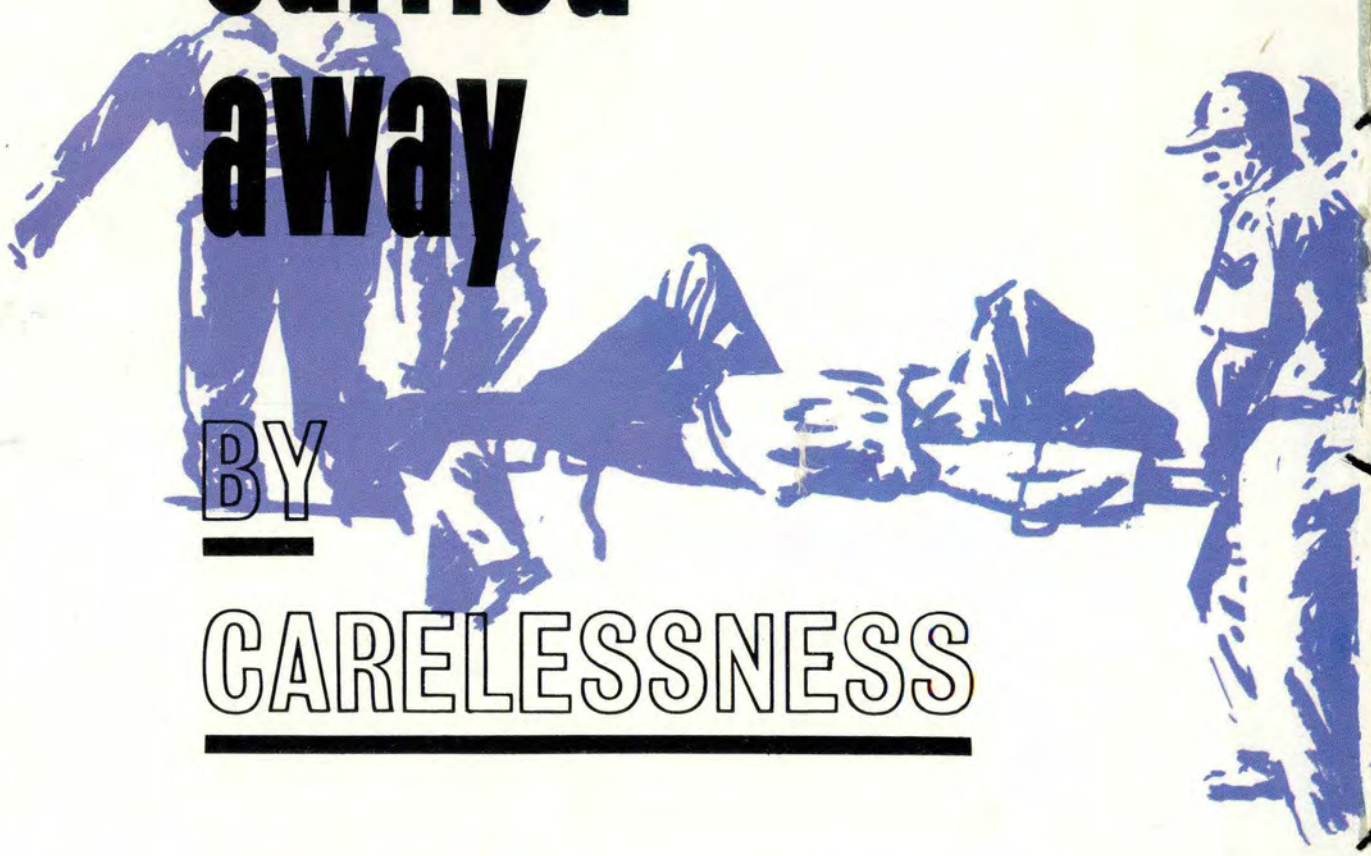
On 11 September 1970 Lt Col McCampbell was assigned a Functional Check Flight upgrading sortie, with Lt Col Edwin L. Proctor, the Instructor Pilot, occupying the rear seat of a T-33A. After 30 minutes of flight, one negative "G" was pulled for three to four seconds to check the fuel vent warning system; no abnormal conditions were noted. Approximately five minutes after the negative G maneuver, right aileron was applied to roll level from a left turn. The pilot stated it felt as though the stick was bumping against a solid object.

The pilots analyzed their situation and found that the aircraft could be controlled in the landing configuration with only rudder and left aileron. They decided to terminate the mission. Since they would be making a downwind landing, the pilots requested that the departure end barrier be removed and that crash equipment be summoned. Then, making a wide left pattern and approaching downwind so that a left crosswind would be affecting the path of their flight, the pilots flew their aircraft to an uneventful full-stop landing.

Investigation disclosed that a bucking bar, used to replace rivets in the static ground receptacle beneath the right wing, had been left within the wing and had wedged itself against the aileron control cables.

The professional competence demonstrated by these pilots, resulted in the saving of a valuable aircraft. WELL DONE! ★

don't get carried away



BY

CARELESSNESS

YOU COULD BE DEAD WRONG!