

AN U RY 1961

# ATTACK



HEAVEN CAN WAIT



# TACTICAL AIR COMMAND ATTACK

GENERAL F. F. EVEREST    COMMANDER    TACTICAL AIR COMMAND  
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## FOREWORD

With the start of a new year, TAC is initiating the TAC ATTACK, a monthly magazine written for the officers and airmen actively operating and maintaining the weapon systems of this command. The TAC ATTACK will be a series of verbal thrusts directed at potential accident areas within the command. Logistical and operational information for this purpose will be selected from all available sources. Above all, it will be your magazine, designed to furnish information which will assist you in doing your job better. To help make this a reality, you are urged to take an active interest in the magazine, and to submit material for publication, particularly if you have knowledge of an incident or procedure which would be of help or interest to others.

*Jacob E. Smart*  
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Lieutenant General, USAF  
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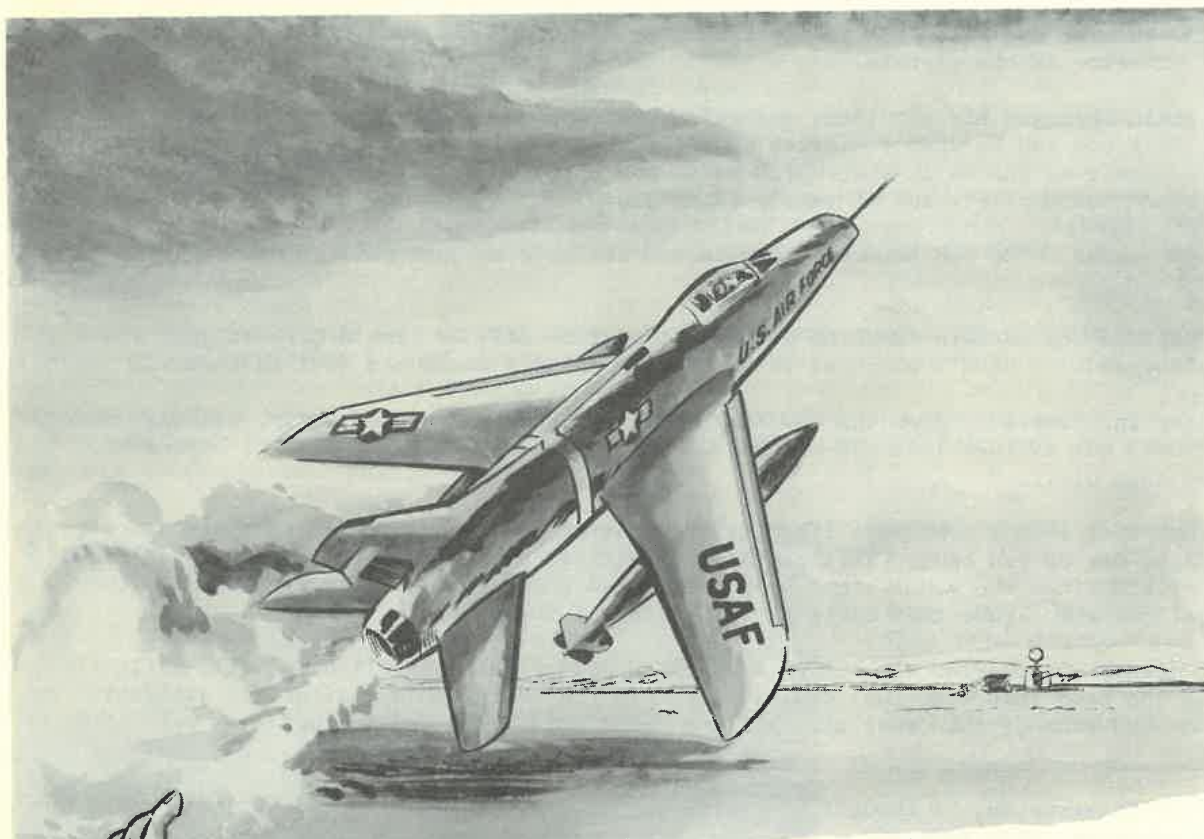
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JANUARY 1961



## HEAVEN CAN WAIT



**B**ACK IN THE OPERATIONS SECTION of a certain headquarters, a balding major replaced the telephone in its cradle, leaned back in his swivel chair, and eyed the stocky captain sitting on the edge of his desk. "As I was saying, last time we were down there, I was walking out to my aircraft and happened to look up as this F-100 was taking off. All of a sudden he rotated it into take-off attitude and almost at the same time, swerved to the right about thirty or forty degrees." Automatically he demonstrated with his hand.

"He had the nose 'way high and essed back and forth. He seemed to be held aloft by the blast from his tail pipe alone. Sure was hairy looking; just like that color movie of the F-100 that clobbered at Edwards. Dust was flying in all directions and I'd have sworn he banged his left wing tip on one of his swings back toward the runway." He paused to pull at one ear, then continued,

"Anyway, just when I expected to see a ball of fire, he pulls up from the cloud of dust, gets above the level of the trees, toggles off his drop tanks, and staggers on out. Made a couple of real cautious looking orbits of the field while another hundred looked him over. I decided



the fun was over and went back to pre-flighting my bird." He paused and looked an unspoken question at the captain.

The captain shrugged his shoulders and said, "No, we never heard about it officially. In a way, it's too bad we didn't because we might have stopped another similar one. The pilot did submit an OHR on it tho, which we caught during our last survey. He was one of their stand board pilots and it really shook him."

The major asked, "Do you remember what caused it? Did he just pull it off too soon or what?"

"No," replied the captain frowning slightly, "as I recall, he blew a tire at just about lift-off speed. I didn't check as to whether or not the tanks had fuel in them...."

The major interrupted, "From the way they fell, I judged them to be empty, although some fuel spewed out as they left the aircraft. Anyway, he had it under control before he punched them off...."

"You know that sounds even more like the accident we had at Rainfield, that was a month or so ago, before you came. This captain was with an outfit on rotation. They'd landed at Rainfield after the usual eight-hour drag. Had the birds serviced with about a thousand gallons which gave them close to full internal fuel.

"About twenty hours after servicing, they fired up for the next flight. Well, while sitting on the ramp that way, fuel drains back into the empty 450's. After the accident they checked some of the other aircraft and found some birds had drained back over 1500 pounds."

The major interrupted, "I thought they were supposed to pressurize the tips and empty 'em before starting their take-off - Dash One says something about getting an aft CG condition when the fuel is forced to the back of the tanks during acceleration. What did this guy do - forget to pressurize?"

"They think so. He was number three in the lead flight; only the leader aborted due to smoke in his cockpit. Number two almost got into trouble. He rotated rather briskly and kinda staggered off the runway. Number three rotated his just as fast; only he hadn't rolled quite as far. He got into a nose high attitude and almost caught the tail skid and right wing tip on the lift-off. At least that's what some colonel said. This colonel was about 500 feet from the lift-off point, so he had a good look.

"Right after he staggered off the runway, his right wing dropped, came back up, then went down in earnest. The bird yawed well to the right. About this time, someone gave him a call and told him to watch his nose. Perhaps he reacted to this; anyway, the nose started back down, but by then it was too late. The right wing dug in and that was all she wrote."

"Sounds like he went through the same ritual as the guy I watched," said the major. "The investigators didn't find anything wrong with the bird, did they?"

"No," replied the captain. "They checked out the control actuators and they were o.k. They did prove from fuel gauges that he had 500 pounds of fuel in the left drop



and 1100 pounds in the right. This probably had quite a bit to do with the accident, but ...."

"Was it a hot day?" queried the major.

"No, as a matter of fact, it was rather cool, but as I was going to say, he had pulled the bird off at about 2300 or 2400 feet and his calculated take-off roll was closer to 2600 feet, and as far as I'm concerned, this had more effect than the aft CG. Offhand, I rather think he was trying to impress someone by making a max performance take-off. He impressed 'em all right."

The major rubbed his chin, then said, "Yeah, you're probably right. That accident sounds similar to the hairy one I watched. Undoubtedly when the guy I watched blew his tire, he decided to get airborne rather than abort and pulled it into the air before it was ready. He reacted to the blown tire rather abruptly and transmitted this abruptness to the control stick. Question is, how can we prevent another? I understand TAC has had three nose-high take-off accidents this year."



"That's right, or partly right. A couple of troops in an F lost their AB after they were rolling good. They tried to pull off early, or at least that's what it looked like to several well-qualified witnesses. They went off beyond the end of the runway, nose 'way high, until they hit a boxcar some farmer was using for a storage bin. It killed both pilots. The other accident hardly fits; he had ample speed and apparently tried a roll. Why, no one knows; possibly he was tired

of flying and figured he had a sure-fire method of getting grounded." He paused a minute, then continued.

"To stop similar mishaps, I'd say education is the only hope. We can tell pilots not to pull the bird off before it's ready to fly, and to handle it gently when they do take-off. Of course, if they get a blown tire at the wrong moment, they'll have problems, and will have to make a split second decision. If they are below the aircraft's minimum flying speed, about all they can do is abort, because the drag of the blown tire plus the drag of whatever opposite rudder, brake, and nose gear steering they apply to keep on the runway will most likely keep them from accelerating to take-off speed. With a heavy external load they could reduce the required take-off speed by punching off the load at the risk of a damaged stabilator and if they are between the minimum take-off speed and normal take-off speed, they probably would do well to try to get airborne. If they do, they should keep in mind that they will get better results by handling the machine as smoothly as possible and must remember that the aircraft will have a tendency to pitch up slightly when they jettison tanks.

"Should they elect to abort, and have difficulty keeping the machine straight, they may have to turn off the anti-skid and deliberately blow the opposite tire to even things up. Since the action will take place in a matter of milliseconds, they must have a course of action pretty well pre-planned; otherwise they'll be too far behind things and will be unable to gain control.

"Regardless, everyone in the field must continue their efforts to improve tire reliability by keeping them inflated to the proper pressure and by using the point system."

"O. K." said the major, "Why don't you write some of these things for the ATTACK and we'll feed it to 'em." ★



# OLD TAT



**A**FTER SQUANDERING the past three years scribbling for PACAF in the peaceful Pacific and the past six months in New York doing similar chores for CONAC, old TAT has finally made his weary way to TAC. This, for TAT, is fortunate since the motto of both New York and Hawaii is "Help keep this place green - bring money."

For you troops who have somehow managed to remain unexposed to the product of our gnawed off pencil stub, TAT is one slightly worn, rather tattered, tired old tiger. There will be some naive souls who will be content in thinking that TAT is an abbreviation of tattered. Other more worldly types will more correctly assemble the words tired and tiger with another little old word and come up with a more correct analysis.

Be that as it may, the fact that we have arrived should be ample warning for those in the know. If you goof up, you can well expect to find an account of your exploits undelicately aired on these pages...right alongside similar accounts of TAT's own less professional exhibitions.

Speaking of exhibitions, here's one that concerns an F-100, a blown tire, and...but let's read what the pilot had to say.

"Run-up was normal with proper checks. I started my take-off about 500 feet from the threshold. The 2000 foot check was o.k. at 100-108 knots. I was carrying a dart on the left outboard, reel centerline, and 275-gallon drop on the right intermediate. At 150 to 160 knots the right tire blew. I saw rubber out the left canopy and at first believed it was the left tire. I was soon getting full right yaw and my first thought was that the heavy tank was pulling me off to the right. I punched at the jettison button just as the aircraft jolted, causing me to miss the button. At this time I felt the aircraft trying to go into a right turn and put in full left rudder and full left brake. Nose gear steering was engaged and seemed to be giving full effect. I didn't try for the panic button again because I was trying to hold as much rudder as possible to keep from cart wheeling

and with full pressure on rudder and brake, I couldn't reach the panic button.

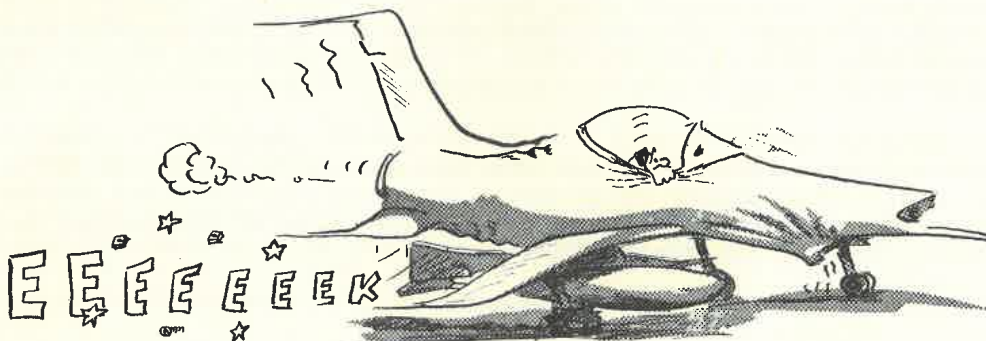
"I was under control, I thought, until the wheel went off the runway...then everything happened and I didn't dare release pressure. I remember the gear going and the nose hitting the ground. I think the aircraft did a 90 degree turn to the right and then to the left and stopped about 500 feet off the active. I blew the canopy with the T-handle and climbed out."

For the record, this troop stop-cocked the engine shortly after he attempted to jettison the garbage. In the excitement he forgot to deploy the drag chute. Investigators took a good look at skid marks and decided that nose gear steering ceased being effective shortly after maximum braking was initiated to the left wheel. They then did a little checking around the cockpit and found that this pilot - who was all of five foot seven inches tall - had adjusted the rudder pedals too far forward. When he applied full rudder and full brake, he had to scrooch down in the seat, causing him to inadvertently pull the nose gear off with back stick and also to effectively prevent him from reaching the jettison button.

Cause of tire failure was officially assessed as materiel failure; however, the crew chief did not know the exact weight of the dart and other rigging, so rather than take a chance on over-servicing, he left the tire pressure at 202 psi. Correct pressure should have been 218 psi. Investigators believe this was enough to have contributed to the tire failure.

Perhaps so. Regardless, this should serve as a hint to maintenance supervisors. In short, this crew chief failed to properly inflate the tires because he didn't know where to find the weight of an unusual external store. Certainly, with some time and effort, he could have found this info in the T.O....and had he been thoroughly oriented he would have... BUT, it seems to TAT that it would have been just as professional and far more time-saving to have prepared a list, giving the weight of all external stores in use, attaching said list with the gross weight tire pressure chart.

Before any of us pilots choke on our beer over this troop's abortive attempt to punch the panic button...best we check ourselves to see that we can apply full rudder and full brake, with the seat and pedal adjustment we've become accustomed to using, without compromising our ability to reach pertinent controls. Also, this pilot obviously didn't have his abort procedures memorized to the point where he could accomplish them to perfection under stress. Have you?



AN OLD HEAD driving an F-104 observed a fire warning light shortly after lift-off. Holding 350 knots, he soon reached 5000 feet where he came out of burner. The lights stayed on, so he came back to idle where they went out. He checked the circuit and found it o.k., then had his wingman look him over. There were no indications of fire, so he circled the field at reduced power until enough fuel was used to give the aircraft what he considered to be an acceptable landing weight. He then made a successful precautionary landing. Teardown revealed the cause of fire to be a broken afterburner pigtail.

Well, it's kinda hard to argue with success and the presence of a whole aircraft rather indicates that this emergency was successfully handled...one can't help but wonder about the logic of tooling around burning out fuel after receiving a fire warning which reacted to throttle movement. Granted, this is better than going berserk and losing control of

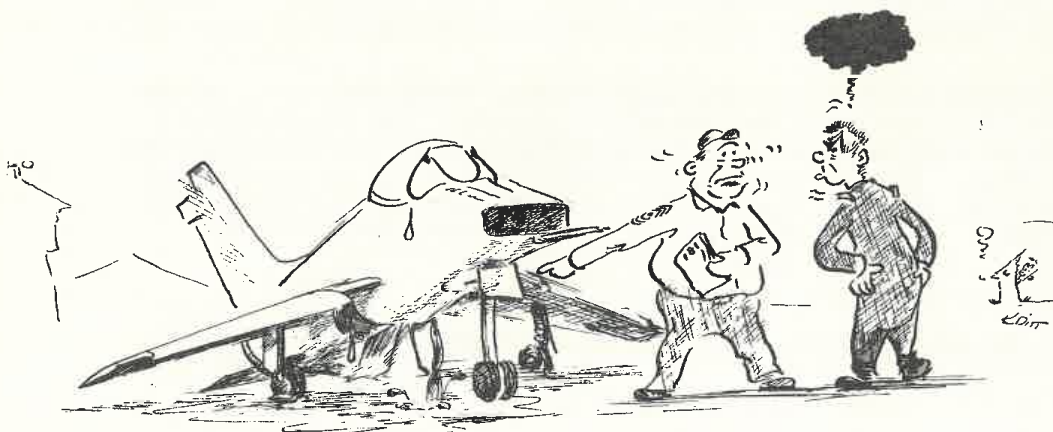


Had he been worried about the landing weight (which was 22,500 pounds, requiring a 220 knot approach with a 182 knot touchdown) then he should have jettisoned the tips. The Dash One does not include jettison of tips in event an inflight fire has been brought under control, but it does say to land as soon as POSSIBLE, not as soon as PRACTICAL...and there do be a difference. Also, compared to an F-104, tip tanks are cheap!



Old TAT says Amen to that! During the past few years we've been flying around with a pretty fair cross-section of this man's single engine air force. We've been appalled at the number of these troops who are perfectly content to climb out on an approximate heading with the airspeed wandering occasionally in the vicinity of the proper schedule. They level off and let their altitude wander a bit while they burn holes rather aimlessly... until we start suggesting various exercises. We learned early that these characters would do nothing if we didn't suggest such exercises. Invariably they are weak on instrument procedures, seldom plan ahead, and will look up holding pattern data only after zooming past high station like Sherman went through Georgia. They turn to proper heading and reduce airspeed after wandering over three counties...if they reduce speed at all. In addition these troops are a stranger to emergency procedures....

Incidentally, in case you haven't noticed (and if you haven't, you better not admit it), the critical action items are printed in bold face type both on the check list and in the Dash One. They outline those actions which must be performed immediately and instinctively following an emergency. Since it would be rather difficult to do this without having the procedure memorized, take heed because you will see more and more emphasis placed on this as time rolls on.



Govt  
K. Ditt



The alert crew chief, incidentally, was NCOIC of the Alert Section, and was plenty sharp. His unit was just as sharp, having been awarded the Duncan Heinz Award every month since January 1959...so he didn't buy the pilot's story that the fluid was, and we quote, "only coming from the overflow vent lines."

After finding that the alert crew chief was standing firm behind his decision to ground the aircraft, the pilot decided to appeal to a higher echelon. He went back to Base Ops and tried to persuade the AO to release the machine. The AO declined. The pilot then became very arrogant and stated that since the aircraft was grounded anyway, he would enter some discrepancies in the Form 781 that would really keep Alert busy for a couple of days. He also said that the involved Transient Maintenance Section was overly cautious and that he knew pilots from other bases who wouldn't drop their gear doors there for fear of being grounded.

Still grumbling and threatening never to return to said base, the pilot stomped back to the bird and started writing. Among the discrepancies was another red cross item.

Checks of the aircraft revealed that the hydraulic leaks did exist and actually created a serious accident potential.

Obviously this non-professional is one of the go-go-go boys---a breed which fortunately is rapidly becoming extinct. The high attrition rate within their ranks has eliminated most, a few irate commanders some others---but obviously one or two are left. Had these conscientious maintenance personnel been less dedicated to the Air Force and released this sick bird without fixing it and had the hydraulic leak resulted in an accident... such as catching fire (the stuff burns very briskly, you know)...this pilot would have had a difficult time trying to explain why it was "necessary" to risk a 696,000 dollar machine in order to get home a few hours early.



DURING THE SUMMER months most conscientious aircraft drivers complain bitterly if the maintenance section persists in tightening fuel caps. The fuel in aircraft serviced during the cool of the evening or early morning builds up quite a head of pressure after it has been warmed a few hours on a hot ramp...that is, unless the caps are left loose. Besides eliminating miniature gushers, leaving caps loose also cuts down on fuel system leaks.

While the conscientious pilot complains if he has to unfasten gas caps and let fuel gush all over him, the unconscious pilot--who seldom checks his tanks--could care less...that is until he leaps off in a bird which has been left with loose caps.

Such occurred when a young hero blasted off in a T-bird from a midwestern base about the time summer was fading away.

After lift off he noticed that all wing tanks were syphoning fuel (tips had been left tight and were feeding) so he turned on the leading edge and proceeded west. About 50 miles out the syphoning stopped, but about 150 miles out the leading edge indicated empty. The wing tanks indicated empty at 200 miles.

Within a few minutes the tips ran dry and the fuselage tank started down. The tip tank switch was recycled and the tip light went out and fuselage tank started back up. It stopped at 85 gallons. About 20 miles from a good big airpatch (340 miles from take-off) at 20,000 feet the engine quit. Tips were jettisoned after two unsuccessful air start attempts, and a successful flame-out landing accomplished at the big airpatch.

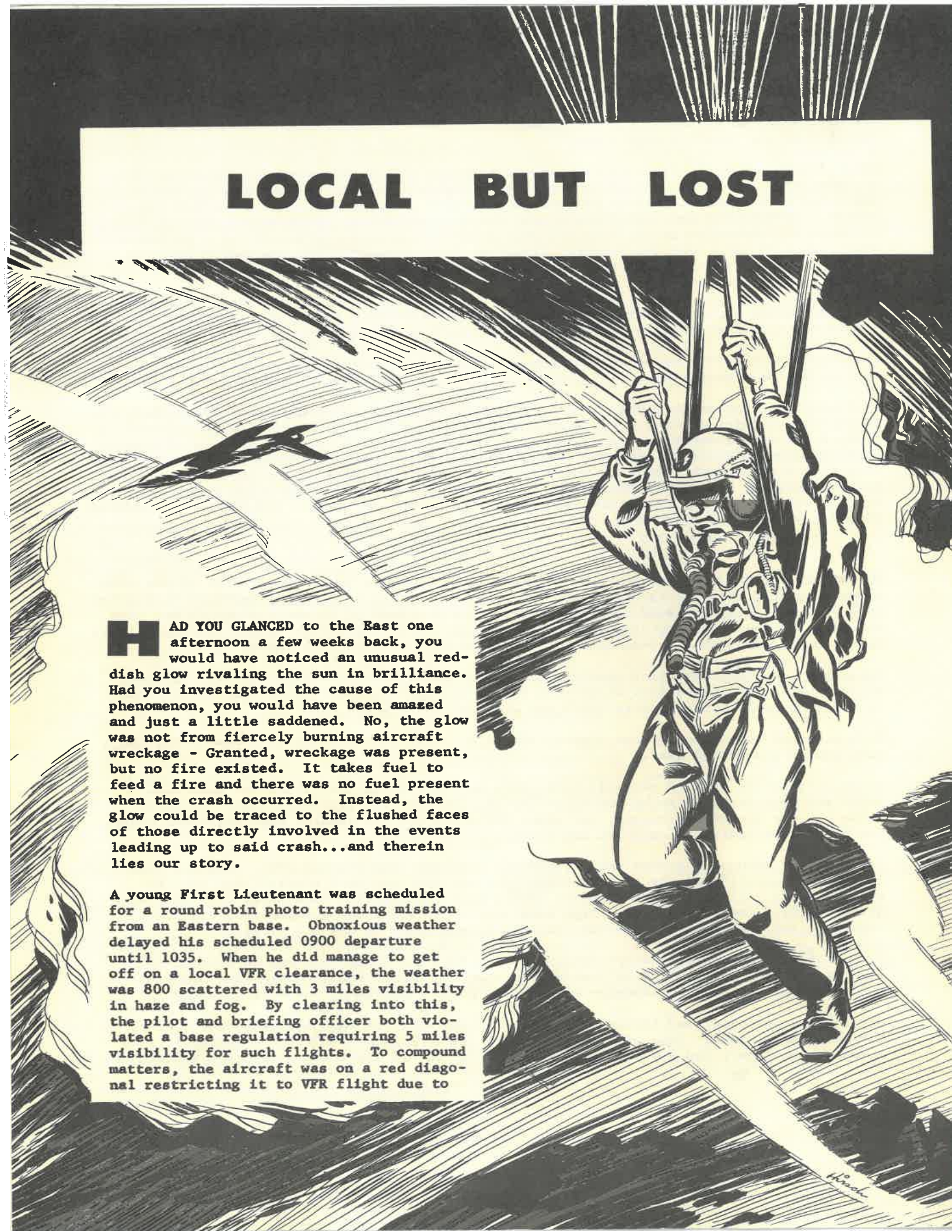
Flame-out was due to fuel starvation. Suction from the loose caps was sufficient to result in almost complete loss of fuel and in addition caused the fuselage tank liner to pull over against the liquidometer arm which, in turn, goofed up the fuel readings.

Maintenance personnel had failed to indicate in the Form 781 that caps were not secure; however, TAT doubts if this pilot even bothered to look at it, so it is doubtful if such an entry would have had any effect on the flight. He did light the fire prior to take-off, now, didn't he? ★





# LOCAL BUT LOST



**H**AD YOU GLANCED to the East one afternoon a few weeks back, you would have noticed an unusual red-dish glow rivaling the sun in brilliance. Had you investigated the cause of this phenomenon, you would have been amazed and just a little saddened. No, the glow was not from fiercely burning aircraft wreckage - Granted, wreckage was present, but no fire existed. It takes fuel to feed a fire and there was no fuel present when the crash occurred. Instead, the glow could be traced to the flushed faces of those directly involved in the events leading up to said crash...and therein lies our story.

A young First Lieutenant was scheduled for a round robin photo training mission from an Eastern base. Obnoxious weather delayed his scheduled 0900 departure until 1035. When he did manage to get off on a local VFR clearance, the weather was 800 scattered with 3 miles visibility in haze and fog. By clearing into this, the pilot and briefing officer both violated a base regulation requiring 5 miles visibility for such flights. To compound matters, the aircraft was on a red diagonal restricting it to VFR flight due to



an unreliable slave gyro compass. (One and a quarter million bucks worth of aircraft being launched into marginal visibility conditions with an unreliable slave gyro.)

When the pilot started down the active, the slave gyro was 40 degrees out of phase. Fast slave brought it back into agreement with the standby compass and the pilot climbed out on course.

Enroute to his first target, he attempted a parrot check, but was unable to obtain one. He also checked his equipment and found most of it sick. He tried a revised mission only to be frustrated by cloud cover. Ah well, he needed a round robin cross country anyway.

While homing on the third station enroute, the slave gyro again went out of phase and refused to fast slave back. About this time the number two needle flopped back and forth and indicated the station was to the rear (sounds like he got station passage). He attempted to tune other omni stations, but didn't consider the needle readings reliable. Taking up a heading for home on the standby compass, the pilot tried working GCI sites. Apparently his IFF was inoperative; at least he got little satisfaction from them, even when he squawked "Emergency."

Tuning in an omni station near homeplate, the pilot received a clear signal and steady needle, but elected to try for a DF steer. He called homeplate and asked for a practice steer, advising them of his gyro malfunction. The first steer was given as  $138^{\circ}$  (he was holding  $50^{\circ}$ ). Using the slave gyro as a guide, he made the necessary correction.

Approximately once a minute for the next 14 minutes, the DF station gave him seven to ten degree right corrections. During this period he descended from 35,000 to 25,000 feet to permit crossing the field at 20,000. But, instead of crossing the field, this series of steers took him in a huge orbit right around the base. This fact apparently dawned on him, because at one point he stated on the air that he seemed to be traveling in a circle ...One wonders why he didn't make a definite  $90^{\circ}$  right turn to confirm his suspicions.

Eventually fuel started to become a problem and the pilot declared an emergency, requesting Class "A" steers. Homeplate then alerted the DF net and fixed him 20 miles SE of the station. By this time he had lost confidence in his standby compass, but nevertheless continued to accept steers for three more minutes. He was then advised to go Channel 17 to attempt contact with RAPCON. Contact was established, but before an IFF check could be accomplished, RAPCON's radio failed. He returned to DF frequency and was advised to go Guard. By now fuel was critical. The pilot then observed a field underneath which he correctly identified as an auxiliary base which sported a 10,000 foot concrete runway. The DF steer to homeplate was approximately correct for this position, so despite being down to 1000 pounds of fuel, he elected to make another try for homeplate.

He departed on a heading which later was calculated to be at right angles to the course to homeplate...and continued to work DF. Spotting a B-66, he pulled up on its wing and attempted to contact the B-66 crew on Guard channel - with negative results. (And why in thunder wasn't the B-66 monitoring Guard channel as required by regulation?) At this time DF advised him that he was 12 miles SW and was cleared to descend. Shortly afterwards, RAPCON again got into the act, and along with several IFF mode changes, gave him some more steers. At this time the pilot stated that he was completely lost. RAPCON then advised they had him and started issuing gyro out instructions.



They continued these instructions for some three minutes after both engines had flamed out and the pilot had ejected. Seems they had the wrong aircraft.

The aircraft was 33 miles north of the base when the pilot ejected. [The ejection, incidentally, appears to have been the only part of the flight that was accomplished without a hitch.] Investigators were able to determine the position of the number two needle on impact and found that it was giving accurate relative bearings. To use these, the pilot would have had to read the heading under the needle, then turn to this course, using the standby compass.

Even had the pilot been hesitant to calculate bearings from the number two needle - which is understandable under the circumstances - he missed a bet when he failed to use the ID249. The course selector and to/from features of this instrument rely on a completely different set of impulses than the number two needle and in general are quite reliable. To use the ID249 without a slave gyro, select the course that centers the bar and places "to" in the window. Use the standby compass and either make a timed turn to this course, or use the slave gyro as a reference when turning to this course, selecting the DG position. This gives a more stabilized reference. (Selecting the DG position is something else this pilot neglected to do.) When on approximately the correct course, steer to center the bar and you will soon be in.

Basically, it appears that this pilot became confused and then lost when he started losing confidence in his equipment. Generally, it doesn't look like he had a very good understanding of this equipment. This is particularly true of the standby compass. Aside from someone placing a chunk of iron near it, very little can go wrong with this instrument... but it does have its limitations. Generally speaking, readings are only accurate in stabilized level flight. But with practice, you can run a whole instrument recovery problem using little more than this compass, an attitude gyro, airspeed indicator, and a radio fix. However, it is hardly practical to try learning this or any other such procedure during an emergency situation.

The UHF radio in this aircraft was equipped with the ARA-25 homing adapter. Unfortunately the pilot didn't get around to using this until just before flameout. By then it was too late.

Additionally, one can't help but wonder why this pilot was unable to locate himself from landmarks. [As near as investigators were able to tell, he made a complete circle of the base, about 20 to 30 miles out.] He passed over some very distinctive landmarks such as a large lake, (which, incidentally, has one finger that points straight to the base) and the auxiliary field. It would appear that this pilot had paid very little attention to such landmarks during the many previous flights he had made in the local area. Unfortunately he isn't alone. Not many pilots have the foresight to study the landmarks surrounding their home base, locating and memorizing those features which point to the field.

We hardly need comment on his decision to have another go at getting home when directly over a good usable airpatch, even tho that airpatch was only 30 miles from home. Sigh, a bird in the hand....

Stepping off the pilot's neck, let's look into some other areas needing improvement. Our DF system...but let's not blame the DF operator too much for this! How many practice steers have you requested? How many of these did you make simulating a sick gyro? O.K., next time you request a practice steer, add (or subtract) 40, 50, or 100 degrees to every heading given. A practiced operator should pick up the discrepancy and correct his steers accordingly...but there is only one way for him to become practiced...on nice clear sunny days, of course.

The accident board shook their finger at RAPCON because they never told the pilot whether or not they were painting his parrot. The board thought this gave him a false sense of security. RAPCON also pulled the old classic and tracked the wrong target...it would appear that like the pilot involved, they were a bit too eager to jump to conclusions.

In summary, while inadequate assistance of ground stations contributed to this pilot's trouble, his failure to understand and utilize available navigation aids and his rejection of a suitable landing field were the primary causes of this accident. ★



# AIR MUNITIONS

ABBREVIATIONS AND DEFINITIONS. The other day we overheard a conversation between two "missileers" from the USAF Tactical Missile School located at Orlando AFB, Florida. Their conversation went something like this:

Joe: "Say, Bill, what's keeping your boys from AANCing our missile? RFML is moving right along now, and before we can set up our NTCU, HCU, and the rest of our equipment, you fellows in Maintenance will have to get on the stick and complete those AANC, BMC, and SERV checks."

Bill: "Yeah, Joe, you're right. It certainly is going to help when we get FAST, too. We'll be able to get those other checks done with our NMR's and SRV crews in time to really give you the support you need."


We can well imagine what this hash sounds like to those not closely associated with missile functions and terms. The following list of abbreviations should be of some benefit to those of you who have not had the opportunity to become familiar with missile terms:

AANC	Automatic Atran Nose Checker	MPP	Multipurpose Power Pack
ACB	Adapter Control Box	MPT	Missile Pre-Flight Tester
APPC	Automatic Power Plant Checker	MRC	Missile Recycle Crew (SRV Crew)
BMC	Basic Missile Checker	NMR	Nose and Missile Replacement Crew
CEMS	Flight Controls Equipment Maintenance Set	NTCU	Nose Temperature Control Unit
EP	Engine Pack (PE 200 Engine)	PDCU	Power Distribution Control Unit
ESP	Engine Start Panel	RFML	Rapid Fire Multiple Launch
FAST	Field Alignment System Tester (Atran)	RFT	Rapid Fire Tester or Rapid Fire Test
FCT	Flight Controls Tester	RLCP	Remote Launch Control Panel
GEMS	Guidance Equipment Maintenance Set	SCT	Signal Cable Tester
HCU	Hydraulic Cycling Unit	SFB	Start Fuel Box
LCCC	Launch Command Control Console	SRP	System Recycle Pack
LCH	Launch Crew	SRV	System Recycle Vehicle
MLP	Missile Launch Pack	TEMS	Test Equipment Maintenance Set (Calibration Van)
MM-1	Terra-Cruiser Multi-Purpose Truck, 8 ton, 8 x 8	UOB	Umbilical Outlet Box

CHECK LIST FOR MUNITIONS LOADING. TAC has requested AMC to prepare a standardized check list for loading munitions on tactical fighter aircraft. Check lists are needed to make sure all steps are completed when loading the many munitions available for use on the various pylon configurations used on F-100, F-104, F-105 aircraft. This is expected to greatly improve the present inadvertent release rate.

LIVE AMMUNITION IN F-105D AIRCRAFT. Effective with aircraft D89 and up, all F-105D aircraft will be delivered with live ammunition installed in the linkless feed system. Because of this, the linkless feed conveyor systems and all electrical connections to the guns must be disconnected and capped. In addition, all personnel should be warned that these aircraft will contain live ammunition and treat them accordingly.

MN-1 TRAINERS. Having trouble loading MK-76 bombs in the MN-1A bomblet dispenser? Particularly in dispensers made by EMTEX? The mounting pad may have been relocated or the holes in the outer skin may be oversize. Sometimes ejectors fail to lock properly. The SAAMA man says, "Manual manipulation of the bomb in the load position will in some cases allow the ejector to operate properly." He means, jiggle it and it might work. Seriously, SAAMA is working on a fix, but would like to be kept posted on all troubles you run into. ★



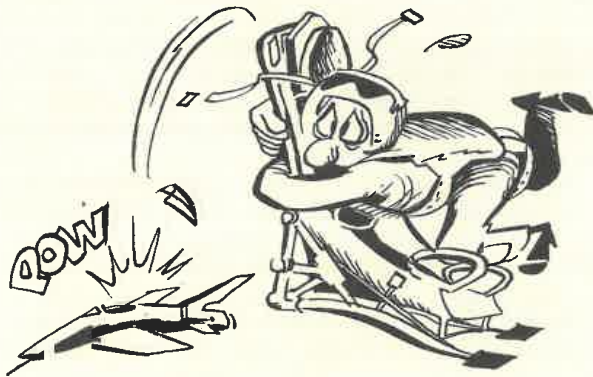
# TAC EVAL

**LOST DIRECTIONAL CONTROL.** A recent RF-101 aborted take-off resulted in a fatal aircraft accident. This again brought to light the tragic effect a strong gusty crosswind can have on century series aircraft during take-offs, aborted take-offs and landings. The Board determined that the primary cause of this accident was loss of directional control due to crosswind (possible gusts to 36 knots), wet runway, low coefficient of friction of tires on runway, asymmetrical thrust, delay in left afterburner lighting, and the weathervane effect caused by deployment of the drag chute during the abort. This type accident indicates that some of our current Pilot Handbook procedures are in need of revision and should be closely reviewed by the using organizations for adequacy.

**FLIGHT FOLLOWING FACILITIES.** All you "Jocks" lucky enough to talk the boss out of a bird for a weekend cross country and those troops stationed in the Southeastern United States will find this bit of info helpful! TAC has six Tactical GCI Squadrons in the Shaw, Pope, Seymour Johnson and Myrtle Beach area. They are fully operational and are available for flight following. If no contact on Channel 10, contact the Tower at Shaw, Pope, Seymour Johnson, or Myrtle Beach AFB's for appropriate frequency. These troops are eager to increase their training and will appreciate your call, so "Press On!"



**AIR DROP MISHAP.** On a three-ship formation troop drop, a jumper was killed after his neck became entangled with the strap from his General Purpose Bag. This occurred when he landed in a tree short of the drop zone. The formation had been forced to fly the majority of its route higher than briefed due to weather enroute. A drop altitude wind was not obtained for the CARP solution as directed by Ninth Air Force Manual 55-4. The pre-flight wind was used in lieu of multiple heading drift, Doppler, or PIBAL (which was available). There were major discrepancies in the basic information on the three navigators' CARP worksheets, i.e., temperature, elevation of terrain, rate and time of fall, and length of the DZ. One worksheet was incomplete. A wind dummy was not used, although its use was prescribed in the mission briefing. Although not the primary cause, complacency on the part of the involved aircrews certainly helped set the stage for this mishap.



**LOW ALTITUDE EJECTION.** An F-100 pilot recently had trouble on a go-around and elected to bail out at 200 to 300 feet altitude at an IAS of 155 knots, zero lanyard connected. He reached down and pulled both seat grips. The canopy then went up about 3 feet and disappeared (together with miscellaneous papers). Using his right hand, he reached for the trigger. At first he couldn't find the trigger since he had his thumb on top of the handle. Reaching further down, using the inside of his wrist as a guide, he finally came across the trigger bar and pulled it up. He next had tumbling sensations, backwards, estimated at three turns. The pilot thought this was



unusual and suddenly realized that he was still hanging onto the seat grips! When he let go, he parted from the seat with a slight standing up procedure. He said he heard the chute blossom past his right side and noticed the seat about 8 to 10 feet from him. Chute opening shock was slight. He looked immediately in the direction of the aircraft, heard the explosion and saw the ball of fire. He looked down to see where he would land. Looking up for a moment, he hit the ground at a slight angle, drifting to the right. Witnesses stated that the chute only made a maximum of two "good swings" before the pilot was on the ground. This bailout points out some things of importance to all aircrews.

Ejection at low altitude CAN be successful.

Immediately after pulling the trigger, thrust the seat away from you with your hands especially at low altitude - the pilot in this case was lucky, a couple of seconds more would have been too late!

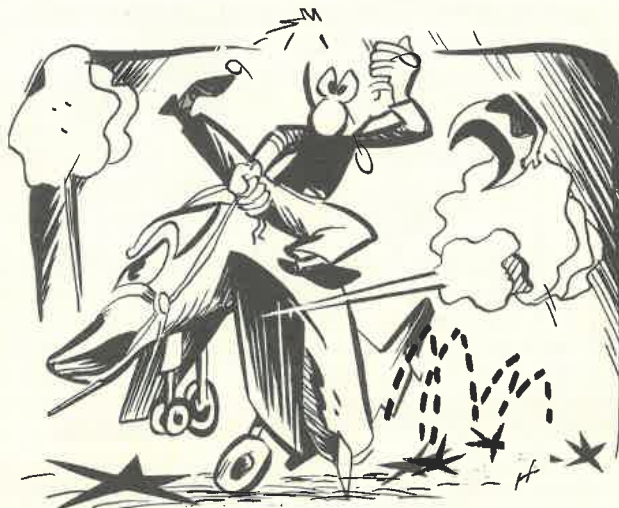
The trigger in the F-100 is not easy to reach - insure that you practice the ejection procedure on a disarmed ejection seat or ejection seat simulator (as required by TACR 50-20) - know exactly how to do it! (Witnesses state there was a 3 to 4 second delay between canopy going and seat ejection!)

For those of you who think you don't need practice on ejection procedures, it may interest you to know that this pilot had previously ejected once before at low altitude! **LEARN - AND LIVE!**

**BROKEN JUG.** During pre-flight the crew of an H-19B noticed an oil leak on the right side of the number five cylinder. When the cylinder was removed, a hairline crack was found on the inside of the cylinder barrel about eight and a half inches from the bottom of the cylinder skirt. These troops cheated themselves out of some excitement by some sharp eyeballing at the right time during pre-flight....Sure beats kicking the tire, don't it?

**LEAPING LENA.** The landing was normal for an F-100F and everything was progressing properly with the pilot getting a good chute, after lowering the nose and engaging nose gear steering. Brakes were applied and worked properly, so the big brute was allowed to roll. Reaching the far end of the runway, the pilot started his turn off, using nose gear steering. Half way thru the turn, steering control was lost. The pilot then applied brakes...only to find them inoperative. Unfortunately, the turn off was being made at a brisk clip, so when the bird left the taxi strip, it did considerable skipping around. The soil had eroded away from the edge of the taxi strip and the machine got airborne for over six feet when it leaped off the strip.

From then on, according to the investigators, and we quote, "no two wheels were in the air at one time for very long." The nose gear ploughed a twenty-inch deep furrow before the strut supports gave way. On looking over the machine, investigators found the tail skid retracted. The tail skid relay also controls nose gear steering power and the arm signal for the anti-skid control box. With the skid retracted, nose gear steering was inoperative and brake operation would have been erratic. With the anti-skid turned off, they would have been zilch. Investigators determined that the tail skid relay was not receiving a down signal prior to touch down and reasoned that the pilot apparently misinterpreted rudder control for steering. The skid relay didn't receive power due to marginal adjustment of the micro switch on the gear handle. Seems the slot the handle operates in needed to be elongated a bit...Pilot should've slowed down a bit before turning off the runway...neh?



**FOR WANT OF A SHOE.** We frequently see birdmen from the gooney set headed out to their craft wearing low quarter shoes...now, low quarters are nice in the office or club, but in aeroplanes, ...well, let's face it, they have a habit of going their separate way during bail outs. Essentially, you should wear boots if you are flying a machine that normally carries parachutes.★

# TAC TIPS



**MARMAN CLAMPS.** Shortly after an F-100D take-off, the forward engine compartment fire-warning light came on. Postflight investigation revealed that illumination of the light was caused by hot 16th stage compressor air escaping from the heat and vent duct that is connected by Marman clamp 52903. While failure of this particular clamp is not exactly new, investigators believed that improper installation was responsible. The clamp broke at the spot welds that attach the support to the clamp. The failure was caused by spreading the clamp excessively during installation which weakened the metal at the spot welds. The clamp was bent out of round in the corresponding area on the opposite side. It might be pointed out again that extreme care must be used during installation and removal of this clamp. In addition, the support bracket mounting bolts should be removed before removing the clamp. This permits the clamp to flex around its entire circumference rather than at the spot welds. Finally, failure of this clamp can also be caused by misalignment of the sealing gasket during installation. This generally results in the bolt being over-torqued in an attempt to seal the joint.



**ACT OF GOD.** We had one of our old faithful Gooney birds damaged during a recent tornado at a Southern base. Seems everyone had plenty of warning and the aircraft was well secured, but the tornado tore the aircraft loose from its moorings and caused it to jump its chocks. It slid, skidded and rolled for approximately 180 feet and received considerable damage. The cause of the incident as indicated in paragraph P of the Incident Report was an "Act of God." This didn't alarm us as much as the entry under paragraph R of the Incident Report which was - Personnel Offered the Opportunity for Rebuttal: "Yes." We are all curious as to what channels were used, since we haven't heard any repercussions from the Chaplain yet.

**PYLON EJECTORS.** The pilot of an F-100F completed his walk around inspection while the Weapons Technician performed a stray voltage check of the pylon ejector cartridge firing pin and installed the cartridge. The pilot entered the cockpit and checked the appropriate switches. DC power was applied to the aircraft and the pylon ejector cartridge fired, jet-tisoning the Type VIII A pylon and attached MNIA bomb dispenser. Investigation revealed that terminal strip #697 was improperly wired; however, had proper testing procedures been followed the discrepancy would have been discovered prior to this incident. Recommendations made by the investigating officer were that a one-time inspection of terminal strip #697 be performed on all F-100 aircraft and that the appropriate provisions of T. O. 1F-100-2-11 be followed when an operational check or test of the external stores system is required. To that we say Amen!

**FILTER FILLER.** During the landing after a cross country flight, the pilot of a T-33 noticed the hydraulic pressure drop to 0-100 PSI when the speed brakes were actuated. Movement of the ailerons caused the hydraulic pressure to drop to 300-400 PSI. The landing gear could not be extended with the normal system and the emergency system was used. Investigation of the hydraulic system revealed that the protective wrapping was still in place around the filter element in the main hydraulic reservoir. The wrapper was clearly marked, "WARNING, REMOVE BEFORE INSTALLATION," caused slow return of hydraulic fluid to



the pump. The pump and the accumulator had internal leaks and were replaced. This aircraft had a history of hydraulic malfunctions which began four months after the filter had been changed. All of these malfunctions were attributed to the protective wrapping fouling the filter. What maintenance man could be so unconscious as to make this serious error? And what was the caliber of supervisors in this unit to permit such a troop to work on aircraft?

**HOSE TROUBLE.** A smile of satisfaction blanketed the face of the pilot as the RB-66 touched down after completion of a routine flight. His last several landings had been real grease jobs and his confidence was reaching a new high. He taxied smoothly to the ramp, shut the engines down, and reached for the battery switch - then, Phhhh, and a cloud of smoke filled the cockpit. Flames began to eat at the forward console, and the smile that had been on the pilot's face turned to a look of fear. He quickly alerted the ground crew and at the same time shouted to his men to get out of the machine. The ground crew rapidly disconnected the battery, vented the oxygen system, and extinguished the fire.

Damage was superficial and an investigation was soon initiated to determine the cause of the shaking event. Inspection of the fire area revealed that the oxygen hose from the regulator to the oxygen mask had rubbed against the exposed terminals of a relay assembly. The metal binding on the hose created a short circuit and started a fire which was fed by oxygen from a hole burned thru the hose. Further investigation revealed that the pilot's oxygen regulator had been changed immediately prior to the flight and the regulator hose had been routed near the relay assembly during re-installation. An emergency U.R. was submitted recommending that a shield be developed to cover the exposed terminals on the relay assembly so as to preclude similar incidents of this nature. Let's do a little IF'N and consider what would have happened IF this incident had occurred in flight. The pilot would probably have called for ejection and TAC would have been sans one more valuable aircraft - all because of a penny item!



**CODE KEY.** Here's a tip from the 442nd Troop Carrier Wing (Reserve), Richards-Gebaur Air Force Base, Missouri. The tip has considerable merit and is one which you might consider worthy of implementation in your unit. All Flight Line vehicles in the 442nd are equipped with a decal on the dashboard which depicts the meaning of various tower light signals. A similar decal in the aircraft cockpit may also be appropos. Do you remember what action a flashing white light requires? (If you don't, you'll miss a question on your instrument exam!)



**RUPTURED HERC.** The wing on a C-130 split from stem to stern (from the engine to the trailing edge) while the aircraft was being serviced following a fuel cell leak test. Maintenance personnel forgot to remove the vent cover plate after completing the test, so when fuel was pumped into the cell, air in the tank couldn't escape and eventually blew up the tank. Maintenance personnel should be aware of this hazard and take appropriate precautionary measures such as inspecting all vents and cavity openings for obstructions before servicing an aircraft which has been out for maintenance. Eventually the good book will carry appropriate warning notices; regardless, we should insure against a recurrence. ★



**F-105 AIRCRAFT DRAG CHUTES.** Although the drag chute system on the F-105 is normally quite reliable, during recent months there have been a number of drag chute failures. Most of these have been caused by abrasion damage when the chute contacted the runway immediately after deployment. As yet, all studies made to find and cure the cause have been without result. Testing of several newly developed chutes will commence in the near future. In the meantime, failure can be reduced thru very careful inspection of the chute. Chutes that do not meet technical order specifications must be rejected.

**F-105 TECHNICAL ORDERS.** There have been several instances where technical orders in support of the F-105D A&E systems have not been received as scheduled. Usually this has been due to lack of submission of PRTs. A&E organizations should check with PRT control at their base to insure that necessary technical orders have been requisitioned.

**F-104 GROUND RUNUP SCREENS.** When protective screens for the F-104 get bent and battered, they become quite difficult to install and then no one wants to use them. On the other hand, making ground runups without screens is expensive business, because the J-79 is susceptible to foreign object damage. Briefly, handle screens carefully so they won't get so blasted hard to put on, and then use 'em.

**PROJECT DOPPLER.** All units are advised not to install modified doppler components in unmodified aircraft since the equipment may be destroyed when power is applied.

**KB-50 JET FAILURES.** Jet engines on KB-50 aircraft are designed to come off if sudden stoppage occurs at any RPM above 40%. Sudden stoppages are generally caused by bearing seizure or foreign object damage to the compressor. Supervisors should review ground operating procedures to make sure people and equipment are not endangered should a failure occur.

**C-123 CORROSION CONTROL.** The FY-61 depot program for replacing the metal tubings in the leading edges of wings on C-123 aircraft commenced approximately 15 December 1960.

**C-130 STU-1A STARTER FAILURES.** The AiResearch STU-1A pneumatic starter completed qualification tests in December 1957. In late 1959, TAC started experiencing a high rate of failure on this starter. Prior to this, there was no indication of an abnormal failure rate; in fact, the TBO was increased from 450 to 750 hours in 1938 and spare requirements were reduced accordingly. No Unsatisfactory Reports, Supply Difficulty Reports, or other indications of an impending major problem area were received from the field until January 1960. While the failure trend has been occurring in the clutch and output shaft shear section on installations in C-130A, D, and B aircraft, the majority involved the C-130B. The present average failure rate is approximately 30 per month, occurring at random on starters with from zero to as high as 400 operating hours. Extensive testing has been accomplished by both AiResearch and WADD in an unsuccessful effort to duplicate failures. Immediate relief consists of WRAMA insuring sufficient starters are available to support user operations and MOAMA increasing production of overhauled starters. The long range program consists of getting better data in an attempt to find the cause of failures so a fix can be developed. Seventy starters have been equipped with a smaller sprag clutch hub. These will be installed on some birds from Sewart to see if this helps. Meanwhile, servicing procedures have been changed and an extensive test flight program started along with laboratory and engine cell test programs. From 1 January 1960 to 31 August 1960 Sewart AFB experienced 257 starter failures. During the same period the prime AMA received reports on only 29 starter failures, world-wide! Moral: Report failures promptly. Until the AMA gets the word, you will have to live with the problem! ★



# TAC TALLY

NOV. AC	27 FWS	31 TFW	401 TFW	474 TFW	479 TFW	4510 CCTW	4520 CCTW	4 TFW	354 TFW	363 TRW	839 AD	464 TCW	4505 ARW	117 TRW	118 TRW
F-105															
F-104															
RF-101															
F-100	1					1	3								
F-86															
F-84														1	
T-33															
CONV.															



## ACCIDENT RATE

1 JAN - 30 NOV '60

TYPE A/C	TAC	USAF *
F-105	66.5	80.3
F-104	36.9	45.4
F-101	25.1	23.4
F-100	26.5	22.5
F-84	39.9	15.9
T-33	4.0	5.9
KB-50	9.4	9.6
C-123	1.8	2.8
U-3A	39.6	1.1
L-20	16.1	4.4
ALL TYPES	14.4	5.9

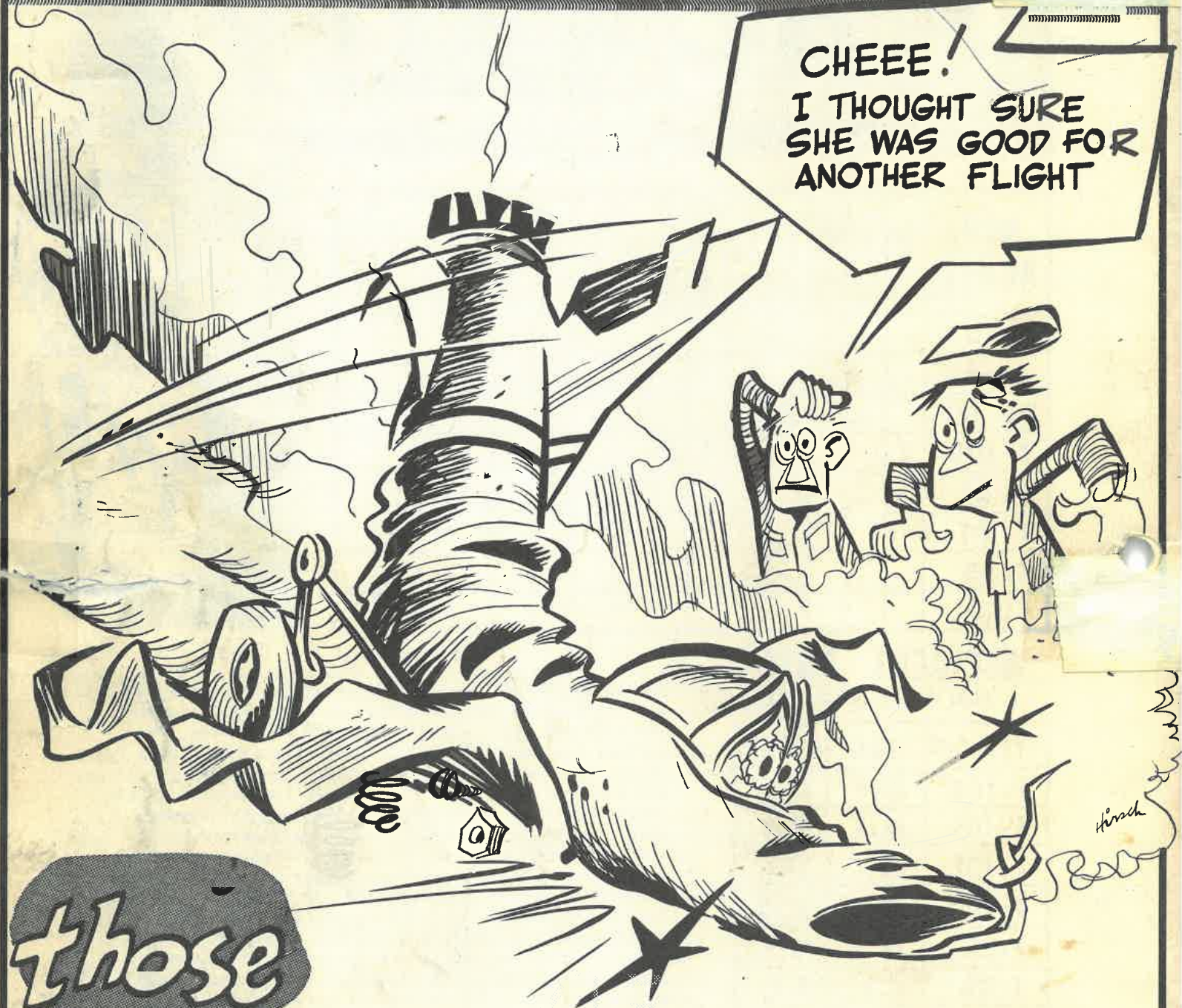
PROJECTED

We ran an analysis of 131 TAC aircraft incidents occurring in 1960 and discovered some points of interest. As you would expect, that old work horse, the F-100D, led the pack with 54 incidents. The F-105, F-104, and F-100C were runners-up with 15, 14, and 13 respectively. Materiel failure was the largest single cause factor and accounted for 34 percent. Twenty-nine percent were undetermined. Maintenance error was attributed as primary cause in 15 percent and operator error in 12 percent. Supervisory error was noticeably absent. The majority of incidents involved lost bombs, tanks, or hatches...an incident category which has little potential towards erupting into the major accident category. On the other hand, seven flame-outs attributed to materiel failure and three more that were undetermined did have a serious accident potential as did one tire failure assessed to materiel failure. The complete absence of supervisory error hardly seems compatible with the 27 percent attributed to maintenance and operator error. This seems to indicate investigators are not giving incidents the attention they deserve. This is further verified by the large percentage in which the cause was not determined. More time spent investigating incidents and operational hazards will eventually result in less work for the investigator, for as problem areas are corrected, the number of mishaps and incidents inevitably decreases.



# CORRECT

CHEEE!  
I THOUGHT SURE  
SHE WAS GOOD FOR  
ANOTHER FLIGHT



*those*

## DELAYED

## DISCREPANCIE