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MARCH 1961

# ATTACK



HOW HIGH IN THE SKY



# TACTICAL AIR COMMAND ATTACK

**GENERAL F. F. EVEREST    COMMANDER    TACTICAL AIR COMMAND**  
**LT GEN J. E. SMART    VICE COMMANDER**

## FOREWORD

Commanders and all maintenance personnel now realize that AFM 66-1 with its mechanized data reporting systems is here to stay. Implementation of this program began in TAC in the Fall of 1958, and since that time we have seen steady progress in improvement of our maintenance effectiveness. We are consistently achieving higher quality maintenance and increased production from our personnel and materiel assets. With the ever-present squeeze on dollars and personnel it is evident that we must continue to get the most out of what we have. To this end commanders must take every advantage of the data available from the AFM 66-1 mechanized systems and use it to improve maintenance techniques, i.e., reduce inspection requirements, specifically identify those aircraft systems which are excessive consumers of maintenance manpower, etc. The end result will be to validate maintenance manpower requirements. Let's collectively put our efforts toward effective use of this data so the system works for us as an aid in forecasting trends rather than working with after-the-fact information as we have so often had to do in the past.

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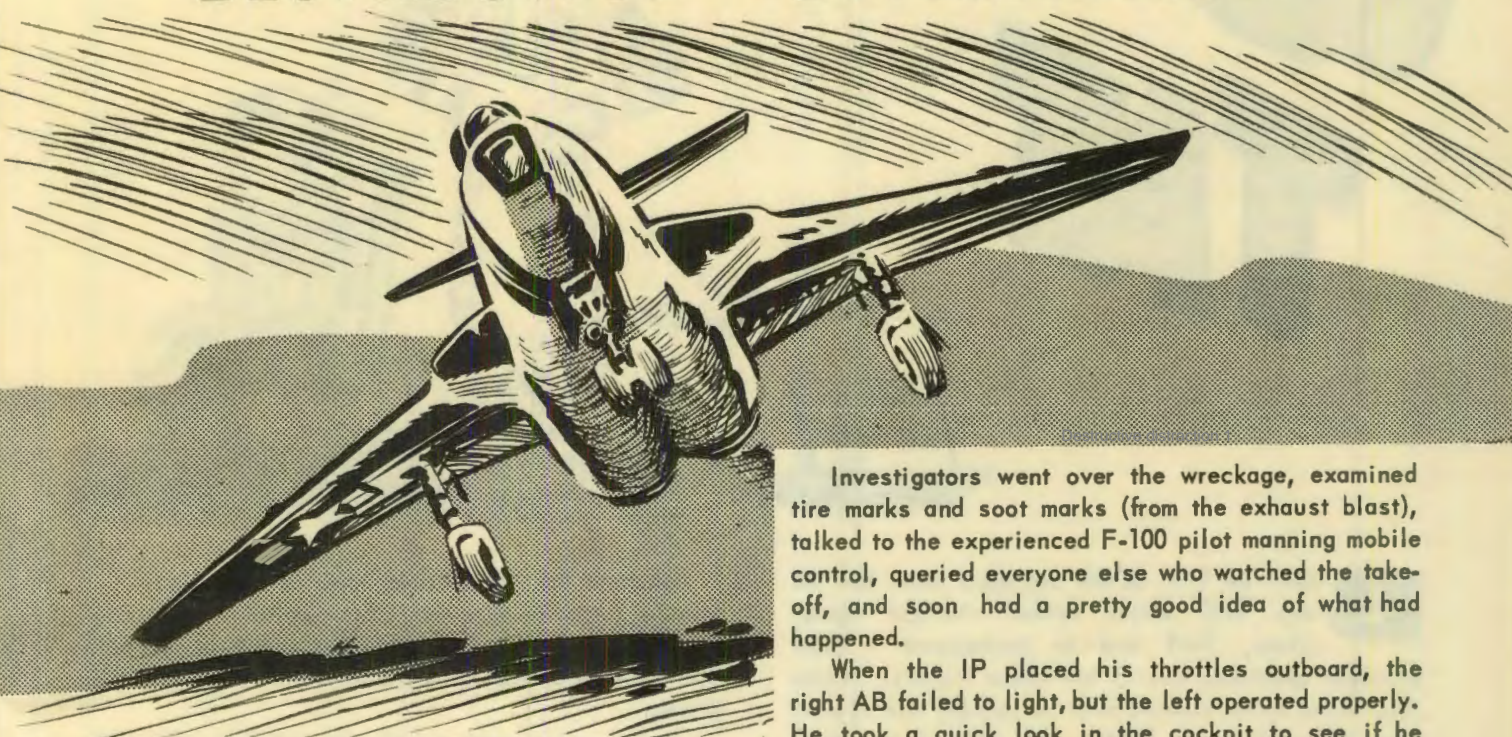
Contributions are most welcome as are comments and criticism. We reserve the right to make any editorial changes in manuscripts which we believe will improve the material without altering the intended meaning. Direct correspondence with the Editor is authorized.

## COVER PHOTO

Maintenance men from the 314th Troop Carrier Squadron (Reserve) conduct a periodic inspection on one of their aircraft at McClellan AFB, Calif.



# DESTRUCTIVE DISTRACTION



**T**WO RF-101's taxied onto the active for take-off. After completing their pre-take-off check, the student pilot in the lead aircraft looked over at the instructor pilot on his wing. The IP transmitted "all set," and brakes were released. As the aircraft started rolling, both pilots moved their throttles full forward and then outboard into AB. Three sharp reports followed and both aircraft thundered down the runway with the lead aircraft rapidly pulling away from the number two machine. The number two aircraft swung to the right and as it approached the edge of the runway, the instructor at its controls apparently realized he was veering off the runway and applied left rudder. His correction was too late. The right wheel rolled off the runway less than 600 feet from where take-off was started. Once the right wheel was off the runway, the pilot was unable to bring the aircraft back on; nevertheless, he continued his attempt to get airborne.

Crossing an intersecting runway, the aircraft bounced into the air only to touch down some thousand feet further on. Then skipped along for about 1500 feet before the nose gear broke off, followed shortly by the right main gear. After the right gear failed, the right wing tip dug in and moments later the machine started breaking apart. The instructor pilot crawled out of the wreckage with major injuries.

Investigators went over the wreckage, examined tire marks and soot marks (from the exhaust blast), talked to the experienced F-100 pilot manning mobile control, queried everyone else who watched the take-off, and soon had a pretty good idea of what had happened.

When the IP placed his throttles outboard, the right AB failed to light, but the left operated properly. He took a quick look in the cockpit to see if he could determine the source of trouble. While he was looking, the rapidly accelerating machine veered to the right hand edge of the runway due to the uneven thrust and possibly a mildly dragging right brake.

The Board calculated that the aircraft was traveling about 100 knots when it veered completely off the runway. Assuming uniform acceleration, this would indicate that the aircraft had rolled about fourteen seconds before it left the runway and only nine seconds before the right wheel went off into the grass. (1100 feet from start of roll and 550 feet from start of roll, respectively.)

Since the IP initiated a left correction about 180 feet before the right wheel hit the grass, we can safely assume that he had only been rolling about six seconds before he discovered that he was veering off the runway. Undoubtedly, he used three or four of these seconds to select full throttle, kick in the AB and realize that he had experienced an AB malfunction.

Certainly, pilots should limit the time they divert their attention to cockpit instruments to one or two seconds at the most.... and should certainly abort a take-off if their aircraft have veered to the extent that one or more wheels have left the hard surfaced runway. Had this pilot done this, it is doubtful if any great amount of damage would have been done to anything except his pride. ●



# OLD TAT

TWO THOUSAND FEET  
INBOUND LOW  
STATION...  
AND....



**B**ACK IN THE GOOD old days when the '86 was THE status symbol amongst fighter pilots, TAT had to investigate a fatal accident involving one of his close friends. Seems this friend found himself with an inflight fire shortly after take-off in an F-86F, and elected to eject. Altitude, when he made this decision, was sufficient for the equipment of that era . . . but he went in with the bird. We were never able to locate the exact source of the fire, but surmised that it was a fuel or hydraulic leak in the PTO section. (He was picking the bird up from an IRAN facility and we were having some difficulties with quality control.)

Another pilot had observed him jettison the canopy at about two or three thousand feet. We were never able to locate the canopy since the area was heavily timbered. Despite this, we came to the conclusion that he was whopped on the head by the canopy, because we were never able to find all of his hard hat, and because he stayed with the machine after transmitting his intention to eject.

Because of this accident, we initiated a survival training program. As part of this program we conducted a lecture at a pilots' meeting using the seat from another '86 (graciously furnished by another pilot who successfully ejected) and a young Rock volunteer from our captive audience.

After getting our volunteer well strapped in, we quietly outlined the conditions of flight . . . two thousand feet, climbing, etc. Suddenly using an urgent inflection, we yammered at him, "You've experienced an explosion! The controls won't respond! Get out! Eject! Go, man, go!"

He went thru the motions working pretty fast . . . only he forgot to duck while blowing the canopy, had to look down to find the trigger, and then just sat there without unfastening the seat belt or pulling the D-ring.

It was quite clear to all who watched that this troop would never have hacked an emergency ejection.

Since then, we've seen that murderous canopy phase out with the '86F. We've watched the auto chute release phase in, followed all too slowly by the auto lap belt and its assortment of keys . . . and of course, our old pal . . . that bailing wire fix . . . the zero lanyard came next, followed in turn by rocket seats. Yes sir, the slippery stick set has been busy—even if too proud to borrow ideas and designs from other nationalities which would've made most of their output obsolete. But busy as they've been, we still have some killer items which can trap an excitable man in a hurry . . . witness the number of low level fatalities which continue to nibble away at the ranks of our jet qualified heroes.

From those who made the grade, we hear stories about having trouble finding the seat handle or having to grab two or three times to get the trigger, or trying to blast off by squeezing the wrong gimmick (such as just part of the handle or even the survival kit handle). Design is partly responsible—but not entirely. After all, the designer does his best to make things fool proof . . . it's just that some people act worse than a fool when they panic. A good percentage of the difficulty can be traced to lack of training or orientation. The average pilot sits for several hundred hours in the seat of his flying machine and doesn't

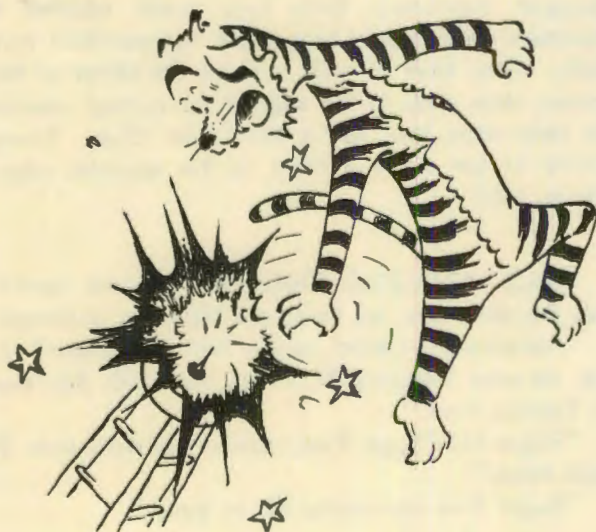


have the foggiest notion of what the go handle looks like. He has never seen it pulled up, in position and ready for business. We think all pilots should look at it in this condition at least twice a year, working the handle and trigger so it won't be a stranger to them should they need it in a hurry. Apparently some other people had the same idea 'cause that's what is required by TAC Reg 50-20.

You've heard the story about the passenger rocket bound for Europe? After everyone was on board, the door closed and a sweet female voice came over the PA system to announce, "This is Flight 421 bound for Paris, France. Flight altitude will be 210 miles, time enroute will be 32 minutes. This rocket is operated automatically, everything, including this announcement, is being done electronically; therefore, there is absolutely no possibility that anything can go wrong...go wrong...go wrong...go wrong...."

TAT feels much the same way about automatic belts and opening devices.... which is why we have made up our mind not to stick with an ailing machine below 1000 feet unless we are fairly certain that we have everything under control and can make a suitable landing area. Should we have to go, we will do our utmost to beat the auto equipment by reaching for the lap belt right after squeezing the trigger, then kicking and pushing ourself away from the seat. If low, following thru by going for the D-ring. Having experienced one ejection, we firmly believe the automatic equipment will win such a race if it works correctly. If we beat it, fine, the chute opens that much quicker.

So think it over, lads, come to a conclusion, make your own plan of action, then drill yourself on that plan of action, using a de-armed seat if at all possible. But, for your own sake, whatever plan of action you follow should definitely include pushing away from the seat.



THE DRIVER of a century series fighter was given some tactical info just before being cleared onto the active. He interrupted his pre-takeoff check to copy the necessary poop, then taxied into position, flogged the horse, and trundled down the 8000-foot launching pad. At 125 knots he attempted to raise the nose and found he had to use quite a bit of aft stick pressure. While he was contemplating this, the aircraft accelerated to 150 knots and lifted off. But the aft stick requirement was quite excessive, so he decided not to go, chopped power to idle, deployed the drag chute...and, worried about the remaining runway being rapidly consumed, yanked up the rollers. The machine slid to a halt some feet short of the first of two operational barriers.

Meanwhile his wingman, who had started his blast-off 30 seconds behind, was told to abort. He did... within 200 feet of where his leader had started his abort... only he left his gear down. He made a one-eighty on the runway almost a thousand feet short of the leader's tattered bird, and blithely taxied back to the ramp!! Smart aleck, the least he could have done would have been to slide to a stop beside his leader.

So much for the relative merit of trying to brake to a halt versus sliding. Cause of the nose heavy condition was failure to trim for takeoff... a result of the interrupted pre-takeoff check. Incidentally, the leader was worrying about his mother who was critically ill, which may have affected his judgment.

Being rather simple-minded, TAT has difficulty appreciating the effect of emotional stress on judgment. Frankly, when we crawl into an aircraft it consumes our complete undivided attention regardless of spats with Mrs. TAT or other such problems... we just can't find time to consider anything except the aircraft. If we ever start mulling over such problems while taxiing out, we sincerely hope that we will have enough smart to taxi right back to the parking ramp!



UTILIZATION OF FLYING TIME.. rather lack of utilization... has long been one of our pet subjects. We've flown with too many troops who are content to tool aimlessly, wasting precious hours doing nothing.

We see no reason why a conscientious CRT type pilot cannot actually increase his proficiency rather than just maintain it while flying eight hours per month. By our way of thinking some pilots have 2000 hours experience while others merely have 20 hours experience, 100 times.



A PILOT TRANSITIONING into the (RF-84F) found himself with a few problems on his sixth ride in the contraption. Coming in for a landing, he pitched behind another '84. To get adequate spacing, he made his pattern a bit wide and due to this, calm winds, and other factors ended up with 14 or 15 surplus knots on final. His instructor had a sick transmitter so couldn't do anything but watch.

Touchdown was made about 2000 feet down the 8000 foot runway and the pilot decided he'd best get started stopping, so lowered the nose and flung out the laundry... that's right, no chute. He then applied brakes only to encounter heavy cycling of the anti-skid system.

Meanwhile he noticed that he was bearing down on the preceding aircraft, which was contentedly concluding its landing roll in the center of the runway. He steered around it and ended up being well off center of the runway with insufficient room to swerve back. So, although the engagement was a success, it was hardly consummated to anyone's satisfaction. One wing tip smacked a barrier stanchion and both main gear collapsed during the roll out.. or should we say, slide out.

The board determined that operator error was the primary cause because the pilot failed to take a wave off from a hot long approach.

Contributing causes were operator error for not using manual braking when the anti-skid cycled excessively; drag chute failure, and supervisory error on the part of the mobile control officer for not sending him around.

TAT has only one raised eyebrow on this one... Investigators couldn't find anything wrong with the anti-skid system, and we can't help but wonder if the excessive cycling was due to the brakes being applied with too much gusto... If so, use of the emergency system would have surely resulted in blown tires, possible loss of directional control, and perhaps a dent or two in the aircraft he eventually passed.

There is no substitute for proper speed on an approach and it has been our experience that the Dash One figgers are pretty hard to beat. They have just enough padding to keep us less skilled desk drivers from falling out of the sky, yet get the machine slow enough to permit stopping without things getting too slippery with sweat.

Another factor which was overlooked by both the investigators and the people who indorsed this accident was the questionable procedure used by the preceding aircraft. Most units flying drag chute equipped machinery have long since adopted a procedure which would have made this accident less likely. They have aircraft land on the center of the runway, then clear to the edge of the runway nearest the ramp after they get a successful chute. Those failing to get a chute clear to the opposite edge. Simple, neh?

WHILE BREEZING THRU the positive control area the other day, we heard the following exchange.

"Indianapolis Center, this is Item Able Sugar Two, ahh, we were Pittsburg 02, Flight level 390, Appleton 16, Dayton, over."

"Roger Able Sugar Two, request you reply code 32 mode three."

"Sugar Two squawking 32 on three."



"I don't read you Two; request you reply IP."  
 "Roger, Indianapolis; replying IP."  
 "I still don't have you, Sugar Two; could you have another aircraft in your flight reply code 32 mode three?"

"Roger, Center, number two is already squawking."  
 With an obvious "the light has dawned" inflection, the controller replied: "Your transponders must be canceling each other out! Have your wingman place his on standby."

"Roger. Item Able Sugar Two Two strangle your parrot."

An unfamiliar voice, "Roger."

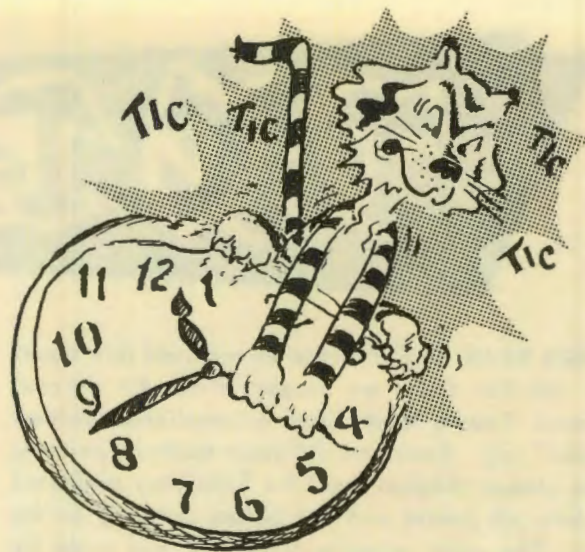
"O.K. Sugar Two, I have you now twelve and a quarter miles due East of Appleton."

Nuff said?

CLIMBING OUT on a local VFR on top mission, a B-57 pilot entered the overcast at 6000 feet and broke out on top at 8000. He flew the mission at flight level 350, descending to 20,000 just prior to penetrating. During penetration he entered the undercast at 18,000, started penetration turn at 16,000 and immediately broke out under the clouds. He made a quick recheck of his altimeter and found it reading six instead of 16 thousand. He was 2000 feet above the terrain at the time.

TAT welcomes this honest pilot to the club. It is hard to appreciate how easy it is to misread this instrument until it happens to you. We joined a few years back, much to our embarrassment... and the great amusement of a safety observer in the front seat. Joining can be anything but amusing if on actual instruments or at night in an unpopulated area.

Cure is not so simple... and involves a great deal of check, check and double check. With B-57's and multi-place machinery the best preventative is having another occupant read off each 5000-foot interval during descents.



**TAT'S SWEATY SECONDS SECTION:** Near the land of sweet señoritas and beeg bulls, an F-104 jock lifted his missile into the blue following his gallant leader. Coming out of AB he heard a loud POP, followed by engine vibration and loss of thrust. As the engine unwound thru 70 percent he stopcocked, hit the airstart switch, waited until the RPM hit 60 percent, then shoved the throttle to full military. Altitude was 2000 feet. The engine accelerated to 100 percent and ran nicely while the pilot happily circled the field until the fuel load was reduced to a reasonable amount. Landing was without incident.

Flame-out was caused by a maintenance goof. The IGV running null was inadvertently set at 18 degrees instead of 17. Si Si. One sweaty degree wasn't close enough to keep this troop from having a close one.

BEEP...BEEP...BEEP... "For corn sake, Charlie, can't you find a quiet channel up there?"

BEEP...BEEP...BEEP... "Naw, it's coming in on guard."

BEEP...BEEP...BEEP... "Strangle guard then!"

BEEP...BEE.... "O.K., how's that?"

"Fine. What in thunder was that?"

"Beats me. Sputnik, I guess."

This was a typical reaction to an actual transmission on guard. The transmission was coming from a pilot's emergency locator beacon which had been inadvertently turned on. This signal is supposed to alert air-sea-rescue to the fact that a Navy airman has ejected or has gone into the drink and needs picking up. All it did was annoy a few troops and force others to utilize tactical frequencies (instead of Navy common). Should you hear this signal on UHF guard, recognize it for what it is. If your aircraft is equipped with an ARA-25 radio, use the direction finding feature and lend a hand for a gob's sake!

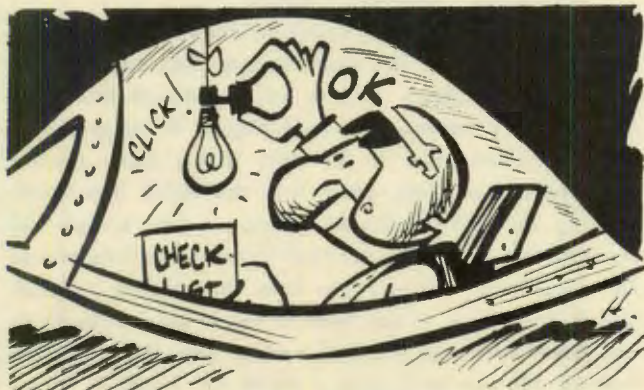


# TAC TIPS



**COUSIN WEAK EYES?** Since we received this report from the Far East, we suspect Fifth Air Forces' infamous Cousin Weak Eyes accomplished another "repair" job. Seems he did some touch-up painting in the plenum chamber area of a T-bird, but neglected to clean off grease and dirt before spraying on the paint. The paint promptly flaked off and made its way into the engine air/oil turbine bearing filter screen, blocking it. The clogged screen caused the number three and number four bearings to fail. Fortunately, this condition was found during a periodic inspection instead of shortly after lift off on a cold, dark night.

**COCKPIT LIGHTS:** With gear down in the traffic pattern and the cockpit light switch of an F-100F in the dim position, the right main and nose gear showed unsafe in the rear cockpit. The nose and left main gear showed unsafe in the front cockpit. When the cockpit light switch was positioned to bright, the gear indicated safe. Maintenance investigators found four resistors shorted in the landing gear dim light circuit. The lights were checked on preflight; however, the maintenance preflight card says to check for illumination, but not both bright and dim circuits. It is unlikely that all resistors shorted out on the flight, so this condition probably existed for some time. Both the bright and dim circuits should be tested on all maintenance preflights...Then if a pilot gets a safe indication on either the bright or dim circuit, he can safely assume the gear is down and locked.



**THE LONG LINE.** Salvaged aircrew helmets complete with headsets are being worn by crew chiefs in one organization during engine starts and pre-taxi checks in the F-100D. The helmet is fitted with a lip mike and a long extension cord is plugged into the outside com-jack located in the nose wheel well. This not only provides clear and easy communication between the pilot and crew chief during system checks, but also protects the crew chief's head from the many head-banging objects protruding from the air machine.



**PREVENTION PLUGS.** Unsatisfactory Reports pertaining to safety of flight are an excellent source of information. Flying Safety Officers at each base should set up a file on those UR's which are of interest to rated personnel. Many contain a wealth of information and can be utilized at flying safety meetings to inform pilots of malfunctions and symptoms. Additionally, incoming T.O.'s often contain information that directly affects the operation of aircraft. Flying safety officers should extract and condense this information to help keep pilots informed of the latest changes.

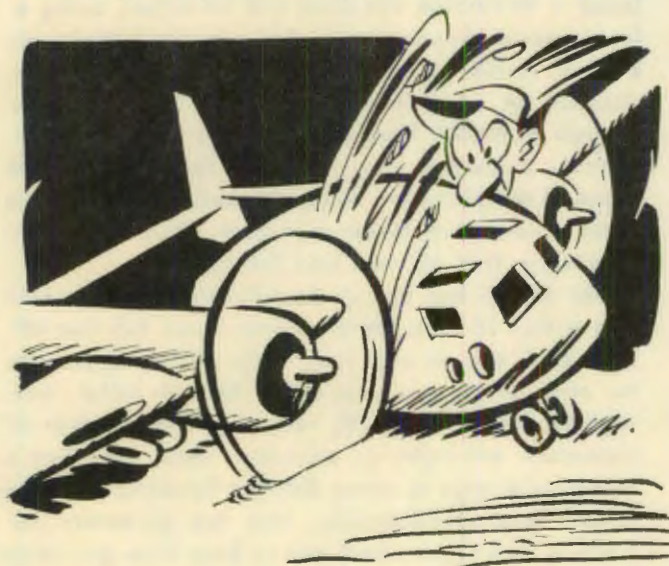
**PREFLIGHT INSPECTIONS.** During recent years the pilot's walk around inspection has been almost as detailed as the maintenance preflight. Having reached this extreme, the pendulum is now swinging back. Several of the latest flight manuals have deleted many items from the pilot's walk around. These are



checks which appear on the maintenance preflight and postflight inspections. In several ways this is a good trend, giving final responsibility back to the experts where it belongs. Maintenance supervisors will have to make certain that these maintenance inspections are done correctly since under the old system many ground crewmen grew careless knowing that these things would also be checked by the flight crew.

**SKILL DRILL.** To keep honed sharp on emergency procedures, pilots of the 137th Tactical Fighter Squadron up in White Plains, New York scribble out the answer to a question on emergency procedures found on their local clearance. Questions are stamped on the clearance and answers checked by operations people. We presume pilots who submit incorrect answers find it financially embarrassing.

**SOMEONE GOOFED.** A dollar nineteen was drooling fluid from a hydraulic selector valve assembly, so maintenance personnel replaced the valve with one which had been overhauled at a repair depot. After completing the installation, they fired up the machine to taxi it to the hangar to run a retraction test. The right gear retracted shortly after the engines were started, allowing the right wing tip, right propeller and fuselage to hit the concrete. Damage was extensive. Someone at the depot had reproven a certain shrewd Irishman's law by reversing the internal wiring on the selector valve assembly. This caused the gear to retract, although the gear selector handle was in the down position. Unfortunately, the two maintenance men involved forgot to make sure the landing gear ground lock pins were installed before they started engines . . . and the initial goof was allowed to boomerang into an expensive mishap.



**TO ERR IS HUMAN . . .** but to make the same mistake twice is a disgrace. And when the same difficulties are reported on consecutive flights there is cause to question the adequacy of corrective action taken by maintenance personnel. Some aircraft accidents have occurred after discrepancies have been reported on the same item several times. Maintenance personnel must insure that positive action is taken to correct discrepancies.

**SAFETY REPORT.** The first Annual USAF Safety Congress Report contained some interesting discussions and sound recommendations. The following are of special interest to maintenance personnel:

**PROBLEM:** Failure to receive vital information on a timely basis has contributed to aircraft accidents.

**DISCUSSION:** This problem is caused by poor communications between organizations and lethargy in transmission.

**RECOMMENDATIONS:** Major air commands should review distribution procedures to insure aircrew members receive vital information such as T.O.'s and Safety of Flight Supplements immediately. (This applies to all organizations.) Each should review distribution procedures to make certain that this type of information is distributed not only to aircrews but to maintenance personnel and detached units.

**PROBLEM:** Failure to comply with directives or to follow established TOC procedures and check lists creates potential hazards and induces accidents.

**DISCUSSION:** Commanders and supervisors must instill a desire to comply with proper procedures. After suitable instruction, most people develop a respect for regulations, check lists and T.O.'s.

**RECOMMENDATION:** Quality control personnel and standardization teams must insist on strict compliance with check lists, T.O. provisions and safety standards.

**PROBLEM:** Continued pilot education in the proper use of the Form 781 series is necessary to improve maintenance standards.

**DISCUSSION:** Maintenance requires accurate records for proper maintenance actions. Pilots need this information to determine the status of aircraft. Difficulty is caused by inadequate pilot entries in Form 781's.

**RECOMMENDATION:** Flight Safety Officers, with the maintenance officer, should review Form 781's to see if write-ups are concise, accurate and complete. If needed, an educational program should be instituted. ●



# HOW HIGH IN THE SKY

IT WAS LATE afternoon and the B-57 made its way smoothly toward the setting sun at flight level 350.

The weather was clear and visibility excellent. In fact the pilot had just remarked to the navigator that he could see almost half way across Texas. Glancing at the instrument panel he noticed with satisfaction that the course deviation indicator was perfectly centered and that the altimeter was reading about 50 feet below 35,000 feet. Close enough. The range drum indicated 58 miles out. He glanced forward and saw the sun glisten off metal or glass. "Another bird," he thought, "and lined up with the horizon... he must be about on my altitude."

Observing more closely, he detected movement across the windscreen. He thought, "He'll miss, but it will be close; I better attract his attention." He banked gently to increase the spacing and a T-33 whistled by going East. Ten full seconds elapsed before a disturbed voice came over the UHF. "San 'Tone Center this is Air Force jet one five five seven two. I would like to report a near miss with a B-57, over."

The calm undisturbed voice of the controller answered, "Roger five five seven two. Understand you just had a near miss with a B-57. What is your position heading and attitude?"

The disturbed voice replied, "Five seven two indicating 34,000 feet, with 29.92 set in the window. Heading 77 degrees, approximately seven minutes outbound from Oiltown Omni."

The B-57 pilot decided he had better protect his interests, pressed the mike switch and transmitted, "Air Force five five seven two. This is Mark Thirty-two, the B-57 flying West which passed to your left. Be advised that I was indicating 35,000 feet with 29.92 set at the time, over."

"Roger boy, that was close."

"I had you in sight, seven two, and was taking evasive action."

"Understand."

But did he understand? Why were these aircraft flying at almost the same actual altitude despite almost 1000 feet of separation in their indicated altitudes? Were one or both altimeters out of tolerance

or was someone fudging on their altitude?

Was it possible for this near miss to be a result of one or both pilots failing to, or incorrectly, applying the dash one altitude correction factor? These were some of the questions asked when the OHR on this occurrence was processed through TAC Headquarters. You'll find the answers interesting.

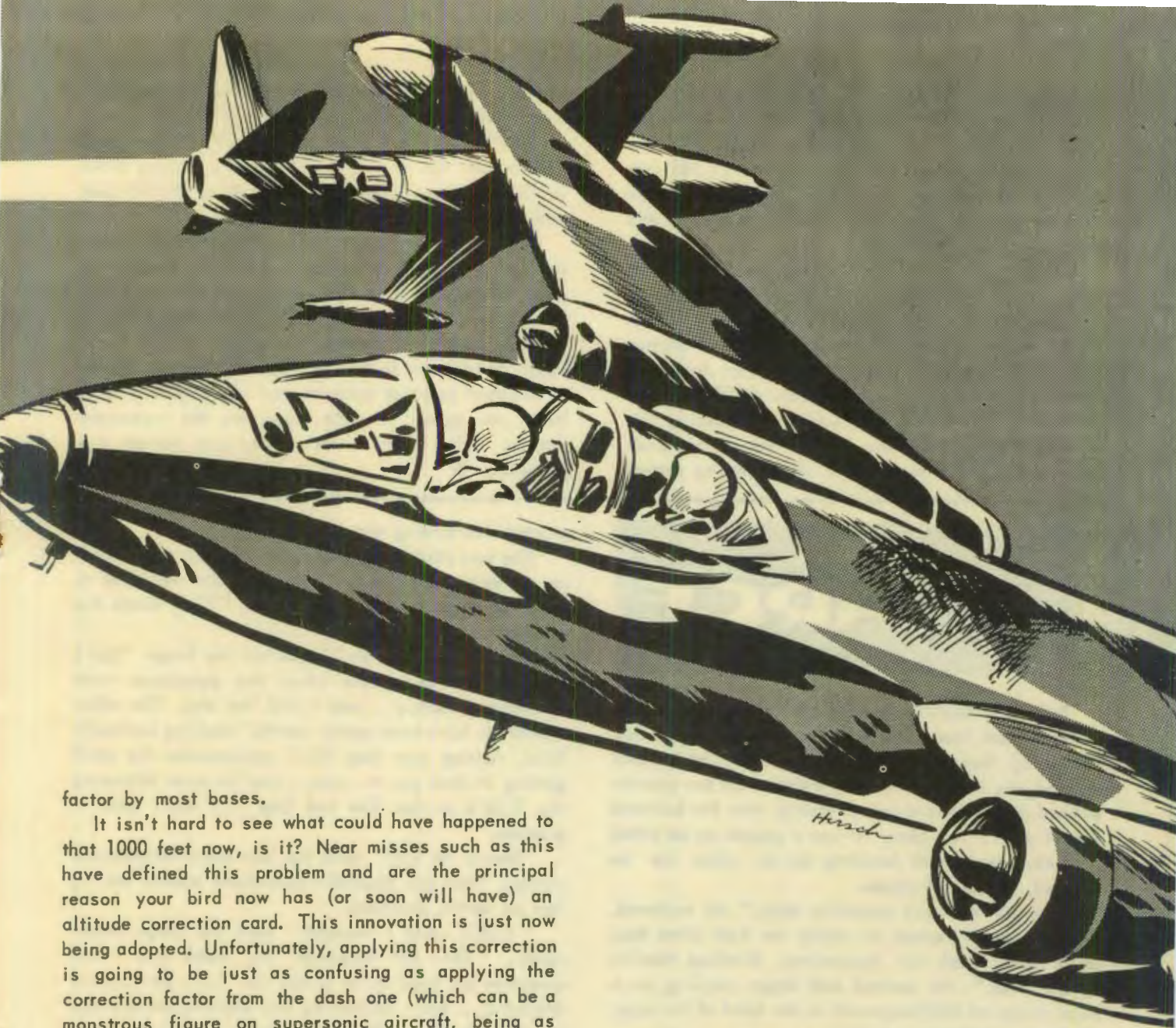
Let's take these questions in their reverse order. Thumbing through the T-33 and B-57 handbooks we find both have about the same altitude correction factor for normal cruise at 30,000 to 35,000 feet. This factor is roughly minus 100 feet; close enough to ignore. Had one pilot applied this factor incorrectly (and after reviewing recent guidance on application of this factor, this could easily happen) and had the other pilot made no correction, the error induced would have been slightly over 300 feet...no sweat.

Was someone fudging on their altitude? Perhaps, but both pilots filed an OHR and both claimed they were on their assigned altitude. The B-57 driver IFR at 350 and the T-33 VFR at 340. We will give them the benefit of doubt--after all both are officers and gentlemen and should be honest to a fault.

Were the altimeters within tolerance? First, just how close is this tolerance? A trip to the base instrument shop supplied the answers. There, we found a technician checking two altimeters using a low pressure chamber attached to a mercury barometer with a vernier scale. By exhausting air from the chamber he was able to run it up to a synthetic altitude of 80,000 feet, checking this altitude on the mercury barometer. By comparing the readings with those of the altimeter being checked, he was able to enter a correction factor on a form. This factor will eventually find its way into the cockpit.

At 35,000 feet one of the altimeters being tested was within 20 feet; the other was about 425 feet off. A reject? Not on your life. T.O. 5F3-4-2-3 permits an error of plus or minus 450 feet! A letter from MAAMA dated 17 Nov 60, requiring bases to test all altimeters and make up correction cards specifies a tolerance of plus or minus 250 feet for altitudes above 30,000 feet. Unfortunately, very few altimeters are meeting this requirement and to keep from grounding the fleet, the T.O. is being used as the limiting





factor by most bases.

It isn't hard to see what could have happened to that 1000 feet now, is it? Near misses such as this have defined this problem and are the principal reason your bird now has (or soon will have) an altitude correction card. This innovation is just now being adopted. Unfortunately, applying this correction is going to be just as confusing as applying the correction factor from the dash one (which can be a monstrous figure on supersonic aircraft, being as much as 6000 feet at certain speeds and configurations on one machine).

At this point let's identify the two errors and show how to apply their correction factors. They are called Instrument Error and Altimeter Position Error. The Instrument Error Correction will be given on the correction card in the cockpit while the Altimeter Position Error Correction will have to be computed from the table in Appendix 1 of the dash one for the aircraft being flown.

At this writing the Instrument Error Correction and the Altimeter Position Error Corrections given in the T-33, F-104, and F-105 handbooks are being given backwards. In other words, if they are minus, you will have a higher reading on your altimeter and if they are positive, you will have a lower reading in order to get the desired flight level. We think this is

a sneaky trick. To help explain how these corrections are applied we will give two examples and include the dash one wording so you can compare it with the handbook for your aircraft.

First, assume an F-104 pilot and an F-100 pilot are both scheduled for cross country flights at 30,000 feet and both decided to cruise at 350 knots indicated (.9 mach). In addition we will assume that both aircraft are equipped with altimeters requiring an Instrument Error Correction of minus 200 feet.

While completing his flight plan, the F-104 pilot turns to the Altimeter Position Error Correction table in Appendix 1 and reads, "Add correction to Indicated Pressure Altitude to obtain correct Pressure Altitude." For .9 mach at 30,000 feet this factor is 715 feet. He subtracts this from 30,000 to get his indicated altitude uncorrected for instrument error



and jots down 29,285 feet on his Form 21a. After crawling into the cockpit, he notes that the Instrument Error Correction card specifies minus 200 feet opposite 30,000 feet. He adds this to 29,285 feet and gets 29,485 feet. Going thru 23,500 he places 29.92 in the Kollsman window, levels off at 29,485 feet and holds this altitude.

On completing his flight plan, the F-100 pilot turns to the Altimeter Error Correction table in F-100, Appendix 1, and reads... and it helps if he's a guard house lawyer, "Subtract altitude correction from True Pressure Altitude to obtain Indicated Pressure Altitude." For 350 knots at 30,000 feet the altitude correction is 825 feet. Subtracting this from 30,000 he jots down 29,175 feet on his knee board and jogs out to the bird. After getting settled

in the cockpit, he observes that the Instrument Error Correction Card specifies minus 200 feet for flight at 30,000 feet. He adds this to 29,175 and gets 29,375 feet. Going thru 23,500 feet he places 29.92 in the Kollsman window, levels off at 29,375 feet and attempts to hold that indication.

Since the correction card is just being brought into general use, it is imperative that the method used be aligned with the system used in the handbooks, and that the handbooks be standardized. From a pilot's standpoint, the proper system is to apply corrections to the desired altitudes... and not to subtract positive numbers and add negative ones. Hope you agree, because these are the recommendations we've sent to those who can correct this situation. ●



THE OLD SARGE came into the office with a gust of wind that sent papers flying in all directions. Retrieving those that fell to the floor, he jammed them angrily back on the desk, shucked off his grease-stained jacket, and dropped wearily into the battered swivel chair. The chair let out a squeal as he tilted it back. He started fumbling for his pipe. As he fumbled, he let off steam.

"People are just naturally lazy," he muttered, "but it never ceases to amaze me how often they make extra work for themselves, thinking they're saving time." He snorted and began packing in a huge charge of Old Barnsmell in the bowl of his pipe. Everyone in the room winced.

The assistant maintenance officer glanced furtively at the window, considered opening it, but remembering the 'wind, reconsidered and resigned himself to the fate of many a ham and herring. Instead he ventured, "What did you run into this time, Sarge?"

"That bunch down in the Twelfth Squadron. They're way behind again, due mostly to unscheduled maintenance on hydraulic system components. They've been plagued by pump failures, erratic operation write-ups on the control systems...you name it, they got it." He paused to strike a safety match; he held it over his pipe and promptly sucked out the flame. After two more failures, he bunched four matches together, struck them into a magnificent flame, and played it over the bowl until the weed inside glowed uniformly. A pale blue fog covered the ceiling and

started descending into the room.

The assistant maintenance officer, his eyes starting to water, decided his only salvation would be to keep the sarge talking so he asked, "They blame the manufacturer no doubt."

"Aye, that they do," retorted the Sarge. "But I showed 'em where the other two squadrons were operating smoothly...and I told 'em why. The other squadrons have been pretty careful handling hydraulic fluid, making sure they don't contaminate the stuff getting it from can to crate..they've been following the T.O.'s to the Tee and they just don't have a problem."

"Seems to me," said the assistant maintenance officer, "that you shouldn't have much trouble selling 'em on better practices."

"That's what I thought," said the Sarge rather sadly. "This all happened last week and I had everyone all fired up to follow the T.O., particularly 44H3-1-3...but I walked by this morning and saw this bunch yank off an aft section and leave all the lines a-danglin' without one cotton pickin' cap on 'em."

He puffed furiously on the old corn cob until the assistant maintenance officer had a coughing fit, then abruptly asked, "You all right, Lt? You better quit smoking so many cigarettes; they're hard on your throat." Without waiting for an answer, he continued, "I asked 'em how come they were ignoring the reg and you know what they had the stupidity to say? They said, 'Gee, Sarge, we're gonna reconnect 'em in a few minutes..and we're too busy to do the job real fancy like that.'"

The Sarge kinda grinned, then said, "Well we had ourself quite an audience before I got through discussing the situation...and maybe they'll shape up just to keep from having to listen to another lecture." ●



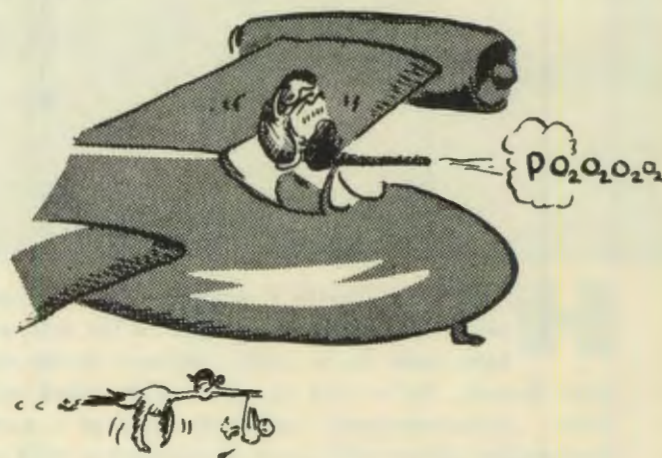


# TAC EVAL

**THE SKILLED AND THE DEAD.** The pilot of a T-33 started a descent from 38,000 feet when he noticed that the right armament door had come open. Immediately he extended speed brakes and the door closed. Simultaneously, with the opening of the armament door, all radio contact was lost. A straight-in approach was made without incident, using 140 knots on final. Investigation revealed that the right armament door rear latch was missing. During his preflight check of the armament doors, the pilot had noticed that although all latches were definitely closed and locked, the rear latch was under greater tension than the other latches. After the incident it was discovered that there were 150 pounds too much ballast. The ballast was too close to the latch which prevented proper adjustment. Then we have the case where two pilots were scheduled for a navigational flight in another T-33. They stowed their clothes in the right armament compartment and completed a hurried preflight, with one pilot checking the left side and the other checking the right. Immediately after becoming airborne, the pilot notified the tower that the right armament door had opened and that he would re-enter traffic and land. The aircraft crashed from a descending right turn and both pilots received fatal injuries. The pilot not only had failed to latch the armament compartment doors securely during preflight inspection, but also had failed to follow the emergency procedures in T.O. 1T-33A-1. The importance of completing thorough preflight inspections and knowing emergency procedures cannot be over-emphasized. And how about maintenance overlooking that slight (150 lbs!!!) extra ballast and improperly adjusted latch!

**DISCONNECT FOR HYPOXIA.** Early one morning while cruising at flight level 360, the pilot of a B-57 made his customary check of the oxygen blinker and noted that it was operating normally. Ten minutes later he was experiencing hypoxia symptoms and found that the blinker was no longer blinking. He immediately initiated a letdown and pulled the bailout bottle lanyard, but noted neither relief nor oxygen pressure in the mask. He then disconnected the supply hose from the T-block assembly, and immediately received pressure and his hypoxia rapidly cleared. Hypoxia and initial loss

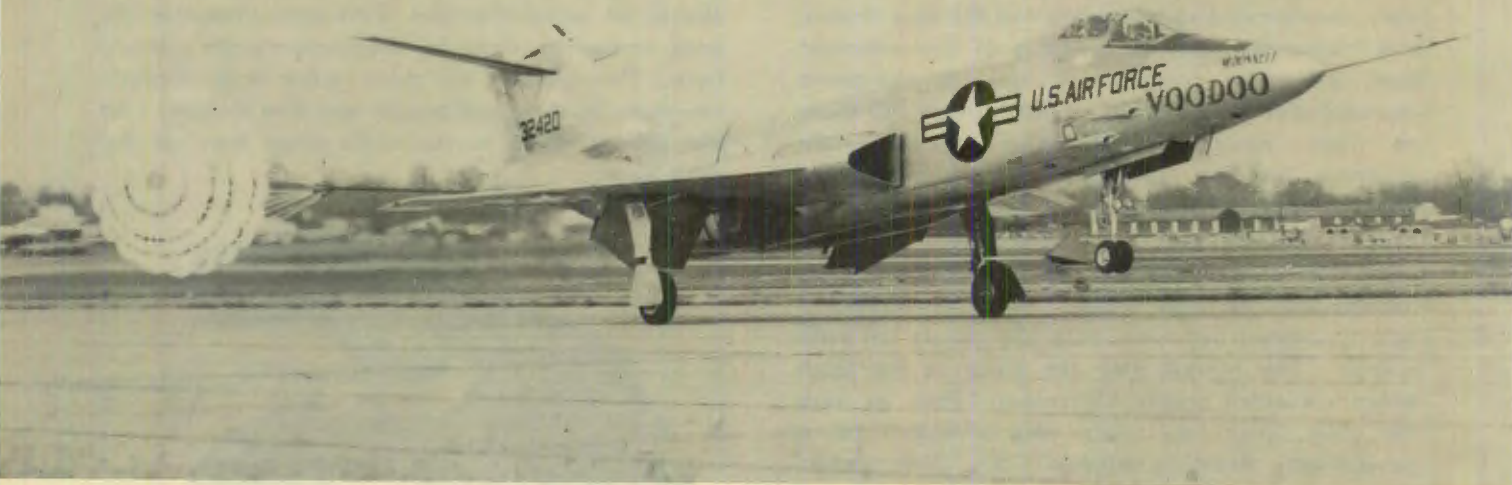
of oxygen from the bailout bottle were both due to the oxygen hose becoming disconnected at the ejection seat. Reason for this was not given. But it should be noted that this pilot used exceptionally good reasoning when he disconnected the supply hose. This allowed the check valve in the T-block connector to close and oxygen was then directed from the bailout bottle to the mask rather than out the open hose.



**PITFALL FOR PRECISE PILOTS.** Normally the Course Deviation Indicator (vertical bar) is the most reliable indicator for the omni. In fact, it is so reliable, a lot of skilled drivers are apt to assume it is in business as long as the flag is out of sight. These troops are also prone to attribute a centered bar to their superior skill at course holding. They should adopt the attitude of their less-skilled brethren (who seldom see the thing in the center) and treat this indication with a certain degree of suspicion. It is possible for the 1D-249 to be unreliable with the red flag down and good sounds in the headset. This condition results from partial failure of the power supply to the instrument, coupled with a slight over-voltage condition. The red flag is held in the "off" position by electrical power going to both sides of the deviation indicator. When power is lost to one side, the flag normally goes to half-mast. However, if voltage is above normal, it will hold the flag full down. If suspicious of a firmly held course, give the course selector knob a twist and note the reaction. If the bar stays centered, use the number two needle or the bird dog. ●



# GIVE THE BIRD A BRAKE!



**H**IGH PERFORMANCE AIRCRAFT have forced us to make a lot of changes in the way we have been flying traffic patterns during the past decade. We've had to abandon the bank and yank, seat-of-the-pants affair in favor of a more comfortable pattern with power on approaches held to closely (?) calculated speeds. Despite this, our barriers are not exactly getting rusty from disuse and we still get reports on an occasional unscheduled trip into the boon docks.

Most of these occurrences involve drag chute failure coupled with either anti-skid failure, a slick runway, or both. Almost without fail when damage is sufficient to classify the mishap as an accident, the cause is assessed to pilot error. Why? Because the experts charged with investigating such things invariably take the aircraft handbook, calculate the landing roll for the conditions which existed and come up with a number that is smaller than the runway length. And why, you might ask, couldn't these unfortunate birdmen stop in that distance? Usually the investigators find that for one reason or another they had flown their final approach five or ten knots above recommended speed and had touched down a little hot, a little long, or both. But five or ten knots... shouldn't that be close enough for government work? The answer is an emphatic "No! Not no more!"

Let's take a look at the landing roll to see why. On a maximum performance stop you will travel further

at high speed than you will at slow speed. With a uniform rate of deceleration, it takes just as long to slow from 30 to 20 knots as it does from 90 to 80, or from 120 to 110 knots...but look how far you travel during each time interval while slowing between these speeds. To emphasize this, let's carry our assumption further and consider an aircraft that is slowed from 120 knots to a full stop in exactly one minute. It will use 6000 feet of runway for the stop (wet runway, of course) and will travel 192 feet slowing from 120 to 110, 142 feet from 90 to 80, and only 40 feet slowing from 30 to 20.

But remember, we assumed a uniform rate of deceleration and this isn't exactly a correct assumption. Two things affect deceleration: aerodynamic drag and wheel braking. Aerodynamic drag is highest at high speed and decreases as speed falls off. Without a drag chute in a clean modern aircraft, aerodynamic drag isn't as good as it used to be with dirtier aircraft, particularly if a little excess speed prevents the aircraft from assuming a nose high attitude. Wheel brakes, on the other hand, are more effective at low speed due to effect of lift on the foot print pressure and because the coefficient of friction is reduced by speed under certain conditions.

The classic example of a change in coefficient of friction occurs on wet runways where at high speed water doesn't have time to squeeze out from between



tire and runway, causing the tire to literally slide on a film of water. Grooves in the tire help to drain this water off and this is why smooth old tires or those with dimpled treads are so hazardous under such conditions. On dry surfaces and on ice the coefficient of friction remains relatively constant with changes in speed, except when temperatures are just below freezing. Then, an icy runway gets worse as speed decreases because the increased foot print pressure causes the surface to melt and become self lubricating.

Except on very slick surfaces, aerodynamic drag (again, no drag chute) at high speed is not as effective as wheel brakes at slow speed, which increases the importance of landing at the proper speed...and helps explain why that extra five or ten knots causes so much trouble.

On very slick surfaces we find that some of our aircraft, such as the F-100 and F-105, are forced to rely on aerodynamic braking to obtain a maximum performance stop. As we've hinted, a little excess speed prevents these machines from reaching that horrendous angle of attack needed for such occasions. The results are the same...the runway flashes by at

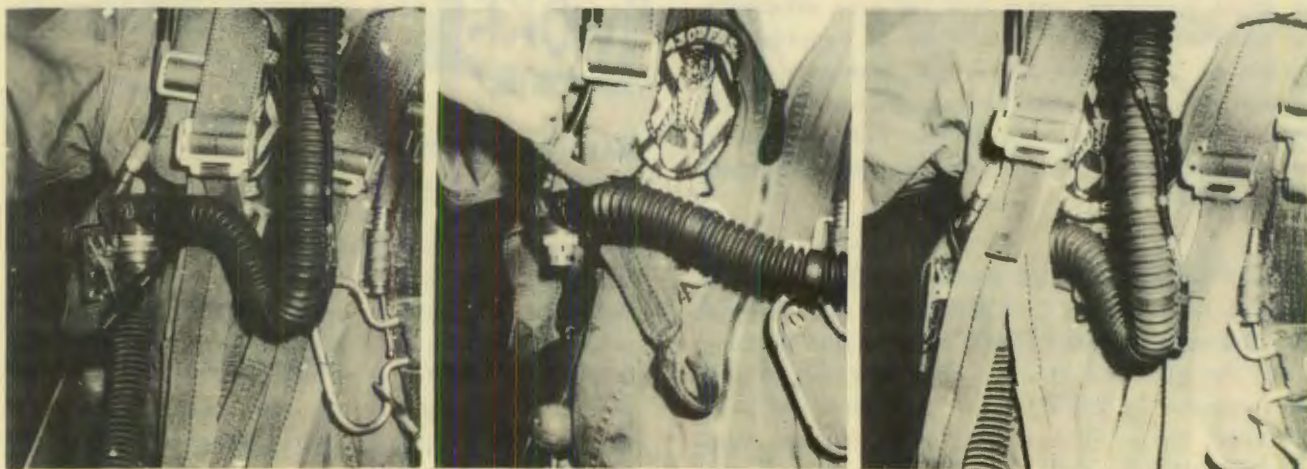
high speed until there isn't enough left to stop on after the aircraft is slowed to where this technique is effective. As you can see from our discussion of the differences in the coefficient of friction between wet conditions and icy conditions, some aircraft might require slightly different techniques for each. If so, the dash one gives 'em.

Somewhere during the landing runout, speed will be reduced to the point where wheel braking is more effective than aerodynamic braking. Near this point, or even prior to reaching this point, it will be to your advantage to increase the weight on the wheels (icy runway with temperature just below freezing excepted). Procedures for accomplishing this vary with aircraft types. Raising the flaps and applying full aft stick, while braking, does wonders on aircraft like the old T-bird. Some get little benefit, and again the dash one tells the story. But regardless of the aircraft, if you are trying to land on a runway that is slick, it pays to arrive at the proper touchdown point, at the proper speed, in the proper attitude, and to do everything possible to slow the aircraft early...and this includes using wheel brakes as carefully and firmly as possible immediately after touchdown. ●

## SEAT SNAG

**A** few days ago Lieutenant Fred Nelson shut down his F-100 and started to clamber out. As he stood, he was rudely braked to a halt by the right shoulder harness strap. The strap had wedged between the T-block oxygen connector and the attaching plate. Knowing that this would be serious during an ejection, Lieutenant Nelson checked with his fellow pilots in the 430th Squadron

at Cannon AFB and found that others had experienced similar difficulties. His solution to the problem was to run the shoulder harness over the hose instead of under it. The photos tell the story. In the photo on the left, the shoulder harness is placed under the oxygen hose. The center photo indicates the shoulder harness wedged in the T-block as the pilot starts to leave the seat. The right hand photo shows the safer way to place the shoulder harness. Tests performed by pilots at Cannon indicate no binding of the hose with this arrangement. Thanks a lot, Fred; passing on the word should help keep someone from getting some unneeded lumps. ●





# CHOCK TALK



**THE MONEY TREE.** Remember the story of the man who spent his life looking all over the world for diamonds only to find them in his own back yard? He now has company. We in the Air Force will soon be trying to find a "Money Tree." Although we may not find this tree in our back yard, there are many ways we can pluck its fruit, particularly when the rising cost of buying and maintaining newer more complex weapons systems is considered. This effort is being called Project Money Tree. Although Money Tree is primarily concerned with the materiel field, it will affect everyone in the Air Force. First phase of the project has been completed. Objectives have been established and Headquarters USAF has been advised. In the second and third phases, the plan will be implemented and results measured. These phases are just starting and will be in effect the rest of the year. Instructions will be outlined in a TAC numbered letter. Basically, Project Money Tree will be an all-out effort to reduce waste and increase efficiency and capability... this should be of considerable interest to us as tax payers and members of the defense team. Our commander has assured Hq USAF that we are wholeheartedly behind this program. So look forward to the TAC numbered letter and support the program.

**C-130B PROJECT "BLUE BLAZE."** The 54H60-39 propeller installed on C-130B aircraft was given a Time Between Overhaul (TBO) of 150 hours because it had not qualified at the time production aircraft were accepted by USAF. Since propellers had been purchased for a TBO of 600 hours, spares were becoming critically short. Project "Blue Blaze" was

established at Sewart AFB to evaluate the propeller at 150 hours and again at 300 hours. Based on this evaluation, TBO was raised to 300 hours on 15 February 1960, and to 600 hours in June, 1960. Teardown at 300 hours had revealed a cam roller bearing deficiency and an improved cam roller and other design improvements were incorporated in the -63. configuration. Sewart was granted interim authority to operate the propeller up to 800 hours and in November 1960 ten 800-hour propellers were shipped to WRAMA for teardown. As a result of this 800-hour inspection the operational life of the propeller was extended to 1200 hours. However, a few with early design cam rollers will be removed for overhaul at 800 hours.

**KB-50 ENGINE INTERCHANGEABILITY.** The modification to allow interchange between "J" and "K" series KB-50 aircraft (T.O. 1B-50(K)K-501) began at Langley AFB on 7 Nov 1960 and terminated 27 Jan 1961. All QEC's have been modified except those installed on one aircraft, which is in crash damage status at Lajes AB, Azores.



**MAINTENANCE FATIGUE.** Just as pilot fatigue may contribute to an aircraft accident, consideration also should be given to the possibility of maintenance error caused from fatigue. Needless to say, quality maintenance is compromised when mechanics must perform duty under a fatigued condition. We have seen publicity releases depicting maintenance men working around the clock to get aircraft in commission. Under certain extreme conditions this may be necessary, but the peril of fatigue and maintenance error should not be overlooked.



**KB-50 QEC OVERHAUL.** A contract for overhaul of 48 TAC QEC's has been awarded Air Mod Division of Cook Electric Company, Vandalia, Ohio. Input started in Jan, 1961 and the program should be completed in July. A contract to overhaul remaining QEC's with over 2,000 hours (approximately 45) is being negotiated.

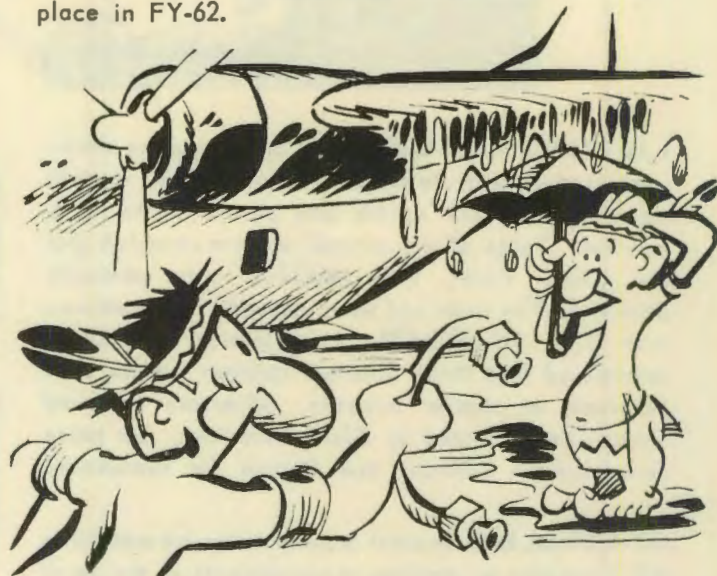
#### **M37-T1 PORTABLE JET ENGINE TEST STAND.**

Two M37-T1 portable jet engine test stands are scheduled for delivery to each CASF committed tactical wing between March and June, 1961. Although test stands were procured for support of CASF overseas movements, they may be used at the home base to relieve the excessive workload imposed on semi-portable jet engine test stands. Regardless, the M37-T1 portable test stand must be maintained in a state of readiness and assigned maintenance personnel must remain proficient in its use and application. Although TAC will issue instructions before M37-T1 test stands are received, essentially one will normally be in use for training and checkout while the other is in a ready standby status.

**T-33 WING FLAP ASSEMBLY.** Once again T-33 wing flaps have made the failure report. A T-33 pilot had his aircraft roll sharply to the right. He analyzed this as a possible split flap and promptly retracted flaps. The aircraft leveled out with the control stick in neutral and the pilot made an uneventful landing. The right flap actuating mechanism attaching bracket had broken through the bolt hole that attaches the actuator arm to the bracket (Reference Figure 10, Index 66, page 2-29, T.O. 1T-33A-4). Inspection revealed that the bracket had been cracked for some time prior to complete failure. This bracket is hard to get at, so it takes some very close looking to find these cracks.



**C-123B CORRODED FUEL LINES.** Corroded fuel lines in the wing leading edges of C-123B aircraft assigned to Troop Carrier Squadrons will be replaced by Fairchild Aircraft Corporation, during FY-61. Replacement in C-123B support aircraft will take place in FY-62.



#### **TRAINING FILM, MB-3 AUTOPILOT AND LABS.**

TIG Brief #26, Volume XII, 23 Dec 60, listed a new training film titled "MB-3 Autopilot and LABS Adjustments, FTA 442d."

**GENERAL AIRCRAFT MAINTENANCE.** Apparently many TAC maintenance sections do not understand the purpose of the aircraft cycle modernization and modification programs, and are allowing routine maintenance discrepancies to accumulate on aircraft scheduled for modification. Presumably, this is on the premise that these write-ups will be corrected as a part of the modification cycle. This is incorrect. Routine maintenance is not a scheduled or programmed workload item and if the contractor or depot has to perform it, the aircraft will be delayed. Commanders and supervisors can assure a faster turn around and at the same time improve the quality of maintenance in their unit by straightening out this misconception.

**T-33 LANDING GEAR ICING.** The left main gear failed to extend when the pilot attempted to lower his gear at the high key point in a simulated flame-out pattern. Several attempts to recycle the gear were ineffective. The emergency gear lowering system was actuated, and the left gear broke loose and locked in position. Subsequent investigation revealed no cause for the malfunction, and it could not be duplicated on the ground. It is believed that the gear fairing door roller contained moisture which froze at altitude. ●



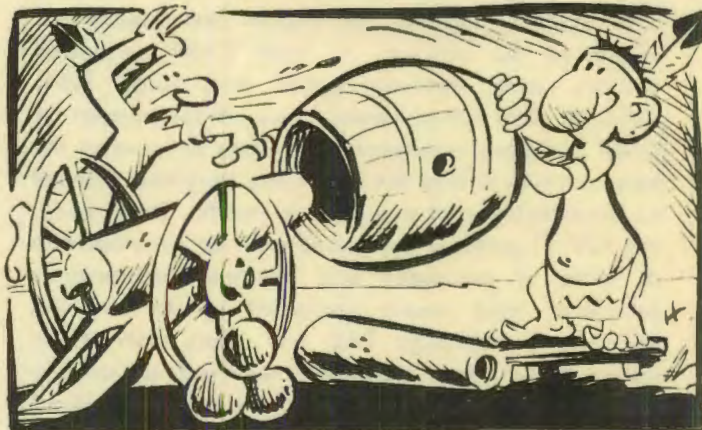
# AIR MUNITIONS

**LABS TIMER MALFUNCTIONS.** Some practice bombs were inadvertently released from an F-104C aircraft when the drop-lock switch was placed in the ready position. Tests of the aircraft system revealed that the LABS Timer, P/N M6437-A, was internally defective. The timer had been installed in accordance with T.O. 1F-104C-528. Investigation by DAAFD determined that three different Haydon Timers were involved in similar mishaps. Alternate improved timers, manufactured by Globe Industries, are being forwarded to Kirtland and George for evaluation.

**MF-1 TRAILERS.** Several organizations are modifying MF-1 towbars by welding reinforcements at the point of weakness. This keeps them in business but there is no standardization since everything from angle iron to armor plate is being used. For this reason T.O. 11N-H5002-1001 will soon be published and distributed.



**F-105 BOMB BAY ACTUATOR.** Several inadvertent releases have occurred during loading, while the shape was being hoisted with the bomb bay actuator. Following one incident, a tear-down inspection of the actuator revealed improper drilling of the pneumatic ports for the main trigger and auxiliary air passage in the solenoid release valves. Urgent action interim T.O. 1F-105-579, subject "Inspection and Test of Bomb Bay Actuator Cylinder Solenoid Release Valves," 26 Jan 61, will show how to find defective actuators.



**GUN BARREL INSTALLATION.** An airman, AFSC 46250, removed and improperly replaced the gun barrel on an M-39A2 20mm gun at the harmonization range. When the gun was fired the resulting malfunction injured several airmen standing nearby. This is one more illustration of the need for improved supervision.

**ERROR IN CHECKING SYSTEMS.** A highly skilled technician and an F-100 pilot both failed to check the pylon load switch so an MN-1A dispenser was inadvertently released during a training mission. Personnel errors such as this are costly and can be prevented by tightening supervision... and by requiring everyone to follow established procedures.

**MN-1A TRAINER.** Don't be alarmed if you notice a slight separation between the four lugs and the cylinder of the plunger assembly P/N GMD-52-30027-1 on the ejector assembly of the MN-1A Trainer (figure and index number 9-6-6 of Technical Order 11N-PD (MN-1A)-2). Separation results from the lugs being welded on top instead of on the bottom where the ejector receives the force of impact when the bomb is ejected. With this slight separation, the lugs make contact with the inner surface of the ejector base but will in no way hamper operation of the ejector, or require replacement of the plunger assembly. However, replacement is required if the weld itself cracks, or if a lug breaks off. ●



# TAC TALLY

DEC. ACDTS.	27 TFW	31 TFW	401 TFW	474 TFW	479 TFW	4510 CCTW	4520 CCTW	4 TFW	354 TFW	363 TRW	839 AD	464 TCW	4505 ARW	433 TCW	118 TRW
F-105															
F-104					1										
RF-101															
F-100		1				1									
F-86															
F-84						1									
T-33															
CONV.												1		1	



## ACCIDENT RATE JANUARY

TYPE A/C	1960	1961
F-105	0.0	0.0
F-104	60.6	54.1
F-101	0.0	0.0
F-100	17.5	13.6
F-84	0.0	97.8
T-33	12.4	0.0
KB-50	0.0	0.0
C-123	0.0	0.0
C-130	0.0	0.0
U-3A	543.5	0.0
ALL TYPES	11.9	11.0

Five major aircraft accidents and ten aircraft incidents were reported in Tactical Air Command during January 1961. This is one less accident and twelve less incidents than were reported in January 1960, which is a trend in the right direction. We don't have the findings of the investigating boards as yet so can't make any positive statements about cause factors, but let's examine the incidents. Out of the ten, eight resulted when various pieces of hardware fell from aircraft in flight. The items ranged from an F-100 landing gear fairing door to jet engines lost from two KB-50's. Fact is, in addition to these three items we lost two MN-1A bomb dispensers, a type VIIIA pylon, a 275-gallon tank, a 450-gallon tank, an F-104 escape hatch and a B-66 ejection hatch. Fortunately no one was beamed by any of this falling junk, and we rue the day when it does. True, many items fall while aircraft are on bombing and gunnery ranges, but this should not be reason to relax practices and procedures which influence safe mission conduct. Increased vigilance on the part of pilots and maintenance personnel should help reduce the frequency of these in-flight losses of aircraft equipment.



**PRINCESS ANN says :**



**Accurate Reporting of Deficiencies  
Contributes to SAFETY OF FLIGHT !!**