FEBRUARY 1961

ATTACK

TACTICAL AIR COMMAND

TERMINAL FLIGHT MONITORING

weather at one or more possible alternates, to evaluate this information, make a decision as to which was best, compute a flight plan and obtain ATC approval thereof, while holding on instruments at 20,000 feet--an altitude rather expensive in terms of fuel consumption. His time was rapidly running out. Here was a pilot who needed assistance from a man less busy than he, and he needed it fast.

How did this pilot get into this unhappy situation? The immediately obvious answer is, "The weather deteriorated." This, of course, is true, but this is the nature of weather. Our flight control system, our way of doing things, helped the weather put this pilot in the fix he was in. Our flight control system must be effective in spite of weather. With this, all agree. We have done much and are planning to do more to make it so. But we need improvement now. At the time you are reading this, you may be sure that in many parts of this world more than one pilot is sweating out a forthcoming approach, and a substantial percentage of these are in single place fighter aircraft.

The experience of this jet pilot points up areas susceptible to improvement now. In my view, the greatest single improvement would be made if we could get air traffic controllers and others who transmit weather data to pilots "to look out the window" and report what they see. This, of course, has been advocated by pilots for years. Our providers of "official" weather don't seem to get around to doing this; however, when pressed, control tower operators will do so. Providing forecasters with weather radar has helped, and actual observation of existing weather is now promised a few years hence with the advent of new equipment. But for the present we cannot rely upon there being an observant pilot handy to report the true state of affairs as happened in this case.

Even when service of this quality is available, it will not provide the complete answer to situations like the one described above. The time required to transmit weather from point of observation to all agencies who are called upon to furnish it to pilots insures that weather data given to pilots is old. All fliers know this, yet pilots and en route air traffic controllers make plans and take actions on "old" weather. It is the only kind they have. But do we have to take critical actions such as letting down a pilot from "on top" to 20,000 feet in the soup on "old" weather data? Think how much easier our pilot's task would have been and the additional margin of safety he would have enjoyed if he had arrived at his base VOR at 37,000 feet on top instead of at 20,000 feet in the soup. Should we not require or at least authorize a jet pilot to remain at flight altitude until he is certain that he can make a penetration and land at his destination? I think the answer is "yes."

ABOUT THE AUTHOR

LIEUTENANT GENERAL JACOB E. SMART, a native of Ridgeland, South Carolina, graduated from West Point in June 1931 and received his wings sixteen months later at Kelly Field, Texas. Early in World War II he served as Chief of the Flying Training Section in Air Corps Headquarters. In March of 1944 he assumed command of the 97th Bomb Group in the Mediterranean Theater. Two months later he was shot down and captured. He remained a POW until April of 1945. After the war he became Secretary of the Air Staff, Headquarters, Army Air Forces and later was made Executive Assistant to the Commanding General of the Army Air Force. Following this he was assigned to staff position in Headquarters, Air Defense Command.

After attending the National War College he commanded the 32nd Air Division at Stewart AFB and later became Vice Commander of the Eastern Air Defense Force. During the Korean War, General Smart served as Deputy for Operations of the Far East Air Forces in Tokyo, Japan, then returned to Washington as Assistant Vice Chief of Staff, Headquarters USAF. Prior to becoming Vice Commander TAC, General Smart served as Commander, Twelfth Air Force. Among his decorations are the Distinguished Service Cross, the Distinguished Service Medal with two Oak Leaf Clusters, the Legion of Merit, the Distinguished Flying Cross, and the Purple Heart.

I suspect that F-86 pilots returning to base after combat along the Yalu are the only people who have ever seen jet engines burn fuel faster than when holding over destination awaiting clearance to an alternate. Is it necessary that we "hold" a pilot while air traffic control is doing its work? ATC's work is inherently time consuming. Add to this communication time, which is always lengthened when everybody is IFR, and our pilot begins to suspect nobody cares.

Weather is rarely bad everywhere. Almost always there are good weather areas and bad weather areas. Alternates lie in good weather areas. When a pilot learns that his destination is below minimums, he should get on toward his alternate with minimum delay. We should have a system which makes this automatic. In cases when it is impracticable to reserve airways space to an alternate at the same time air space to original destination is reserved, would it not be wise and practicable to preplan the dispatch of the aircraft at least in the general direction of his alternate? Perhaps this could be done off airways on a preplanned radial, or on airways with one instead of two thousand feet separation in flight levels. This may not be ideal, but it appears feasible. It would put the time now spent holding while awaiting ATC clearance to good use and materially reduce pilot stress--no mean objective in itself. Upon receipt of ATC clearance the pilot could rejoin airways as ATC directs--many miles and many minutes closer to his new destination.

Note that in the case cited, our pilot could have proceeded toward his alternate IFR on top had he remained at his flight altitude of 37,000 feet. As a general rule, weather is better at higher cruising altitudes than at the lower altitudes from which we now begin penetrations. ATC's problem of providing clearance is correspondingly easier, not only because the weather is better, but the pilot seeking clearance to an alternate is or should be in a better weather area obviating a climb through many in-use flight levels. It would seem that from a strictly self-serving point of view, ATC would want to keep a pilot at his cruising altitude in every case when faced with the likelihood of moving him to a new destination.

To summarize. In my view three changes in procedure, costing little in resources, can be taken now to make the fighter pilot's tasks easier in terminal areas.

First, preplan the flight to his alternate, by reserving a flight altitude on airways or on a predesignated radial off airways that will take him toward his alternate. Don't hold jet pilots over a closed air base awaiting ATC clearance to an alternate.

Second, require a jet pilot to maintain cruising altitude until <u>he knows</u> he can safely penetrate and land at destination. Don't let reliance on "old" weather cause ATC (or the pilot himself) to let him down prematurely.

Third, require aircraft controllers of terminal air traffic "to look out the window" or at least to know what the current weather is so that a pilot who is about to penetrate for a landing can have some understanding of the weather he will encounter during this critical phase of his flight. Don't let terminal aircraft controllers act on or give an incoming jet pilot "old" weather.

While I am convinced that the above actions, if taken, will materially lessen the strain on jet pilots and make their flying in terminal areas safer, it must be recognized that other things <u>should</u> be done for the pilots who fly today's jets, and <u>must</u> be done for the pilots of future aircraft whose tasks will be greater in number and complexity and for whom time will be more critical. The problem of meeting the needs of pilots of future

aircraft is beyond my scope. However, I can assert, if not conclusively prove, that today's jet pilot needs help not now available to him. Many of the things he needs have not been invented. Techniques or devices by which weather conditions can be accurately forecast by a few minutes to a few hours are examples. Reliable long range communications is another. Other needs can be provided by the present state of the art but are costly in dollars, manpower, and other resources. An improved and expanded capability of flight service is one highly desirable but costly item.

Every jet pilot approaching his destination in foul weather would like to know that a well qualified jet pilot was aware of his approach, shared some responsibility for making it a safe one, had at his fingertips pertinent information on his destination and practicable alternates which he was correlating, evaluating, and translating into an advisory for him in terms meaningful to jet pilots. He would like to know that men on the ground who are as competent but less busy than he, who had access to many communications channels and many facilities, were thinking and planning what he should do and would report their findings to him. This would permit him to make a sound decision, and having made his decision, the man on the ground would obtain clearances for him from proper agencies and do other things that can better be done from the ground than a jet cockpit.

These and many other possible actions are deserving of our study and recommendations to our decision makers to enable them to determine whether limited resources can be spent better in this area than in others. The pilot whose experience I described would decide in favor of this area.

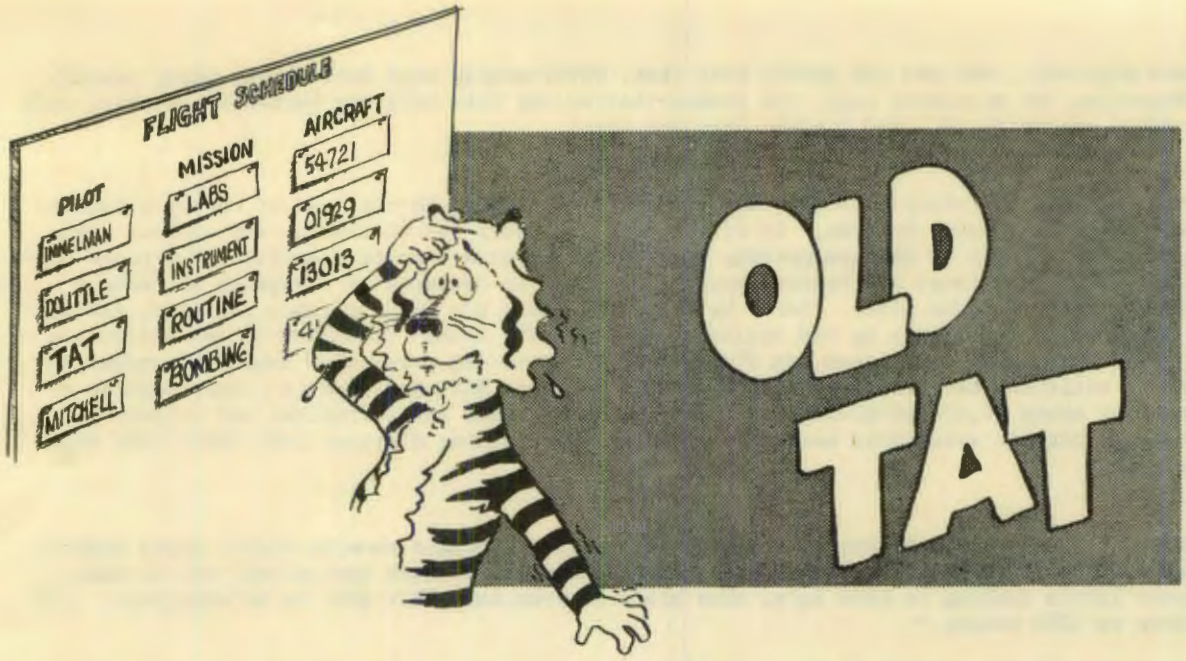
In closing, I am happy to report that he landed safely at his home base. It was not our system that brought this about but the weather which improved while he was awaiting ATC clearance to an alternate. God takes care of fighter pilots. Shouldn't we help too? ★

TRAVELIN' TRASH

IF YOU THINK that this is a photograph of trash some eager beaver Flying Safety Officer swept up off a ramp, guess again! Instead, these tidbits were found in an F-100, right next to an electrical terminal strip. What's more, three more photos that look about like this, show stuff cleaned out of similar areas in the same aircraft. The clean up was made after two 275-gallon tanks mysteriously fell off during an in-flight refueling. A piece of this junk apparently bounced onto the terminal strip while the pilot was trying to mate probe and drogue and energized the jettison circuit.

Considering the number of vital operations performed by electricity in an F-100, it's a wonder some of this tramp metal didn't cause more serious trouble. Who knows, other aircraft carrying similar garbage may not have been as lucky...and may have caused a great deal of head scratching to those charged with sifting through their broken remains.

Part of this material undoubtedly was sold to the government with the aircraft as an unwanted bonus...the rest collected during routine maintenance and while in flight. All of it should have been removed during the clean up phase of periodic inspections! ★



WE'VE SAID IT BEFORE, but we'll say it again...we have trouble finding the gut switch every time we're scheduled for one of those routine training flights! They are the ones to watch. If you don't believe us, ask a certain young first John, who recently blasted off in an F-100D flying wing in a two-ship formation. Thas right, he was scheduled for a routine training mission, and here is the way it went.

Outbound at flight level 270, he detected a slight vibration. Engine instruments failed to uncover a discrepancy, so he pressed on, giving a little extra attention to engine instruments. About half a minute later, oil pressure increased to 50 psi and the vibration got worse. The lieutenant called his leader, told him about the reluctant engine, and suggested they take it back home.

They were about 85 miles out when they made their one-eighty. Immediately after completing the turn, the sick engine cut loose with a series of violent compressor stalls and decelerated to 70 percent. The lieutenant retarded throttle to match the RPM and tried the emergency system. He still couldn't get over 70 percent, so went back to the normal system. Holding 220 knots, he could do nothing but descend. Since the only available airpatch was behind a 12,000 foot mountain range, the lieutenant decided he would have to eject and started cleaning up the cockpit. The leader advised him to stay with it a while longer. At flight level 240 he managed to ease the power up to 81 percent without getting compressor stalls. A few miles further on he managed to nurse it up to 86. About 35 miles out while over a sparsely populated mountainous area, he tried to pickle the tanks. The right 275 tank departed, but the left 200 did not release. All efforts to kick it off were to no avail.

Twenty miles out at 20,000 feet, engine RPM again dropped to 70 percent but by now it didn't matter. The lieutenant turned on the RAT and carefully steered the sick machine through a modified flame-out pattern to a successful landing. He shut the unit down after turning off on the nearest taxiway. Engine coast down took about eight seconds. Whew! See what we mean?

The 200-gallon tank failed to jettison because the pylon quick disconnect plug (P587) was not completely pushed into the wing receptacle. Engine problems were traced to the turbine rear bearing oil seal (P/N 183668) being lodged inside the turbine rear bearing oil pressure tube bolt (P/N 2372171). This stopped all oil flow to the number 4½ and number 6 main bearings, causing them to fail. Misplacement of this seal was attributed to faulty maintenance.

TAT was favorably impressed with the way this emergency was handled. The pilot started back home at the first reliable indication of trouble; then as failure progressed, he carefully nursed all possible power from it. He was rewarded by getting to go back with

the aircraft...and you can hardly beat that, particularly when over rough, nasty terrain. Regarding the misplaced seal, the powers-that-be say this will not happen if existing tech orders are followed...and therein lies the cure!

THEN WE HAVE the story of the 86 dog pilot who was flying in the land of cherry blossoms, hot baths, and honey buckets. At flight level 300 this lad noticed he was without cabin pressure. At 320 he started getting symptoms of hypoxia - so he selected 100 percent oxygen. At flight level 350 hypoxia became worse, so he declared an emergency and made a hasty return to home plate. Seems he forgot to check the cabin pressurization switch and it was off. Apparently he had neglected to place the manual regulator in the safety position. This would have given him 2" of pressure, assuring a positive supply of oxygen for cabin altitudes between 30 and 40 thousand. Frankly, TAT considers it rather foolish to operate above 30,000 without cabin pressure, unless fuel considerations and urgency of mission make it absolutely necessary...and to us, training missions just don't come that urgent.

WHILE TAT WAS busily boring some T-33-sized holes one bright moonlit night, guard channel suddenly began getting noisier than usual. We started to turn the critter off to save what little hearing we have left, then heard someone say, "But this is an emergency! I'm down to 1200 pounds."

For the next ten minutes we listened to various ground stations call with steers, fixes, and offers to assist. More often than not, two or three transmitted at the same time. We were annoyed at what appeared to be gross discourtesy on their part until the light suddenly dawned...the ground stations were unable to hear each other and didn't know that instead of assisting, they were interfering with each other and creating confusion.

Eventually, two stations took turns giving this lad the needed information, and although they occasionally blocked each other, he seemed happy with the set up.

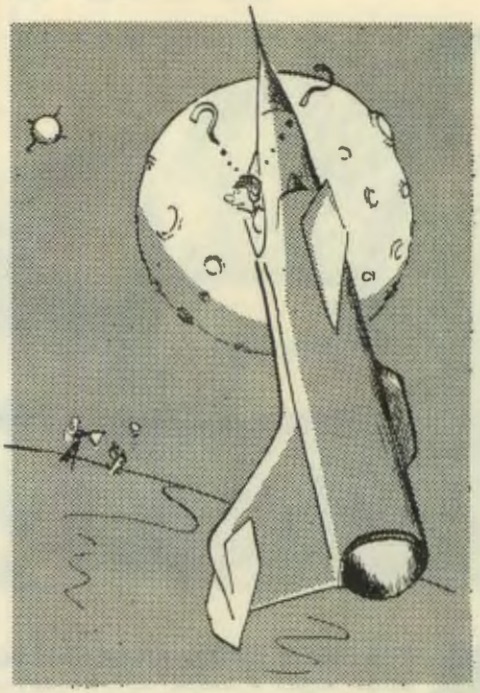
We couldn't help but think that were we ever in such a fix, we'd select one station and advise all others to stand by, stating that we were working this station. We would then repeat all information so other stations could monitor the directions being given, assuming that they would interrupt and give advice should the selected station be in error.

Did he make it? Yeah, but they had to bring him within two miles of the runway, turn up the runway lights, turn on the ceiling light, and flash the strobe approach lights before he got the runway in sight. Visibility was about 50 miles!

EXTRACTED FROM the answer to an emergency UR on the fuel system of a late model fighter, "To correct an over-pressurized main fuselage tank, proceed as follows: When low-level fuel light comes on, check internal fuel quantity indicator. If more than 1275 pounds of fuel are indicated, open speed brakes. This should start flow from aft fuselage tank to main fuselage tank and low-level light should go out. If light remains on, place fuel selector

switch in aerial refueling and land as soon as practical. On aircraft which do not have an aerial refueling switch, jettison external tanks in an appropriate area and land as soon as practical. The entire venting system is being investigated to determine a satisfactory fix." TAT wonders if it would do any good to jiggle the lid on the ash tray!

ABOUT AN HOUR and a half after takeoff an F-104 pilot noticed his attitude gyro indicating straight and level with no off flag showing. This would have been strictly George, except the aircraft was definitely not straight and level at the time. Unfortunately, this is typical of several recent failure reports received on the MM-2 gyro. Until the condition is corrected, about all we can do is spread the warning and hope you men behind the stick will be alert enough to keep out of trouble. At any rate, best you disregard the critter when other instruments fail to verify its indications. With considerable restraint we press on with no further comment.

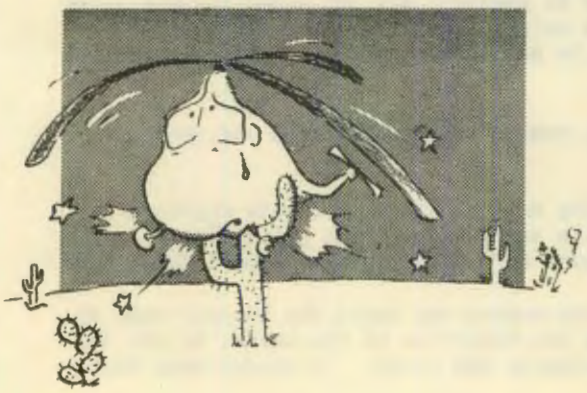


WE WERE LISTENING to an acquaintance tell about a pilot with eighteen years' flying experience who became involved in an operator error accident. It seems this pilot was grounded by a Flight Evaluation Board as a result of the accident. Before the accident he had held a responsible position as member of the Standardization Board, Flight Safety Officer, etc. He was given these responsibilities by the same supervisor who convened the FEB!!

Our friend remarked that something must have been seriously wrong with the many supervisors this pilot had worked for in that it apparently took them eighteen years and four or five thousand hours of flying to suddenly learn that he was not a fit pilot...Wonder if one of our ex-allies still requires their AOski to shoot pilots who land gear upski?

THE GOOD SOUNDS quit in an H-19 during takeoff while its crew was practicing bumps and jumps. Altitude was about 100 feet, so the pilot was able to auto-rotate to a landing adjacent to the runway. The machine suffered minor skin damage to the area just aft of the electronic compartment. Seems this spot touched terra firma a shade too firma during the landing.

As is the usual procedure following such an event, an investigation was made to determine how come the engine quit...and in this case it turned out to be a rather simple investigation. Seems the aft tank ran dry with the selector on aft tank. The forward tank contained 270 pounds. The low level warning light failed to indicate this condition existed because the bulb was burned out.



Now old TAT could go into a long harangue regarding the need for checking warning lights on pre-flight, being aware of fuel state at all times during flight, and establishing a habit or procedure of looking at fuel quantity prior to each landing...but we won't. No sir, we won't say a chicken pluckin', cotton pickin', guitar plunking, banjo plinking thing, 'cept don't get caught at it! So with that, we'll scat, TAT.

SUNDAY DRIVER

A TWIN ENGINE CARGO aircraft belonging to this command departed a western air base about eight o'clock on a crisp, clear Sunday morning. The pilot had filed for another air base some 360 miles away. His route would cross through some of this country's rougher terrain. Here is the story of that flight.

The tower operator briefly wished he could be on board the clean silver machine as he watched it accelerate down the runway and lift smoothly free. He squinted as he looked into the early morning sun to watch the pilot turn the aircraft neatly to the left, then bank back to the right in a 270. As it droned across the field climbing on course, he guessed it to be about 1500 feet. The field was over 5000 feet above sea level.

About fifteen minutes after eight an Air Force Technical Sergeant and his family were enjoying the scenery as they drove along a road winding along a valley in the mountains. As they watched, a large twin engine aircraft flew up the valley, flying about five or six hundred feet off the valley floor, well below the peaks on either side. At first the Sergeant thought the aircraft was in trouble, but he couldn't see any smoke and the pilot seemed to have the aircraft under control...still he felt uneasy. "I wonder why he's flying so low?" he said aloud to his wife; then in an attempt to answer his own question said, "You don't suppose he's in trouble?"

As they watched, the pilot banked and turned up a canyon intersecting the one they were driving in.

At about eight twenty a man looked up from chopping wood to stare at a twin engine aircraft with Air Force markings and said to no one in particular, "That guy's flying low... kinda looks like he's following Couger Creek...guess he's looking for a good fishing spot."

Five minutes later a young man stepped out of a restaurant and heard the throaty roar of aircraft engines in synchronization. Glancing in the direction of the noise, he saw the machine flying up the valley floor apparently following the creek. "I wonder what that

fella is up to," he thought; then fumbled at the cellophane covering on the package of cigarettes in his hand. "Whatever it is, he's sure low."

A former Air Force pilot with considerable mountain flying experience was walking toward his car on the road which follows Couger Creek, his mind wandering from topic to topic. Perhaps it was the noise or the flash of movement; anyway, his attention was attracted to the big twin engine aircraft maneuvering up the valley. As he watched, he almost automatically checked wind conditions. Only a slight breeze was blowing. "Air must be pretty stable," he thought, noticing the aircraft's smooth progress. "If the wind was like it usually is, he'd have clobbered some ways back at the altitude he's at." The aircraft was about 50 feet above the timber tops. "Lord, I thought flat hatting was a thing of the past...guess I should turn the darn fool in for his own sake."

A couple of miles upstream a young man cast a fly out onto the placid clear water of a beaver pond fed by Couger Creek. The roaring of engines shattered the quiet of the valley and a twin engine aircraft passed directly over his head. He stared at the passing aircraft and frowned, resisting the impulse to shake his fist at it.

At about 0830 the elderly caretaker for a tunnel through the mountains paused from feeding his pet deer to listen to what sounded to him like a large truck in low gear. As he listened, an aircraft passed overhead so low the swaying of pine trees marked its passage. As he watched, the telephone rang and he shuffled inside to answer it. The familiar voice of a crony living down the valley responded to his hello by saying, "John, did that crazy pilot get up as far as your place?"

The caretaker replied, "Yep, he did, but doubt he'll get much further the way he went by. Dern fool was so low the trees were blown about by the air from his propellers. Wonder if he knows that this is a blind canyon?"

"I doubt it, John. He was awful low when he flew by the Falls and I didn't expect him to make it up far as you. Guess I was wrong. Could be he'll make it out. These newer airplanes can go almost straight up if they have to." The caretaker nodded agreement.

But they were wrong, for unknown to them the aircraft was less than a mile from the caretaker's shack, a scattered mess of broken aluminum, its nine occupants beyond caring.

Before long flight service and ops people became convinced that the aircraft was down. A search was initiated. Police Departments were notified and search aircraft launched. They were airborne by 1500 hours. Fifteen minutes later a highway patrolman called to report an aircraft similar to the one being reported as missing. He had seen it shortly after eight flying low in the Couger Creek area. At 1530 the Sheriff of Jake's Crossing called. Some of the people in the area had seen the aircraft flying very low up Couger Creek. One had heard a loud noise a short time after it just barely cleared a ridge. A motorist had told him of seeing smoke on the next ridge to the west. Aircraft were directed to the area and at 1600 reported wreckage, but no sign of life; their search was over.

What happened? Had the machine failed man, or had man failed the machine? In the investigation that followed, it became apparent that man was the culprit. Clues within the wreckage indicate that both engines were developing power at impact. Witness statements verified this. No one had observed anything wrong with the aircraft other than the low altitude. Lack of power could not have been the reason for flying so low, because they by-passed one prepared airdrome and climbed over two thousand feet after being first noticed at low altitude. As the reports trickled in, it became more and more apparent that the pilot was flying at tree top level by his own choice. Aside from the obvious violation of regulations, such conduct was exceedingly foolish in the terrain being crossed...this he found out the hard way. His foolishness and lack of regard for regulations cost the lives of eight other people. He held their lives in his hands, yet tossed them away because of a childish whim!

Have you taken similar risks due to an urge to impress someone or for the thrill of speed? If so, you lacked maturity. Regardless of what you've gotten away with in the past, the future of our Air Force and our nation demands that you have the maturity to resist such impulsiveness. Think it over.★

AIR MUNITIONS

TM-76A LAUNCH AREA DESCRIPTION. Last month some of the abbreviations used by Missileers were given and defined. Now, let's relate these abbreviations to actual usage. RFML (Rapid Fire Multiple Launch) operates from a fixed installation. The basic element consists of four launch pads with a TM-76A (Mace) missile mounted on its translauncher on each launch pad. Control of the four missiles is centralized in an LCC (Launch Control Center), forward of the missile launch pads, which is interconnected by entrenched cables and hoses to each launch pad. These cables carry electrical power command and test signals while the hoses carry start fuel to each missile. The LCC consists of an MLP (Missile Launch Pack), EP (Engine Pack--Stand Mounted PE-200 Engine), Power Pack, and an ACB (Power Pack Adapter Control Box), a 1000 amp transformer unit and an auxiliary electrical power unit. The MLP contains all engine checkout and start controls, launch controls, and four RFT's (Rapid Fire Tester or Test). On each pad, connected to the missile, will be found an NTCU (Nose Temperature Control Unit) and an HCU (Hydraulic Control Unit). Now that the operation has been defined, let's see how it is supported and maintained. Basically, the maintenance of the RFML ready condition is assured at the launch pads by periodically conducting a system recycle check on each missile using the SRP (Systems Recycle Pack) on a six-day basis. In conjunction with this, an FCT (Flight Controls Tester) is used to adjust missile control surface trims. Back in the maintenance area, AANC (Automatic ATRAN Nose Checker), BMC (Basic Missile Checker), and MPT (Missile Preflight Tester) checks are accomplished in preparing missiles for the launch area. It's as simple as that--on paper. However, those of us who have been in the maintenance business realize the effort required to support our operations troops. What many of us don't realize or appreciate is the effort required long before a missile weapon system is deployed to the field. Next month we plan to provide some background along this line.

E-120 CONTROLLED ITEMS REPORT. In some instances two or more special weapons organizations are located at the same base and receive their supply support from the same supply account. If only the BSO account number is used, a problem is created because the AMA cannot determine which organization to credit on the E-120 Report. The same problem develops when items are returned to AFD 2388 on shipping documents which reflect the BSO supply account but fail to indicate which organization did the shipping. Request all shipping documents and correspondence pertaining to controlled item transactions indicate the proper organization. This will speed up processing time.

MD-1 LOADING DEVICE MODIFICATION. Modifying the MD-1 loading device enables it to be used on the MN-1A dispenser, thus making it possible to load practice bombs when the dispenser is installed on the F-100 centerline pylon. The mod is made by installing a universal joint between the torque limiter and shaft housing. Details will be forwarded to the field in the near future.

BDU-6E PRACTICE BOMB CABLES, USAF Drawing 59C 46047, were once issued separately. Now they are considered part of the BDU-6E bomb. This will be reflected in a future revision to SL-NOCM. Spare cables will still be available for issue under NOCM 1115-773-3144.

RELIABILITY IMPROVEMENT ON TM-61C MATADOR. Failure of a few TM-61C Matadors to terminate flight when commanded was the subject for study at a recent 4505th Missile Training Wing, WRAMA, Dayton AFD, and ROAMA meeting. This resulted in TCTO 21-TM61C-528, Modification to Improve AN/APW-11A Relay Unit Reliability for the TM-61C.

MN-1A TRAINERS. Tests have been made to find out what keeps the ejector assembly from locking properly when using MK-76 practice bombs. One cause is that components of defective ejectors were not within the tolerances specified on the drawings. SAAMA also found that a few MK-76 bombs were not the right size and are keeping the ejector toggle arm from locking properly. The ejector can be made to lock by pressing on the toggle arm assembly tips or by pushing the bomb fins up and down and back and forth. This happens only with MK-76 bombs and not with MB-2 bombs. UR's should be submitted on those ejectors that will not lock after trying everything in SAAMA message SAWMTS 11-14, 9 November 60, that was addressed to all Tactical Numbered Air Forces.

MF-1 TRAILER BRAKES. Before towing MF-1 Trailers, check to see that the parking brakes are released by looking at the operating lever. It should be up and the brake locking pin should be installed. Some MF-1 Trailers are being towed with the parking brakes on which causes brake linings and tires to wear badly. Incidentally, some organizations are making unauthorized modifications on the brake assembly by installing Zerk grease fittings. Several jack plungers have been damaged by letting the drill go too far while drilling the hole for the fittings. SAAMA requests you not to perform such unauthorized modifications on your equipment.

INADVERTANT STORES RELEASES. Mobile AMA concurred in a recommendation from this headquarters to establish a specialized team to investigate inadvertent releases of stores from F-105 aircraft. The team will be established by MOAMA on special orders and TAC, MOAMA, Hq USAF Deputy IG, and AFSWC will provide members for the team. Recommendations made by the team should help to speed up corrective actions to stop inadvertant releases.

IMPROPER WIRE STOWING. An inadvertent release of external stores from an F-100D was probably caused by a sharp wire strand that had penetrated the wrapping tape of stowed wires. The wires had been disconnected in accordance with T.O. 1F-100-794, but were not dead-ended and stowed in compliance with T.O. 8-1-1, 1 May 1958, paragraph 2a(31), page 3. Each wire should have been cut even with the insulation and a pre-insulated closed end connector installed or a one-inch piece of insulation tubing placed over the wire with the end of the insulation folded back and tied. All unused wires should then have been tied in a bundle and secured to a permanent structure.

CLASSIFICATION OF MATERIAL. Some organizations are shipping unclassified material marked CONFIDENTIAL. Although such over-classification is costly, under-classification is worse. Therefore, you should check the NOCM stock list for proper classification before making a shipment. ★

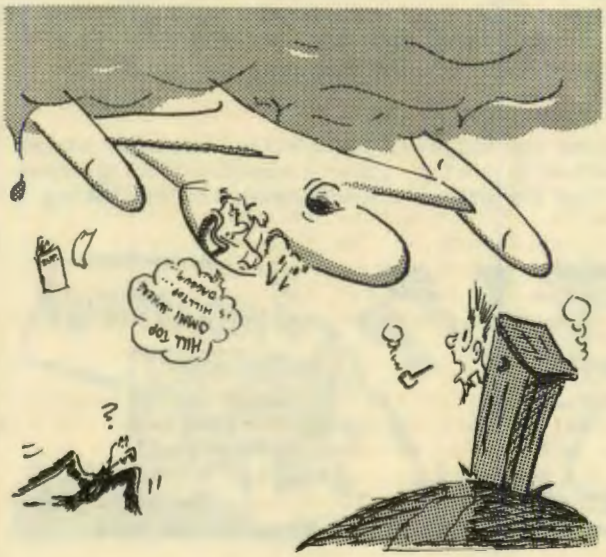
CONTROL CONFUSION. A bird colonel cleared into a TAC base a short while back. About five minutes out the center handed him off to the local approach control and cleared him down to 20,000 feet. Contacting approach control the colonel was given the necessary landing information and then cleared for a northeast approach. Immediately the colonel asked the controller if he meant VOR approach number two. The answer was yes.

Commencing penetration turn just before sliding into the undercast, the controller directed the colonel to switch to 236.6 and contact the tower for completion of the approach and landing, since GCA was out of commission.

Two hours later with his ATC clearance apparently all squared away, the colonel was rolling down the runway on takeoff. Just before lift off departure control called with a change in clearance which sounded like, "Report passing the garbled radial of the blumb VOR." Wisely, the colonel refused the amendment and stated he would fly the departure as cleared before the beginning of the takeoff roll.

Starting back at the approach, let's review the errors committed. First, the controller cleared the colonel for a northeast approach. This was not the official name for the intended letdown. A minor item, as the colonel stated in his letter, but nevertheless, it leaves an opportunity for error. With air traffic increasing the way it is, such things are no longer minor. They can cause a traffic conflict and possibly an accident. Besides, it is just as easy to use the proper name. VOR approach number two, VORTAC approach number four...marked right on the plate so the pilot can't miss.

Next, consider the request for a channel change during penetration turn. Again the colonel classified this as a minor item. To a controller it is a minor item, but to the pilot of an aircraft sporting a poorly placed radio tuner, this request can be the price of the farm! The files bulge with reports of unsolved accidents that occurred at night or during IFR conditions. In many, the involved pilot was asked to make a channel change or IFF mode change just prior to someone seeing the explosion. Generally the pilot was believed to have been in a turn or at low altitude when the request was made.

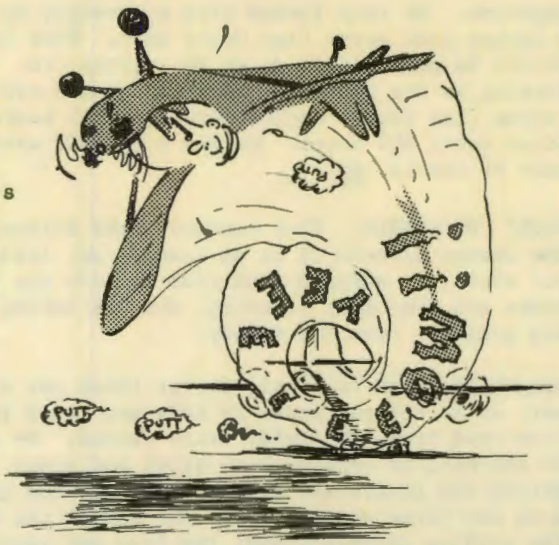


Finally, more than one conscientious pilot has made himself a hazard to air navigation or drawn his last breath while attempting to locate the frequency of an unfamiliar omni station shortly after takeoff...a pilot can't memorize everything, and what isn't memorized must be looked up.

Most pilots have a tendency to accept and promptly forget requests and instructions which create a hazard; fortunately this colonel didn't. Instead, he wrote a letter to the people who could correct the condition. Because he did, he has helped all of us. Now, if a colonel can take the time to write a letter, looks like the rest of us can spare the time to write out a Hazard Report, or at least take time to call the Safety Officer and report such occurrences.

☆

PROP WASHED. At a joint-use airfield an Air Force multi-engine reciprocating aircraft was engaged in a ground engine check. A light civilian aircraft attempted to taxi through the prop blast area, performed a ground loop in a vertical dimension, and came to rest in an inverted position. Although the primary cause of this incident was the civilian pilot's attempt to taxi through the prop blast area, the operator of the multi-engine aircraft shared responsibility in that he failed to comply fully with AFR 62-10. He was not making the runups in a designated runup area. In fact, the area was out of sight of the tower and he was blasting prop wash across an open taxiway. Personnel making ground engine runups should be cautioned to clear the area behind their aircraft and observe the precautions of paragraphs 1c and 1d, AFR 62-10. ☆



ICED OUT. A VC-131 departed a European airport after two days' ground delay for maintenance on the left engine. Other aircraft which were parked on this field overnight required deicing due to clear ice on wings; however, the VC-131 was not deiced. Weather conditions at time of takeoff were 100-150 feet ragged ceiling; visibility variable 1/2-9/10 miles in fog and haze; temperature 2°C; dew point 2°C. Gross weight on takeoff was 49,890 lbs. One minute and fifteen seconds after takeoff, the pilot advised that he had feathered the left engine. Radar vectors were given to return the aircraft to the departure airport. The pilot advised that he was unable to climb to 3000 feet as directed, and shortly afterward the aircraft struck a church steeple and crashed into a streetcar, killing all occupants of the aircraft and a number of people in the streetcar. Other pilots in the area reported a fast build up of rime ice during their climb out. This may have added to the ice believed to have been already on the wings and may have rendered the aircraft incapable of maintaining altitude on a single engine. ☆

WORDS...WEATHER TRAPS. Most aircrewmen have sufficient education to understand the meaning of the majority of words in current usage. Occasionally some words have a broader meaning than their official or dictionary definition. For example, take the words "obscured" and "variable" as applied to weather. Knowledgeable pilots know that in addition to the official definition, these words mean unpredictable weather phenomenon of a dangerous nature. At their very mention, most old heads immediately begin to consider an alternate. They realize the policy of "let's take a look" has terminated more than one promising career. ☆

COLLISION HAZARD. Recently one of TAC's more alert organizations fired off a TWX which called attention to a hazard associated with refueling areas. The TWX mentioned that several Ops Hazard Reports had been submitted as a result of single aircraft being flown thru formations engaged in the refueling operation. Generally the occurrences were at night and were caused by pilots who had filed thru the area on a VFR on top clearance. Aircraft on IFR clearances haven't caused trouble since they are under positive control and controllers know about the refueling operations. The unit which submitted this report suggested traffic through these areas be limited to hard altitude IFR flight and that additional publicity be given designated refueling areas in Safety magazines, Planning Documents, Enroute Supplements, and Enroute Charts. We heartily concur. One suitable interim solution would be to outline refueling areas on high altitude charts. Other pilots could then treat them much as they do a warning area. NOTE. Not one OHR on this subject was forwarded through Hq TAC prior to receipt of this message...otherwise action would have already been in the mill! ☆

SPLIT FLAP. The pilot of an F-105 added power, cleaned up the big machine and started a right climbing turn on completion of an automatic ILS approach. As he established the turn, he noticed the left wing becoming heavy. In fact, he had to apply half of available right stick travel just to hold the wings level. His wingman gave the big bird a quick check and reported the right trailing edge flap extended about 9 or 10 inches. The pilot placed the flap handle down until aileron pressure neutralized, then placed it to the hold

position. He then landed from a straight in approach. The flap malfunction was caused by a broken jack screw flap drive unit. This is the third failure reported, so F-105 drivers should be prepared to do as this troop did. Until the slippery stick set get around to beefing up the hardware, maintenance men can extend its useful life by cleaning and lubricating flap tracks and rollers every 25 hours and giving similar treatment to the jack screw every 100 hours. Unlike a certain automobile, this machine was not built to take care of itself. ☆

OOPS! NO WHEELS! Four century birds entered traffic during recovery from a gunnery mission. The leader greased it in as leaders do, followed by number two. When number two deployed his chute, it whipped from side to side due to some broken shroud lines. He corrected with brake and nose gear steering, but was having trouble. The mobile control officer watched his progress down the runway.

Meanwhile, back on final, number three was creating problems of his own. He was high and hot, so he chopped power to idle and tried to get on a proper glide slope. Just about round-out time, the awful truth dawned. He was approaching the ground at a remarkable rate. To correct, he applied back stick and power just as the mobile controller noticed his condition and instructed him to round out and get some power one. Both troops were late. Good old three whomped in on the end of the runway hard enough to break both wheels off. The machine traveled about ten feet and then the engine responded to the belated request for power. The bird staggered into the air streaming fire from the lower portion of its aft section. Somewhere during this time, two called and said he had blown a tire. Needless to say, mobile was more concerned about number three, and transmitted, "You are on fire on that one on the go. You may have to bail out! Get some altitude, you may have to bail out!"

Number four, who was a standboard pilot giving the formation leader a check, immediately joined on three and reported the condition of the aircraft. Both main wheels were broken off, a nose gear tire was blown and fire was streaming from the area around the bottom of the afterburner eyelid and drag chute compartment. At 5000 feet the fire went out and power was reduced.

On instructions from four, number three turned away from populated areas and mobile control alerted the base helicopter to stand by for a possible bail out. This guy must have been an old warrier; the younger generation thinks in terms of ejections...anyway, three was unable to retract the gear stubs so a belly landing was considered unsafe. At four's suggestion, he punched out at 10,000 feet and 200 knots. His zero lanyard was still connected (he forgot it in the excitement) and he reported that he tumbled about half a turn before the seat left and the chute opened.

His helmet stayed on, since he had the visor down and chin strap fastened, but force of ejection caused it to rotate forward over his eyes. He felt like he was tangled in the shroud lines, so pushed the helmet up for a look. He saw that the seat was next to him with a shroud line wrapped around one of the rollers. He released the helmet only to have it fall back over his eyes; he then unfastened the chin strap and oxygen hose and let it fall. He then tried to get rid of the seat. He was afraid the chute would collapse when he climbed the riser, but was more worried about having the seat land on top of him, so climbed them anyway. After several attempts, he managed to free the seat, then prepared for landing. Shortly after touchdown he was picked up by the helicopter.

We are happy to report that two stayed on the runway and that number one passed his check. Three, incidentally, was a student pilot and had been properly briefed on the complete mission, including the traffic pattern. Cause of the accident was poor judgment on his part for attempting to land from a steep power off approach. Probing a bit deeper we could possibly assess this one to pride. He knew the approach wasn't right, but attempted to salvage it anyway. Most really sharp pilots have a high degree of pride as a dominating element in their makeup. Occasionally this pride is misapplied and results in their downfall. It needn't, because it is a matter of application. For example, if you pride yourself on your ability to do precision aerobatics, you wouldn't consider starting a maneuver at anything but the proper speed, heading, and altitude...nor would you consider attempting a landing from any approach that failed to measure up to your specifications.

★

PRECISION MEASUREMENT AND CALIBRATION. The National Bureau of Standards is printing a 3-volume compilation of publications on precision measurement and calibration standards which should make an excellent reference set. The Bureau selected those publications that have been referred to most frequently and has compiled them in the following three volumes:

- Volume I - Electricity and Electronics.
- Volume II - Heat and Mechanics.
- Volume III - Optics, Metrology, and Radiation.

Base Librarians have been instructed to make these three volumes available to their respective PMEL's.

CORROSION CONTROL. Just after lift off an RF-101 pilot heard an explosive noise which seemed to come from under the left wing. After landing it was found that the left gear fairing door had torn off. Failure of the door was attributed to over-extension of the main gear shock strut. Disassembly of the shock strut revealed that over-extension was caused by moisture in the strut which induced severe galvanic and intergranular corrosion of the lower orifice support. The problem of corrosion due to moisture contained in compressed air used for servicing has been plaguing maintenance personnel for years. The problem has been particularly acute in parts and assemblies requiring frequent or high volume servicing with high pressure air. Although all high pressure air servicing equipment is equipped with heat transfer devices to cool the air and dehydrators to remove the moisture, these devices are not 100 per cent efficient. Some moisture will remain in suspension and will condense out whenever the temperature of the air is lowered or whenever the moisture comes in contact with a colder surface. The following procedures should help to alleviate moisture condensation and associated corrosion problems:

- Avoid servicing high pressure air to an aircraft while the compressor is running.
- Allow the air to become static in the receiver so that most condensation takes place there.
- Avoid servicing hot air to a cold strut or accumulator.
- Charge high pressure air receivers at the beginning of the day so that condensates will accumulate in the receiver.
- Blow condensates out of receivers and servicing lines prior to servicing the aircraft.
- Do not allow pressures in struts and accumulators to drop too low before reservicing.

KUDOS FOR FEB. S/Sgt Laurice H. Richardson decided that the lifting, transporting, and handling of tires and wheels at the 479th CAMRON, George AFB, was requiring too many grunts, groans, and sweat. Therefore, he devised a way to make tire handling procedures easier, simpler, and safer and submitted it as a suggestion (GEO-109-60M). Ogden AMA thought it was a good idea, but because of the differences in layout and operation of the many tire shops in the Air Force, they couldn't adopt it for use by everyone. The TAC Directorate of Weapons Systems Engineering recommends that this suggestion be made available to TAC organizations; so if you would like to look it over for possible use in improving your tire shop, write Headquarters, TAC, TOMO-M, for drawings, photos, and a complete description.

FOREIGN OBJECT DAMAGE, NEH? The C-123 was ginning smoothly along when the pilot noticed that the number one generator warning light was on. He turned the generator off and established a fire watch. In the traffic pattern at destination, the left engine fire warning light came on and smoke began to pour out of the left nacelle. The fire apparently went out when the pilot shut down the engine and discharged the fire extinguisher. After a successful single engine landing, maintenance personnel checked the engine and found that some unthinking troop had placed a sheet of paper (containing maintenance notes) in the generator blast tube adaptor. The paper reduced the amount of cooling air to the generator which caused an overheat condition and in time, fire. Foreign object damage with a different twist, but nevertheless just as dangerous and damaging. Maintenance personnel should be continually alert to this hazard and always remove tools and other such objects after they have finished working on aircraft.

PROJECT AUTO-CLEAN. This project will reactivate the F-100 MB-3 Auto Pilot and the AJB-1/5B LAB System. The project will not integrate the auto/LAB system, but will clean and align each system to the highest degree possible. As a result pilots should gain confidence in the auto pilot equipment and the capability of personnel to maintain it, and the skill level of maintenance personnel in the auto pilot area should be greatly improved. Project Auto-Clean has been completed at England and Myrtle Beach and will be continued in all F-100D/F equipped units in Tactical Air Command.

ENGINE MATERIEL DEFICIENCIES. The Data Processing Branch of OCAMA published a list giving the comparative accuracy of AFM 66-1 maintenance collection data for Engine Materiel Deficiencies. Although TAC had a better batting average than all but three of the thirteen commands, some of the individual units in TAC have done little to put us in this position. The following list of TAC organizations gives the percentage of reports found to be in error. The higher the number, the worse your score! 4800th, 39.6; 4803rd, 100-(Ugh); 4804th, 47.7; 4805th, 51.3; 4806th, 1.9 (Cheers for Myrtle Beach!); 4809th, 8.4; 4812th, 2.0 (Good for George); 4952nd, 52.9; 4855th, 50.0; 4887th, 5.8; 4888th, 3.3 (Not bad,Pope).

"I DIDN'T THINK too much about the first pump they brought in with a broken flange, but when two more were turned in with broken flanges, I decided we had a problem." The old sarge sucked on his corn cob pipe until the air around him was saturated with blue smoke.

"In the old days we probably would have sent in a UR or maybe even three; instead I grabbed my hat and went down to see what I could see." He took another drag on his pipe, then pointing the stem at an imaginary hydraulic pump, continued.

"I was in luck; an airman second was just getting ready to torque up the replacement pump. I use the word 'torque' in its loosest sense. He had a socket wrench on it and was just getting ready to bear down. I walked over and said, 'Just a minute, son; don't that have a torque value on it?'"

"He said, 'Gosh, I don't know'...about then the flight chief walked up, so we asked him."

"He said, 'Yeah, I think it does, but I ain't sure what it is; we generally just pull 'em up tight.'"

"'Well, let's see what the line chief says,' said I, and we went over to his office. Well, he'd heard that the pump was a little critical and had to be torqued just so, but he hadn't done nuthin' about it. So we looked it up in the tech order. Sure enough, it was critical and had fairly close torque tolerances."

The old sarge grinned and again stabbed the air with his pipe stem, "That solved our broken flanges and also saved us from airing our dirty linen with the AMA, which is what would have happened had I written a UR without looking into it. Also, we saved old Uncle a little change, since it costs over 325 bucks just to process a single UR. It costs a heap more if they have to make a project and do some engineering on the problem...so you can see it pays to make sure you have a problem before you start hollering for help."★

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	130 TCS	118 TRW
F-105															
F-104															
RF-101															
F-100		1	1			1			1						
F-86						1									
F-84															1
T-33															
CONV.														1	

ACCIDENT RATE

1 JAN - 31 DEC 1960

TYPE A/C	TAC	USAF *
F-105	55.9	80.3
F-104	34.1	45.4
F-101	25.1	23.4
F-100	26.7	22.5
F-84	37.2	15.9
T-33	3.7	5.9
KB-50	8.6	9.6
C-123	1.6	2.8
U-3A	35.3	1.1
L-20	15.4	4.4
ALL TYPES	14.2	5.9

*** PROJECTED**

The final tally for 1960 reveals that TAC scored 83 major aircraft accidents to establish a rate of 14.2 for the year. This represents a very favorable reduction from the 1959 total of 107 accidents and rate of 16.2. A review of 1960 accidents indicates approximately 60 per cent resulted from personnel error and that the majority of these resulted from errors in judgment and technique on the part of the pilot. Therefore, this area will be the most fertile for further aircraft accident prevention efforts in 1961 and much can be accomplished through proper exercise of the old standby--Safety through Supervision. Personal interest of supervisors in initial checkout followed by close monitoring of individual performance should help reduce the frequency of pilot factor accidents. A typical example of the type accident we are referring to is reviewed in this issue in the article "Sunday Driver." Perhaps a little closer supervision of this pilot would have revealed a tendency or obsession to fly low, and corrective action taken then may have prevented the accident. Taking more stringent disciplinary action and giving widespread publicity of the consequences may cause other pilots to think twice before they participate in such foolish endeavors.


KA-POW!
"GROUND CHECKED O.K."
?