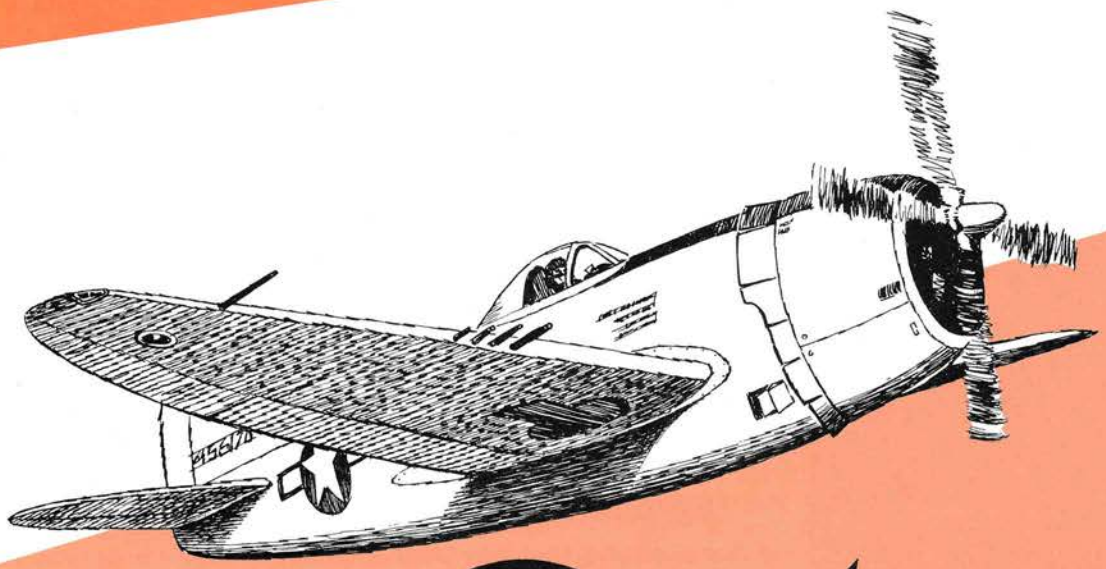
Interceptor

SEPTEMBER 1972



25th ANNIVERSARY

UNITED STATES AIR FORCE

CSHAFER

Interceptor

FOR THE MEN RESPONSIBLE FOR AEROSPACE DEFENSE

VOL 14
NO 9

Direct communication is authorized with: The Editor, INTERCEPTOR, Hq ADC (SED), Ent AFB, CO 80912. Telephone: General Autovon, 692-3186; SAGE Autovon, 321-3186; Commercial, Area Code 303, 635-8911, Ext 3186.

SPOTLIGHT

The best way to get the advantage is to start out with it.

Cdr Reginald Sinclaire

DEPARTMENTS

SPECIAL FEATURES

OUR COVER

On 18 September 1972, the United States Air Force celebrates its 25th anniversary. INTERCEPTOR congratulates the men and women who have contributed to its growth and tremendous success.

"We learned that safety was a product, an integral part of an efficiently planned, supported, and executed mission.

Twenty-five years ago this month we traded in our brown shoes for black and became a separate entity. Behind us then, we had forty years of flying — from the 35 horsepower bamboo and fabric, tail skid, goggle and scarf era through the 2,000 horsepower, armor plated, pressure oxygen and auto-pilot environment— where aircraft crashes sometimes seemed inevitable and the life span of an average pilot short-lived. We had barely consolidated our ranks after World War II to get our fledgling service organized, when we were back, in Korea. We did the job well and our black shoe conversion was off to a good start.

With the advent of the jet age, our planes were able to fly higher, unbelievably faster and cover ever greater distances while delivering some pretty sophisticated weapons. And so it followed, that to keep pace with the systems we designed, we had to press harder to support our aircrews. For example, landing a high performance bird on a 7,000 foot runway from a radio range approach during periods of marginal weather was asking too much from the pilots. So, we built longer and wider runways with overruns; we added barriers, installed VASI, precision approach aids and established flight following radar to help us get up and down safely. Our training programs were expanded to equip aircrews with the knowledge and skill necessary to cope with flying at the higher limits of the envelope in getting the job done.

Our safety philosophy also changed. We came to recognize that a safe and effective operation could only materialize from the collective efforts of everyone associated with the mission — not just the pilot and his mechanic. Safety came to be a principle consideration in system design, maintenance, support functions and life support systems. We learned that safety was a product, an integral part of an efficiently planned, supported, and executed mission. For the first time, accident prevention and investigation became a profession instead of an additional duty and we started to correct deficiencies "before-the-fact," instead of just reporting them "after-the-fact."

We often talk of the good old days, but the good old days were unfortunately all too often dangerous and expensive. In 1951 the ADC major aircraft accident rate was 50.7; currently, our rate is 2.5. Sometimes we lost as many as 30 aircraft in a single month — unbelievable attrition. This year we've only had three major (and that's three to many) accidents.

In the good old days, the commander who was able to avoid having a major accident was considered lucky. Now we know it depends largely upon management, supervision and leadership by example. Then, we had to think twice about our odds of surviving when we bailed out. Now we can practically guarantee a safe arrival if we eject within the envelope. And when we're safely on the ground, we've got the necessary training and equipment to sustain us until we're rescued.

We didn't arrive at our present state by luck. It took a lot of hard working professional people a long time to prove that a well planned and executed operation is an effective operation . . . and an effective operation is a safe operation. We aren't perfect yet, but with your cooperation and skill we'll get closer to perfection than ever before.

COL JOHN M. VARGO
Chief of Safety

HOT LINE

ORANGE APPLE, WHITE CHUTE, RED FACE. Have you ever popped a parachute in the cockpit? Air Training Command reported one in formation recently, caused by a rather unusual circumstance.

Passing 10,000, on the climbout, the student reached down to disconnect his zero delay lanyard. As it came off the "D" ring, the clip on the hook snapped shut and closed on the thumb of his glove. At this point, he noticed that he was falling behind lead and without thinking reached for the throttles. The orange apple came out with the tug and, as advertised, one second later the F-1B timer actuated.

In this case the student was on a dual sortie and he had a spare pilot aboard to fly the bird for him. But use caution — it can and has happened to solos in the past.

If it should happen to you, obviously return and land ASAP. But put things in your favor and don't lean forward in the seat! That drogue chute *will* come out of the pack if you do, and the more you lean forward, the further it comes out — the "forwarder" you go, the less you go back, and it's darned hard to fly or land any bird leaning forward on top of the stick.

"SLIGHTLY"-LY BROKEN. The recent upsurge of T-29 and C-131 in-flight engine failures has caused an increased emphasis on EURs from the field. These much needed reports have helped headquarters Materiel people isolate several cause factors and they tell us that they are getting these corrected as fast as is technically possible. These engine failures have gotten a lot of people's attention but there are still some who show the same lack of concern that was a factor in a lot of these failures. While pre-flighting, the crew discovered a "slight" oil leak but took the plane anyway. Sure enough, during the flight, that engine started consuming oil at the rate of a gallon every four minutes. They aborted, headed back to their base and shut down the engine. They later found that a cylinder had split and a push rod had broken in two places. When you don't know where even those "slight" oil leaks are coming from (like visible oil seals), write it up. You may find out the hard way.

IMPROVE WITH CAUTION. The new AIMS altimeter system in the F/TF-102 has new pitot heads that have insulated pitot covers. We all know that we use the pitot heat during normal flight operations and anyone who has barehanded a hot pitot tube knows the true meaning of the word "warm" If you put the covers on before the pitot heads have cooled they can burn the insulation inside the covers. This burnt insulation forms granular particles which can come loose, get into the pitot heads and cause incorrect readings in the altimeter and AIMS indicating system. It is difficult to see that these covers are burnt just from looking at them from the outside. One base inspected 21 covers by opening them at their seams and looking inside. They found 9 of them faulty because they were burned inside. Only one of them showed any external signs of overheating.

12 TAC FIGHTER WING 5TH REUNION. 8-10 September at the Marriott Camelback Inn, Scottsdale, Arizona. All officers of the 12TFW and supporting units are invited. For reservations call Major Bill Stearns, Luke AFB, extension 2066. For transportation from Luke AFB and other local airfields, call Captain Lurch Lindsey, extension 2991.

OV-10A FACs. The first Bronco reunion will be held at Hurlburt Field, Florida, 6-7 October 1972. For further information, write Bronco Reunion, Box 517, Mary Ester, Fort Walton Beach, Florida 32569.

HELP AGAIN! Shortly after the July issue of INTERCEPTOR hit the streets, our office perimeter defenses were overwhelmed by cadres of fem libbers who purportedly work here at Headquarters. In less time than it took to say "Gloria Steinem," our file copies had disappeared. We suspect that they plan to use copies of that issue against us men come the revolution. If any of you male chauvinists have finished reading your copies of the July issue, how about sending them back to us so that we can keep them for posterity. Thanks.

EJECT!

by **LT COL R. B. WEINERT** ▪ *124th Fighter Group, Idaho ANG*

F-102A, ANG. During recovery, UHF radio started channelizing. Shortly thereafter, aircraft yawed several times with turn and slip ball remaining out of center one ball width. Trim was inoperative, radar failed. Normal gear extension was attempted with no results. The pilot used emergency gear extension; the gear extended but no green lights came on. Pilot went around with 1600 pounds of fuel remaining. On closed downwind, aircraft again swayed several times. Standby indicator was lost. On final approach pilot felt loss of thrust and ejected. . .

(Taken from a recent accident summary)

The pattern looked good to him. He rolled into a turn from downwind to base, and the nose swung reluctantly, in a skid. He pressured a little more right rudder, and the nose eased back toward coordinated flight, then yawed abruptly left. He shrugged, relaxed his foot pressure. Let it skid, he thought. It had been doing it for most of the way back from the Training Area, and he couldn't get any trim into it, although he again reached down to the console between his feet and toggled the rudder trim switch a couple of times. Still no response, and he turned his attention to the airspeed. One hundred ninety-five knots and steady.

"Tango Hotel one eight cleared to land. Crash equipment standing by."

"Roger." He flicked his eyes back to the gear lights. No comforting green glow of the indicators, just three spots darkly suspended on the panel. The gear might really be unlocked, he thought, even if the red light in the handle isn't lit. He considered a gear collapsing on touchdown; better run through just in case. If it's a main gear, hold aileron away from the sag, use opposite brake, hold it off as long as possible. Deploy drag chute after touchdown, lower nose, use nosewheel steering. If the mains don't fold, hold the nose off as long as possible, then ease it down slowly. Stopcock after touchdown during rollout, but expect to lose nosewheel steering. If one does collapse, better run through procedures for what to do after she stops. Stopcock, if it isn't done already, Master Switch trip, canopy unlock, release yellow seat kit handle, then lap belt, get over the side, and run. The thoughts and procedures tumbled through his brain quickly, in a turgid mass, yet he clearly sorted, picking and choosing the options. His hands dampened inside the gloves, and he flexed his fingers on the stick. He shot a quick glance over his shoulder as he pressed the stick into the final turn. No wingman in sight, but he was there somewhere. How far out? Probably a hundred yards or so, because he'd told Alpha earlier about his flight control problems, and warned him to keep it loose.

Even in the turn the bird flew left wing heavy, and he flicked the aileron trim a couple of times more, knowing it wouldn't do any good. The turn seemed to take forever, the black cone of the nose arcing sluggishly across the horizon.

"Have you checked the circuit breakers?" Mobile's familiar voice crackled.

He punched the throttle mike button, and sighed audibly. His breath came a bit more quickly,

in deep breaths now, but he needed more air.

"Yeah. A couple of times. I'll check again." His left hand moved from the throttle, and he rubbed his fingers across the rows of nubby buttons. None protruded, and he switched hands on the stick, then checked the ones on the right fore and aft panels. OK. The left forward panel, down on the floor by his left ankle felt regular and even under his fingers; no offending standouts presented themselves.

He rolled out on final. Altimeter read thirty-six hundred feet. Airspeed showed one-ninety. He eased the power back a little, checked the airspeed again; the needle moved obligingly, creeping toward one eighty-five. Through the windshield, the flat gray inverted "V" of the runway stood out, and he was aware of the hangars and ramp off to the right of it. The pattern was flat, maybe a bit too flat, he thought. Better flat than steep, though. He wanted to get it down on speed close to the end, with as smooth a touchdown as possible. Easy does it.

He relaxed his chest, feeling the pressure of the oxygen forced into his lungs. He tightened, forcing the air out with the usual effort, then let it blow another deep breath into him. This could be it, he decided. Maybe this time it won't be a routine landing straight ahead, to wait for the pins and the smiling crew chief with the circle of forefinger and thumb showing "OK." It won't be long now. He flicked his gaze back into the cockpit. Airspeed one eighty and fairly steady. He nudged the throttle back slightly. Airspeed began a slow bleed to one seventy-five. The runway "V" still looked a long way out. About three or four miles, he judged. Altimeter read thirty-three hundred. Again the flatness of the approach gnawed at him, but he discarded it. Too late now to worry about it. Besides it wasn't bad, just a little flatter than a normal straight in. He eased the stick back and leveled just a bit, his thumb jabbing away at the inoperative trim button from years of habit. The pressure of the left wing tugged at his wrist and his fingertips on the stick.

It looked good. Airspeed showed one seventy-five, flickering toward one seventy-four. He glanced at the altimeter. Thirty-one hundred. Subtracted from the field elevation of twenty-eight hundred fifty, that gave him two hundred fifty feet, plus about a hundred fifty feet of altimeter error on the safe side; he had three or four hundred feet of actual altitude. It looked good. This *would* be a good one. He shifted in his seat, anticipating a touchdown close to the end. The overrun was gravel, with a wooden picket fence at the end of it, how he wished for the thousandth time it were paved. No short landings here! He decided to make it smooth and easy rather than worry about getting it on the first thousand feet. His breathing came a little faster, with deep lung filling draughts every few breaths. Well, he'd done all he could. It troubled him he couldn't figure what the malfunction was, but that was behind him now. Just a few seconds more, and he'd be on, and *they* could worry about it. The pneudraulics chief was a good man, and would have it figured out in quick time. Only a couple of miles more. Thirty seconds and he'd know.

It quit. A jet of icewater hit his back in a paralyzing sheet. It quit! Suddenly and positively, lurching him forward toward the dials and needles from the sudden decleration. He slammed the throttle against the stop; nothing. No familiar nudge bumped him in the fanny. It had quit! The engine had quit. He didn't see anything now. His focus faded; later he could recall no visual image mated to that moment. He didn't see the runway, the airspeed, the instruments, the sky, the glass of the windshield, with its little fingers of wire and metal straps imbedded in the glass. His thought processes stopped, as cold and dead as the engine he knew had quit. Thirty-one hundred indicated, one hundred seventy knots, full drag, two miles to go: those flashes could have coursed through his mind, but he didn't know it. "Do not delay ejection below *2000* feet . . . " That warning from the Dash One, with *"2000"* in bright red letters might have been printed across the veil before his eyes, but he didn't see it.

He jerked both arms to his sides like a mechanical man, his hands on the levers, and grabbed. He snapped his wrists back, and felt the left one rotate first.

Focus returned abruptly, and he saw the pink glow of fire, like a Fourth of July candle, spewing from from somewhere behind his right elbow, then the slash of daylight between the canopy and the rail. The roar startled him; he hadn't expected the canopy to go with so much fire and smoke and noise.

It wasn't happening. It was all a dream. But his hands closed on the triggers, and again he felt the left hand win, and he was crushed down in the seat, started on the ride up and out, only microseconds behind the apex bar and glass of the canopy. He was in a movie — no, he watched a movie, a strange Orwellian movie in which the audience participated along with the actors. It wasn't real, but it seemed *very* real. Or: it was real, but it didn't *seem* very real. He couldn't decide, he couldn't think, his mind couldn't keep up, yet he watched and record-

ed and remembered. Vision — focused vision — vanished again, and time ended. The earth ceased to exist, and only his particular cocoon of air lived. Spinning and blurring, it whipped around and around. His arms flapped in an insane pantomime of flight. He heard and felt the shroud lines gently ripple and rasp out of the pack he'd worn dutifully for so many years, playing out untangled and straight and true, and the movie ended, the house lights came up in a slow increase; his vision cleared, he hit the end of an elastic tether, a pleasant end contrasted with the jam and smash of the rocket ride. He didn't question it. The 'chute had opened, but it never occurred to him to marvel at it. He accepted it, and dangled like Raggedy Andy, with his sawdust head and button eyes tilted toward an airplane silently flying toward the airport.

He hung limply, suspended from a sky hook, and looked at it. It still flew. It hadn't crashed. He stared toward it. It should have veered off to the left and been into the ground by now, but instead it flew on toward the airport without him. It was quite some distance from him, which surprised him; he'd expected to be almost directly above it when the 'chute opened. He stared, then glared, squinting at the empty plane. His eyes commanded, demanded, and then, the message received, its nose dropped sharply and it swooped onto green, ripped through the sod, and erupted into a feeble sun and then a black cumulus boiling skyward.

Now he moved; no, the world moved. The 'chute oscillated in tiny arcs, and the distant horizons rushed upward. Words and phrases from the past, from Tyndall Water Survival slithered and wavered through his mind. He reached, trying to grab one, any one. "Visor up. Mask off." He hung there dully striving for another. He dropped his eyes between the gleaming toes of his boots. Dirt. Rails. Wooden fence. A horse corral, and as if to prove it, an Appaloosa ran directly beneath him, shied, and wheeled to the reaches of the arena. "PLF position, legs together, knees slightly bent, toes pointed down, hands on risers, eyes on horizon . . . ." The words came into his consciousness suddenly and clearly, but also came the expectation of a landing like the one off the jump platform into the sawdust pit. Maybe it was the contrast of hard rocket seat ride, then the tumbling feeling* followed by the mild opening, but he expected no great landing jar.

**The wingman later said there was absolutely no tumbling.*

The earth struck him: hard, very hard. Like a punch in the nose all over his body; bone jarring, a crunch of vertebrae and muscle and flesh and viscera, it hit. An incandescent strobe of light arced into and out of his sight, and he lay on the ground, stunned, stupidly wondering if the 'chute had opened. He clawed the riser quick release, couldn't reach it, struggled and groped again, expecting to be dragged — he could see the scars on the face of a Major he'd once known after a dragging through barbwire — then he looked past the riser at the limp 'chute, not even rippling in the still dustless air of the corral. He stood up, looking quickly to see if anyone had seen his panic, slowly unhooked the leg and chest straps, and dropped the harness, then removed his helmet and dropped it into the mud.

He looked at his watch: 1630. The second hand drifted slowly around the face, and as he watched, he realized it had all happened in less time than it took to make one circuit; much less time. In all, it hadn't been more than thirty seconds from the first freezing clutch of fear to standing there in the middle of a corral, rewinding his mind for an instant replay; the first of hundreds of replays in the hours and days and weeks to follow.

In those days and weeks, he was assailed from all sides with questions about the ejection and the decision. How did it come about? What were you thinking? When did you know it was time to go, and did you think it out, did you react, just how and why did it happen that you punched out when you did? Others before and since hesitated, faltered, for one reason or another did not make the decision in time and died as a result. Many wanted to know, from the layman nonpilot observer to the buck-pilot who reviewed his own projected decision in some yet undreamed of incident, to the members of the Accident Board, on up to higher levels. From January through April, five ADC/ANG aircrew members had encountered similar circumstances— and died as a result of delayed decisions to eject. Why had he acted so surely and swiftly, while younger, quicker men had failed?

He discussed it, he replayed it, then ran it back through the projector of his mind again and again, assaying, recollecting, straining to recall the events, thoughts and images, whatever had been in his consciousness to influence him when The Time came. He agreed with the theory that the decision to eject has to be reached *before* the situation thrusts itself suddenly into reality. He knew that he had previously made up his mind to jump out of any airplane if the time came. He had not dwelled overly long on ejection possibilities/probabilities in the years before it happened, but he had been in the habit of mulling hypothetical situations around in the pockets and crannies of his

mind. He could remember years back some old salt had told him,

"Never try to ride these things out unless you've got hard-surfaced runway under you. They start to shed too many parts too fast when they're sliding through the boondocks."

He believed that and reminded himself of it constantly, internally and through conversations with other jocks. The phrases and words were always with him, like,

"When in doubt, GET OUT." Or "They're going to eventually send it to the scrap heap anyway." He also remembered the words of more than one pilot and groundling since his bailout,

"You're alive and walking around to tell about it, and that's all that counts."

He agreed. That's all that does count. Life counts. "Dead men tell no tales," they say, and they also don't breathe and walk and see. They don't enjoy family, friends, foods, beauty, and they don't climb back into another airplane to use their skills and abilities to the end for which they've been trained. No, he knew survival counted, but he couldn't vocalize it. He couldn't have any certainty he could influence another pilot to choose the right decision: eject. He couldn't make anyone decide to eject, not by mouthing the words about ejection decisions, or babbling about his own timely decision and good fortune. He couldn't buttonhole every pilot, like a modern version of "The Ancient Mariner," telling them how to come to the right conclusion.

What made one man take the risk of death by staying with it beyond the last possible minute, while another reacted instinctively? Was it pride? Possibly, because, although he still had a measure of pride in his ability and in his skills as a pilot, he no longer struggled to prove himself "The World's Greatest fighter Pilot." In fact he recognized that he probably wasn't the best. He knew what kind of a pilot he was, and he was proud of his skills and his abilities, but was no longer constrained to prove it to every other pilot, as he had in his younger fireball years. He'd come to realize over the years that he could and did make mistakes, and that he could make a mistake serious enough to kill him. In another time, at another age, he'd been so cocksure of his infallibility, he'd uttered such inanities as "I'll never make a mistake as stupid as that." Now he knew better, and had known better for years. He *did* make mistakes. He had lived and flown long enough to accept it, and to admit it. Perhaps this was why he was able to pull the handles at the crucial time. He could see the mistake of staying with it any longer, trying to save a dead horse. Overweening pride could be a factor in the delaying of the decision.

What about fear? Could it play a part? In his case it obviously did. He feared the consequence of riding the beauty in, and the prospect of a ride in the rocket seat and parachute with concomitant perils didn't have time to generate in his mind. But fear could play a part in the delayed decision, too. The fear of leaving the cozy warmth of the cockpit, that "womb" syndrome that pilots talk about, that could be a factor. More important, though, was the burgeoning fear that the equipment wouldn't function properly. In the months before his bailout, and even since, pilots had heard the disquieting word, from many quarters, that the system in the F-102 didn't function as advertised, and that this might be the result of design deficiency, or of insufficient testing before placing the equipment in the field. Out of six users, only two had escaped injury, and he had been the second.

Several others had experienced severe opening shock, head twisting, and injury ranging from minor to major. In his own case, everything was perfect. He had ejected in the best possible part of the design envelope: one hundred seventy knots, wings level, constant altitude. Whether the system worked correctly was hardly, in itself, significant, however, what did make a difference was the aircrews' attitude toward the equipment. If they lost confidence in it, the damage was done. They were using equipment which had a reputation for something less than complete perfection, and to top it all off, it was extremely uncomfortable to wear. He could imagine the psychological process as a completely negative thing. "If the blamed thing hurts me when I wear it, and no one will do anything about that, I wonder how well it will function for me? Will I be one of the 60% injured, or will I fall into the lucky 40%" His successful experience had done little to restore confidence, because of the ideal conditions. Pilots still doubted its high speed reliability, and this doubt could very well generate the fear that could cause a delayed decision. He hadn't delayed, though. Why not? Mainly because his was a no-choice. Stay in the machine and die, or bail out and possibly survive. Clearly, he didn't *have to decide.*

But he wondered if his subconscious fears about the equipment hadn't *hurried* his decision. Had he ejected too soon? Had he acted hastily, in order to give questionable equipment every millisecond possible to function right? The outcome of the crash proved he hadn't been too quick, because the plane fell in an open field and injured no

one, destroyed no property. Suppose it had killed someone on the ground? Then he might have more reason to consider his timing.

He had to come back to the pride factor. Maybe he should think of it more as ego than pride. The one common characteristic of pilots could be the ego, and it was even more a factor with fighter pilots. The spirit of competition ran keen among jocks, and that couldn't be a negative thing, but he kept coming back to the "World's Greatest Fighter Pilot" syndrome. Every fighter pilot, almost without exception, at some time in his career, considered himself the WGFP. If he wasn't, then he was going to be. And WGFPs don't bail out of airplanes unless some evil Red Baron shoots them down through trickery and foul acts in violation of the common Fighter Pilots' Decency Code. No, they don't bail out, they make dramatic last minute saves. They usually receive a "Well Done" or a "We Point with Pride" award, and the everlasting adulation and praise of their fellow (if inferior) pilots.

One had to consider, he reflected, that this Egotism caused many pilots to hang in there too long, trying to make that grandstand save, and all because they just couldn't face the fact that it could and was happening to them. Perhaps it boiled down to a matter of maturity.

There was one more factor in this ego process, and it didn't take abnormal ego to bring it into account. No pilot wants to take a "Pilot Error" rap. He does all he can to avoid it. Even, sometimes, to risking and perhaps losing his life. In his own case, he had no inkling he could be in error, but the Board finding was: "Primary Cause: Undetermined. Most Probable Cause: Operator Factor." In some minds, that sealed it: Pilot Error — clear cut and final. But he didn't agree, and neither did a large number of the pilots flying the airplane. He'd failed to recognize a DC Generator failure, all right. But most other pilots were ready to admit they wouldn't have recognized it either. Maybe a vast majority wouldn't have recognized it. If most of the pilots would have made the same mistake, then how could it be pilot error? It looked to him like a clear case of "design trap." Insufficient design had boxed him in. Friends of his, long time in the F-102, told him that a fix had been requested years before, but had been turned down for lack of priority.

But, he didn't care that much. He knew that he had done all he could to land that airplane with no damage. He knew what his ability was, and he didn't seek corroboration from a group of peers. What he did care about was the effect it might have on other pilots. Pilot error accidents affected all pilots, especially if they were honest enough to project themselves into a similar situation. It didn't take much imagination to put yourself in the same trap, and he expected the resultant decision might be "I'm not going to have a Pilot Error Accident, and the best way to avoid that is to not have *any* accident. I'll keep trying to save it." So that pilot runs into a problem, tries, fails, and the board is left to ponder a question in addition to why the plane crashed. Why, why, why didn't he eject while he still had a chance?

Ego, fear, pride; they were all valid reasons, but where did it all lead him? He still couldn't come up with any words to cancel all of that and convince the next man to go for the handles while he could. He still wrestled with the problem some months later, when a young bright-eyed pilot, fresh from Deuce School, popped the old question.

"Sir, how did you decide to bail out when you did? If it happened to me I'm not sure I'd have the guts. I don't know if I'd *know* or not."

He looked at the lad, striving to find the right words.

"*Now* is the time to decide. You can't wait until *then*. You're a mature, intelligent human being, or you wouldn't be wearing those wings, and you've got to tell yourself right now that you'll eject immediately, whenever the situation is wormy. Then let nothing change that decision. Decide to live."

The younger pilot nodded uncertainly, and he stood up. Their eyes met and held.

"You've *got* to decide." He sighed and turned to go, knowing he'd failed. Words weren't enough, they just weren't good enough. ★

About The Author

In the 19½ years preceding his recent discharge, Ron Weinert's military career has been distinguished and varied. After instructing pilot trainees in ATC, he joined the Air National Guard as an instrument instructor at Ellington AFB. A job with the airlines lured him to Boise, Idaho, where he joined the 190 FIS to fly F-102s with the Idaho Air National Guard. In the 190th, he moved through the ranks to become Operations Officer and then Squadron Commander. He picked up some Air Medals at DaNang in 1969 when he flew 52 combat missions in the Deuce while on Palace Alert. In 1970 he captained the F-102 team from the 190 FIS at that year's William Tell competition. He amassed 4800 hours in the Deuce and T-bird and has more than 13,000 hours total flying time. This article describes his only aircraft accident.

the ADC STORY

by **Richard F. McMullen** • *Hq ADC Historian*

The United States Air Force reaches the age of 25, this month. The Aerospace Defense Command is 18 months older, although the geneticist will insist that it is impossible for the child to be older than the parent. The geneticist will also find it hard to believe that the child has aged more rapidly than the parent.

These have been a fast-moving 25 years. While USAF has changed over that period, ADC has changed more. The creation of ADC (Air Defense Command at that time) in 1946 gave concrete form to air doctrine developed during World War II. This doctrine held that air combat fell naturally into three boxes—the strategic effort involved in long-range bombing, the tactical problem of air superiority and close support of ground troops, and the air defense of the home grounds where the strategic and tactical forces lived when not engaged in their combat roles. With these lessons in mind, Strategic Air Command, Tactical Air Command, and ADC were brought to life at the same time.

The doctrine was perfectly logical; however it did not imply that the resources of what was then Army Air Forces were to be split into three equal parts. At the same time there was really no hurry in equipping ADC; it was generally accepted that an immediate threat to the security of the United States was nonexistent. When the United States Air Force was legally established in 1947, ADC controlled seven fighter squadrons: five flying P-61 "Black Widow" night fighters that came along late in World War II, and two of the F-47 Thunderbolt units.

The starvation period continued after the creation of USAF. Then somebody suggested it might be reasonable to play fighters both ways — offense and defense. This suggestion was bought and TAC and ADC were absorbed into Continental Air Command (ConAC) in December 1948. Air Defense Command continued as an "operational command" under ConAC until 1950. All SAC fighter squadrons were also brought into ConAC and the immediate effect was to increase the air defense force by nine squadrons — three equipped with the first USAF jet (F-80), the others with F-51 Mustangs.

The Cold War was already underway. The containment policy of the Truman administration produced US support for the Greek government in its successful attempt to put down Communist insurgents. The Soviet Union countered by taking control of Czechoslovakia in February 1948. Later in the year the Russians put the squeeze on Berlin and made the Berlin Airlift necessary. In August 1949 the Russians managed to produce an atomic explosion, long before we thought they would master the know-how.

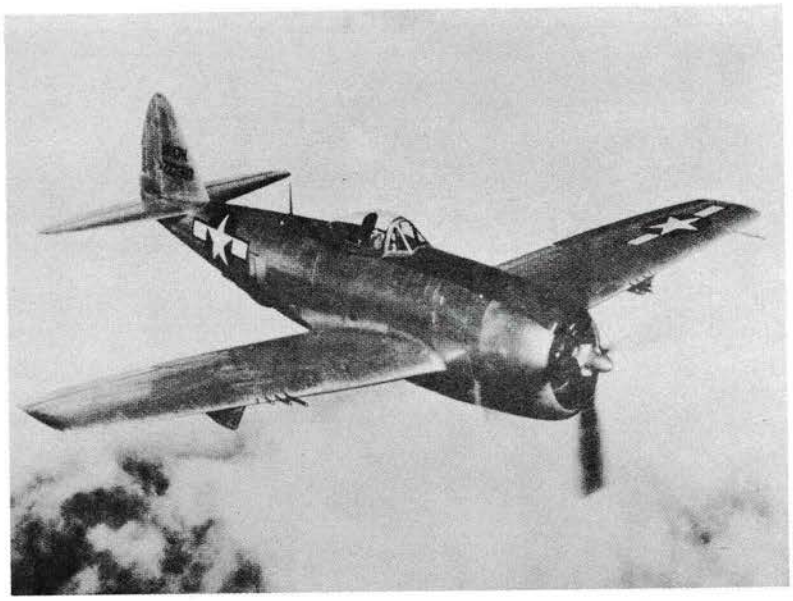
The Army Air Forces recognized, before World War II was over, that an interceptor more advanced than the Black Widow or the cobbled-together twin Mustang (F-82) would be needed. So, just after the war, AAF organized a design competition for such a bird. The AAF didn't ask for a jet, but all the people who put in a bid were thinking in jet terms . . . so a jet it was. Northrop got the contract and the F-89 Scorpion ultimately resulted,

but development lagged and in October 1948 USAF put together a Board of Senior Officers to cut through the continuing hang-up and get jet interceptors for Cold War use.

The Board reluctantly decided to go along with the Scorpion, but also recommended a quick-fix in the form of an interceptor version of the TF-80, the two-man trainer. This became the F-94 Starfire. At another meeting in December 1948 the Board also recommended that the first single-seat interceptor be developed from the F-86 Sabre. This turned out to be the well-remembered F-86 Dog.

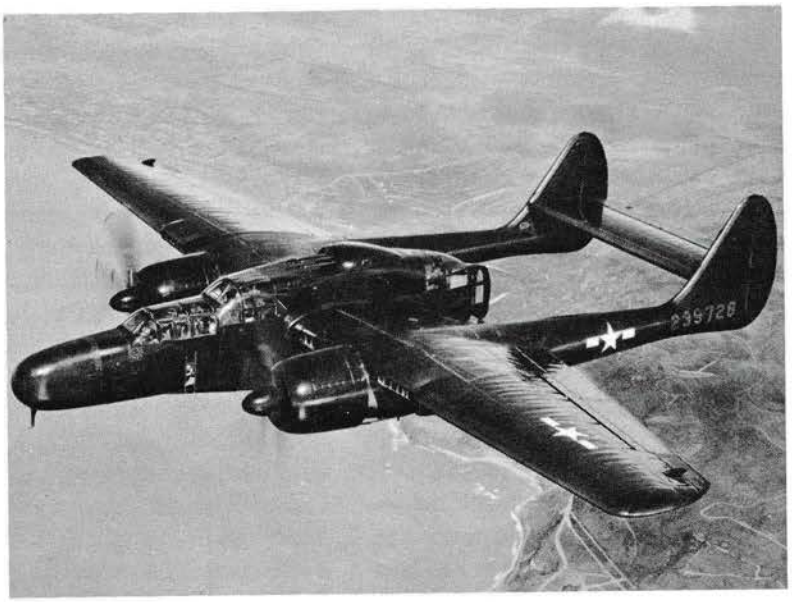
Looking further into the future, the Board of Senior Officers also asked that a new interceptor design competition be called in 1950 to produce, by 1954, a single-seat machine to replace not only the Scorpion, but the interim F-86D and F-94C as well. This was accomplished, but not by 1954. The first version of the "1954 interceptor" was the F-102 Delta Dagger. Later came the F-106 Delta Dart.

Therefore, except for the later addition (in 1954) of an interceptor version of the F-101, the nature of the aircraft to come was settled at the time ADC was re-established as an independent major command in January 1951. The old ADC had headquarters at Mitchel Field, New York; the new one operated from Colorado Springs. The main reason for the establishment of the new ADC was the OSD/USAF decision that the Korean War, which started in June 1950, required federalization of part of the Air National Guard to furnish instant air defense. Twenty-one ANG squadrons were taken into ADC in the first three months of 1951. Most brought along their old propellor-driven war horses — F-47s and F-51s — although four had F-84 jets and two had the F-80.



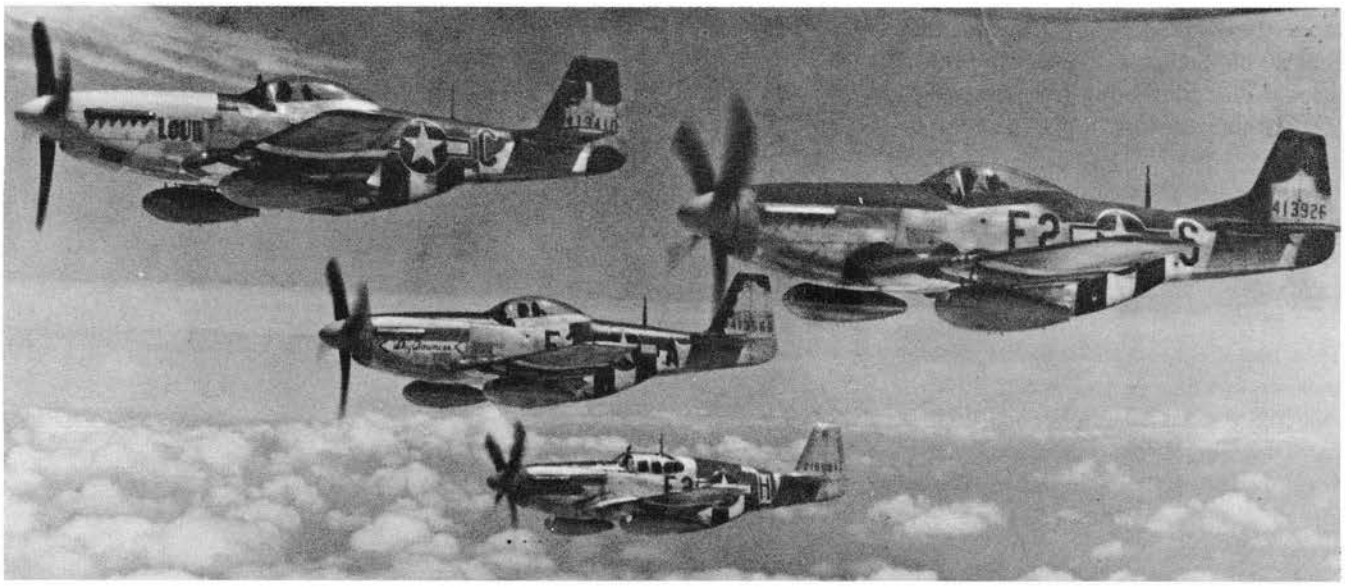
P-47

Few people will forget the rugged performance of the "Jug" in World War II. Two squadrons of this battle scarred veteran were stationed at Dow AAF, and provided air defense during 1946.



P-61

The P-61, Black Widow was the first US fighter equipped with radar. Nearly 700 of these airplane were built. They saw service in ADC from 1946 to 1949.



F-51
Pictured here flying escort during World War II, the famed P-51 took on the role of air defense in 1946. It was phased out of the Regular Air Force in 1948 and was flown by the ANG from 1949 to 1953.

From this point through 1957 it was onward and upward as regards the quantity of interceptors assigned to air defense. When the Guardsmen went home in late 1952 they left their birds behind and the squadrons were redesignated with numbers that identified them as Regular Air Force. Only some of the men and all of the squadron numbers went back to the ANG. At the middle of 1957 ADC had 69 air defense squadrons equipped with about 1,500 airplanes. All of these were either specifically designed — F-89 and F-102 — or interim — F-86D/L and F-94 — jet interceptors. Fourteen squadrons had the Century Series F-102.

While short-term reductions in the interceptor force were based on increasing Congressional reluctance to provide the necessary money, something else that happened in 1957 led to heavier future reductions in the interceptor force. On 4 October 1957 the Soviet Union put Sputnik 1 into orbit. Although the US had been working on an ICBM before Sputnik, it was Sputnik that proved the ICBM was really possible.

But the sky is big and even the best interceptor just bores holes in the air unless somebody tells it where to go. The other half of air defense is the radar on the ground and the ground control system that draws the big picture from what the ground radar sees. Before the British invented radar in the late thirties (the US Army Signal Corps was dabbling in the same area at the same time, but the British went further and faster) detection of hostiles was a very sometime thing that depended on field glasses, sound detection gizmos, and searchlights.

Radar changed everything and was developed just in time to make it possible to defend England against the German bomber. When the Cold War made it prudent to look to the air defenses of the United States the ground radar network which took shape was essentially the telephone-and-backward-writing-grease-pencil-on-the-clear-plastic-board operation of the Battle for Britain.

Then the computer sneaked through the back door. As late as February of 1951 USAF Chief of Staff, Gen. Hoyt S. Vandenberg, was writing in the *Saturday Evening Post* that it was possible to waste a bundle on "static" air defense when strategic bombing was the thing. A month earlier, though, Air Force Secretary Thomas K. Finletter approved an Air Force Scientific Advisory Board conclusion that there must be ways of improving air defense. The Massachusetts Institute of Technology was asked to look at the problem. The MIT effort produced the answer on 1 August 1951 — high speed digital comput-

ers that would one day take advantage of the revolution that transistorized circuits would bring. At the time, and within the state of the art, the idea was rather extraordinary, since automation was just beginning in industry and the future was dimly seen.

Because automation of air defense control was such an apparently weird notion, it failed to catch hold for a while. It also became controversial because it got entangled in the moral struggle over development of the hydrogen bomb. In early 1952 a group of scientists came up with the suggestion that automation could provide such perfect air defense that it would not be necessary to build the H-bomb.

But we built the H-bomb anyway and this particular group of scientists lost its fight, but interest in automated control continued. A Summer Study Group of scientists (called such because it met in the summer of 1952) decided that the current grease-pencil system could not expect to kill more than 20 percent of hostiles, but that automated control might be expected to stop 60-70 percent. The report of the Summer Study Group was not approved by USAF, but a copy of the report was smuggled into a meeting of the National Security Council (by the chairman of the National Security Resources Board) in September 1952. The NSC took no action, but did ask that the proposals of the Summer Study Group be given a closer look. Secretary of Defense Robert P. Lovett appointed Mervin J. Kelly, president of Bell Telephone Laboratories, to undertake this chore.

This was near the end of the Truman administration, however, and a whole new Eisenhower team trotted on the field in 1953. The Eisenhower National Security Council faced a cruel choice as it took up consideration of the recommendations of the Summer Study Group. The new administration was elected on campaign promises to balance the budget and cut taxes. Approval of big money for a new automated air defense control system could be made to look like the new team was reneging on promises. Important members of the new NSC favored the expensive automated system — Vice President Richard Nixon, Secretary of State John Foster Dulles, Under Secretary of State Walter Bedell Smith and Mutual Security Administrator Harold Stassen. But equally powerful members opposed it — Secretary of Defense Charles E. Wilson, Secretary of the Treasury George Humphrey and Director of the Budget Joseph M. Dodge. President Eisenhower admitted to congressmen that the whole thing was giving him sleepless nights.

The Kelly Committee, which continued to operate through the change of administrations, reported in May 1953. Although it concluded that the biggest piece of Air Force turf was the strategic bomber force, it also urged improvement of the way early warning of hostile attack was handled. The Kelly people saw no need for any great haste in improving early warning, however.

The split within the new administration continued, though, so Secretary of Defense Wilson, as is normal in the higher echelons where the big decisions are made, appointed another committee in the late spring of 1953. This one was headed by Maj. Gen. Harold Bull, a long-time friend of President Eisenhower. The Bull committee came down hard on the side of prompt improvement of air defense in a report it gave the NSC on 22 July 1953. It also estimated that the improved system would cost between 18 and 25 billion dollars over the next five years.

The NSC still postponed a final decision, but opposition to the automation of air defense apparently dissolved when August 1953 intelligence indicated that the Russians had also found a way to make an H-bomb. On 26 August 1953, Admiral Arthur G. Radford, in his first press conference as Chairman of the Joint Chiefs of Staff, said that Soviet ownership of the H-bomb secret demanded the quickest possible improvement of air defenses. Six weeks later, on 6 October 1953, the NSC recommended that the US spend $20 billion over the next five years on better air defense. This included the DEW Line of early warning radar across northern Canada and the automation of radar data handling.

The result was the Semi-Automatic Ground Environment, which we know, and maybe love, as SAGE. The SAGE system was fully operational near the end of 1961. The number of ground radars it controlled reached a maximum of 134 in the late 1959 and 1960. ADC planned a larger radar network, but the money pressures generated in the late years of the Eisenhower period prevented further growth. After the Russians proved that they had also solved the basic problem of the ICBM it became painfully evident that the tremendous SAGE blockhouse stood out like the sorest of sore thumbs. The Kennedy administration, which took control in 1961, did not think it was worthwhile to move SAGE underground to harden it against nuclear attack and instead favored dispersal into something called Back-up Interceptor Control, or BUIC. The supplemental BUIC control system became fully operational in January of 1970, but it didn't stay long. By the middle of 1972 it was gone. Money again.

F-82

Commonly known as the Twin Mustang, a cobbled-together P-51 joined ADC in early 1949 and stayed with the command until 1952.

F-80

The Lockheed F-80 came out on top during the first air battle in Korea. Forerunner of the T-33 and the 94C all-weather interceptor, ADC had this bird in its inventory from late 1949 to November 1953.

While all this was going on the number of ground radars was drastically reduced to the point where 57 CONUS radars were available for use against the manned bomber and three of these are owned by FAA.

In spite of the realization that the ICBM was likely to be the main threat of the future, the momentum behind the drive for advanced interceptor aircraft was sufficient to bring about completion of the development of the F-106, the unmanned interceptor missile, BOMARC, and conversion of the F-101 to interceptor use as the F-101B. ADC reached the high point, so far as quality of aircraft (along with appreciable quantity) was concerned, in 1961 when all 41 squadrons were equipped with Century Series jet interceptors — F-101B, F-102, or F-106. Eight BOMARC squadrons were operational at the end of 1962.

Meanwhile, there was a subtle change in the ADC mission with respect to defense against the manned bomber. The formal creation of NORAD in 1958 took ADC out of the combat business. Thereafter it was ADC's job to provide aircraft and crews that were ready to fight. NORAD controlled the actual fighting although ADC, of course, was deeply involved.

The Russian Sputnik raised some high-level questions about the priority of defense against the manned bomber, but it also put ADC in the space surveillance business. Somebody obviously had to watch for the hostile ICBMs. ADC got the job and the Ballistic Missile Early Warning System (BMEWS), with radar antennas so big they just wouldn't quit, went into operation at Thule, Greenland, in 1960, at Clear, Alaska, in 1961, and at Fylingdales Moor, England, in 1963. Keeping count of space satellites also became an ADC chore. This

is handled by SPACETRACK, which started watching in 1961. Since that time ADC has also been given control of over-the-horizon (OTH) radar which eyeballs launches of either missiles or satellites and an SLBM (Sea-Launched Ballistic Missile) detection system to do the same thing for missiles launched from hostile submarines.

Air defense, as strictly construed by NORAD, is a CONUS thing with Alaskans and Canadians added to make it possible, hopefully, to handle everything hostile north of the Mexican border. But that is not exactly the name of the game where ADC is concerned. Since reestablishment in 1951, ADC has regularly deployed birds overseas. Most of these moves ended as PCS transfers that chopped the umbilical cord tying the deployed squadron to ADC, although some were originally TDY operations.

During the Korean unpleasantness ADC moved four squadrons of interceptors to that unhappy place, four to the far northeast (Labrador, Newfoundland, Greenland, and Iceland), three to England, and three to North Africa. Between 1954 and 1958 four more ADC squadrons went to the far northeast, four to Alaska, two to Germany, and one each to England, Spain, and North Africa.

The first TDY-all-the-way overseas deployment came in September of 1958 when the 83rd FIS at Hamilton responded to the Taiwan crisis by shipping 12 crated F-104 fighters. The crews went by transport. Crews and birds came back in April of 1959.

In July 1963 ADC started what turned out to be a regular rotation of eight F-106s to Alaska (which is not strictly overseas, but an area where ADC writ does not run). Every F-106 outfit had several shots at this assignment (WHITE SHOES) before it was knocked off in September 1970.

By 1965 Viet Nam was heating up and EC-121 Airborne Early Warning and Control (AEW&C) radar platforms were shifted to Southeast Asia in April to watch the airspace over the ground fighting. They're still there, although their main home away from home has shifted from Taiwan to Korea. These days the Pregnant Geese in the Far East not only watch the air over Indochina, but that over Korea as well. Because of the increasing number of Soviet Bear bombers in the area, EC-121s have also been based on Iceland since October 1968. And it's all TDY and an ADC operation.

The uneasy situation in the Dominican Republic in the spring of 1965 brought the deployment of F-104s from Webb to Puerto Rico in May. This one cooled in a hurry and the ADC people were home in two weeks.

When the North Koreans snatched the USS *Pueblo* in January 1968, ADC was told to use the new COLLEGE CADENCE plan to put the air defense where the action might be. For the first time, ADC crews used air-to-air refueling to fly F-106s directly from the CONUS to the point of the trouble. The base at the end of the line was Osan, Korea. The 318th FIS from McChord led the way. Before deployment to Korea ended in May 1971 five squadrons served a six-month TDY stint in Korea — 318th, 48th (Langley), 71st (Malmstrom), 94th (Selfridge) and 95th (Dover).

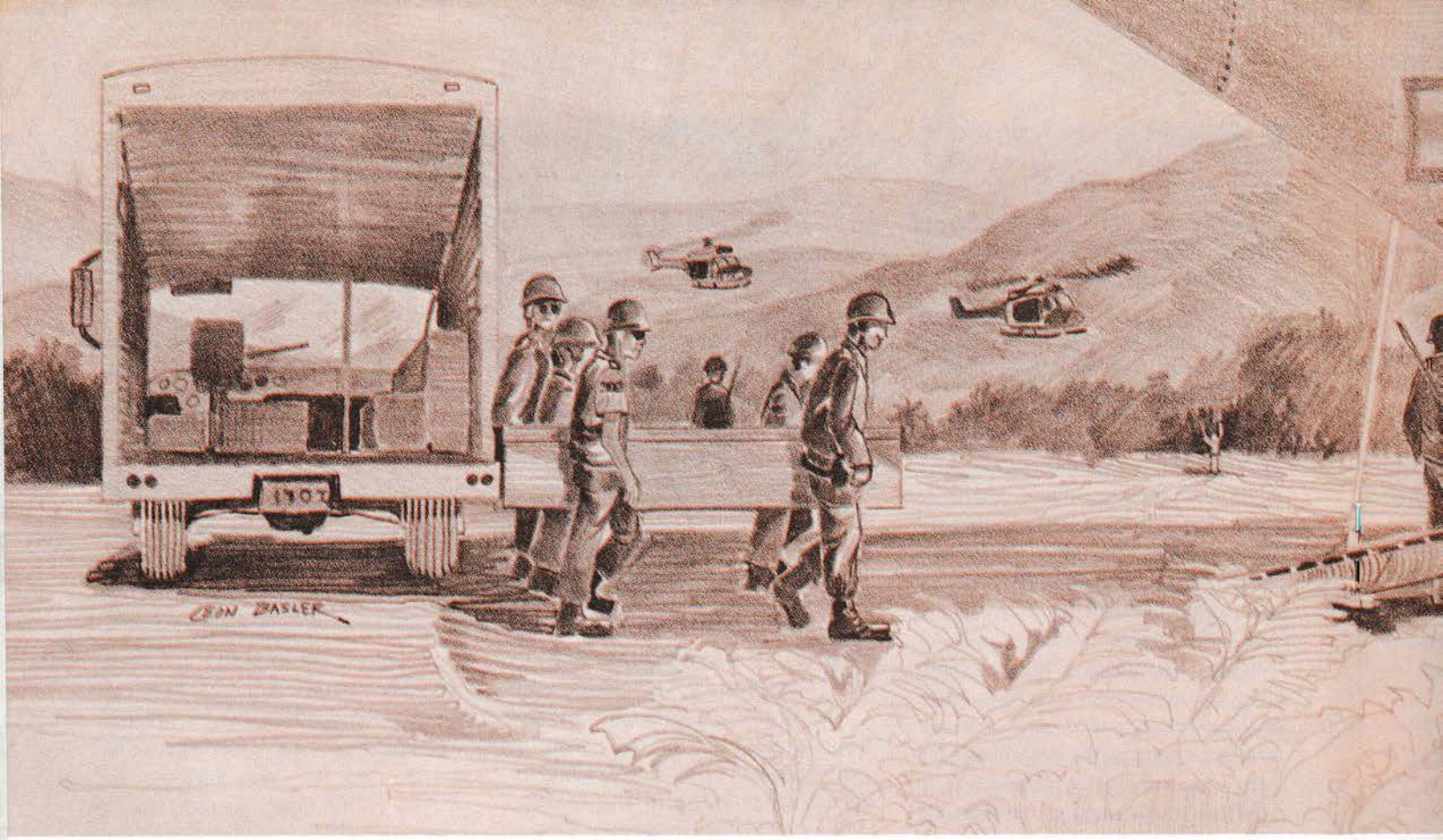
At the moment no ADC interceptors (except the PCS squadron at Keflavik, Iceland) are deployed outside the CONUS, but COLLEGE CADENCE is still on the books and every ADC outfit is as primed as possible. Every jock who pulls air-to-air refueling, ACT, and COLLEGE DART missions knows this.

The F-106, conceived in 1948, developed in the fifties and last produced in 1961, is the last in the line of post-war interceptors. Discussions of an improved manned interceptor have been heard over the last 20 years. At various times it has been called LRIX, LRAPIS, F-108, IMI, F-12, and F-106X. But it has never seen the production line. The present hope is that the F-15 will prove to be the improved manned interceptor. Into the indefinite future, though, ADC must do what it can with the F-106.

The fortunes of USAF have waxed and waned over its first 25 years, but the life of USAF has been relatively serene compared with the rags-to-riches-and-almost-back-again experience of ADC over the same period. On the 25th birthday of USAF, ADC must contemplate a future in which resources will be few, money will be scarce, aircraft will age and aircrews will be mostly young (the majority still cherish fairly recent memories of UPT). Nevertheless, the manned bomber threat (and the space threat) still exist and the need to cope with them still exists. This situation obviously demands the utmost in professionalism and dedication on the part of those of us who remain. There is no other way to go. ★

ABOUT THE AUTHOR

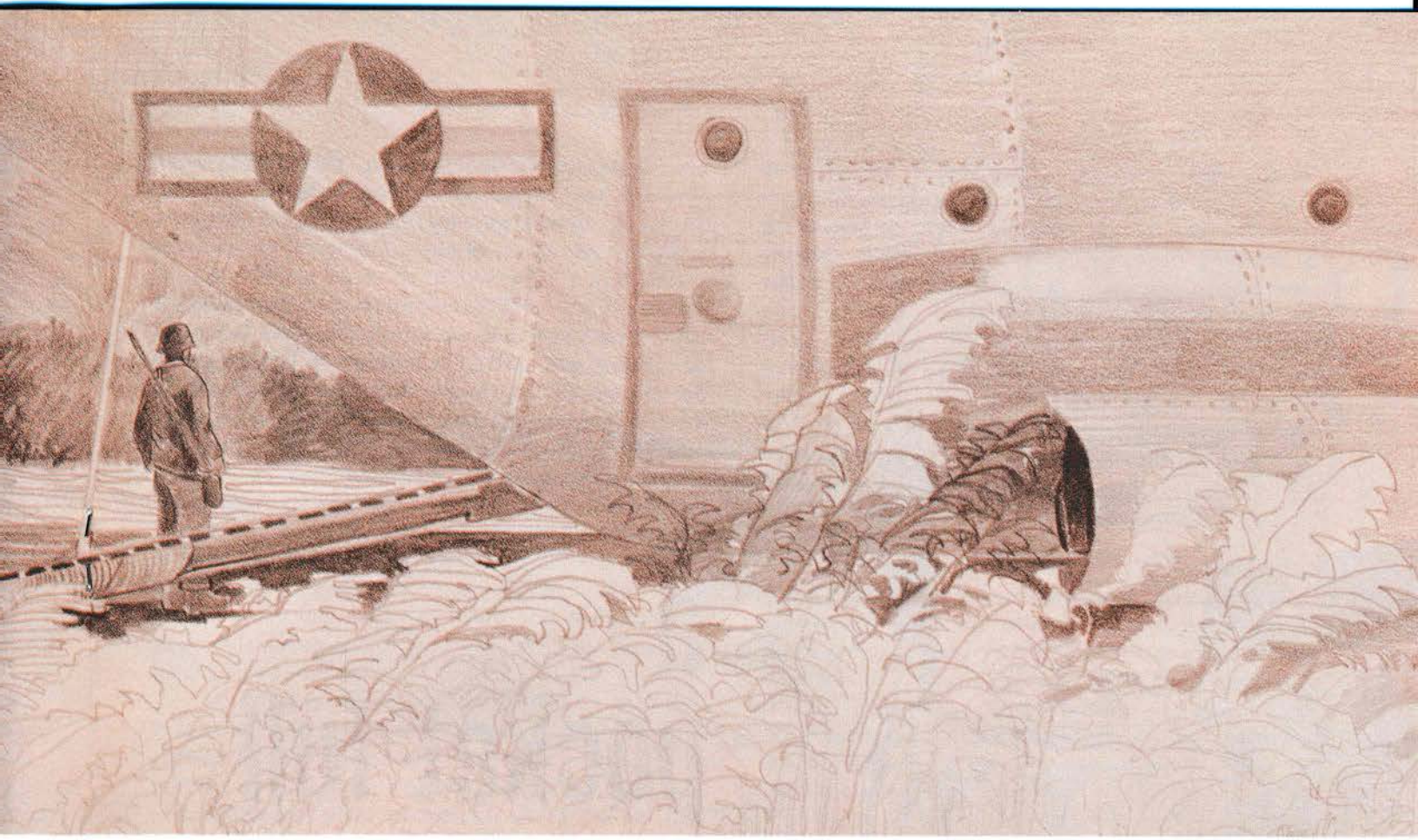
Richard McMullen is a historian by vocation and a novelist by avocation. He has been an ADC historian since January 1956. Earlier stints with SAC, ATC and the Ordinance Department of the Army bring his total time as a military historian to 28 years. His most recent novel is "Pentagon People," published by Apollo Books in March 1972. Apollo plans to release another of his novels, "The Right Note," in early 1973.



Lieutenant Who?

Nothing is as permanent as death, the final, irrevocable payment in the scheme of things. I'm not maudlin about it, but neither have I ever gotten accustomed to it. The thing that strikes me as odd about death is that we forget so quickly those who have gone on to Fiddlers Green, that special soldier's heaven. Faces blur then disappear from memory, names become difficult to remember as if the person had never been born, lived or died. Death almost promises anonymity. And yet men risk death freely and willingly for a cause, a principle, for glory, to prove bravery, for patriotism, or simply for money. They laugh at death, but don't talk about it; ignore it, but never lose the nagging presence of it. But mostly they just don't think about it. I am as guilty as they.

It was in the late afternoon of a Sunday in 1966 that I understood the reality, the finality of death as the plain wooden coffin of a fellow aviator banged unceremoniously, but gently, into an Air Force cargo plane to be winged home for burial in a military cemetary. Later, in our bivouac area among the rubber trees of an old French plantation near the Cambodian border, I sat through the dusk and into the dark pondering his death. How long would it be before he would be forgotten? Who would remember his laughter, his vitality, his love of life, his bravery in that last final moment of life. Who would remember his death? Who would remember him? Under the dim light of an unshaded bulb over my canvas cot I reached for pen and paper and wrote these words as I felt he might say them from the stillness of his freshly filled grave:



They surround me now with flowers,
Quietly placing them around
In orderly profusion
On the newly spaded ground.
I hear them whisper softly,
And feel their tears drop warm,
But it does not matter to me
For I've passed beyond the storm.

It does not matter to me now,
The throbbing or the pain.
Death has staunched my warm blood's flow
And dulled its bright red stain.
For me the war has ended
Leaving here this shattered form,
But it does not matter to me
For I've passed beyond the storm.

With sightless eyes I gaze around
At crosses row on row
And cannot help but wonder:
Do my people really know?
Do they know why we are fighting,
Freely risking shot and shell?
Why we held the steaming jungle
'Though so many gallant fell?

Around me lie our heroes.
Men unafraid to die
Who took the torch of Flanders Field
And held it once more high.
Now they, too, have faltered,
Freedom's torch must pass again.
Will you take it from their failing hands,
Or have they died in vain?

I would ask you not for glory
For the blood that I have shed.
There are men far more deserving
Sleeping here among the dead.
To these fallen brave beside me
You can pay in full a debt
If as you pass each headstone
You will vow to not forget.

He was a good guy. The type so aptly described by the cliche "only the good die young." Full of youthful vigor and bravery, a real soldier's soldier. I often wish now that I could recall his name.

by: **Skip Hatter,**
Admissions Counselor
Embry-Riddle Aeronautical University

a pocket full of dreams

Breathes there a man with soul so dead, who never to himself has said, "One of these days I'm going to fly a completely OR airplane and it's going to be Sierra Hotel."

Just a dream? Perhaps so. But maybe the reason you'll never realize your fantasy is because your dreams are stored in your hip pocket.

By now we should all know that we should strive to eliminate hip pocket writeups. Yet this malpractice seems to persist through a variety of faulty rationales such as, but not limited to, the following: "If I write it up now, I'll never get home." "The OR status isn't too good so I'll help out maintenance;" "They really need to fire this bird at Tyndall and they can probably fix it there;" or "It wasn't really that bad and it will probably be ground-checked OK, so I'll wait until it really breaks."

Neglecting to write up the bird when you detect something wrong not only tends to promote an accumulation of writeups that overwhelm the maintenance complex when the bird literally falls apart, but can also be unsafe. Here are some unsafe examples:

A Deuce pilot continued on his cross-country even though the pneumatic pressure light came on after about thirty minutes of flight, on each leg. Everything went OK at the intermediate stops, but when he landed at the home drome, he found he didn't have any brakes. A malfunction in the priority air system

allowed all the air to escape and for several anxious minutes he rolled around the ramps and taxiways trying to find an incline to slow the aircraft enough for someone to throw some chocks under his wheels.

In another case, an F-106 pilot pulled into a transient base with an inoperable IFF, and a marginal radio and Tacan. But since the base didn't have F-106 parts, he had the choice of sitting and waiting, or pressing on. He elected to give it a go and thrashed off on a night return trip. Center advised him that his IFF wasn't squawking and he replied that he'd like a vector since his Tacan wasn't working either. As the shades of night fell, things in the cockpit looked even blacker. The UHF quit and shortly thereafter the heading indicator started to wander aimlessly. Still confident (but somewhat concerned) he tooled along navigating by the city lights below and his mag compass while listening with a cocked ear to the data link, hoping that someone would clear his path.

He was doing pretty well in his aim for Selfridge, but when he got to Lake Erie, he couldn't find the runway lights because they were indiscernable in the millions of lights from Windsor and Detroit. Then he noticed fog beginning to form off shore and his concern was replaced by his anxiety to find *any* field, Finally after thirty minutes of raking the shoreline and trying to disregard a lowering fuel supply, Cleveland Center came to his rescue on Guard channel advising that they had a skin paint. When he crossed the threshold, the field socked in tight and a wiser pilot struggled sheepishly out of the cockpit.

These are a couple of accidents that didn't happen. Recently, however, one did.

During a navigational proficiency flight, the pilot had experienced some flight control oscillations on an intermediate leg. At an enroute stop, he gave the airplane a cursory inspection and decided he could live with the malfunction. Shortly after takeoff, the flight controls went wild. He had to jump out and was severely injured. Preventable? Yes. All he had to do was to write up the bird and let maintenance fix it.

So far it sounds like most of our delinquency is associated with get-home-itis. Maybe so. But from what we've read and heard about over the years, local operations have a few skeletons rattling in the closet also.

How often have we heard of a unit riding the waves of prosperity with a reputation of "can do" achievement, falling flat on its face when the "Black Hatters" look them over. Here's one reason why this could happen.

When the tempo of operations is increased — perhaps through an additional alert commitment, an increase in flying hours, or a special mission — people get caught up in the heat of battle and will almost invariably manifest the "can do" attitude. A pilot or maintenance man, in the spirit of expediting operations, may discount or ignore seemingly minor discrepancies. After a week or two, precautionary landings become more prevalent and the maintenance complex finds itself saturated with repairs. Still the unit drives on, working longer hours, while the flying schedule becomes more like a game of chance rather than a bona fide plan. The end results can only be a less than satisfactory performance and more serious yet — an increased potential for an accident.

There are many individuals who tend to hedge when it comes to measuring aircraft against standard criteria. Who but the pilot is in the best position to assess the extent and seriousness of malfunctions? But if he defaults, who will pick up the ball and run? Isn't it better sometimes to come up with a forthright statement such as "Ground abort — low EGT on runup check," instead of going ahead when we know the EGT is low?

We don't presume to know all the answers as to how we arrive at the decision which determines whether the airplane is in or out of commission. It is apparent, however, that our decisions should be made at a responsible and authoritative level and must be based on *all* information available. We can't make this decision accurately or safely when there's no record of discrepancies.

When things get tight and the requirements pile up, we have to do some solid soul-searching and continuous review to come up with an improved method that can safely handle the overload. Whatever method we arrive at should include:

(1) Respect for Tech Order requirements.

(2) Pilots and maintenance men who not only tell it like it is but put it in the form so everyone can understand what's wrong.

(3) Special attention to repeat writeups.

(4) The recognition that maintenance and operations may have a difference of opinion regarding the severity of a writeup, and that sometimes the Commander may have to make the final decision whether to fix or fly.

Airplanes have dials, gauges, and other indicators to tell you when they are sick. But, unlike humans, they cannot recuperate by themselves. You have to be concerned over their well-being or they (and you) may wind up in never-never land with bad dreams. ★

Doc Talk

by
FREDERIC M. BROWN
Major, USAF, MC
Office of the Command Surgeon
ADC/SG

"During peacetime, there is no reason or requirement to fly above 50,000 feet without a pressure suit."

Brig Gen R. A. Robinson
ADC/DO

They said it couldn't happen. It hasn't happened before. Yet, it did happen. Murphy's Law has prevailed.

Recently, during a Functional Check Flight, an F-106 pilot lived through a rapid decompression at flight level 540. This was not a simple cockpit pressure leak or a blown canopy seal. The whole cockpit dumped. Historically, this is a first for the F-106. There had never been a rapid decompression in the F-106 above 50,000 feet.

The pilot was not wearing a pressure suit and had been briefed by his flight surgeon that if this happened, he would die! However, he did not die. He never lost control of the aircraft and landed without further incident. Was the flight surgeon wrong? Was this pilot superhuman? Is AFM 60-16 too conservative? What actually happened?

Takeoff and climb were normal with all systems performing within limits. Cockpit pressure was normal at each checkpoint. When the pilot accelerated to V max at 35,000 feet, everything worked normally. He hit Mach 1.98 and then climbed 50,000 feet for the afterburner relight and blowout check. He cycled the burner and pulled it to "min" to see if it would blow out.

At 54,000 feet and at about 1.5 Mach, the cockpit suddenly filled with fog and the pilot's oxygen mask blew away from his chin. He immediately came out of AB, pulled the throttle to idle, extended the speed brakes, pressed his oxygen mask to his face, and made a positive nose-low roll to near vertical. He noted in a quick glance that the cockpit altitude was passing through 50,000 feet. He leveled off at 30-35,000 feet. The cockpit altitude decreased to below 26,000 feet and then stabilized at 15,000 feet. The cockpit pressurization operated normally during the return to base.

The pilot did not lose consciousness or experience any visual symptoms. However, during his descent he did experience a tingling sensation on his skin.

If the ceiling of 50,000 feet without a pressure suit as spelled out in AFM 60-16 is good guidance, why is this pilot still alive? Here are two reasons: he did everything right during the recovery, and he was lucky. Study this little lesson in altitude physiology, and then you too may agree.

The gases in your lungs follow the same law as gases anywhere. Specifically, the total gas pressure is equal to the sum of the partial pressures exerted by each type of gas. In the lungs there are two gases which, under normal circumstances and at any altitude below 50,000 feet, have relatively constant pressures. Carbon dioxide, constantly being produced by the body, has a constant pressure of 40 mmHg. Since the air in the lungs is 100% saturated with water, a constant water vapor pressure of 47 mmHg is present at normal body temperature (vapor pressure of water at 37°C = 47 mmHg). These two gases collectively have a pressure of 87 mmHg (40 + 47).

The barometric pressure at 50,000 feet happens to be 87 mmHg

also. If one were at 50,000 feet ambient altitude, the 87 mmHg available in the lungs is filled by carbon dioxide and water vapor. This holds true even if he were breathing 100% oxygen. In order to add oxygen to the lungs, the oxygen must be delivered under pressure. Utilizing a 100% oxygen system, the oxygen pressure present in the lungs is the same pressure as that present in the oxygen mask.

Well trained pressure breathers, like some special category RAF pilots, can physically tolerate mask pressures as high as 60 mmHg for 1-2 minutes. However, the average pilot could not handle this, and the standard USAF oxygen mask won't hold this kind of pressure anyway.

Tests at the USAF School of Aerospace Medicine have shown that by holding the mask firmly to your face, you can maintain pressures of 33 to 45 mmHg in the mask when you supply 50 mmHg pressure to it. The leakage around the mask-face seal accounts for the difference. These tests were performed on a trial and error basis in an attempt to achieve the highest possible mask pressure. An optimum amount of hand pressure to the mask is required. If you press the mask against your face too firmly, you will deform the seal and have even more leaking and loss of pressure.

With this in mind, probably 30 mmHg mask pressure is the highest one could expect under emergency conditions. Even here you'd have to hold the mask firmly to your face. By comparison, when you set the T-33 oxygen regulator at 45M, it will deliver 20 mmHg pressure. Most pilots find some leakage around the mask-face seal with the 45M setting when they fit the mask for comfort.

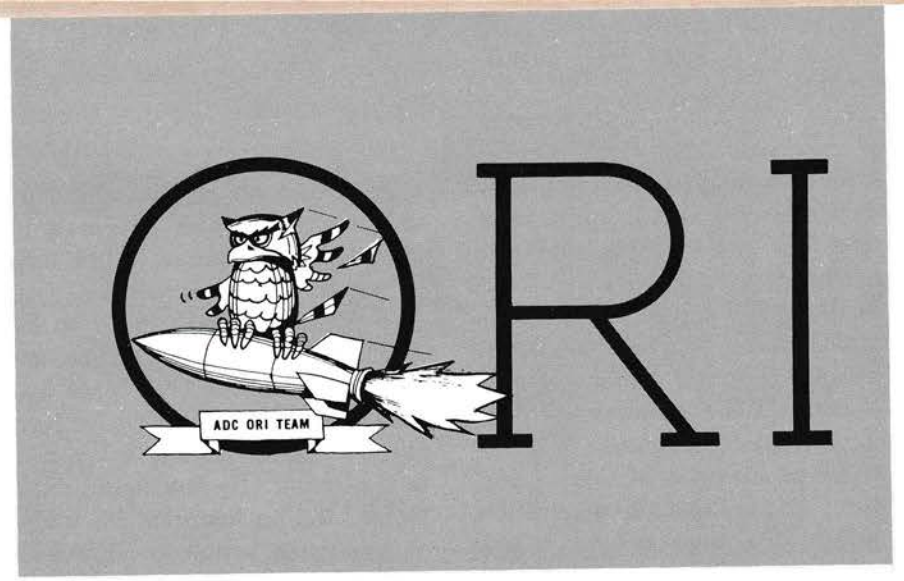
Therefore, with a 50,000 feet cockpit altitude you can reasonably expect an oxygen pressure of 30 mmHg when you hold the mask to your face. This would be roughly equivalent to breathing air at 22,000 feet. In the altitude chamber refresher course we have all experienced the hypoxia demonstration at 25,000 feet and know that our time of useful consciousness can be measured in terms of several minutes. In a rapid decompression, though, the time of useful consciousness is about one half of that resulting from simply removing the mask. Even though a rapid decompression can cut your time of useful consciousness, you won't lose your capability immediately and you'll still have time to descend from 50,000 feet to a less "alien" altitude. However, as one goes above 50,000 feet, the problem becomes severe rapidly.

At 54,000 feet, the altitude of the rapid decompression in our story, you would be in serious trouble. Here the barometric pressure is 72 mmHg. Just as at 50,000 feet, the only gases in the lungs are carbon dioxide and water vapor. As we add 100% oxygen under pressure, the pressure in the lungs will increase accordingly. However, we are physiologically obliged to reach 87 mmHg total pressure in the lungs before the oxygen will even begin to be present there. Consequently, at 54,000 feet, we must add 15 mmHg oxygen pressure before we count the oxygen. If we only deliver 20 mmHg oxygen pressure (no holding the mask to the face), we would only realize 5 mmHg effective oxygen pressure. This would be essentially the same as no oxygen, and we could expect unconsciousness in about 13 to 15 seconds. If 30 mmHg oxygen pressure were delivered, we would then have an effective pressure of 15 mmHg. This would allow a time of useful consciousness of 30 to 60 seconds.

As close as we can calculate, this is exactly what happened to the pilot in our story. At the time of his rapid decompression, had he not held his mask firmly to his face, he would have become unconscious in about 15 seconds and most probably would not have been able to recover in time to avoid a fatal accident. By holding his mask to his face, he increased his useful consciousness period to 30-60 seconds. His rapid recovery of the aircraft allowed him to get down to a more favorable altitude during this period. Even though he acted swiftly, he did have some symptoms of hypoxia during his recovery.

Was this pilot's flight surgeon right? He sure was. If the pilot had not held the oxygen mask firmly to his face he probably would have died. Is AFM 60-16 too conservative? I don't think so. Fifty thousand feet is a very reasonable ceiling without a pressure suit. The aircraft may not know the difference between 49,000 and 54,000 feet, but your physiology sure does. Is the emergency pressurization system of the F-106 reliable. Sure it is. But it has limits, and in this case it couldn't hack the program. Has a rapid decompression ever occurred in the F-106 above 50,000 feet? It sure has, and we almost lost a pilot and an aircraft because of it. Do you ever fly above 50,000 feet . . . ?

ED. NOTEs Last February ADC changed paragraph 6-4 of the command supplement to AFM 60-16. We were previously allowed to go above 50,000 feet without a pressure suit if we zoomed from below 50 M and did not stay above 50M for more than 90 seconds. The change prohibits nonpressure suit excursions above 50M except (a) during emergency wartime missions and (b) for test missions specifically directed by ADC Headquarters.



OPERATIONAL READINESS INSPECTION TEAM

HQ, ADC

"AFCT – GROUND ENVIRONMENT"

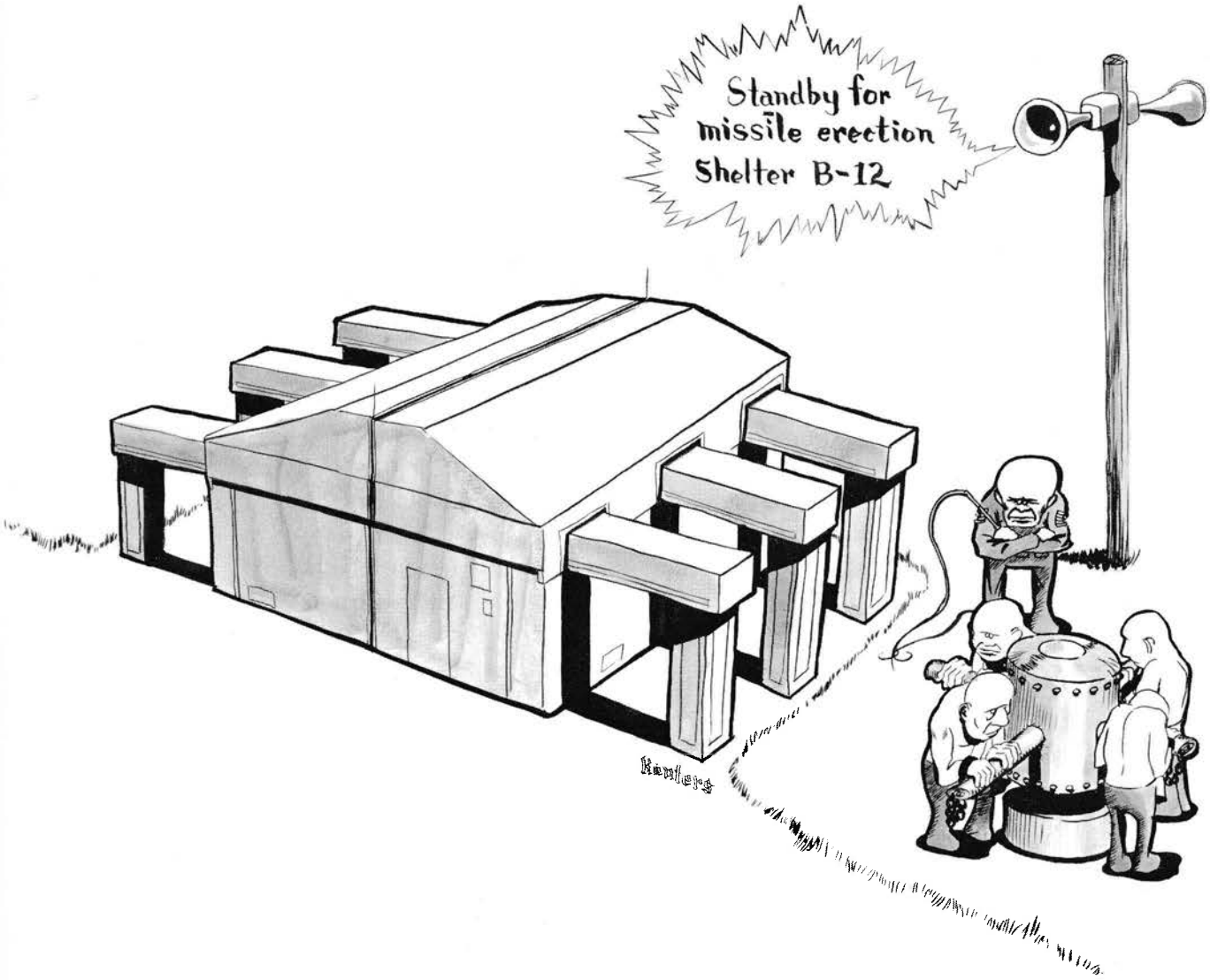
Several months ago we talked about Alert Force Capability Tests (AFCT) from a fighter squadron point of view. Equal time should be devoted to the ground environment aspects of an AFCT, as a ground environment unit receives an AFCT concurrently with a FISq. Now, all the fighter jocks are probably temporarily disoriented because they thought an AFCT was only for a FISq. Not True!! While you are up there fighting to bury the dot, the guys in the "blue light palace," are sweating heading crossing angles and roll-out ranges!

All the ground rules and criteria for AFCTs are found in ADCM 123-5 and I'm sure most DC personnel are familiar with it. The AFCT is perhaps our most effective quick look inspection plan. It gives the Commander of ADC a good appraisal of his day-to-day alert forces. One of the fundamental objectives is to evaluate the capability of those personnel who are on the crews, not the "super controllers" or "whiz kids" from the training or stan/eval shops. Now, DC chiefs, our ground environment inspectors know most of your office "weenies," so when you hear that the AFCT team is on the prowl, don't bother to "stack the deck" because we'll make sure that there are no "wild cards."

Our written tests are straightforward and most questions are right out of TESTO. The positive launch control (PLC) test is from the study guide, and the ground environment inspector will select those to be tested. Normally, it will be the crew personnel who actually control the AFCT mission (one WD/WDT and two IND/INDTs) and the on duty crew members who have access to the PLC safe.

There seems to be confusion at some DCs on how to scramble alert aircraft. These procedures should be automatic and flawless. So when the AFCT inspector walks in and instructs the SD to scramble, there should be no "deciding how to"! It's too late then! This initial request for a scramble is to check the scramble procedures at the DC and aircrew reaction time. The scrambled aircraft are not allowed to take off, but are held on runway alert and subsequently ordered back to the "barns" for downloading.

The AFCT mission itself is really quite simple, requiring a high and then low pass for each interceptor that was previously on alert. Positioning criteria is defined in ADCM 50-5 and is stringently monitored. Faker altitude is *not* given but must be obtained from height finders or other interceptors. Consequently, the mission should be planned to be in an area with good height coverage. This brings up a very critical point — PLANNING. The most significant problem found so far at the DC is in the planning and execution of the mission. It is up to the SD and his crew to plan, coordinate, and execute the mission. Our ground environment inspector will briefly cover the ground rules, but other details — personnel, airspace, radar and radio coverage, tracking, height, airborne orders for



fakers — are to be worked out by the crew. Don't forget to brief with the FISq!!

We have noticed on previous AFCTs that the WD is not supervising! Once the interceptors get airborne, he tends to just sit back and hope it all works out. There are always some problems — fuel, weather, comm — and the WD must be on top of the situation, ready with alternate plans. Make sure that good radar and radios are available. Although the faker aircraft are flown by ORI personnel, they will maintain sufficient altitude to stay within radar coverage.

The fakers will be controlled on a separate scope with a controller selected by the ground environment inspector. Fakers may be evasive and will, when possisible, use ECM. The weapons team may be set up any way the WD would like, dependent mainly upon how many interceptors will fly. Normally, interceptors are scrambled off in pairs.

The AFCT inspector is frequently harangued by some SDs asking a multitude of "what if?" questions, most of which are really not for the inspector but rather problems that the SD should work out. My suggestion is that each SD should be thoroughly familiar with all aspects of the AFCT. Each crew should have a preconceived plan, day or night, for any contingency requiring a no-warning alert force reaction. If a crew is truly prepared and has done its homework, then an AFCT is an opportunity to demonstrate combat readiness.

EWELL D. WAINWRIGHT, Colonel, USAF
Director, Operational Inspection

check points

A status symbol dies hard, but thankfully ADC Life Support personnel have dealt a fatal blow to one that has endangered our aircrews for quite some time. Effective immediately, tropical (Grunt Gravel Cruncher) boots are outlawed for wear in ADC aircraft. These boots became popular as our pilots rotated home from Viet Nam because they were a symbol, for all to see, that the wearer had been in or at least near combat. But today, who hasn't? Air Force recognized the problems caused by this type of foot wear a few years ago. After a few days around JP-4 and other fuels, the boats became one of the best fire starters you had with you. The nylon conducts heat much faster than the normal leather boot; and, around a flame, the material quickly turns into a molten nylon "hot foot." The tropical boot was designed for the infantryman who daily sloshes through the rice paddies, not for the pilot who needs support and protection in the ankle area. Does anyone remember the days when our footgear was called jump boots? Fads die hard, but we hope this one rests in peace along with starched 505s, knee-length bermuda socks, and the bush jacket. (SED)

Ask an old head ADC pilot runway condition readings (RCRs) and you'll get three numbers: 5 ice, 12 wet, 23 dry. These answers were always good for a few points on the proficiency quiz, but they were sometimes misleading when it came to stopping an aircraft on a slippery runway. Chapter 5, AFM 55-48, Airfield Management and Base Operations, has some new information on this subject. Base operations will de-

termine the runway condition and report it to the weather office, all ATC facilities (tower, RAPCON, and center), the Wing/Base Commander, and any tenant unit command post any time the runway is partially or completely covered with water, ice, snow, or any combination of these. The runway surface condition (RSC) is reported on weather sequences in the following codes:

WR — Wet Runway
SLR — Slush on Runway
LSR — Loose Snow on Runway
PSR — Packed Snow on Runway
IR — Ice on Runway
P — Patchy (to be used in conjunction with the other codes)
Sanded — No code (always spelled out)

The RCR number follows the RSC and is reported in two digit numbers between 02 and 26. The exception to this is a wet runway condition where no RCR number is reported. (A joint USAF/NASA test showed that runway condition readings taken with a decelerometer were invalid on a wet runway.) But before you commit all these RSC codes to memory, we have some good news. ATC personnel are required to transmit these conditions in plain language, not codes. Examples: "Ice on runway, RCR zero six, patchy, sanded"; or "Wet runway"; or "Packed snow on runway, RCR one zero." (SED)

One of our F-106 jocks got a chance to practice his left-handed flying technique recently when his personal leads disconnected in flight. He had picked up an aircraft from Speedline and was on the way home when the oxygen and radio failed. Although he was unable to reconnect the leads, he was able to get oxygen by holding the leads in place over the receptacle with his right hand. The way to prevent this from happening to you is to: (1) be nice to the P.E. specialist; (2) give the leads a few easy tugs before you strap in. (If you tug too hard, you will lift the cushion and separate the leads at the ship-to-kit disconnect.) If you have any doubts, have the P.E. personnel check them for you. They're the only ones that know for sure. (SED)

SAGAS SING THEIR SAD SATIRE

IT SURE SOUNDS BAD, MEN

In a recent message that came across our desk we read that the ADC Inspectors recommended a unit for probation action. It seems that their major deficiencies were: (a) Command/Management and Supervision: Lack of qualified leadership and continuity of operation. (b) Administration: Lack of a program. (c) Operations: Lack of performance and training program. (e) Facilities: Poor housekeeping. (f) Dress and bearing: Not IAW AFM 35-10. (g) Unit not capable of performing the mission IAW AFR 190-21. Recommend reinspection in not more than seven (7) months. Our fears for the defense of the nation were somewhat allayed when we learned that this "out of step" organization was a *band squadron.* No one escapes the IG.

"there I was.."

Although experience may be the best teacher, no one wants to personally repeat all of history's mistakes for the sake of knowledge. This method of instruction might work if you are trying to grow roses; but if your plan is to fly an aircraft, your first few lessons could be fatal. To avoid this consequence, we have developed a system whereby we benefit from the experiences of other pilots and then take our "advanced study courses," or emergency situations, as they come. If we survive these lessons we then have new knowledge that we can use later, or that someone else may be able to use now. But no one can benefit from your experience unless you tell someone about it.

In future issues, INTERCEPTOR plans to retell actual experiences of our fellow pilots so that we may all learn from them. But the only way we can do this is if you cooperate. If you have ever "scared

yourself" and you think other pilots could learn from your experience, jot down the details and send it to us. If you include your name and organization, we will print your "by-line." If you wish to remain anonymous, that's fine too. The lesson is what counts.

"I had been airborne for a little over an hour on my cross-country flight from El Toro, California, to Duluth, Minnesota, and my F-106A was performing normally. The external tanks fed out on schedule and I confirmed the first F tank feeding at 8,000 pounds remaining. Approximately 15 minutes later, at my next checkpoint, I checked the fuel again. I had 7,200 pounds total fuel, the F tank had stopped feeding, the left and right sides were balanced, and both number 3 tanks appeared full. It was a great day to be flying.

"When I reached my next checkpoint I again checked the fuel. I had 5,500 pounds total, the left and right totals were approximately 2,700 pounds each, the F tank was empty, and . . . and there I was with a real, live, fuel problem. I knew that the second F tank feeding should not occur until 3,500 pounds remaining, and the F tank should not be empty until 2,500 pounds remaining. I quickly checked the number 3 tanks and the situation became more tense. Both tanks had begun to feed and the gauge indicated 800 and 1,000 pounds, respectively. A check of the 'idiot' panel confirmed that all of the warning lights were working, but none were illuminated. After a few quick breaths and a rapid assessment of the situation, I guessed that the wing tank pressure had somehow failed without triggering the warning system. This meant I had a maximum of 1,800 pounds of usable fuel and only a short period of time to get this airplane on the ground.

"My next step was to declare an emergency and locate the nearest suitable airport. Joe Foss Field was the closest at 110 NM downwind. Minneapolis Center cleared me 'direct' to the field, but I couldn't get a valid lock-on to the Sioux Falls TACAN. Center aided with a vector. Approximately 40 NM out, the low level lights came on as if to confirm my worst fears.

"The field was VFR and my number 3 tanks were down to 400 pounds, so I declined an ILS clearance to stay at SFO altitude. As I approached the field, I located the active runway through the thin undercast. I switched to tower frequency, told them I was going to land, and began my pattern. But as I turned onto base leg, I saw a conventional twin engine aircraft on a short final approach. I again called the tower and asked that they send the traffic around. They advised that the light plane would not be a factor as he would clear the active at a mid-field intersection. As I turned final, the light aircraft was touching down. I didn't have enough fuel to make another pattern, and he didn't seem to be moving at all. For the second time today, there I was. . . .

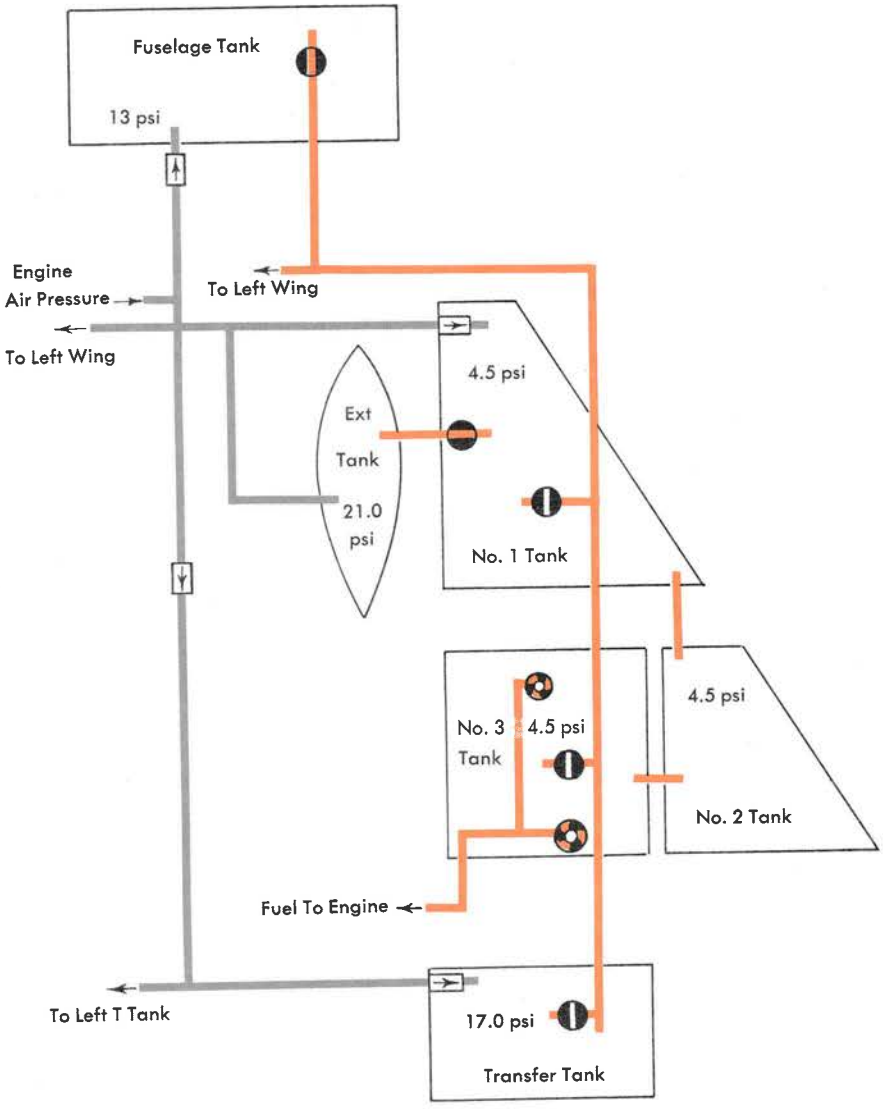
"There didn't seem to be too much to gain from gliding an aircraft a hundred miles just to crash it into a bug-smasher on the runway, so I slowed to 180 knots began a series of 'S' turns. Things were looking up; the other aircraft was moving down the runway. Then I heard some loud thuds that sounded like air surges in the fuel lines—so much for the 'S' turns. I landed using the right side of the runway and passed the light plane as it was turning off the runway. As I completed the rollout, both fuel boost pump failure warning lights came on. I checked the number 3 tanks and found a zero total in the left one and 200 pounds in the right tank."

When maintenance experts examined this aircraft, they couldn't duplicate the malfunction. However, they did find water in the fuel lines upstream from the wing tank pressure regulator. If this check valve freezes, it prevents the number 1 and 2 wing tanks from feeding, but it won't trigger the warning lights. Thus maintenance assumed the malfunction was caused by icing.

When INTERCEPTOR received this story, we began a series of computations. We found, as did the pilot in the story, that it is possible to feed fuel from the external, "T" and from the "F" tank and then trap nearly 3,500 pounds of fuel in the number 1 and 2 tanks. The reason is the differential fuel pressurization system in the F-106A.

The fuel tank pressurization air in the F-106A is tapped from the engine compressor bleed section, regulated, and routed to the external, "F," "T," and number 1 wing tanks. The system, however, uses differential pressures: 21 psi to the external tanks, 17 psi to the "T" tanks, 13 psi to the "F" tank, and 4.5 psi to the number 1 tanks. If all systems are serviced, and turned on (the external tanks won't feed until the gear are up and locked), the fuel will sequence like this. Fuel is pumped to the engine from each number 3 tank, and then the 4.5 psi pressure in the number 1 tank forces fuel from number 1 tank through number 2 tank to replenish number 3. As the fuel level in number 1 tank drops 227 pounds, the 21 psi in the external tanks force fuel into the number 1 tank and keep it at this level. When the external tanks are dry, the "T" tanks take over this refilling function — under 17 psi. As the "T" tanks

F-106A Fuselage and Right Wing Fuel System



empty, we get our first "F" tank feeding. Again the higher pressure in the F tank (13 psi) keeps the number 1 tank at the same level — 227 pounds below full — until it has fed 390 pounds of fuel. When the first "F" tank feeding is over, the number 1 and 2 tanks feed out (under 4.5 psi pressure) and the number 3 tank feeds down to 1200 pounds. At this time a valve opens and the remainder of the "F" tank fuel feeds directly into the number 3 tank. The number 3 tank then empties. (We have purposely ignored tank scavenge for this discussion.)

From this discussion we hope you can see what would occur if anything happened to the 4.5 psi pressure line. The higher pressure from the external, "T," and "F" tanks would force fuel through the number 1 and 2 tanks until after the first "F" tank feeding. At that time the 1 and 2 tanks would stop feeding — no pressure — and the number 3 tanks would feed down to 1200 pounds. The second "F" tank feeding would go directly to the number 3 tanks. The engine would then flame out while you still have some 3,500 pounds of fuel on board.

On a normal mission, where are you at 3,500 remaining? If you are like most of us, you have just finished your last pass and you are beginning a recovery. This is definitely not the optimum time to be flying a Delta Dart glider. If your aircraft develops this problem, you should do like the pilot in our story — land as soon as possible. However, with this malfunction *you* may be the only warning system. You must know that this can happen and know how to recognize the problem. If the fuel doesn't feed as programmed, put the aircraft on the ramp and let the ground troops tell you why. It's so much more pleasant to say "Here I am," rather than, "There I was." ★

THE WAY THE BALL Bounces

ACCIDENT RATE

	ADC	ANG
1 Jan — 31 Jul 1972	2.6	9.6

MAJOR ALL AIRCRAFT

ON TOP OF THE HEAP

MO	ADC	MO	ADC	MO	ANG
58	49 FIS Griffiss	40	5 FIS Minot	56	158 Ftr Gp Burlington
52	57 FIS Keflavik	34	2 Fis Wurtsmith	51	163 Ftr Gp Ontario
46	4650 CSS Richards/ Gebaur	30	95 FIS Dover	46	115 Ftr Gp Truax
41	552 AEW&C McClellan	27	87 FIS K I SAWYER	33	141 Ftr Gp Spokane

ACCIDENT FREE

CUMULATIVE RATE

	ADC	ANG
JET	2.5	10.9
CONV	3.0	0.0

BOX SCORE

ACCIDENTS FOR JUL / CUM TOTAL

UNITS DIRECTLY UNDER HQ ADC

	20 AD	21 AD	23 AD	24 AD	25 AD	26 AD	ADWC	552	4600	4677	4713	ANG
F-101												3
F-102												1
F-106												
T-33							1					1
B-57										1		
EC-121												
OTHER									1			

RATE = MAJOR ACCIDENTS PER 100,000 FLYING HOURS ALL RATES ESTIMATED

MINOR ACCIDENTS THIS PERIOD — 2
MINOR ACCIDENTS CUMULATIVE — 5

an ounce of PREVENTION

BIRDSTRIKE

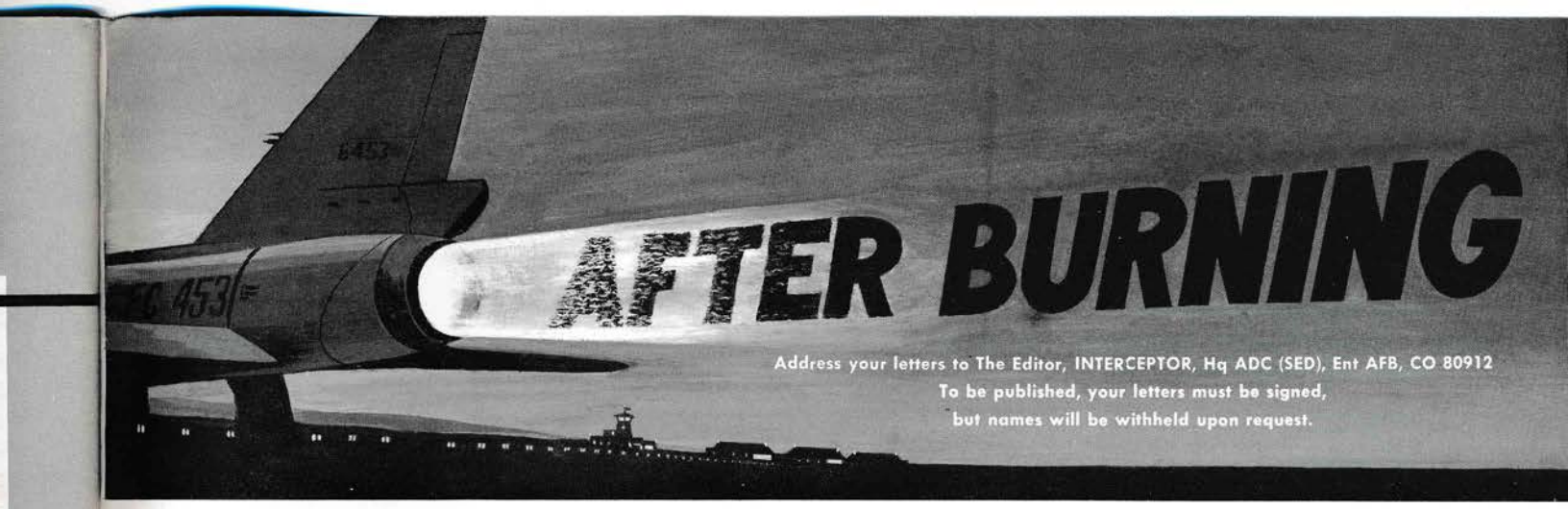
The Air Force's school of Aerospace Medicine has developed a technique for differentiating between bird and other animal residue using microscopic recognition of nucleated red blood cells and tissue urea nitrogen: uric acid ratios.

If you are about to permanently place the above piece of information in your "Who Cares" file, you may be overlooking a phase of technology that could someday greatly assist you and your squadron's flying program.

The people on this project have given us an important adjunct to solving the biological aspects of the ten million dollar annual problem of USAF aircraft collisions with birds. By examining the smallest bits of residual tissue found on aircraft surfaces, we will be able to tell if there was a birdstrike. Then, testing this specimen using a method called "Immunochemical Analysis," technicians can identify the bird species.

By knowing what *species* of birds are involved in birdstrikes, we have added data to study this problem in terms of the susceptibility of specific aircraft, geographic locations, weather conditions, and other factors. By correlating this species identification information with the location, altitude, and time of year the birdstrikes occur, we have more comprehensive data for describing bird migration patterns so we can develop better birdstrike avoidance procedures. By identifying these birds, along with their average weight, scientists have much more information when studying impact tolerance for aircraft structures and designs for impact-resistant windscreens. This knowledge will be a great aid to them in their current study on the practicality of equipping aircraft with deployable/retractable bird deflection devices.

It's not hard to imagine what an asset this will be to aircraft accident investigation boards, particularly when we have to determine possible causes from scattered organic and metallic debris. This relatively simple-to-execute red blood cell identification of dried blood could be applied by ground investigation teams to confirm or establish a birdstrike incident. Tests using previously untrained observers show that, by using this technique, 80% were able to identify dried blood samples as avian.



AFTER BURNING

Address your letters to The Editor, INTERCEPTOR, Hq ADC (SED), Ent AFB, CO 80912
To be published, your letters must be signed,
but names will be withheld upon request.

"LADY KILLERS" NO THRILLER

I found the article entitled "Lady Killers" in the July 72 INTERCEPTOR to be offensive, obnoxious and without journalistic or humorous merit. The historical, factual material in the beginning of the issue was interesting and informative. Most of us know very little about what contributions women aviators have made to America. The remainder of the article, filled with absurd, chauvinistic material about turning in PLAYBOYs for COSMOPOLITANs, taking TDY jaunts with two fictitious lady killers was unnecessary and immature.

The pictures of the two WAF Officers were poor indeed! Both had illegal hairdos which any WAF, pilot or no, would know were against regulations and in poor taste. I fail to see any reason for including such a poorly written, poorly edited article in an otherwise worthwhile magazine.

WAF are an integral part of ADC and the Air Force. We have fought and continue to fight for equality in pay and benefits, i.e. BAQ, and are still confronted daily with the attitude that the only purpose of the WAF is to make men happy, serve as secretaries, and in general, play the sexy, stupid female role. Your article serves only to propitiate such misconceptions.

I would only add one observation/question: Why on the first page of the magazine does it say "INTERCEPTOR For The Men Responsible For Aerospace Defense?" Why not Men **and Women?** After all, the WAF have been a part of the Air Force since 1948.

1/Lt Nancy J. Peters
WAF Squadron Commander
Hamilton AFB, CA

***We've often been accused of printing only the "good" letters we receive. Thank you for helping us prove that we don't. Obviously you were offended by the article. The article, "Lady Killers," tried to show how pilots might react if they found two women, equally qualified, among their ranks. Only that. The words sexy and stupid are yours, we didn't intend or imply those qualifiers. We include articles of this type in our magazine to offset some of the rather heavy reading on the other pages, e.g., "Decide to Survive," (INTERCEPTOR, same issue). We also compete with many other commercial magazines that appear in pilot's lounges, ready rooms, and in the alert barns. Our first and most important challenge is to influence someone to pick up the INTERCEPTOR. The next task is to get that person to read all of it. Thus, we attempt to intersperse light non-technical articles with the technical hoping that some of the safety messages will rub off on the reader as he (or she) reads through the magazine.**

We also think that dissenting opinions like yours serve to pinpoint violations that are far too common. The women in the pictures are WAF. We assumed that their hairstyles were within bounds compared to some of the wild ones we've seen in our travels. Since you say they are not, we'll take your word for it and hope that other commanders will take notice.

We are aware that the WAF is an integral part of ADC and the Air Force. In fact, for those who don't know it, there are nearly 700 WAF who are assigned to this command. To crosscheck your opinion we queried several other WAF about the article. Their opinions ranged from "Great" (with no reservations) to "Good" (with some reservations). Yours was the worst response.

Our masthead reads "For the Men Responsible For Aerospace Defense" because the magazine is published for those persons who directly support, service or fly ADC aircraft. Presently we know of no WAF in ADC who do this. However, when they do, we will consider changing our masthead to read "For The People Responsible For Aerospace Defense."

ADCPI AND AERODYNAMICS

I have seen and am most impressed with your INTERCEPTOR programmed texts and other similar works including ADC PI 62-5, ADCP 162-6, ADC PI 62-14, ADC PI 62-1, and ADC PI 62-3. If any of the above (Landing, Stability and Control, Sink Rate, Maneuvering) are available for me to utilize in our Aeronautics program, I would be most grateful.

Major Robert Smith (USAF Ret)
Director of Aeronautics
Dowling College
Oakdale, New York

***ADCPIs are available and we're sending them on.**

AIR FORCE RESERVE

Previous information in your safety publications has greatly added to our safety information program.

Request consideration for this headquarters to be placed on distribution for four (4) copies of your safety publication.

Lt Col Elbert E. Wade, USAFR
Director of Safety
302 Tac Airlife Wg/SE
Lockbourne AFB OH

***This "headquarters" has considered your request and is placing you on distribution for four (4) copies of our safety publication at your new address.**

REPRINT OF "SAGAS"

Request your written permission to submit an edited version of the item "Sagas Sing Their Sad Satire," appearing on page 23 of the January '72 issue of the INTERCEPTOR, to the editors of True Magazine and The Reader's Digest."

Capt Lawrence Goldman
253 Bolling Drive
Hamilton AFB, California

***Granted, but request credit be given to the INTERCEPTOR Magazine.**

☆ U. S. GOVERNMENT PRINTING OFFICE 1972 — 784-108/2

It won't be long before the leaves take on their autumn hues forecasting the ominous winter. Please remember that this year, with the reduction in the number of weather forecasters and observers, you may not have the weather support you had last year. So take a little more time to plan your flight and be prepared for a last minute diversion. Talk with the weather people and find out the best way to work together so you can get up and down safely. They care about you and so do I.

Photo by SSgt Richard Thomas