TAC ATTACK

MARCH 1982

MAR

READINESS IS OUR PROFESSION

Contents

TACRP 127-1

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VOLUME 22 NUMBER 3

MORE THAN COMRADES

They were more than fellow pilots. They represented us to the world. There was something of every tactical aviator in them, and something of them in each of us. Even though a little bit of us died with them, a good part of them lives on in us. We are proud to carry on in their names, and the names of all those who have gone before us.

PRIORITIES

When pressures mount, what becomes important ?

Scheduling is difficult. With numerous criteria, restrictions, and limitations, the squadron is expected to produce on time. One missed sortie has a domino effect that ripples throughout the schedule. But if the squadron can't keep its priorities straight under the pressures of scheduling, catastrophe can result.

An F-4 training unit got caught up under the pressures of scheduling and the results were nearly catastrophic. The squadron had arranged to fly advanced air-to-air training missions with an F-15 squadron. That meant the students must have completed their flights in basic fighter maneuvers (BFM) up through BFM-13 before that date in order to be ready for the squadron's commitment.

To meet its commitment, the squadron developed a plan in which students would fly their BFM-12 and BFM-13 missions on the same day, using quick-turn procedures. A quick turn shortens the time between sorties and allows less time for briefing the second mission, assuming it's similar to the first and common items need not be repeated. Quick turns are legal.

A quick turn on these two particular missions, however, went beyond even the appearance of legality. These two sorties required two different levels of supervision, according to the syllabus. BFM-12 requires an instructor pilot in the back seat of the lead aircraft. BFM-13 requires instructor pilots in the front seat of the lead aircraft and the back seat of the number 2 aircraft. The reason for the increased supervision is the increased difficulty in BFM-13, where the student attempts to gain a position of advantage from a neutral setup. The squadron had ignored this rule by scheduling only one instructor, in the back seat of lead, for both missions.

So, the stage was set. The aircrews came in, briefed, and flew BFM-12, which included air refueling. They landed from the first sortie 38 minutes before the brief time for the second sortie. The aircrews got together in ops 15 minutes before brief time. That's the amount of time they had to debrief the first mission, including the air-to-air work and the air refueling. Then they had 30 minutes to cover the difficult air-to-air mission coming up.

They finished on time, went out to their airplanes, and took off on time. After the external tanks were empty, they did their rig checks and set up for the air-to-air engagements. Number 2's radar wasn't working; so they used visual setups with 3 to 5 miles of separation.

On the first engagement, number 2 achieved an advantage, getting in position for an IR missile shot and a slightly out-of-range gun shot. On the second engagement, neither aircraft could gain the advantage. They knocked it off at 10,000 feet, the bottom of the altitude block.

The flight climbed back to 18,000 feet to get ready for the third engagement. They accelerated to 400 knots, line abreast with about 8,000 feet of lateral spacing. Two was on the right as they turned into each other and began the fight. They both pulled up slightly. As the turn continued, with each aircraft increasing its pitch, the instructor pilot in the lead aircraft lost sight of number 2. He figured number 2 would pass below him. Meanwhile, number 2 began to realize that he might pass inside the 1,000-foot "bubble" around the lead aircraft, which he was supposed to avoid. Trying to find a way to stay out of the bubble yet still win the fight, he decided to pull harder to the inside of the turn.

When the pilot of number 2 reached a distance of 2,500 feet from his leader, he realized it was going to be close. Instead of being worried about missing the 1,000-foot bubble, he was now afraid of a collision. He continued to pull hard to the inside. As he closed to 1,000 feet, a collision seemed certain; in a last-gasp attempt to avoid it, he pulled the stick full aft. The airplane departed controlled flight.

About then, the aircrew in the lead airplane felt what seemed to be mild jet wash. The leader called to knock it off. Number 2 was busy trying to regain control of his aircraft. He did, without much problem;

and they began to set up for another engagement. As number 2 accelerated, he felt the airframe vibrating. He looked at his right wing and saw that the leading edge flap was banged up. He told his leader about it, and leader called for a rejoin. During the rejoin, leader noticed that his aircraft had also suffered damage: about 12 inches of wingtip was missing.

When they had passed head-on, the right external wing tank of number 2 had hit the right wing tip of leader, shearing off a piece. The fuel tank had folded over the top of number 2's wing and had broken in two, damaging the flap in the process.

After assessing the damage, the pilots of both aircraft did controllability checks. Then they both made successful no-flap landings.

This near-catastrophe was caused by several errors. The setup was bad: a turn toward each other from only 8,000 feet apart almost guarantees a violation of minimum distances because there isn't much room to maneuver. The student didn't know how to react when he saw the problem; with his lack of experience, he couldn't picture the projected flight paths.

We expect students to make some mistakes. We expect squadron leaders to provide enough supervision in each flight to correct student errors before they become dangerous. The squadron also is responsible for providing enough time to brief and debrief missions. We owe that to our pilots; they should have a fair chance to do their job safely. When that is no longer our top priority, we've lost the picture.

TAC TIPS

...interest items, mishaps with morals, for the TAC aircrewman

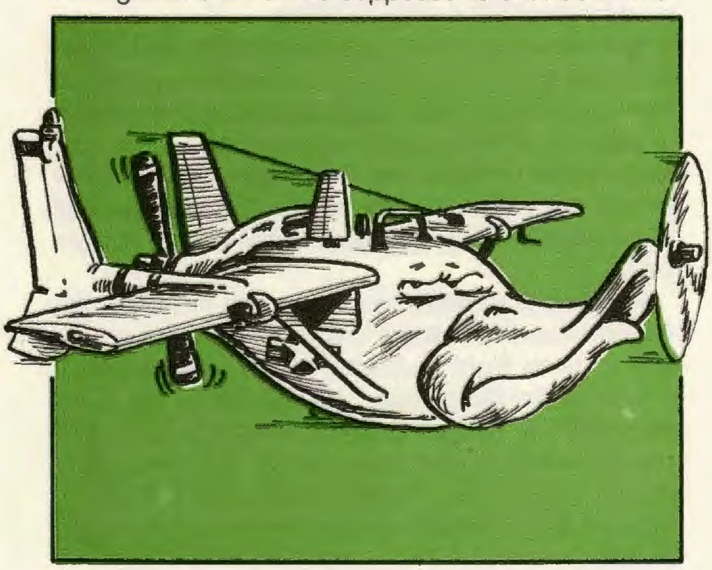
> Wisdom is knowing what to do next;
> Skill is knowing how to do it, and
> Virtue is doing it.
>
> —David Starr Jordan

Duck Feathers

An 0-2 was scheduled for a functional check flight (FCF) after a prop change on the rear engine. The FCF would require feathering and unfeathering the rear engine in flight.

The preflight checks went well until the pilot tried to start the engine with the battery. The lead-acid battery was run down from the maintenance and aircrew checks, and it couldn't crank the engine. The crew chief hooked up an MD-3 power unit, and they started the rear engine. The external power was also needed to start the front engine. The pilot completed his checks, taxied, and took off.

Twenty minutes later the pilot reached the point in the flight where he was supposed to shut down the rear engine and feather the prop. He did. Next, he was supposed to turn the engine over and unfeather the prop. He couldn't. The battery would not crank the engine enough to unlock the prop from its feathered position. Unable to start the rear engine, the pilot declared an emergency and returned to the base on front-engine power. Because it was a cool day, the front engine was able to sustain level flight—sometimes it can't.



The Dash One recommends not taking an aircraft with a battery that weak. If you ignore the Dash One, you could end up, at best, waddling home in a lame Duck.

Delayed Decision

The F-16B lined up on the runway for takeoff. It was loaded with a centerline tank and two LAU-88 launchers with a Maverick training missile on each one. The pilot released brakes and pushed the throttle up to military thrust. After checking the engine at mil, the pilot selected full afterburner. He didn't feel the normal acceleration the afterburner gives. He checked the nozzle; it was at 12 percent, which is normal at mil. The acceleration was about the same as mil, but the fuel flow was 10,000 pph. The pilot checked the throttle again to make sure it was in afterburner. It was.

Ten seconds later, at 110 knots after 1,400 feet of takeoff roll, the pilot aborted takeoff. He began braking heavily and then eased off some. As he approached the departure end of the runway, he decided to lower the hook and take the BAK-14 cable. The airplane engaged the arresting gear at about 20 knots and came to a stop. Shortly afterwards a fire flared up in the left wheel well. The pilots climbed out of the airplane, and a fire truck pulled up and put out the fire about a minute later.

Why the 10-second delay in the decision to abort? Hard to say, but there are several things which might have contributed. First, delays of 5 or 6 seconds in making a high-stress decision are not unusual, especially if the problem hasn't been thought out beforehand. Second, although the engineers knew that the afterburner should light off within 3 or 4 seconds, no one told the pilots. It wasn't in their flight manual; they didn't know how long a delay was acceptable. Third, there were two pilots in the airplane, an upgrading pilot in front and an instructor pilot in back. If the pilot in front wanted to defer the decision to the instructor in back, they could have wasted 10 seconds talking about it.

The lesson is clear: In a critical situation, we often don't have the luxury of 10 seconds to spare. The best way to cut down on that time is to plan ahead. Make the abort decision in your mind ahead of time; if the airplane's questionable, abort. You can talk it over later at your leisure. Of course, it helps if you can find the information you need to make an intelligent decision.

Smoke Sniffers Suffer

At liftoff the F-106B cockpits were suddenly and totally filled with smoke. The pilot in front turned the cabin pressure to Ram to clear what he thought was fog. The smoke did not clear. It became so dense that the front-seat pilot had to lean forward to see the flight instruments as he turned out of traffic.

Neither pilot could tell what the smoke smelled like because they were wearing their oxygen masks. The oxygen regulator in this airplane was not the diluter type, which mixes cockpit air with oxygen; it was a pressure-breathing regulator, which delivers 100-percent oxygen at all times. The rear-seat pilot, feeling a mild burning sensation in his eyes, removed his mask and inhaled the fumes, then put his mask back on and said something to the effect that there was smoke in the cockpit. So the guy in front removed his mask also to sniff the fumes. He put his mask back on, and he landed the airplane shortly afterwards, shutting down after turning off the runway. By this time both pilots suffered from burning eyes, weakness, headache, and nausea. They were taken to the hospital and grounded for a couple days but didn't receive any permanent injury.

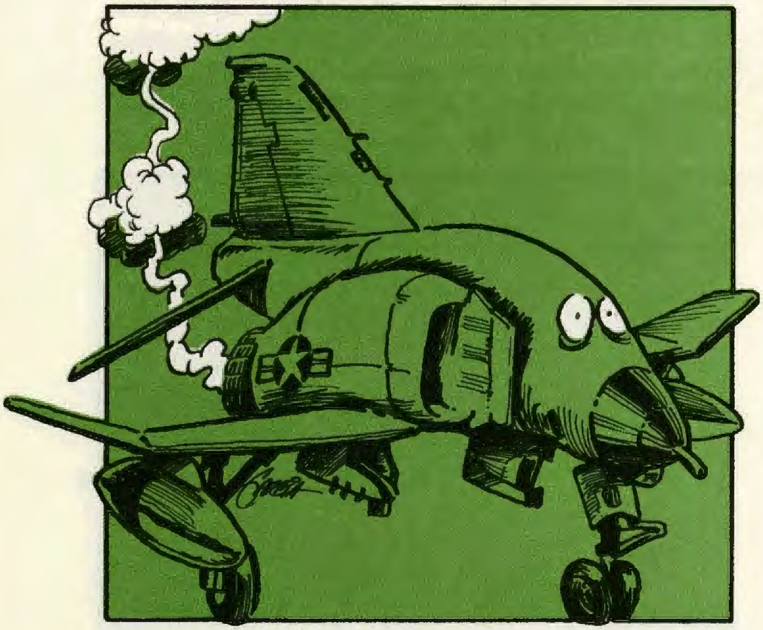
They found out afterwards that the cockpit temperature control valve was set to full hot. It was in Manual because the automatic system was broken. The crew had no way of knowing the temperature was set full hot. There's no indication in Manual, and the true temperature won't be reached at idle rpm. The full temperature was reached on takeoff at full throttle. The smoke and fumes came from plastic material in the air conditioning ducts. Tests showed that smoking occurred whenever outlet temperatures reached 140 degrees F.

So if you take an airplane with a temperature control box that works only in Manual, you probably won't know that it's set at full hot until it starts smoking.

TAC TIPS

Try and Try Again

An F-4 was having trouble getting started. At 50-percent rpm the fuel flow began to fluctuate from 500 to 1,000 pounds per hour. The engine then stagnated and flamed out. The pilot tried two more times tc start the engine. The second time, the engine stagnated at 40-percent rpm, and the third time, at 60-percent rpm. So he aborted the airplane.



We wonder what would have happened if the engine had started OK the third time. Would he have taken the bird? Would you?

EPU Underspeed: The Other Side of The Coin

With all our concern about overspeed of the F-16 EPU (emergency power unit), we haven't discussed the problem of underspeed. Now it has come up. An F-16 had a main generator fail at 21,000 feet. The indications to the pilot were that the emergency generator had also failed and the flight control battery was discharging. Since the flight control batteries only promise 4 minutes of operation, the pilot pulled the throttle to idle and descended toward a nearby landing field.

During the descent the speedbrake would not extend. The pilot had to use manual override to move the gear handle down, and the gear still didn't extend. Without speedbrake or gear he couldn't get the airplane slowed down enough to land on his first approach. At 1,500 feet he began a go-around and advanced the throttle for the first time since the generator had failed. The landing gear extended and locked, showing three green lights in the cockpit. The pilot realized he had at least temporarily regained essential-bus electrical power.

But he knew he still had an EPU problem, and he was concerned about EPU overspeed and also the short life of the flight control batteries. He pulled up and turned downwind for landing opposite the direction of normal traffic. In the turn to final, he saw the electrical bus cycling as he came back to idle. The landing was long and hot, halfway down the 10,000-foot runway at 180 knots. There were no arresting cables available: The BAK-12 at 1,300 feet remaining was NOTAMed out, and the BAK-9 at the runway threshold was disconnected because of the direction of normal traffic. Braking as hard as he could, the pilot got the airplane stopped 500 feet into the overrun. A brake fire began in the left wheel well, but it was quickly extinguished by fire fighters.

Although the pilot believed that he had encountered total generator failure, that wasn't really the case. Admittedly the indications were the same. Yet he really had main generator failure coupled with failure of only the hydrazine mode of the EPU. The bleed-air mode of the EPU worked, but the output was too low because the throttle was back in idle. The problem was EPU underspeed.

In order to keep the emergency generator on the line, the EPU must put out about 12½ horsepower. At idle thrust the EPU produces as little as 8 horsepower. At cruise or go-around throttle settings, the horsepower increases to about 50.

Without hydrazine the EPU startup is also slower than normal. The pilot pulled the throttle to idle before the EPU was up to speed. Since he left the throttle at idle, the EPU didn't put out enough horsepower to keep the emergency generator on the line until he advanced the power to go around. Then the emergency generator operated until he again pulled the throttle to idle in the final turn.

Throughout the emergency the pilot was understandably concerned about the known danger of EPU overspeed. The problem of EPU underspeed in the bleed-air mode hadn't been addressed before; so he didn't consider it. In fact, moving the throttle forward just a little would have given him emergency electrical power.

Aircrew of Distinction

On 14 August 1981, Lt Col Richard G. Hellier was flying an F-111D on an incentive flight for a crew chief. While demonstrating the automatic terrain-following system to his passenger, Colonel Hellier noticed the wheel-well-hot caution light illuminate. He began an immediate climbing turn back to his home field while he did the boldface emergency procedures. He lowered the landing gear to avoid a possible tire fire and explosion, and he declared an emergency. Colonel Hellier's wingman rejoined and, at first, did not see any fire or smoke. But after a couple of minutes, the wingman reported light smoke or vapor coming from the wheel well.

Colonel Hellier then noticed that the left engine oil pressure gage was stuck at the upper limit. Shortly afterwards, all televised flight instrument displays flashed twice and went blank. At the same time, the flight controls abruptly pulsed as the left generator failed. while trying to analyze erratic indications on his engine instruments, Colonel Hellier saw the left engine's fire warning light flash. He shut down the left engine and discharged the fire extinguishing agent. The fire-detecting circuits for both engines failed their integrity checks. The fuselage fire-detecting circuit checked OK at first, but then it failed.

Approaching a high extended glide path to the runway, Colonel Hellier lowered the slats and flaps for a single-engine approach. After the flaps were extended, the aircraft abruptly yawed left as the yaw-damper caution light lit up. Colonel Hellier turned off the yaw damper and decided to engage the approach-end arresting cable. He extended the arresting hook and directed his passenger to stow loose cockpit equipment. When he checked the caution light panel to ensure the hook was down, Colonel Hellier noticed that the utility-hydraulic-hot caution light had also illuminated, indicating impending utility hydraulic system failure.

Flying on one engine, with the yaw damper off, Colonel Hellier maintained a smooth glide path to a successful approach-end cable engagent. His alert and decisive action, together with his superb flying skill, resulted in recovering the aircraft with little damage and prevented possible serious injury. Lt Col Richard G. Hellier has earned the Tactical Air Command Aircrew of Distinction award.

Lt Col Richard G. Hellier
524 TFTS, 27 TFW
Cannon AFB, NM

The Crutch and I

By Ms. Marty Diller

"How are you feeling?" the doctor asked, before telling me what I didn't want to hear. "Your ankle is broken. Not a bad break, but you'll have to get a cast. And you'll be on these crutches for a while."

"Crutches? C'mon, you're kidding. I can't walk on crutches. How do you walk on crutches, anyway?"

"As best you can, and be careful. We don't want you to fall again. Now, let me adjust your crutches. How's that? Feel OK?"

"What's OK? Don't you have a pamphlet to give out or some pointers you tell to new crutch-walkers?"

"No. Walking on crutches is easy. You can do it. We'll put your cast on in two days. See you then."

After the cast was on, I went out to lunch with a friend. I felt pretty confident—walking on crutches in my house was easy. There were no doors to open, no steps to climb; and the distance or time I spent on the crutches was short, so I didn't get tired.

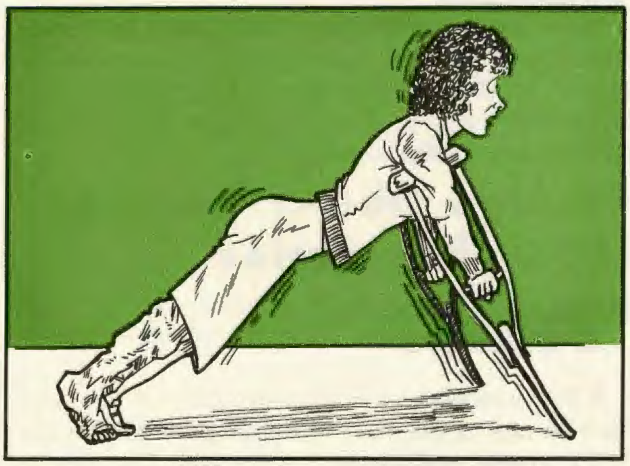
We parked the car at the restaurant; I got out and hobbled up to the curb. Oh, no! How do I do curbs? Do I put my crutches below the curb and swing my body up onto the curb, or do I put the crutches on the curb and hop up. While I was standing there trying to look like I knew what I was going to do, a man walked up to enter the restaurant. As he went by me, he grinned as if to say I'm glad its you and not me and then said, "This must be your first time on crutches. The only thing you need to remember is to put your weight on your hands." Then he entered the restaurant.

I couldn't believe it. My first piece of advice for crutch-walking and it was from a total stranger and at my first obstacle. I wondered if he really knew what he was talking about? Well, he did and it worked. That small amount of advice is the key to walking on crutches.

Right after this, I started my new job, with a broken ankle and a cast. Everyone wanted to know how I broke my ankle. I told my story, feeling so un-safety-conscious; after all my new job was in TAC Safety.

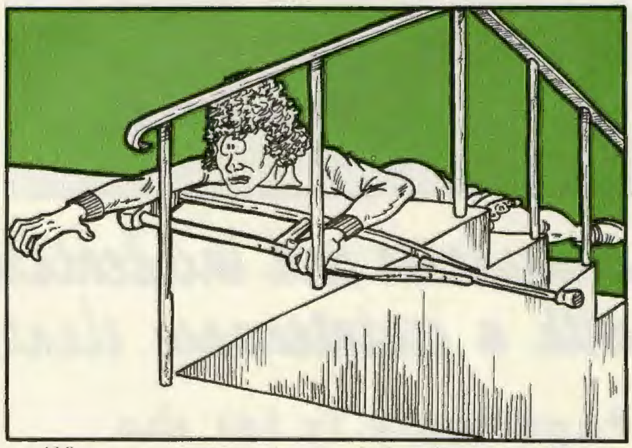
So, from first-crutch experience, here are some helpful pointers if you ever have to walk on crutches:

- To fit the crutches, adjust them while standing so that the top of the crutch is 1 inch below the armpit. The crutch shouldn't touch the armpit because damage could be done to the nerves. I also found that, if the crutch touched my armpit, I put my weight there and not on my hands.
- Always put your weight on your hands.
- You should have some type of padding on the top of the crutch. If you have to use your crutches for more than a few days, nonslip padding on the hand bar will help prevent blisters.
- You should have nonskid rubber tips on the end of the crutches.



- Wear a nonskid shoe, like a tennis shoe, on your good foot.
- Remove all scatter rugs. They're real trippers.

- When walking on crutches keep your arms straight when you swing the crutches forward. If your arms are bent, you'll swing your crutches out sideways causing loss of balance.
- To go up steps, take them one-at-a-time. Position your crutches below the step, put your weight on your hands, and push your body up onto the step. To go down steps, position your crutches on the step you're going to, put your weight on your hands, and swing your body down. Pray for elevators the next time.



- When you get to doors, depending on whether you have to pull or push the door open, first position your body on the opened door. Then position your crutches and swing free of the door. One thing to remember: If you see someone hurrying to you to help you with the door, wait and let them open it. I

almost fell several times while bracing my body on the door when someone pulled it open.

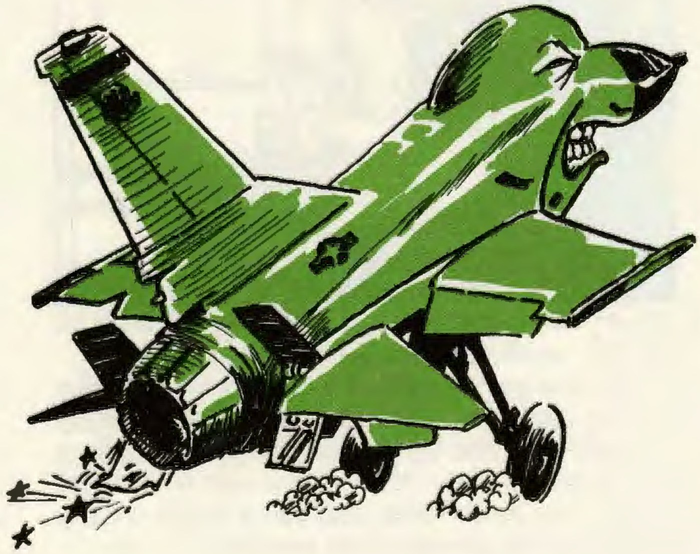
After you get the hang of it, walking with crutches isn't too hard. But I remember the way I felt when the doctor first handed me my crutches: Isn't it enough to have a broken ankle; now I have to walk on crutches too? I hope these ideas help you if you're unlucky enough to find yourself in my position. ➤

chock talk

...incidents and incidentals with a maintenance slant.

Paperwork is for the Imperfect—All of Us

Why do we have to fill out so much paperwork? Well, some of it may be unnecessary; but most of it serves to make sure the job is done right. It provides follow-up and cross-checks, which may not get done if the paperwork is wrong.



For instance, an electrician made a mistake while installing a B-nut on an F-16 speedbrake position switch. The B-nut should be safety-wired after the switch is adjusted for the 43-degree position. Not only did the electrician fail to safety-wire the B-nut, but he also failed to note in the forms that he had adjusted the switch. If he had documented his work, a supervisor would have checked it. As it was, no one discovered the error.

The problem revealed itself a couple of months later. A pilot scraped the speedbrake on landing because the speedbrakes were extended 60 degrees instead of 43 degrees. The B-nut had backed off the position switch. Damage to the speedbrakes was about $700.

We'd like to be able to do our jobs without ever making mistakes, but that's unlikely. As long as we're human, we'll need some way of cross-checking our work. That's why we have paperwork. If we were all perfect, we wouldn't need it.

Foreign Object Damage (FOD) Prevention

By Johnny E. Bordelon
23 TFW/MAQFO

How important is FOD prevention? It may very well be one of the most important parts of your job. FOD strikes anytime and anywhere. The cost to repair a FODed engine can be $200,000 or more, not to mention the cost of an aircraft or aircrew member's life.

Who can control FOD? You are the only one who can keep FOD under control. By keeping parts, hardware, safety wire, tools, and other foreign objects in their proper place; by keeping your work areas free of debris; and by ensuring the use of correct screws and fasteners and properly securing them, you help control and prevent costly FOD.

The cost of FOD within TAC is expected to exceed $2.6 million in calendar year '81, and it is expected to increase in 1982 unless everyone does their part to stop it.

If you aren't motivated enough, let's put the cost of FOD in a different perspective. With the $2.6 million we will spend on FOD repairs in 1981 we could—

- give $68,000 to each TAC unit;
- give $185,000 to each TAC fighter wing;
- give $217,000 to each TAC unit that has a 1981 FOD rate of zero; or
- give a $680 Christmas bonus to each military person on an average TAC installation.

This brings the cost of FOD a bit closer to home. Because funds are not appropriated for FOD repairs, every dollar spent on the repair of foreign object damage is money taken away from our operations and maintenance funds.

If all this hasn't motivated you into preventing FOD, next time your unit has a FOD incident ask yourself these questions:

- Was I the last one to work this aircraft?
- Did I account for all my tools?
- Did I correctly torque all hardware?
- Did I remove all F.O. from the job site?
- Did I do the job by the book?

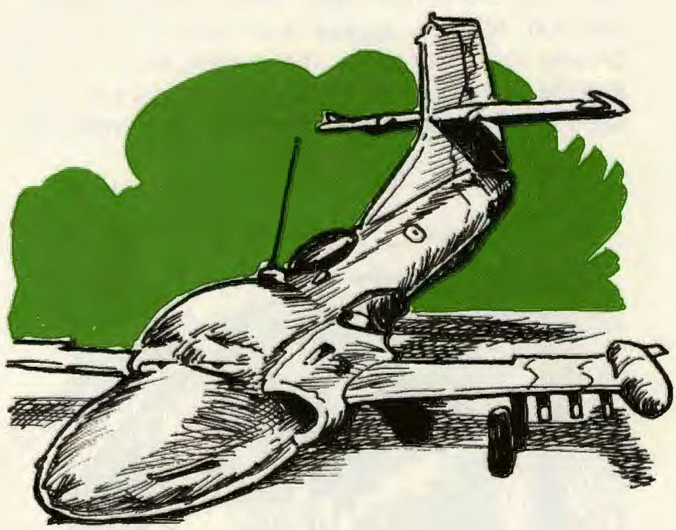
If you can't answer all these questions with a Yes, you may be in for a few nightmares.

Supertweet Lands without Nose Gear

After 20 minutes of flight, the OA-37 returned to its base to practice traffic patterns. When the pilot lowered the gear handle, the main gear came down but not the nose gear. The down-and-locked light for the nose gear was out, and the red warning light in the gear handle was on. Another aircraft joined up and looked over the landing gear. The nose gear doors were open, but the gear itself was only partly extended. The strut yoke was caught on the door linkage.

The pilot tried applying positive and negative G-loads to the airplane, but that had no effect. He tried the emergency gear extension system, with no success. Finally, as fuel began to get low, the pilot decided to land. He flew a long, straight-in, full-flap approach. After touchdown he held the nose off the ground and shut down the engines. When the elevator began to lose effectiveness, he let the aircraft nose settle on the speed brake. The speed brake slowly closed as the pressure bled off. The gear doors were scraped, and a small amount of fuselage skin was damaged; but, all in all, the airplane suffered little harm as it slid to a stop. No one was injured.

Three days earlier, the crew chief had noticed that the nose gear strut was compressed too far. Following the tech order, he removed the bleeder valve and checked the level of the hydraulic fluid. He then put the valve back together, using the original seal, which had been checked by two supervisors and found to be serviceable. After reassembling the valve, the crew chief didn't have time to finish servicing the strut. The next duty day, he and two hydraulics specialists serviced the strut until it came into limits.



The airplane later taxied out with no problem. But sometime on takeoff, possibly during the engine runup, the strut compressed hard and the seal failed. After takeoff, the gear retracted normally; however, the failure caused the yoke to catch on the door linkage during extension. When the seal was checked after the incident, only about one-fifth of it remained. Apparently, it had been pinched when it was reinstalled. The pinched seal had prevented the bleeder valve from seating correctly.

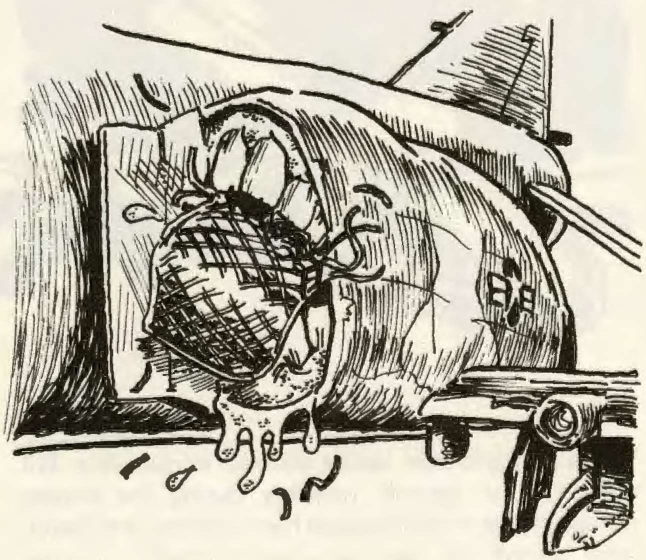
Besides being careful about installing seals, normally it's good practice to replace seals when we reassemble anything. That applies whether we're working on our plumbing, our automobiles, or Uncle Sam's airplanes.

CHOCK TALK

FOD Screen Becomes FOD

The purpose of an engine FOD screen is to prevent foreign object damage (FOD). But here's a case where the intended protection became part of the problem:

Just before a ground maintenance run of an F-4 engine, the run supervisor checked an engine screen out from the tool crib. Neither the tool-crib people nor the engine run supervisor noticed anything wrong with the screen. After an intake inspection, the FOD screen was installed and the engine was run. Nothing unusual was noticed during the ground run. Afterwards, the screen was removed and the intake was again inspected. Nicks and dents were found on the first four stages of the compressor.



The engine was removed from the plane and examined in more detail. Minor damage was found in all 17 stages. When they checked the engine FOD screen, investigators found two rivets missing. They also found two washers from the screen on the upper area of the outer seal. Coincidentally, the screen was 9 days overdue for a 90-day periodic inspection.

This engine screen literally was a *FOD* screen. Better it were an *anti-FOD* screen.

Meaningless Paperwork

In another story we talk about the importance of paperwork. We should point out that paperwork by itself accomplishes nothing. Here's a case where an inspector signed the paperwork but didn't do the job. The paperwork didn't mean much.

During engine runup of their AT-38B, the aircrew noted the number 2 engine's temperature and nozzle positions were slightly out of tolerance. They aborted. While taxiing back, they also saw the number 2 engine rpm drop enough to cause the generator to fall off the line.

Later, maintenance workers found some damage to that engine's compressor blades. A metallic object had evidently been ingested by the engine. As they checked for the source of the damage, they found an insecure inlet-guide-vane panel. Two pip pins are supposed to fasten the panel. Part of one of the pins was found in the compressor.

When the investigators checked with the crew chief, they found he wasn't clear on the correct sequence for fastening the door. Actually, there are two panels involved, an outer panel and an inner panel. In the basic postflight inspection, a crew chief normally removes the outer panel and then removes the two pip pins from the inner panel. The inner door is swung down and reconnected with one of the pip pins. The outer door, which is attached to the pip pins by cables, just hangs down on the outside of the aircraft until the postflight FOD inspection is done. If the crew chief was confused, hurried, or careless, he could have reinstalled the outer panel without replacing the second pin in the inner door. The engine would then suck the dangling pin through the inner door.

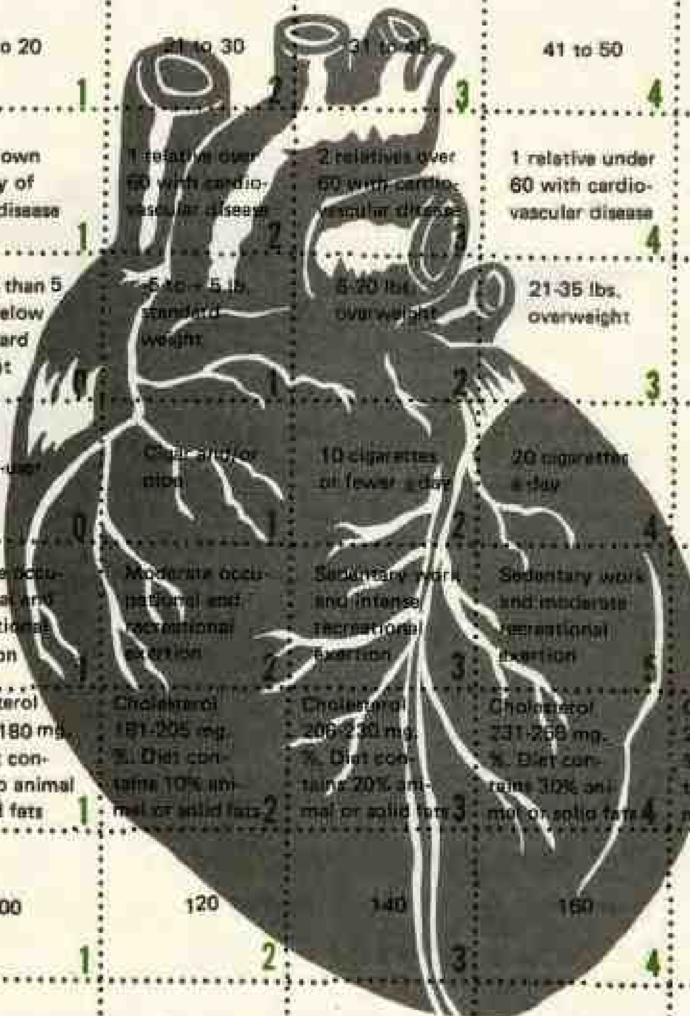
Even though the crew chief was confused about the sequence of events on the postflight, he was sure about one thing that could have still prevented the damage. He knew an inspector had to clear the red *X* on the forms. He took the forms to an inspector, who signed off the red *X* without inspecting anything.

At least the crew chief's mistake was an honest error. Signing that you've done something that you haven't really done can be called a lot of things, but *honest* isn't one of them.

Heart Attack Risk

Ever wonder whether you're likely to have a heart attack? The American Heart Association has estimated risk levels based on factors usually associated with heart disease. Add your scores for each category and compare your total to the estimated risk as follows:

Total	Risk
6–11	Well below average
12–17	Below average
18–24	Average
25–31	Moderate risk
32–40	Dangerous
41–62	Urgent—if you have not consulted your doctor about your heart's health recently, do it now.

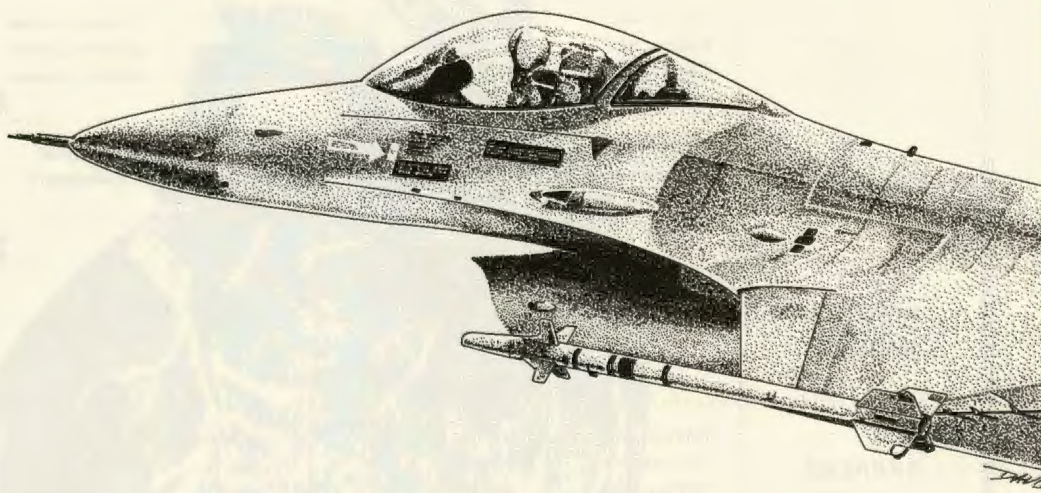


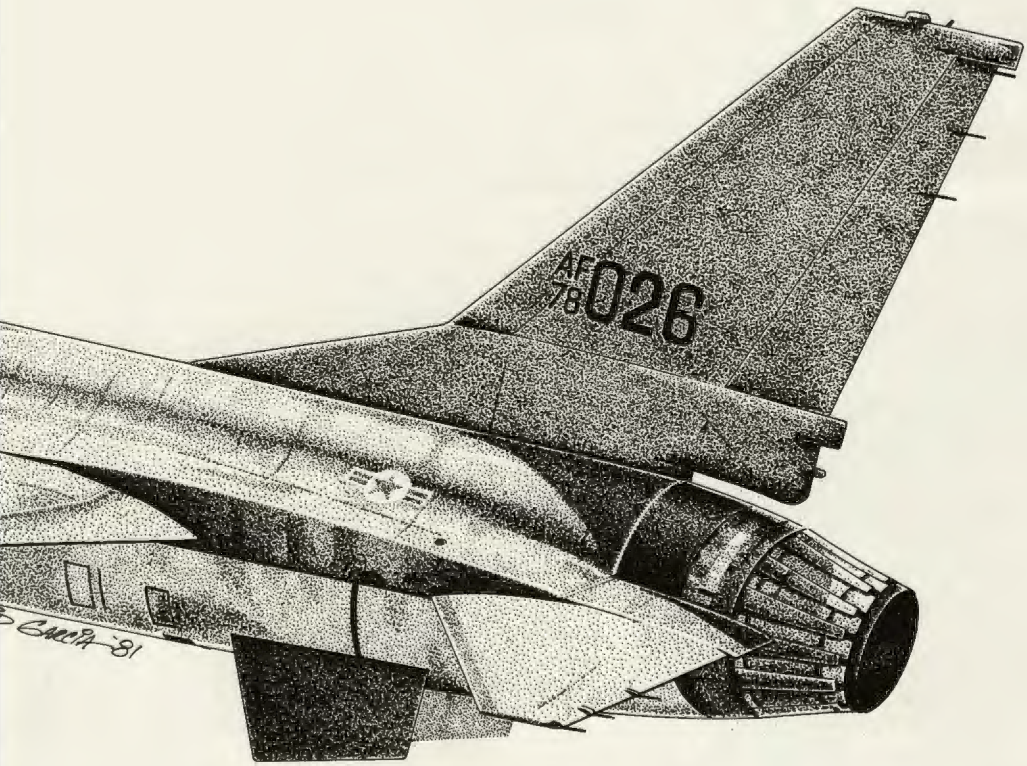
AGE	10 to 20 1	21 to 30 2	31 to 40 3	41 to 50 4	51 to 60 6	61 to 70 (and over) 8
HEREDITY	No known history of heart disease 1	1 relative over 60 with cardio-vascular disease 2	2 relatives over 60 with cardio-vascular disease 3	1 relative under 60 with cardio-vascular disease 4	2 relatives under 60 with cardio-vascular disease 6	3 relatives under 60 with cardio-vascular disease 7
WEIGHT	More than 5 lbs. below standard weight 0	-5 to + 5 lbs. standard weight 1	6-20 lbs. overweight 2	21-35 lbs. overweight 3	36-50 lbs. overweight 5	51-65 lbs. overweight 7
TOBACCO SMOKING	Non-user 0	Cigar and/or pipe 1	10 cigarettes or fewer a day 2	20 cigarettes a day 4	30 cigarettes a day 6	40 cigarettes a day or more 10
EXERCISE	Intense occupational and recreational exertion 1	Moderate occupational and recreational exertion 2	Sedentary work and intense recreational exertion 3	Sedentary work and moderate recreational exertion 5	Sedentary work and light recreational exertion 6	Complete lack of all exertion 8
*CHOLESTEROL OR FAT % IN DIET	Cholesterol below 180 mg. %. Diet contains no animal or solid fats 1	Cholesterol 181-205 mg. %. Diet contains 10% animal or solid fats 2	Cholesterol 206-230 mg. %. Diet contains 20% animal or solid fats 3	Cholesterol 231-255 mg. %. Diet contains 30% animal or solid fats 4	Cholesterol 256-280 mg. %. Diet contains 40% animal or solid fats 5	Cholesterol 281-300 mg. %. Diet contains 50% animal or solid fats 7
**BLOOD PRESSURE (UPPER READING)	100 1	120 2	140 3	160 4	180 6	200 or over 8
GENDER	Female under age 40 1	Female age 40-50 2	Female over age 50 3	Male 5	Stocky male 6	Bald stocky male 7

* The average American diet contains 40% fat.

** If you have no recent reading but have passed an insurance or industrial examination, chances are your upper reading is 140 or less.

F-16 Falcon

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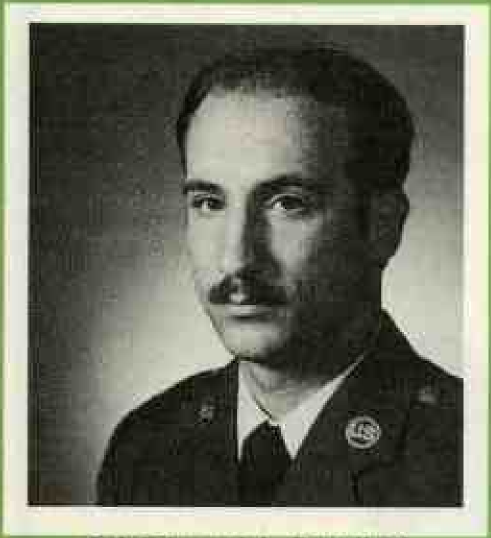
TAC Safety Awards



SrA Edmond A. Ranalletti

Crew Chief Safety Award

SRA EDMOND A. RANALLETTI is this month's winner of the Tactical Air Command Crew Chief Safety Award. Airman Ranalletti is an F-16 crew chief with the 474th Aircraft Generation Squadron, 474th Tactical Fighter Wing, Nellis Air Force Base, Nevada. Airman Ranalletti helped a fellow crew chief and two aircrews when the emergency power unit (EPU) of an F-16 fired on the ground.

While in the process of launching his aircraft, Airman Ranalletti observed the crew chief on the aircraft directly across from his pull the EPU pin. The EPU system malfunctioned and activated. Airman Ranalletti immediately informed the pilot of his aircraft of the emergency and directed him to taxi from the area. He then signaled the pilot of the other aircraft to shut down and climb out of the airplane as fast as possible. By then the other crew chief had fallen to the ground from exposure to hydrazine exhaust fumes. Knowing the risk, Airman Ranalletti entered the hazardous area and pulled his fellow crew chief to safety.

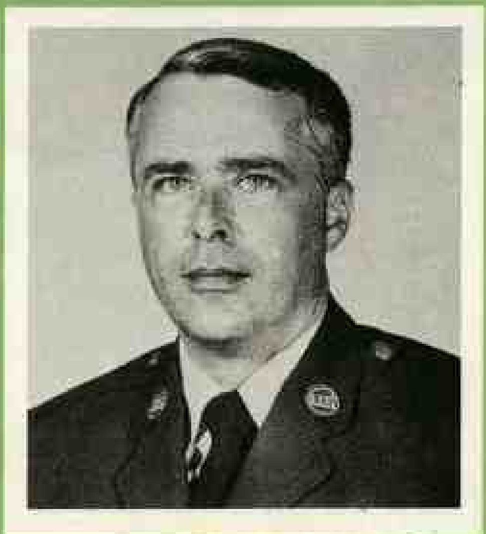
Airman Ranalletti's courage, quick thinking, and direct action in a dangerous situation make him more than deserving of the Tactical Air Command Crew Chief Safety Award.

Individual Safety Award

MSGT WILLIAM R. BOLSTAD is this month's winner of the Tactical Air Command Individual Safety Award. Sergeant Bolstad is wing weapons safety NCO, 27th Tactical Fighter Wing, Cannon Air Force Base, New Mexico. Sergeant Bolstad's logical thinking prevented possible damage to other landing aircraft from debris on the runway after a landing mishap by an F-111D aircraft.

Sergeant Bolstad was performing routine duties at night when an aircraft blew a main gear tire on landing. While helping investigate, Sergeant Bolstad learned that another aircraft had received tail bumper damage. He then reasoned that a foreign object from the aircraft with tail bumper damage may have caused the second aircraft to blow its tire. He checked and found that the tail-bumper-damaged aircraft had landed 15 minutes before the aircraft which blew its tire. He notified the command post, and two aircraft that were still in the air at the time of the mishap were diverted to another base. The runway was closed for three hours and inspected. Debris was found, as Sergeant Bolstad had suspected.

Sergeant Bolstad's knowledge and quick thinking enabled him to see the danger in the situation and react, preventing possible damage to other landing aircraft. He is deserving of the Tactical Air Command Individual Safety Award.



MSgt William R. Bolstad

Capt Phillip J. Byars

Weapons Safety Award of the Quarter

CAPT PHILLIP J. BYARS is the recipient of the Tactical Air Command Weapons Safety Award for the fourth quarter of 1981. Captain Byars is weapons safety officer for the 347th Aircraft Generation Squadron, 347th Tactical Fighter Wing, Moody Air Force Base, Georgia. He was selected because of his day-to-day efforts in making safety an integral part of his combat-oriented maintenance organization.

Captain Byars started a spot inspection program to identify potential hazards. All key supervisors were then briefed on all problems turned up. He increased safety effectiveness and improved working relationships with other units by having experts in different fields such as security, FOD prevention, and quality assurance join him during his night spot inspections. He, in turn, joined them in their inspections.

Captain Byars oversaw safe munitions handling in RED FLAG deployments, close air support to Fort Benning, and the USAF Worldwide Fighter Gunnery Competition, Gunsmoke '81. He established a weekly testing and trend analysis program to identify and eliminate weaknesses in the Nuclear Surety Training program. Captain Byars spent many hours on the flightline talking to the troops about safety. This resulted in a sharp reduction in the number of noted detected safety violations. There were no weapons mishaps during this quarter.

Captain Byars is a professional who demonstrates knowledge and expertise in weapons safety. His initiative and enthusiasm have instilled strong, positive safety attitudes and have helped earn him the Tactical Air Command Weapons Safety Award of the Quarter.

SSgt Dennis E. Leach

Ground Safety Award of the Quarter

SSGT DENNIS E. LEACH is the recipient of the Tactical Air Command Ground Safety Award for the fourth quarter of 1981. Sergeant Leach is an armament systems supervisor for the 37th Equipment Maintenance Squadron, 37th Tactical Fighter Wing, George Air Force Base, California. Sergeant Leach's safety consciousness has resulted in an outstanding safety record for the armament systems branch.

As night shift supervisor in the armament systems maintenance section, Sergeant Leach increased safety training for all assigned personnel. He regularly surveyed the shop for availability and use of safety equipment. He modified existing shop procedures to ensure safe use of industrial equipment.

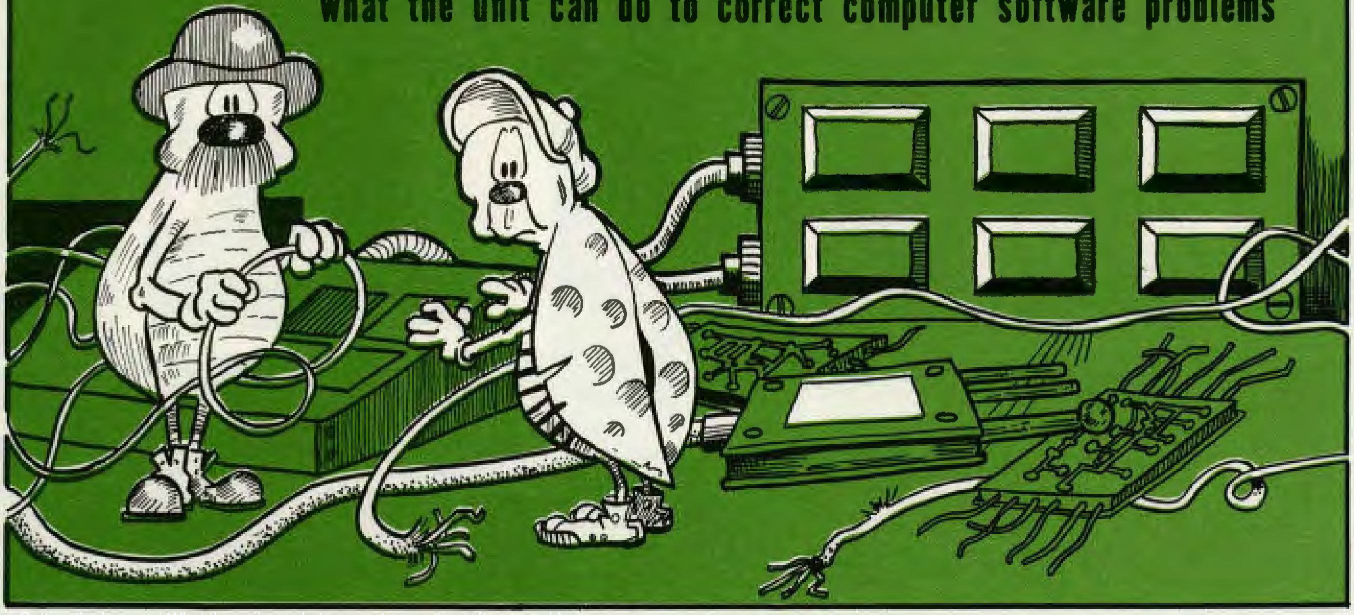
As safety NCO for the armament systems branch, Sergeant Leach established roll-call safety briefings, started a branch safety board, and inspected shop areas daily. He identified and established requirements for AFOSH standards in the branch. He redesigned the branch safety program to include two new sections when a second tactical fighter wing formed.

When the armament systems branch moved, Sergeant Leach inspected the new facilities and acted to insure problem areas were corrected. A month later, the alternate mission equipment (AME) section moved into the same facility. Sergeant Leach, working with the NCOIC of the AME section, made sure the move was done safely.

Sergeant Leach continually strives for a safe working environment and acts immediately whenever he finds a discrepancy inside or outside the branch. His dedication to safety, initiative, and quick response to unsafe conditions have earned him the Tactical Air Command Ground Safety Award of the Quarter.

GETTING THE BUGS OUT

what the unit can do to correct computer software problems



Getting the bugs out What the unit can do to correct computer software problems

By Capt Bernie M. Lynn
TAC/ADYS

Tactical systems today are becoming more sophisticated through computer technology. Computers and computer programs (software) play an integral role in the mission of operational units. The F-16, as an example, has over ten computers. Along with avionics, several new computer-intensive systems are in development.

Testing in development and initial operational evaluations usually shakes down a system and identifies and corrects gross software deficiencies. But generally the real test occurs when the system goes operational. The majority of the system's software "bugs" are identified within the first two years after fielding. These bugs, as well as the new requirements discovered after delivery, dictate the need for a means to control software changes.

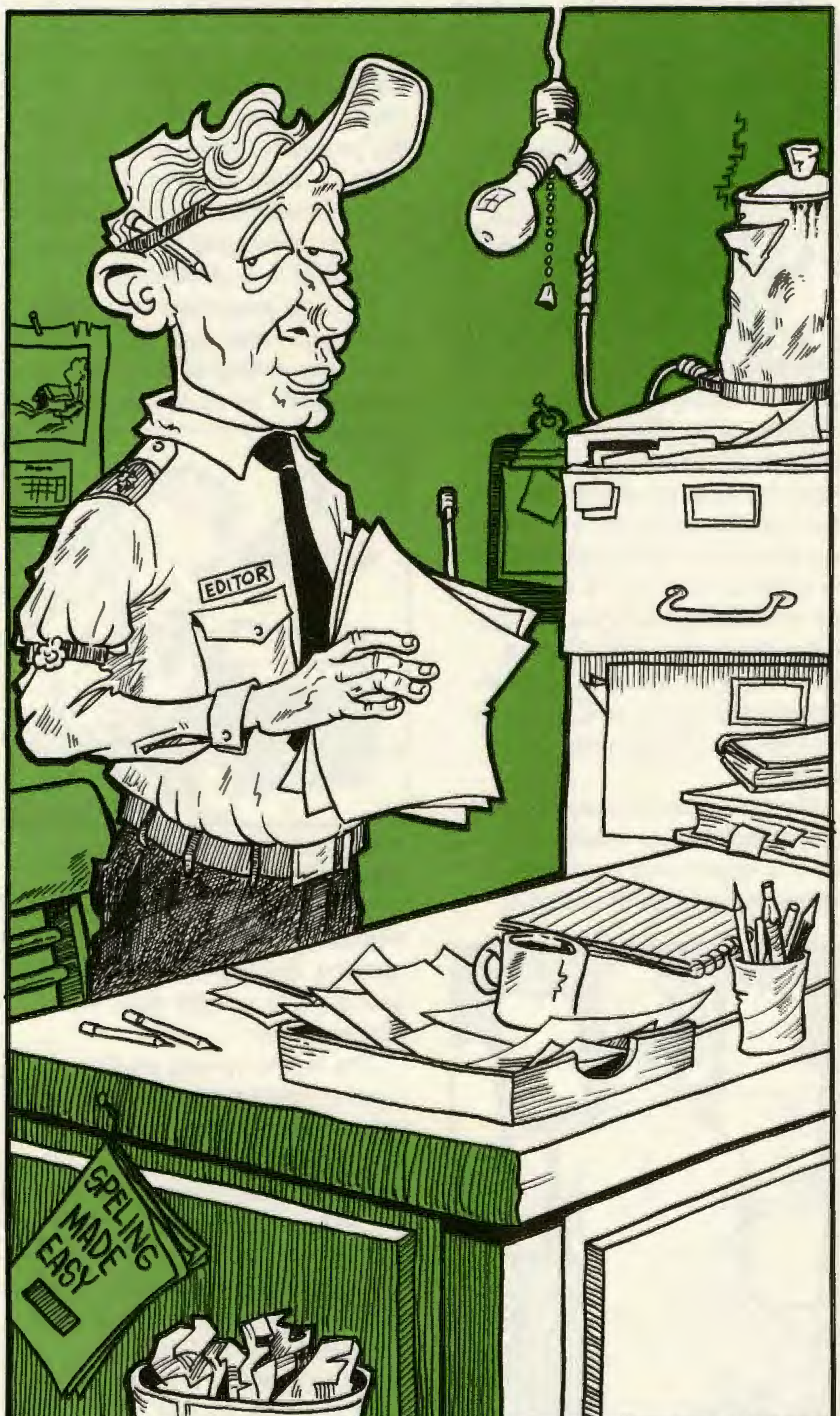
Identifying new requirements or corrections through software begins at the wing level. The *O/S CMP* (operational/support configuration management procedures) is a document which describes and explains the procedures that operational units should follow when they have a suspected computer software problem or when they want to recommend a change or enhancement. Therefore, the O/S CMP is an important wing document. Each wing should have an O/S CMP for those computer resources embedded in or supporting their avionics; armament; electronic warfare; command, control, and communications (C3); and aircrew training device systems. At a minimum the wing quality assurance (MAQ), stan-eval (DOV), weapons/tactics (DOW), flight safety (SEF), and weapons safety (SEW) sections should be familiar with the applicable system O/S CMP. These procedures will largely determine how responsive our weapon systems are to changing requirements through software.

The reprogramable features of tactical systems today allow for both enhancements and deficiency correction by the system software support facilities. Most of these software support facilities are located at the air logistic centers (ALC) which are remote from the operational units. The O/S CMP provides the link between the wing and the ALCs and allows us to take advantage of software flexibility.

The O/S CMP is a living document that can help tactical units achieve a more timely response to their changing requirements through software. This document streamlines the change process and allows close coordination between users and support facilities to reduce the time it takes to make a change.

HQ TAC/AD, Office of Data Automation, is responsible for insuring that all operational units receive the O/S CMP for their system. If TAC/AD can be of assistance, contact Capt Basgall, AUTOVON 432-3412/3639. ➢

Writing for TAC Attack



Here are some tips on how to write for *TAC Attack*. If you think this doesn't apply to you, hold on a second. First, let's talk about that.

In the good old days we hear so much about, pilots and maintenance troops supposedly passed around information during squadron bull sessions. The sessions gave people an opportunity to share experiences and knowledge. Today, the need to share those experiences still remains.

Corporate memory, however, doesn't last long if it isn't passed on from generation to generation. That's where *TAC Attack* comes in: we are one way of passing on that knowledge. There are other ways; for instance, our regulations and tech orders are based on experience and accumulated knowledge. Our formal training also serves the same purpose. But the more official forms of communication are often limited to required procedures. They can't discuss lessons learned or nifty techniques or the experience behind the procedure. That's our job.

We have a problem, though; we can't do it by ourselves. If you look at the list of our magazine staff on the page of contents, you'll see that we don't have any staff writers. We're not here to write to you or for you, we're here to publish your writing. You have a lot of lessons to pass on to your fellow workers, and we provide the means to pass them on. You are not only part of the audience, you are

Writing for TAC Attack

part of the magazine staff. Consider yourself a contributing editor.

So why don't you write? Do you think you don't have much to say? Not so. If you've learned anything that affects safety, isn't in the book, and could be used by your fellow workers or aviators across the command, you have a potential article for *TAC Attack.* If you have trouble getting your thoughts down on paper, get some help. Find that person in your unit who is good with words and write the article together.

Now for those tips on writing: The most important is to remember to whom you're writing. It's men and women just like the people you work with. As you write, picture that typical reader in your mind. You're writing to communicate, not impress.

That also means to consider your subject matter. Does it fit the audience? You may write a brilliant essay on why we should have concrete tires and rubber runways, but what can our readers do about it? Remember, you're writing to your fellow avia-

tors, maintainers, and support workers—they don't make those kinds of decisions. Our readers need the kind of information that helps them to do their job better or keeps them from getting hurt, on or off duty. If you're trying to get something changed by higher headquarters, write them a letter. If you're trying to pass information to your compatriots in the line squadrons, write us an article.

The next most important thing after keeping your reader in mind is organizing your ideas. Jot them down as they come,

but then shuffle them into a logical order. The reader has to be able to follow your thinking, step by step. He can't do that if you jump around too much. For instance, if you have a safer technique (not procedure) for flying at low altitude, you'd probably want to begin by showing that there's a problem. Then you'd show how your technique solves the problem. There are many ways of organizing. It just has to make sense to someone else; so test it on someone to see if your reasoning is understandable.

If you've organized your ideas and if you keep your reader in mind, the writing should flow naturally. Don't try to edit as you

write: you can do that later or leave it for us to do. We would appreciate it if you have your manuscript typed double-spaced, but we'll take it any way you get it to us. We don't stand on ceremony.

The key to writing anything is getting started. Right now, you can begin by jotting down that idea you've been carrying around in your head. Then you'll be well on your way to writing an article. Any article we publish will gain you recognition. And a really superlative article will win you a Fleagle T-shirt. You'll never know whether or not you can win until you give it a try. ➤

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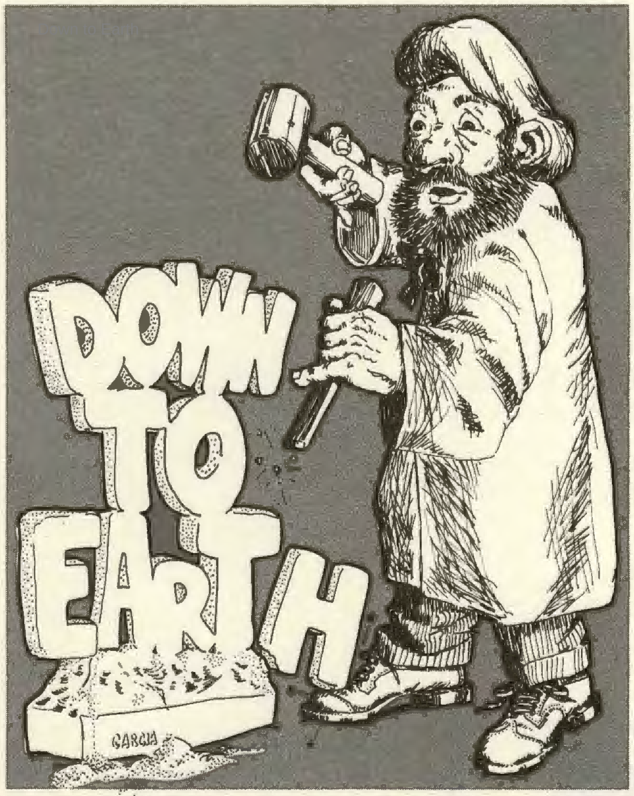


Formula for an Accident

If you were going to write a fictional story showing a typical auto accident you could probably do it by formula. Alcohol would be involved, of course, and speed too fast for road conditions. If it were to result in death, you'd probably want to include something about seat belts being available but not used.

With that outline you could write a realistic story. Unfortunately, the versions we see aren't fiction, they're true, like the one that follows:

A 39-year-old NCO was driving. His passenger was a 24-year-old airman. It was late at night and the NCO was intoxicated. The road they were on was under construction; and although it was a four-lane, two lanes were closed. The posted speed limit in the construction zone was 45 mph. They were doing better than 65 mph.

They came up on another vehicle in their lane; and even though a double yellow line separated the two open lanes, the NCO pulled out to pass. He sideswiped the vehicle he was trying to pass and then ran head-on into a vehicle coming the other way. The NCO, who was not wearing his seatbelt, died; the airman, who was wearing his seatbelt, lived.

We wish it were fiction. Then we could change the ending.

Space Heater Smarts

As the sun slowly sets in the west, a chill may send you to your portable electric space heater. Before you turn it on, check for worn or frayed places on the cord or other defects.

Follow these tips to keep heat in its place:

- Provide adequate clearance between the space heater and drapes, magazine racks or anything flammable.
- It's safer to avoid using extension cords, but if one is needed temporarily, use a heavy-duty cord that you're sure will carry the electrical load. Ordinary lamp extension cords won't do.
- Purchase electric heaters equipped with an automatic shutoff that cuts the power when the heater is tipped over.
- And, most importantly, make sure children don't get near the heater where they can be burned, start a fire, or receive a serious electric shock.

—National Safety Council

He Believes in Visors

For 30 years MSgt Richard Lewis has ridden motocycles. He has worn a helmet with a visor ever since a beetle hit him in the face while he was riding in Japan and knocked him off his bike. Recently he found an even better reason for wearing a visor.

Sergeant Lewis was riding his bike in a 35-mph zone on base when a truck headed in the other direction threw a rock. The rock hit the visor right between his eyes; it cracked the visor in two (see photo). But Sergeant Lewis wasn't hurt, and he didn't lose control of his motorcycle.

Afterwards, Sergeant Lewis drove directly to the BX and bought another visor. He's convinced it saved him.

U S Air Force photos by SSgt Evans

Keep Your Ears Open

Headsets and miniaturized stereo tape players are all the rage for pedestrians, motorists and motorcyclists alike. But the Insurance Information Institute warns that pleasant as the music may be, it can be a major hazard.

Tape players and radios should not be so loud as to drown out the sound of police, fire, and ambulance sirens, warns the institute. Even annoying traffic sounds such as brakes screeching and horns honking can be lifesavers by alerting drivers and pedestrians to emergency situations. The sound of children playing is another warning that should be audible to motorists.

Some states have reduced the risk by making driving while wearing headsets illegal.

—National Safety Council

Paperwork vs Common Sense

We have often preached the value of good paperwork; for instance, properly done forms have prevented many an accident. But sometimes the importance of paperwork gets out of proportion, and common sense suffers. Here's a case in point:

An A-7 engine arrived by airlift. The traffic management office sent a worker from the freight section to pick it up and take it to base supply for routine processing. He drove a one-ton truck, towing the engine on a dolly. On the way to supply, the driver felt a strange bump, and so he stopped the truck. A second later, the engine dolly ran into the back of the truck. Then the dolly's tow bar dug into the ground and flipped the engine dolly onto its side in the grass.

A cotter key, which was supposed to lock a pin into the tow bar where it telescoped, had worked itself loose. The pin then fell out and the dolly separated from the part of the tow bar that was connected to the truck. When the truck stopped, the dolly kept coming.

What's all this have to do with paperwork? That's why it was being towed—for the paperwork. The engine was being moved from the air freight terminal to base supply and then to the using organization, a distance of 1 mile, when it could have been moved directly to the user, ⅓ of a mile down the ramp from the terminal. The only reason for the engine to go the long way around was to get the paperwork filled out correctly.

With something as expensive and vital as an aircraft engine, wouldn't it make more sense to move the paperwork?

Life Support Equipment Insurance Corporation

This policy is issued to *Your Name*. It is payable whenever the need arises. The face value of this policy is Your Life. The provisions under which the policy is issued are as follows:

SECTION I: This policy guarantees, in the event of an aircraft accident, which places the insured in a survival situation, to do the following:

A. Separate the insured from his aircraft by means of ejection or bailout.
   Note: In the event of ditching or crash landing, it will be the responsibility of the insured to get out of the aircraft using the best available means.

B. Return the insured to Terra Firma, in the event of ejection or bailout, by means of a nylon conveyance commonly known as a parachute.

C. Provide the insured with sufficient equipment to enable him to survive wherever he lands (water, desert, tropics, or mountains).
   Note: It is the responsibility of the insured to use this equipment to—
   1. Build adequate shelter from the elements;
   2. Provide himself with additional food and water;
   3. Use the signaling devices to best advantage for attracting rescue personnel.

SECTION II: This policy may not be redeemable:

A. If the insured fails to take advantage of all life support continuation training made available to him. Such failure includes, but is not limited to:
   1. Annual training.
   2. Training in excess of annual requirements.
      Note: This also includes but is not limited to commanders, wing personnel, life support officers, crew chiefs, and flight mechanics.

B. If the insured fails to take advantage of all equipment and assistance offered him by life support specialists prior to each flight. This includes but is not limited to:

1. Failure to preflight all equipment as outlined in current tech orders and regulations and as taught or published by the life support equipment section. Equipment is interpreted to mean:
    - a) Life preservers
    - b) Survival kits
    - c) Emergency signaling devices
    - d) Parachutes
    - e) Helmets
    - f) Oxygen masks
    - g) Any and all additional equipment provided the crewmember prior to flight
2. Failure to notify the life support specialist of any equipment problems.

C. If the insured fails to wear proper clothing for each mission. This includes but is not limited to:

1. Wearing summer flight suit during winter operations, or failure to wear winter underwear when winter flight suits are not available;
2. Leaving flight jacket in the life support equipment section while insured is engaged in flight;
3. Failing to wear flying gloves;
4. Wearing low-quarters, wellingtons, Probst boots, or other unauthorized footwear while engaged in flight.

D. If the insured misuses or abuses life support equipment. This includes but is not limited to:

1. Throwing or mishandling of helmets and masks;
2. Laying equipment on wet or oil-covered ramps,
3. Using equipment improperly for seats or pillows;
4. Leaving equipment exposed to weather, children, or other types of pestilence;
5. Using auto as a wall lock.

SECTION III:

A. This policy may become null and void if the insured, through his own negligence, invokes any of the items in Section II.

B. The company will do all within its power to help the insured meet the requirements of this policy. The company further assures that it will in no way willfully cause this policy to be canceled. However, the insured may cancel at any time.

Signed: ______________________

Life Support Specialist
Company Representative

Sound like a good policy? You bet your life it is! If you are interested in further details, see our company representative today. You can find him in any life support equipment section.

—Airscoop

WEAPONS WORDS

Read the Fine Print

During a test project, an AN/ALQ-119-15 ECM pod was deployed to one of our bases on an F-16. The ECM pod was, in fact, never used; so it was stored at that base's ECM storage area. At the end of the test, a specialist from the deploying unit, together with three helpers from the host unit's ECM shop, loaded this pod and two others on an F-4E which was redeploying also. But when they put this ECM pod on the F-4, they didn't reposition the attachment lugs to comply with the lug capability chart in the tech order. As a result, the ECM pod extended aft of the inboard pylon.

When the aircrew preflighted, they didn't notice the problem. It's not in the checklist, but the Dash One warns against letting any store extend aft of the inboard pylon. The aircrew taxied out and took off. When the pilot raised the landing gear, the right main gear door struck the rear of the ECM pod.

The pilot noticed an unsafe symbol on the right main gear and nose gear indicators. He put the gear handle back down; the gear lowered and locked normally. The aircrew checked the circuit breakers and decided to try again. Again the pilot raised the gear; this time only the right main gear showed unsafe. He put the handle back down and the gear again locked down normally. The pilot finally decided to quit fooling around with gear that was down and locked. He left the gear down, burned down some fuel, and landed.

In this case both the air and ground crews overlooked a vital bit of information in the tech data. They learned that there's usually a good reason for those words and charts. It pays us to know what they say.

From Bad to Worse

A three-member load crew was downloading an AGM-78 missile from an F-4G as part of a proficiency evaluation. They had completed uploading without any discrepancies.

Then things turned sour. They reached the point in the downloading checklist that called for positioning the forward missile retaining band, which is attached to the forward missile support. A crewmember who was standing behind the nose cone of the missile tried to raise the forward missile support upright. The support, which is attached to the bottom of the missile casket and is hinged, should have easily rotated aft to its upright position. In this case, however, the casket was slightly offset in azimuth from the missile, causing the support to bind against the side of the missile before it reached its full vertical position.

In order to get more leverage to free the support, the crewmember leaned forward over the missile. At the same time, to keep his balance he raised his left foot off the hangar floor. His foot hit the yaw control of the MJ-4 boom; the MJ-4 table and casket rotated, crushing his hand between the forward missile support and the missile. Another crewmember, seeing what had happened, reached over and moved the yaw control—in the wrong direction. The movement caused the first worker's hand to be crushed even more, until the second crewmember recognized the error and reversed the control, freeing the hand. It took several weeks of treatment and therapy for the hand to recover from the damage.

Stress may have contributed to this mishap. But you'd expect that concern to make them more cautious. The tech order doesn't say exactly how to raise the forward missile support, but it does say to avoid placing your hands between munitions or racks and the lift table. When things have been going badly, it's time to slow down and do things more carefully and deliberately, instead of rushing and turning a bad day into a disaster.

Oops, Wrong Socket

The load crew chief from one crew and the number 2 and 3 members of another crew were combined and dispatched to do a combat turnaround on an F-15 overseas. The crew chief didn't take the time to explain to the others how he did things. When loading an AIM-7 with his own crew, this crew chief delegated the job of seating the umbilical to his number 2 crewmember. But on the crew to which the other two belonged, the crew chief always seated the umbilical himself. So, naturally, no one seated the umbilical.

The crew chief noticed the omission when he checked the missile after loading it: The umbilical was still up. He tried to seat the umbilical without pinning the station or safing the AIM-7. He took a ⅜-inch speed handle and placed it in the missile-unlock socket instead of the umbilical-retract socket. He was a bit distracted by this time; and the sockets are the same size, although 12 inches apart. When he turned the speed handle, the missile rack unlocked, and the missile fell from the aircraft. It glanced off the number 3 crewmember, bounced off the left main tire, and came to rest on the ground. The warhead, rocket motor, two fins, and two wings had to be replaced.

letters

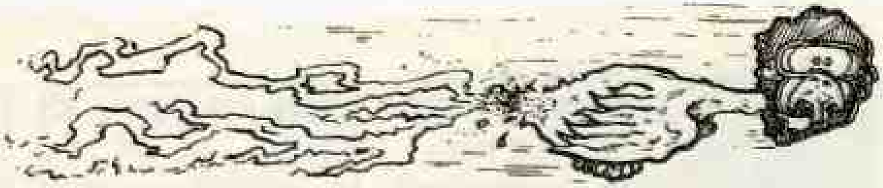
Dear Editor

Here is a photograph of what is left of a 781 aircraft form that was ingested into the intake of one of our F-4C aircraft and ended up lodged at the 11 o'clock position on the #1 engine. This aircraft was cross country when the forms were misplaced and not discovered in the intake until it landed. The only problem noted by the aircrew was the missing aircraft forms. The forms were discovered during the postflight inspection by maintenance personnel. A thorough engine FOD inspection revealed no damage.

As the base FOD prevention officer, I thought that you might be interested in publishing this incident for others to learn from. How lucky can we be?

Robert L. Myer, Maj, Indiana ANG
Base FOD Officer

TAC TALLY



	TAC JAN	TAC THRU 1982	TAC JAN 1981	ANG JAN	ANG THRU 1982	ANG JAN 1981	AFR JAN	AFR THRU 1982	AFR JAN 1981
CLASS A MISHAPS	4	4	2	0	0	2	0	0	0
AIRCREW FATALITIES	4	4	2	0	0	1	0	0	0
TOTAL EJECTIONS	3	3	2	0	0	0	0	0	0
SUCCESSFUL EJECTIONS	3	3	2	0	0	0	0	0	0

TAC's TOP 5 thru JANUARY '82

TAC FTR/RECCE	
class A mishap-free months	
40	1 TFW
39	31 TTW
27	49 TFW
26	355 TTW
19	474 TFW

TAC AIR DEFENSE	
class A mishap-free months	
108	57 FIS
61	5 FIS
58	48 FIS
17	318 FIS
8	87 FIS

TAC-GAINED FTR/RECCE		
class A mishap-free months		
117	188 TFG	(ANG)
109	138 TFG	(ANG)
108	917 TFG	(AFR)
105	116 TFW	(ANG)
95	434 TFW	(AFR)

TAC-GAINED AIR DEFENSE	
class A mishap-free months	
95	102 FIW
91	177 FIG
57	125 FIG
40	119 FIG & 142 FIG
30	144 FIW

TAC/GAINED Other Units		
class A mishap-free months		
150	182 TASG	(ANG)
143	193 ECG	(ANG)
138	26 ADS	
134	110 TASG	(ANG)
130	USAFTAWC	

CLASS A MISHAP COMPARISON RATE 81/80

(BASED ON ACCIDENTS PER 100,000 HOURS FLYING TIME)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
TAC	1982	8.0											
	1981	4.0											
ANG	1982	0.0											
	1981	9.3											
AFR	1982	0.0											
	1981	0.0											

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FLEAGLE
WHEN IRISH EYES ARE SMILING,
SURE IT'S LIKE A MORN IN SPRING.
IN TH' LILT OF IRISH LAUGHTER, YOU CAN HEAR THE ANGELS SING.
HARDISON
WHEN IRISH HEARTS ARE HAPPY,
©STAN HARDISON
ALL TH' WORLD SEEMS BRIGHT AN' GAY.
HERE COMES A BONNIE LASS WHAT'S BEEN TOOK IN BY MY SINGING.
BASH!
SHE GOT SUMPIN' 'GINST ST. PATRICK'S DAY?
NO, JUS' FAKE IRISH TENORS.