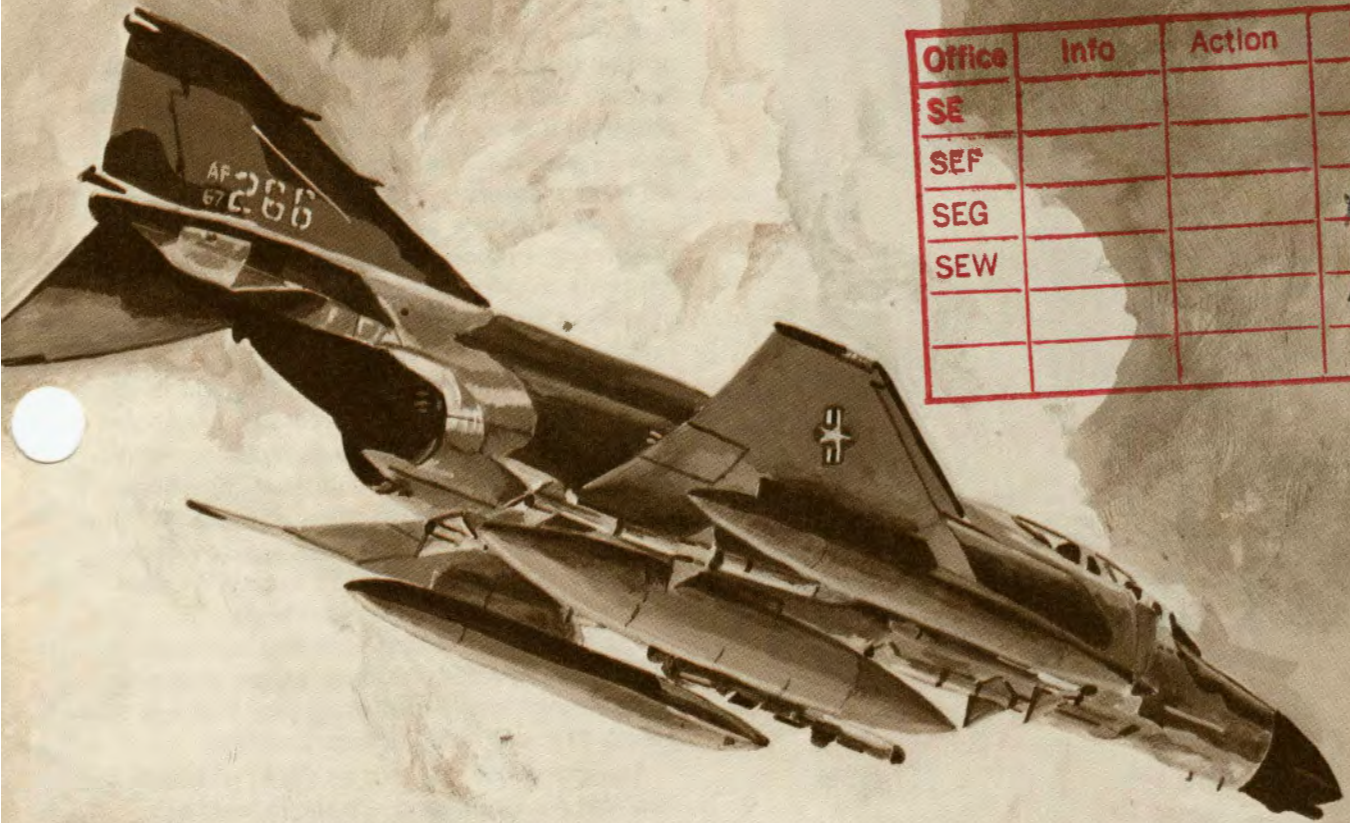


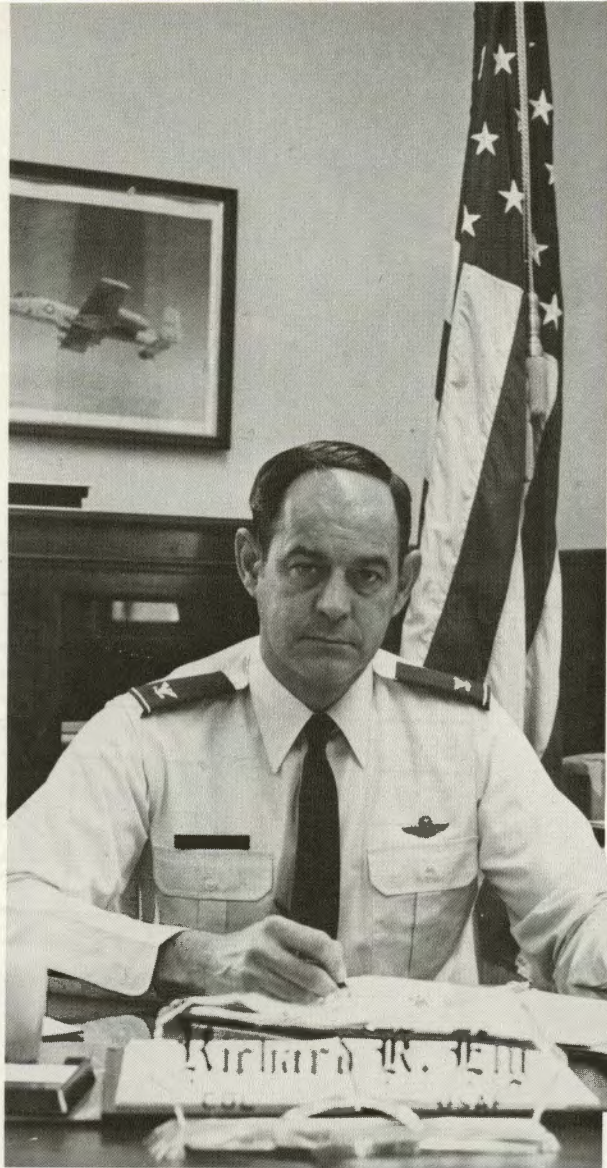
TAC ATTACK

JUNE 1983

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HARDISON



Farewell

ANGLE OF ATTACK

In the last four decades an order-of-magnitude improvement in accident rates and probabilities has been achieved—in fact a 90 percent reduction. However, many constraints preclude a simple brute-force assault on the last 10 percent. Therefore, it is mandatory that we have a safety system/program tailored for high performance and mission accomplishment. I believe Safety has—and will continue to work towards improving the operation and efficiency of TAC and the Air Force.

The backbone of our Safety Program is the insistence that the system be responsive to the conclusions and recommendations which stem from accidents/incidents. Also, the program must not just lock the barn door behind the horses already missing. The corrective system must have a broader scope, to prevent future accidents. These qualities are tested in any accident which occurs later. We have made progress in TAC—not ideal—but progress. There is still plenty of room (left) for improvement.

As I complete my tour as Chief of Safety for Tactical Air Command, I want to welcome aboard Colonel Harold E. Watson as our new Chief of Safety. He arrives with a wealth of experience and will be working hard to continue TAC's progress. However, the real improvement must come from you—the individual, immediate supervisor, and manager. Show your leadership—pick up the ball and run with it!

RICHARD K. ELY, Colonel, USAF
Chief of Safety



**ON THE COVER:
The F-4D**

JUNE 1983

DEPARTMENT OF THE AIR FORCE

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HON VERNE ORR
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COL RICHARD K. ELY
CHIEF OF SAFETY

MAJ JIM MACKIN
EDITOR

STAN HARDISON
ART EDITOR

MARTY DILLER
EDITORIAL
ASSISTANT

SGT JOHN STEELE
STAFF ARTIST

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TACRP 127-1

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F-15 JFS AIRSTARTS:



LESSONS LEARNED

By Capt Paul Q. G. Woodford
43 TFS

F-15 pilots have a good theoretical knowledge of using the jet fuel starter (JFS) airborne—and do their best to keep that knowledge theoretical. During functional check flights (FCF's), however, airstarting the JFS is part of the drill. I haven't had the misfortune to experience a real-world emergency situation that required a JFS airstart; but as an FCF pilot, I've performed plenty of them.

The Dash One tells us the things we *need* to know about JFS airstarts, but maybe not all the things we *ought* to know. This article is meant to supplement the information we already have, as well as to provoke discussion about this vital emergency procedure. One thing my FCF experience has given me is a lot more confidence in my equipment and my reactions now that I've use it a few times.

First, a disclaimer: My purpose is not to discuss the whys, whens, and wheres of using the JFS in the air, although this information is meant to be applied against everyone's when-would-I-try-a-JFS-airstart criteria. Second, a recommendation: For more information, read Pat Henry's article on JFS airstarts in the May 1978 McDonnell Douglas *Product Support Digest*. It is an excellent discussion of the history and development of airstart capability in the F-15, as well as a thorough presentation of the limitations and possible applications of this little life-saver. We all owe a lot to his research, and I'm indebted to him for much of the information in this article.

The Operating Envelope

The JFS operating envelope diagram in the Dash One shows us that the JFS will start almost anywhere below 20,000 feet, at speeds from 0 to 450 KCAS. But within this broad area, there is a smaller area of less-than-optimum performance that runs from a high speed, low-to-medium altitude corner on up to a low-to-medium speed, high altitude corner. The thing to remember is that the JFS has a better chance of starting in this degraded area if the cen-

terline is clean, and that means *no pylon*.

FCFs are normally flown with pylons installed (but fortunately, tankless). On an FCF, it's reasonable to assume that the boss wouldn't see the humor in punching off a centerline pylon just to test the JFS airstart circuitry, so on these missions we shoot for a start well within the JFS envelope: between 250 to 270 KCAS at 10,000 feet or below. The JFS starts just fine with the centerline pylon installed—in this environment. If I needed an emergency JFS airstart *now*, though, I sure wouldn't be wasting time trying to fly into the fat part of the envelope. The best real-world emergency advice is to clean off the centerline pylon before you attempt a JFS airstart.

Here's another thought: Although your JFS will cheerfully start up between 0 and 450 KCAS, your stagnated engine(s) won't be absolutely thrilled starting at less than 200 KCAS. It will probably overtemp, even with the Engine Start Fuel Flow switch held to Low. So if your plan is to use the JFS to motor a cut-off engine, your envelope goes down to no knots, but if you want to use the JFS to restart an engine (or two), your minimum airspeed should be 200 KCAS.

A last envelope gotcha: Up at the high altitude end of the JFS envelope, it's possible for the JFS to start up okay but not be able to develop enough oomph to turn the engine over 12 percent rpm—consequently, no start. In this situation, you may or may not want to disengage the JFS (that depends on lots of variables); but, at any rate, leave it running. You'll be lower soon enough.

Starting the JFS

The reason you have to wait until one engine is below 45 percent rpm before pulling the JFS handle is the same reason you don't have to manually shut the JFS down after the second engine winds up above 50 percent rpm during a normal start. If you're still confused, go to the back of the class.

The second point about pulling the handle is that

F-15 JFS AIRSTARTS: lessons learned

those guys who wrote the Dash One must have been there—you really won't hear, or feel, a thing. The JFS Ready light is your *only* indication of a good JFS airstart.

A third point, and one not fully addressed in the Dash One: Suppose you pull the JFS handle, get a JFS light, but never get a JFS Ready light? It's possible for the JFS to start and then stagnate at sub-idle rpm. If that's the case, you could be sitting there wondering where your little green light is, and getting ready to go for the second bottle, when all the while your JFS is busy sauteeing itself in molten titanium. No green light within 10 seconds? *Turn the JFS switch off.* Now count to ten slowly, turn the JFS switch back on, and try another *first* bottle start. All this presumes, of course, that you checked your JFS Ready light on the ground.

Why try again with the *first* bottle? We all know we don't want to try a two-bottle JFS airstart—the JFS will whiz up so rapidly it'll probably snuff itself out immediately. In the above situation, assuming utility-B pressure was available, the first bottle would have had time to partially recharge. If you'd gone straight to a second-bottle start, you'd have gotten a bottle and then some. In my opinion, you're safer (after rejecting a first-bottle start and experiencing any significant delay—more than several seconds) to dis-

charge the first bottle again before going for the second.

In flight with one engine running, the accumulator(s) will recharge in one to two minutes (utility-B okay); occasionally it'll take up to four minutes before the JFS light goes out. If the JFS Low light stays on, of course, you've lost your emergency brakes (probably pretty low on your immediate-concern list), but if you haven't used both bottles, you still have emergency gear lowering and nosewheel steering.

Engaging the JFS

You can safely engage the JFS to either engine, as long as the rpm is below 30 percent (so the starting shaft doesn't shear). The engagement and rpm rise look and feel just like a normal ground start—most reassuring. Again, those Dash One guys are right on: once the engine steadies out at 26 to 29 percent rpm and you slide the throttle up to mid-range, the restart runs right to the letter and verse. You'll see the rpm rise steadily to 55 percent, while the FTIT wanders some (it'll typically stay wherever it was at start, then rise some, droop some, rise some, etc.). At 55 percent, both the rpm and the FTIT accelerate rapidly to normal. Recycle the EEC, and you're somebody again.

Shutdown: The Last Word

For some unknown (to this pilot) reason, JFS shutdowns in flight are far more dramatic than they are on the ground. You won't have any doubt that something has happened, anyway. As the second engine accelerates through 50 percent rpm, the JFS disengages and shuts down with a pronounced and audible "thump." I guarantee you'll pucker in a heartbeat—your panic-stricken eyes will instantly shift back to the rpm and FTIT gages, looking for *another* stagnation. But if things look normal, then you've just felt the normal JFS "airstop." Take a deep breath. Piece of cake.

Once you've used the system, either in the clutches of a bonafide emergency or in the controlled and more-or-less safe FCF arena, you'll quickly develop a lot of confidence in it. JFS airstarts work, and work pretty well. They have given the F-15 driver a whole new degree of flexibility in a tight spot. All things said and done, however, it is still a system with limitations and a few inherent tricks. It behooves us all to give it plenty of thought against the day we'll need to use it.



AIRCREW OF DISTINCTION



**Captain Robert L. Millican
and
1st Lt Michael I. Angarole
8 TFS, 49 TFW
Holloman AFB, NM**

On 3 March 1983, CAPT ROBERT L. MILLICAN was leading 1ST LT MICHAEL I. ANGAROLE on a two-ship low-level training mission in F-15s. The flight had just begun a tactical turn at about 500 feet above the ground when Lieutenant Angarole's airplane struck a large bird. The F-15 was traveling at 430 knots when the bird hit, shattering a large hole in the front windscreen. Blinded and stunned by the impact, Lieutenant Angarole reacted quickly. He advanced the power to military and began to climb.

Captain Millican had just looked back to check Lieutenant Angarole's position when he heard a muffled distress call from his wingman. Captain Millican saw Lieutenant Angarole in a climb, so he closed in to a chase position on his wingman.

As his leader joined on him, Lieutenant Angarole assessed his situation. He was littered with bird debris and glass. His face and chest were numb from the impact of several large glass fragments; but, as far as he could tell, he wasn't badly injured. Although both engines were operating normally, the airplane was buffeting slightly. A large, jagged section of the windscreen was vibrating in the wind. He lowered his seat all the way down and leaned on the right console to avoid being hit by the jagged glass if it broke loose. Although he was out of the direct wind blast, Lieutenant Angarole had trouble seeing. The wind swirling through the cockpit was drying his eyes.

Captain Millican steered Lieutenant Angarole back toward Holloman AFB and declared an emergency for him. They both decided that a formation landing led by Captain Millican would be best because of Lieutenant Angarole's difficulty seeing through the battered windscreen. As they flew closer to the field, Lieutenant Angarole did a controllability check, dumped fuel, and moved onto Captain Millican's wing for the formation approach. But on short final approach, Captain Millican decided to go around because his wing-

man didn't seem to be in a safe position for the formation landing.

After they went around, they discussed the problem. Lieutenant Angarole's difficulty in flying the formation position seemed to be caused by his awkward posture in the cockpit. He was still leaning on the right console with the seat bottomed out to avoid the wind blast and possible injury from the jagged piece of windscreen glass breaking loose. He decided to raise his seat and fly from a more normal posture.

This time, as the flight approached short final, Lieutenant Angarole's position looked good, so Captain Millican continued to touchdown. When his wingman was on the ground, Captain Millican went around. As he climbed out, he continued to watch his wingman and give corrections to runway centerline. Lieutenant Angarole brought the airplane to a stop on the runway, shut down, and climbed out. His injuries were limited to minor bruises and scrapes.

The exceptional airmanship and teamwork shown by both Captain Millican and Lieutenant Angarole have earned them the Tactical Air Command Aircrew of Distinction Award. ➤

TAC tips

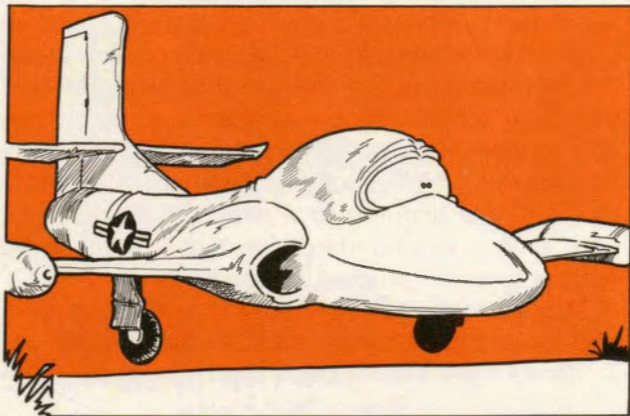
INTEREST ITEMS, &

You Buy 'em Books...

An OA-37 was flying as number 3 in a four-ship when the Master Caution light lit up. The Fuel Gravity and Fuel Low lights on the annunciator panel were also lit. Although the flight had been airborne only 30 minutes, the fuselage fuel quantity gage showed only 200 pounds remaining.

The pilot told his flight leader about the problem, and they turned to head back to the base. The leader suggested pulling the fuel management circuit breaker. The pilot tried that, but he reset the circuit breaker when pulling it didn't seem to do much good. He couldn't find any procedures in the checklist for low fuselage fuel, so he began cycling switches on the fuel panel. In the process he turned on the tip tanks. The fuselage tank quantity stabilized at 150 pounds.

On the recovery the flight got in touch with the supervisor of flying (SOF). He told the pilot to select normal fuel and aux pylon tank and to pull the fuel management circuit breaker. The pilot did so and then made a successful emergency landing at his home station.



Afterwards, the fuel tanks were checked. The in-board pylon tanks were full. The outboard pylon tanks and tip tanks were three-quarters full. The wing tanks were empty.

The pilot had failed to complete his fuel system checks before takeoff, so he had wing fuel selected instead of pylon fuel. The error went undetected during the climb and level-off checks, even though a caution in the Dash One warns that "fuel transfer indications should be checked as soon as possible after takeoff to detect fuel transfer malfunctions."

When the pilot noticed his low fuselage fuel, he couldn't find the correct procedure in the checklist. He was trying to find something listed under "low fuselage fuel quantity"; the procedure he needed was actually called "trapped pylon fuel." That's the checklist the SOF read to him.

This pilot's unit has recommended that the trapped pylon fuel checklist should include a reference to the Fuel Low Level light in the index. Sounds like a good idea to us. But a pilot should be more familiar with where things are in the emergency section of the checklist. Then again, this pilot didn't seem any too familiar with the normal procedures in the checklist. That's how he got in trouble to start with.

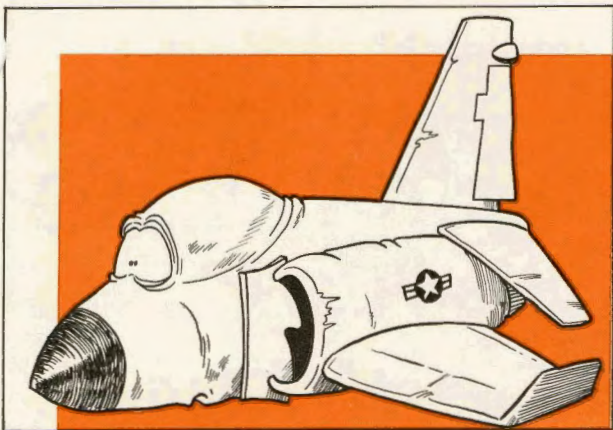
Recheck That Altimeter

Some good headwork by an F-4 aircrew kept a teletype error from trapping them. The F-4 had just finished working with a GCI site and was returning to base. As the GCI site was handing the aircrew off to another GCI site closer to home, the first controller gave them an altimeter setting of 30.23. The aircrew questioned the controller. They had doubts because the altimeter setting at takeoff had been 29.38 and

MISHAPS WITH MORALS, FOR THE TAC AIRCREWMAN

the forecast altimeter was 29.41.

The controller checked with the GCI site that was closer to their home station, and the other GCI site confirmed the 30.23 setting. But the aircrew was still suspicious. Later during their approach, the aircrew received the real altimeter setting, 29.33. The original setting could have made them 900 feet low on their approach. As it was, they simply reset their altimeter and continued the approach.



What happened was that the GCI site near their home field had received the wrong altimeter setting. They received hourly weather reports by teletype, in which only the last three digits are typed in the report, in this case, "023." To the controller, that meant 30.23, which seemed a reasonable altimeter setting. In fact, the weather station had transmitted "933," but it had somehow become garbled on the wire. The farther GCI site received their destination altimeter setting by telephone from the nearer site, so they just repeated the error.

Because the aircrew wasn't satisfied with the altimeter setting they had received, the senior controller at the nearer site decided to check by phone with the weather service. That's when the GCI site first

received the real altimeter setting and discovered the error.

So keep writing the forecast altimeter setting down on a corner of your lineup card. Some day it may come in handy.

F-106 Blows Tire

After finishing a practice scramble mission, an F-106 returned to its base. Approach control turned the F-106 onto final for a precision approach at about 14 miles, number 2 behind a C-141. The F-106 pilot saw the C-141 in front of him and figured spacing wouldn't be any problem. Later in the approach he lost sight of the C-141 because of the scattered clouds, light rain, and fog.

The F-106 pilot concentrated on his approach. He touched down 500 feet past the threshold at about 155 knots and pulled the drag chute handle. About the time he felt the deceleration from the drag chute, he was surprised to see that the C-141 was still on the runway, about 6,000 to 7,000 feet in front of him. Concerned about stopping behind the C-141 on a wet runway, the pilot tapped the wheel brakes while the F-106's nose was still in the air—at about 130 knots. The left main tire blew.

The pilot felt the vibrations and suspected that a tire had blown. He lowered the nose of the airplane to the runway and engaged nosewheel steering. He had no problem staying on the runway as he slowed down, and he turned off on a taxiway about 6,500 feet down the runway. There he shut down and climbed out of the airplane.

The tower controller had thought there was plenty of separation when he cleared the F-106 to land. The separation on final was more than required by the

TAC TIPS

FAA. On the ground the C-141 had slowed down quickly, and the tower controller cleared the C-141 to turn off at the next taxiway, if able. The controller assumed that the C-141 was turning off on a taxiway about two-thirds of the way down the runway, but the C-141 continued straight down the runway to the end. The clearance to the F-106 was based on the assumption that the C-141 was clear.

The part we don't understand is why, when the situation was under control, the pilot of an airplane with a blown tire would turn off on a taxiway instead of stopping straight ahead on the runway. He could have made the situation a whole lot worse.

"Lead Won't Let It Happen"

By Lt Col Gary Lape
TAC Flight Safety

Last year the TAF experienced three mid-air collisions during air combat training, with five fighters and two aircrews lost. Interviews with survivors revealed amazingly similar circumstances and thought processes up to the moment of impact. The flight lead was experienced, the wingman had a high regard for the lead, and the wingman had complete confidence that lead was "in-charge." However, as the fight progressed beyond the ROE, the thought should have occurred: *He's leading—but I should call "Knock it off"*. Unfortunately, in these three instances the call was never made.

Regard for the capabilities and performance of the leader is commendable—his designation as a flight leader deserves that respect. However, when an unsafe situation begins to develop and the lead doesn't immediately recognize it or delays in calling it off, the wingman has the responsibility to take action to preserve flight discipline and flight safety. The wingman isn't preempting the leader in this case, he is making a statement of fact: "I don't like what's developing, and we shouldn't go any further."

You have made a judgment call; lead will know it and appreciate it. Wingmen, keep your heads up and

don't hesitate to speak up. Don't bet your life on overconfidence that "Lead won't let it happen."

Second Guessing

With the luxury of being able to second guess, let's look at a couple of incidents and ask ourselves whether we'd do things differently if we were in charge:

- An F-4 was flying air combat training. While it was in a 3- or 4-G turn at 25,000 feet, the engine overheat warning light illuminated. The pilot reduced power from military to idle, but the overheat light stayed on. The pilot kept the engine running and headed for his home base. His wingman joined up on the way and told him he had substantial damage and was missing segments of his afterburner nozzle. So

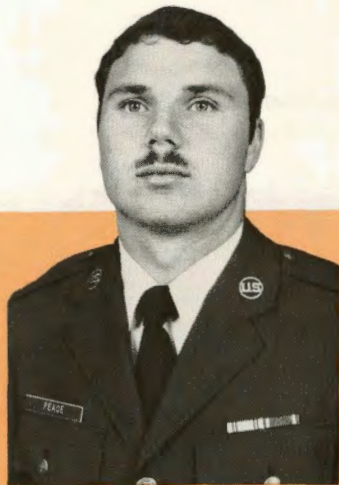


he then shut the engine down and landed single engine.

- An A-7 had landed and slowed down to taxi speed. Suddenly the nosewheel steering pulled hard right. The pilot was able to stop the airplane before it went off the runway. He tried again to taxi with the nosewheel steering, but another hardover resulted. So he taxied in with the nose wheel steering turned off.

If we think about these incidents, we ought to be able to come up with a better way in case it happens to us. See any changes you'd make?

CREW CHIEF SAFETY AWARD



SrA Harvey D. Peace

SRA HARVEY D. PEACE of the 347th Tactical Fighter Wing, Moody Air Force Base, Georgia, is this month's winner of the Crew Chief Safety Award. He is an assistant crew chief with the 68th Aircraft Maintenance Unit in the 347th Aircraft Generation Squadron.

Airman Peace was working on the flight line when the left starter of a nearby F-4E exploded during engine start, engulfing the left engine bay in flames. Airman Peace immediately ran to the aircraft, unwound the extinguisher hose, and started to put out the flames. While he was spraying the burning engine, some of the extinguishing agent fell into his eyes and temporarily disabled him. But his initial actions kept the aircraft from being seriously damaged and stopped the fire from spreading to other aircraft in the area.

Airman Peace's quick response saved this aircraft and other nearby aircraft and prevented injury to others. His actions in the face of danger have earned him the Tactical Air Command Crew Chief Safety Award.

INDIVIDUAL SAFETY AWARD



TSgt Larry Baxter

TSSGT LARRY BAXTER is this month's winner of the Tactical Air Command Individual Safety Award. He is the NCOIC of the Material Storage and Distribution Section in the 820th Engineering Squadron, Heavy Repair (RED HORSE), Nellis Air Force Base, Nevada.

Sergeant Baxter has played a key role in the excellent safety record of his squadron. During mobility exercises, his section is responsible for processing over 100 people and about 500 short tons of cargo in 48 hours. There were six of these exercises in 1982, and his section maintained a perfect ground and driving safety record during all of them.

Sergeant Baxter was also responsible for receiving, holding, and transporting both Class A and Class C munitions. He planned and set up a storage area and established procedures for loading and tying down the munitions when they were transported to the unit mobility center. Sergeant Baxter kept his people aware of the hazards involved. That's why the TAC management effectiveness inspection team found his section to be free of any safety hazards.

Sergeant Baxter has shown that he is an excellent manager who gets the mission done while protecting his people. He has earned the Individual Safety Award.

THE OTHER GUY

By Capt. Michael E. Sams
165 TRS, KY ANG



You are zipping along at 480 knots, somewhere between 500 and 1,000 feet above the ground, concentrating on flying a good tactical position on your leader. Suddenly, an explosion. The fire and overhead lights illuminate simultaneously on the left side of your Phantom. No sweat, you start a zoom away from the rocks, retard the throttle to idle, and check the lights. At the same time, you make a radio call to lead, "Red One, Red Two. I've got a problem." This transmission will soon become the understatement of the year.

The lights stay on, and as you shut it down, the right side decides to give an instant replay. Things are beginning to snowball as the telelight panel lights up like a Christmas tree, then goes dark. As if you didn't have enough to convince you that this is starting to become serious, you discover that the radio and intercom died with that first radio call, along with the rest of the electrical system. Things are becoming more interesting by the second. The aircraft starts an uncommanded roll to the right. You try the stick, it falls limply to the left side of the cockpit, and the rudder pedals don't answer the helm either. When smoke and heat from the engine room start to enter the cockpit, you decide that this is definitely not your day. You signal the Weapon Systems Officer in the back that now would be a good time to watch the rest of the show from the cheap seats. You see the canopy separate, and as your socks start rolling down, you start up the rail. And then you are out in a 350-knot breeze. The opening shock of the chute snaps you abruptly to a halt, and you watch as your

aerospace vehicle does a slow roll into the mountainside.

Those of you who have read this far are probably saying, "Great bar story, but what's the point? This kind of stuff always happens to the other guy, not me." Right? Wrong! I said the same thing until about a year ago when I became the "other guy."

We have all probably wondered at times why we need to go through egress, hanging harness, and survival training so often in a peacetime environment. The answer is simple: the more training we have, the easier it becomes to do the right thing under pressure. Actions become reactions, and that can mean the difference between a successful ejection and rescue, or a statistic.

Things can go from Sierra Hotel to Delta Sierra in seconds. Good old Murphy is always out there, just waiting to make your day. We have all thought about ejection and rescue at one time or another. I would like to mention a few things that you may not have considered.

For instance, did you ever think about the intercom or radio going out when you need it the most? The eject light is a handy option if it is still working. What if both are gone and you have both hands full of an uncooperative jet? This is when the term "situational awareness" starts to take on some meaning. The WSO told me later that he could hear me yelling to eject. He knew things were happening and was ready.

How about having your helmet ripped off as soon as you exit the jet? It can happen even when you



have both the chinstrap and napestrap tight and your visor down. It's pretty disconcerting to say the least.

Not every parachute landing will be in an open, plowed field. Going into trees will get your attention. It got mine. Do you know the correct position for it? Floating down in the chute is no time to learn. I was lucky. I made it all the way to the ground on my landing, but I could have just as easily been hung up in a 100-foot-tall tree, as there were several in the area.

THE OTHER GUY

Do you have the personal lowering device (PLD) installed on your harness? Have you practiced using it?

What do you do with the survival kit when you are going into the trees? I kept mine attached and it prevented several minutes of searching in the brush for it. The WSO punched his kit off one or two hundred feet above the trees and spent some valuable time looking for it. I am not advocating keeping the kit attached. Just try not to punch it off too high above the trees. If you delay getting rid of it, it will be a lot easier to find. The emergency beacon and the survival radio are both in the kit, and you won't be able to phone home, E.T., until you join up with your survival kit.

Once you do get to the kit, shut off the beacon. It will help out by clearing up Guard quickly. You may find the beacon is difficult to remove from the kit. I just left it in the kit and shut it off to expedite things. You can remove it later if you need to. If you are not sure if the beacon is off, it will be perfectly clear when you get the radio out and turn it on.

Everything in the kit is tied in with a lanyard. I had been briefed on this a thousand times, but it was still

a surprise when I picked up the radio and the kit hit me in the knees.

Inventory the items you have in the kit and keep track of them. Only get out the items that you plan to use right away. Things have a way of wandering off easily.

The radio works as advertised. It's definitely line of sight. I'll vouch for that. The WSO was on the other side of a ridge, and I never heard his beacon, or his radio. When you do fire up the radio, don't be surprised if no one talks to you right away. They may be on another frequency trying to advise someone of what happened and getting the rescue effort under way. Give them a few minutes to get things sorted out. They may be as excited as you are, but I doubt it. Also, a beacon could still be on and blocking you. If you have a two-frequency radio, get off Guard as soon as you can. There is usually enough going on there, anyway.

The next objective after you have established contact and confirmed your condition is to help them pinpoint your location on the ground. Your kit has several items that can aid in this.

The mirror is an excellent signal, but what if you



are in heavy trees? I couldn't see Lead's jet, but I could hear it. I aimed my mirror flashes in the direction of the sound, and they picked it up pretty quick.

The flares can be a handy signal too, but use caution when you are in an area that is heavily wooded or that has a lot of brush. There is no sense starting a forest fire after you escape from a burning jet. I don't know about everyone else, but I cannot run through the brush at 480 knots.

Don't sell the whistle short either. It works very well and will save your voice to answer all the questions that are sure to follow.

The life raft is an extremely useful item, even in the woods. It makes a nifty command post to coordinate your rescue from, and when it is turned upside down, it makes a comfy chaise lounge.

Assuming that you have managed to get yourself spotted, stay put unless you are requested to move or the situation on the ground dictates that you move. It makes things a lot easier for the folks trying to rescue you.

Try not to overdo things physically while you are waiting to be rescued. You will have enough adrenaline flowing by the time you hit the ground to wrestle a grizzly, but it can also mask pain and injuries. I was surprised to learn that I had a broken shoulder and some compressed vertebrae. The injuries were discovered several hours later at a hospital.

If you are fortunate enough to get the word that a chopper is on the way, be prepared for anything. Not everyone carries tree penetrators, or even a rope for that matter. You may have to hike to a clearing to get on board. Are you up to speed on vectoring a chopper using the compass? Don't be in the position of trying to learn when you hear the rotor slap in the distance.

Once the chopper does arrive, be prepared to pop a flare if requested, but not until requested. Do you know how all the flares work? Could you use them with one hand? In any case let the chopper boys run the show when they arrive on scene.

Let me address a few pertinent points before we adjourn to celebrate another successful rescue.

Time is an insidious enemy. You can become engrossed in the emergency and not realize that vital seconds are ticking away. Things can progress at an unbelievable rate when you have your hands full. Don't delay an ejection trying to solve a problem

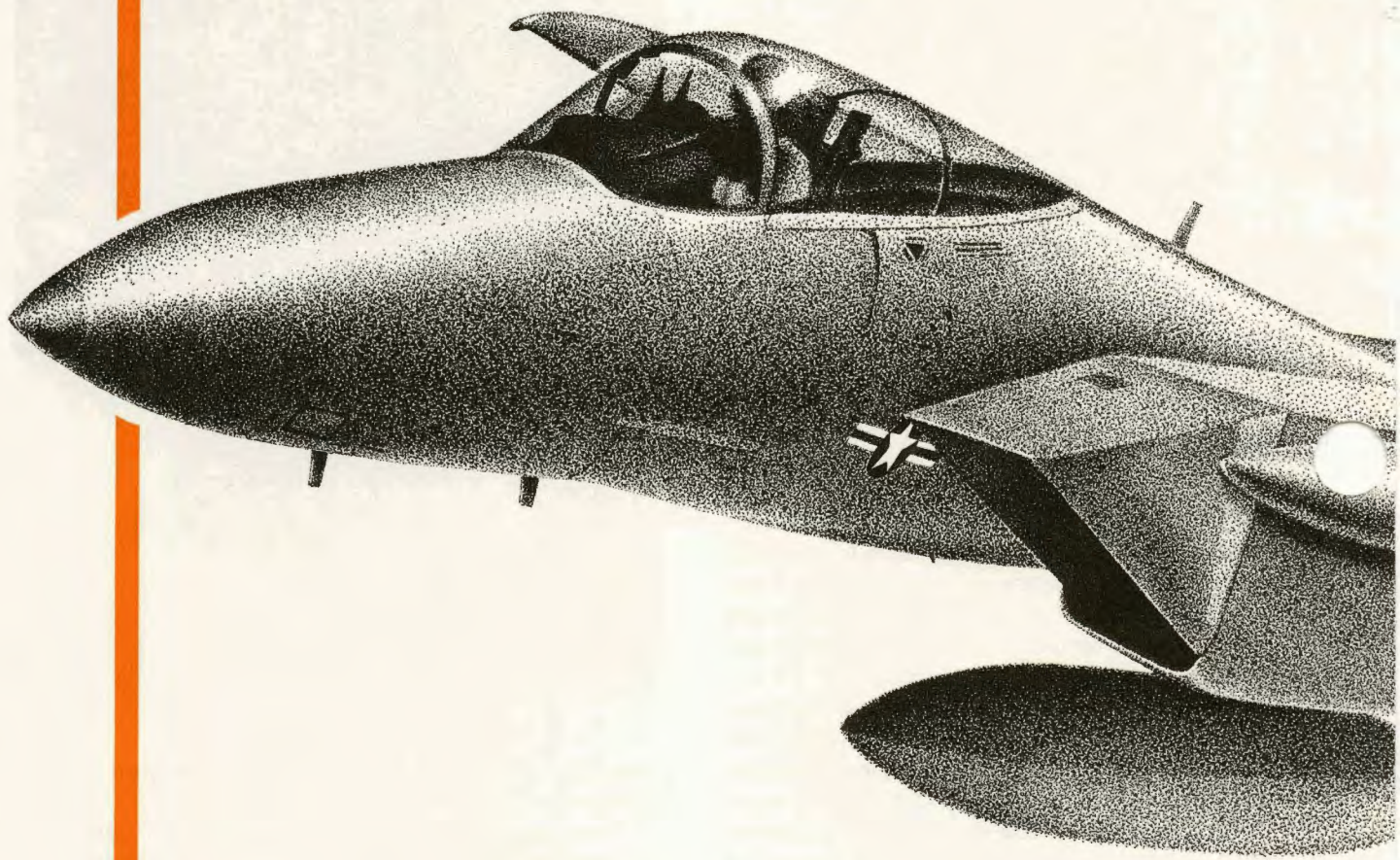


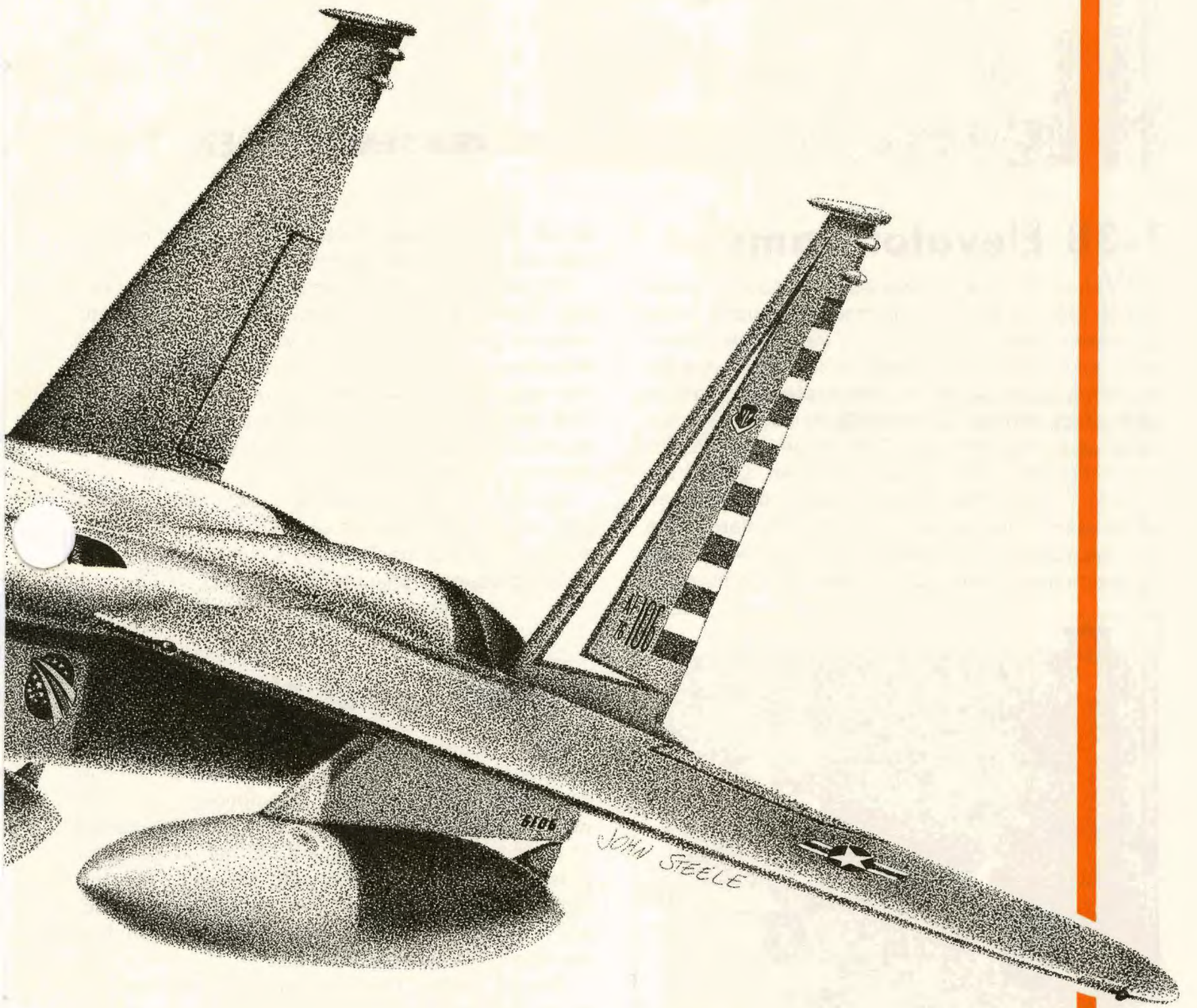
that can't be fixed. Make the decision early enough to leave yourself an out.

Time also seems to go into extreme slow motion once you have exited the aircraft. I was in the chute for just over a minute, and it seemed like ten or fifteen minutes. Do the essential items like getting rid of your mask, inflating your LPU's, making a four line jettison (if appropriate), as soon as you can after the chute opens. The false sense that you have plenty of time can really bite you.

Be flexible. No situation will be like another, so roll with it and be ready to do what the situation dictates. Training can give you the proper basis to begin. Don't just fill those required squares, make each training session count. Get with your life support section and start some meaningful training. Push yourself. Remember, the "other guy" could very well be you tomorrow.

F-15A EAGLE





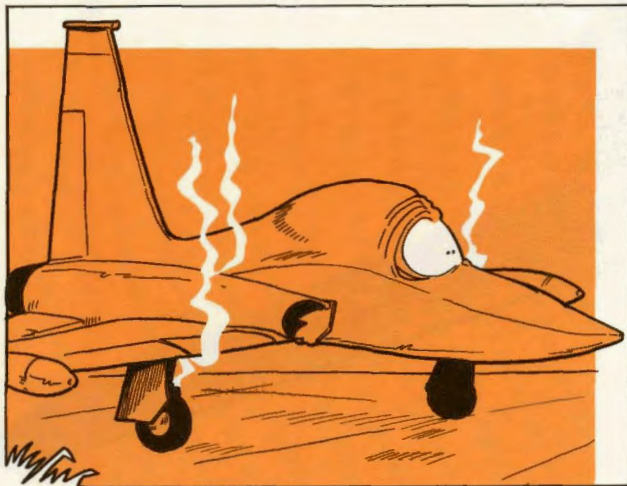
CHOCK TALK

Incidents and

INCIDENTS AND

T-38 Elevator Jams

While a T-38 was pulling 2-3 Gs at 420 knots and 20,000 feet, its elevator jammed. It wouldn't move back more than one-third normal travel. The instructor in the front cockpit moved the stick back very aggressively and broke it free. The aircrew declared an emergency and ran a controllability check. The airplane performed normally. Their return to base was uneventful until just before touchdown. During the flare for landing, the stick jammed short of its aft limits again. This caused an incomplete flare and a firm touchdown. Since the pilot couldn't aerobreak, he overheated the brakes in stopping the airplane.



Other than that, the airplane suffered no damage.

Troubleshooters found a $\frac{7}{8}$ -inch piece of drain stem jammed in the forward stick mechanism. The piece came from a previous removal and replacement of the stick well drain. During this removal the stick well drain stem was not taken out of the stick well housing. Paint accumulation on the drain indicated that the last time the drain was changed was when the airplane was painted—almost two years

earlier. The stem was probably in the stick well for that long before it caused problems.

Concerned about the flight hazard posed by foreign objects in the stick well, this unit decided to X-ray all their airplane's stick wells. They didn't find any other drain stems, but they found several other bits and pieces, like safety wire and small washers. That discovery led the unit to establish a new requirement to X-ray all aircraft stick wells during the 900-hour phase inspection.

Do you wonder whether a foreign object in the stick well could exist for two years in your unit without being found? Maybe there's something you can do to increase the chances it'll be found.

Seven-Level New Guy

An F-4E crew chief found foreign object damage on the first stage compressor of the right engine during postflight inspection. He also noticed that a rivet was missing from the intake about 15 inches forward of the engine. Afterwards, the top half of the compressor case was removed, showing damage throughout the compressor blades that required depot overhaul. Imprints on the compressor matched the type of rivet used in the intake.

The day before, a seven-level sheet metal specialist had installed a rivet in the right engine intake. Although he was a seven-level, the specialist had been assigned to the base for only a month. He was experienced on other aircraft, but he'd never worked on F-4s before. In fact, this was his very first rivet installation on an F-4. It wasn't quite by the book.

As the specialist prepared the rivet hole, he mistook the size drill bit he was using. So after the hole was drilled, the new rivet still didn't fit. He moved the drill around to rout the hole wide enough for the rivet.

INCIDENTALS WITH A MAINTENANCE SLANT

Then he inserted the rivet and locked it down with the rivet gun. He checked the security of the rivet by tapping it with an air hose coupling instead of using a hammer and punch as the tech order requires. The specialist was unaware of a local operating instruction that required him to seal the engine intake, to save the rivet stem for inspection, and to have his work inspected by a sheet metal supervisor. None of those steps were taken.

On the F-4's first flight after the rivet was installed, the rivet came loose and was ingested by the engine. The rivet was not locked down properly be-



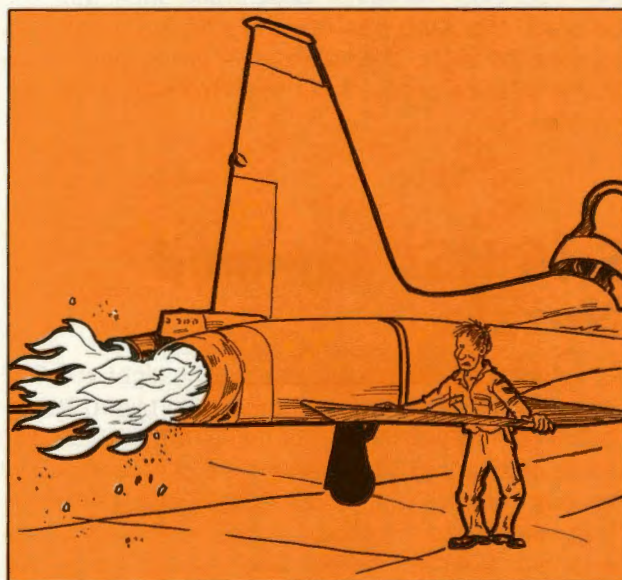
cause the hole was uneven. Normal vibrations in flight worked it loose. A hammer and punch check after installation would probably also have knocked it loose.

All in all, this specialist's first riveting job on an F-4 didn't work out too well. Sure, he was a seven-level; but he was also a new guy. If you were his supervisor, wouldn't you want to check him out before you turned him loose?

Not-So-Safety Vest

On a night shift, a T-38 was being ground run for a leak and operational check of its air conditioning system. A qualified engine run mechanic and a qualified mechanical accessories mechanic were doing the run. They both had been through it many times before.

After all the required prerun checks were done, the engine run mechanic started both engines. When the engines were stabilized at idle, the other man started his leak checks. The job required him to check for air leaks at a panel that is only a foot and a half from the engine intake. He checked the panel on the left side of the airplane, then moved to the right side. While checking the panel on the right side, he felt a concussion that forced him to his knees. Then he felt a burning sensation of the right side of his face. He also happened to see flames coming from the back of the airplane. He ran to get a ladder to



CHOCK TALK

help the engine man get out of the airplane.

The engine run mechanic had heard what he thought was a sudden increase in engine rpm, followed by a loud bang. The right engine temperature quickly increased to 1,200 degrees Celsius. So the engine mechanic shut down both engines and climbed out of the airplane. On the ground, he happened to notice that his co-worker's headset and safety vest were missing.

The headset and vest were found later—ingested in the right engine. The vest was a bulky and loose fitting pullover, normally secured on both sides by velcro tape. When the vest was removed from the engine, the velcro on the right side was still secured, but not on the left. This AMU had been using these vests for about a month, but the two workers involved hadn't used them before because this was their first time on night shift.

What probably happened was the mechanical accessories mechanic moved too close to the right engine intake during his leak check. The left side of the vest came loose and was caught up in the airflow going in the engine. The vest was pulled over his head, taking the headset with it. That's when he felt the concussion and the burning sensation on his face. The vest was ripped off with considerable force, but so quickly he didn't realize what had happened.

Before starting this job the worker had removed his pens, pencil, hat, and other loose articles. He didn't consider the vest a loose article then, but now he does. His AMU has reflective belts on order to replace the vests. Maybe we all ought to take a look at the safety equipment we use. Some of it may be unsafe.

F-16 Has Jammed Nozzle

During some hard maneuvering in flight, the F-16 pilot found that his afterburner wouldn't light. The afterburner had worked fine earlier in the mission. The pilots of the other airplanes in his flight reported that he was trailing a white stream that looked like a contrail. He moved the throttle back to military power and then tried afterburner again. Again he got the

thick vapor trail but no afterburner light.

The pilot moved the throttle out of AB and back to mil again. He checked his engine instruments: rpm



was 83 percent, nozzle position was 100 percent, temperature was 700 degrees, and fuel flow was 3,000 pounds per hour. No warning or caution lights were lit.

Under those conditions the airplane was unable to maintain level flight at 14,000 feet and 210 knots. As the pilot headed for his home field, he cycled the throttle from mil to idle and back to mil. The rpm would go no higher than 83 percent. He placed the throttle in mid-range, then turned off the electronic engine control. Operating under the unified fuel control, the engine rpm increased to 88 percent, and the inlet temperature rose to 840 degrees; but the nozzle remained at 100 percent open. With the slight increase in thrust, the pilot was even able to climb 2,000 feet. He returned to his base and flew a flame-out pattern, just in case, and landed without further problems.

Later, during maintenance investigation, a bridge clamp was found jammed inside the augmentor hardware between a main connector link from the synchronizing ring and an external nozzle segment. The clamp was badly deformed; it had been jammed in place while the nozzle was operating. But the engine wasn't missing any bridge clamps.

Before this sortie someone had done undocumented work on the nozzle. Apparently, that person had discovered a divergent nozzle seal cracked out of limits. The seal was replaced, requiring removal and reinstallation of at least two bridge clamps. But the maintenance work was never written in the aircraft forms. There was no follow-up, so the parts used weren't accounted for.

This attempted shortcut didn't just cause paperwork and bookkeeping problems—it almost cost an airplane. Proper documentation is no small thing. ➤

WEAPONS SAFETY AWARD OF THE QUARTER



Sgt Edward F. Loughrey, Jr.

SGT EDWARD F. LOUGHREY, JR., is the recipient of the Tactical Air Command Weapons Safety Award of the Quarter for the first quarter of 1983. He is a member of the 58th Aircraft Generation Squadron, 58th Tactical Training Wing, Luke Air Force Base, Arizona.

Sergeant Loughrey was instrumental in establishing a safe working environment during the 58th TTW's transition from F-4C to F-16 aircraft. His preplanning and coordination with other F-16 units helped identify risk areas requiring emphasis during weapons training. He used this information in establishing master job proficiency guides and AF Forms 797 for the training of all weapons personnel.

Sergeant Loughrey assisted the load standardization crew in establishing policies and procedures which promoted a safe and efficient load crew training program. His efforts are highlighted by the fact that the 58th TTW has not had an explosives incident for 650 consecutive flying days.

Sergeant Loughrey's enthusiasm and initiative have significantly contributed to weapons safety and have earned him the Weapons Safety Award of the Quarter.

GROUND QUARTERLY AWARD



TSgt Robert J. Connally

TSGT ROBERT J. CONNALLY is the recipient of the Tactical Air Command Ground Safety Award of the Quarter for the first quarter of 1983. He is the NCOIC of the Biomedical Equipment Repair Section, USAF Hospital, George Air Force Base, California.

Under Sergeant Connally's expert guidance, his section has taken actions to detect and repair many safety deficiencies in the electrical and electronic systems within the hospital.

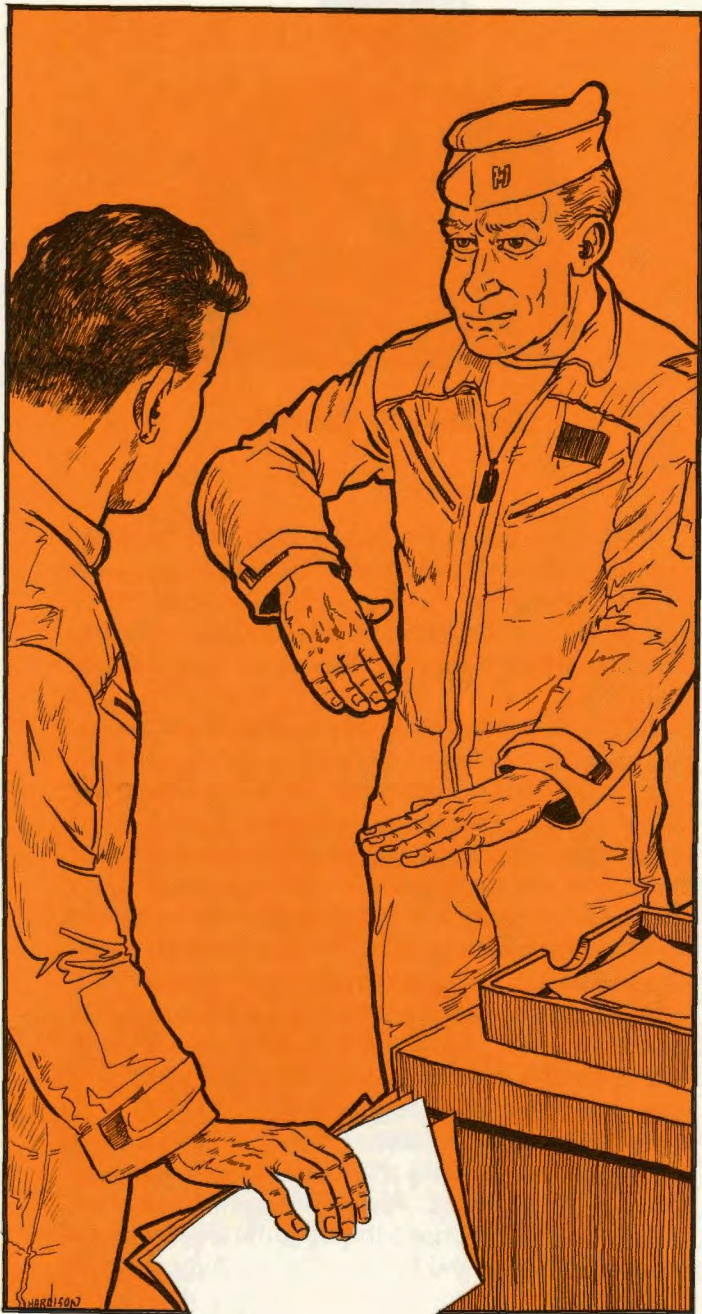
Sergeant Connally found that the whirlpool baths did not have ground fault interrupters, so he installed them. He initiated corrective action to filter the waste gases from the ethylene oxide sterilizers. He identified over 200 defective or inappropriate duplex outlets within the hospital complex, and he located deficiencies in the plans for the electrical distribution system of a new addition to the hospital.

Sergeant Connally has shown that he is willing and eager to do more than what is necessary to correct deficiencies. His enthusiasm, initiative, and dedication to make the hospital a safer place have earned him the Ground Safety Award of the Quarter.

We have forty million reasons for failure,
but not a single excuse.

—Kipling

THE FIGHTER PILOT'S



The subject is by no means new. However, it is rarely addressed in briefings, debriefings, instructor or flight lead upgrade, and during those discussions among fighter pilots that generate flailing hands. The subject is most often called *ego*—or, more precisely, the striving for and maintenance of high self-esteem, or self-concept.

There are few vocations which generate the measured and imagined competition that is the fighter pilot's. Whether high self-esteem begets confidence or vice-versa is academic. But the fighter pilot without either is bound for other jobs if his supervisors are astute. He is also a prime candidate for a "mort" at the first merge when his adversaries become real. What effect does this have on accident potential?

An operational fighter pilot has had a series of recent successes to be among us. He has had previous experience in other fighters, or he has completed fighter lead-in training, RTU, and local upgrade. We may assume that the operational pilot has attained high self-esteem through the rigorous route to a fighter cockpit. Now one of us, he must maintain that self-esteem as he conceives it, and as it is related to him by his group, supervisors, and peers.

While a high self-concept is a given with fighter pilots, two different types of achievers can be recognized. One type, which displays a rather quiet self-confidence, has internalized this need and is closer to actualization. (He is usually seen in the arming area with his sleeves rolled down and gloves on.) The second type, still needing outward confirmation of superiority, relies more on concrete evidence and frequent feedback. (You guessed it: no gloves and sleeves rolled up in the arming area.)

No doubt, being on the receiving end of a tracking gun shot is the most demeaning and distasteful blow to a fighter pilot in the air-to-air arena. Conversely, nothing is more exhilarating than being the donor. This competitive spirit is necessary, varies in degree and personalities, and carries throughout all the maneuvers that we accomplish. But occasionally we tend to lose our sense of priorities for a long enough instant to enter an untenable predicament. To deny

EGO

By Maj Earle B. Combs III
18 TFW/DOV

this is to confirm you are not an active fighter pilot and that ejections are never delayed in an attempt to recover. How do we avoid becoming so engrossed and focused that we lose our perspective? Further, how do supervisors ferret out and channel the energies and needs of those among us who feel the more urgent need for confirmation?

A possible safety valve might be to expand the arena in which we judge the success of a fighter pilot. Each supervisor, instructor, flight lead, and wingman must be aware of the scope of this arena in order to reinforce its worth. This is quite a tall order and I have no corner on answers; however, every wing is brimming with dynamic supervisors and leaders who may point our way. One concept which works is to instill a higher degree of team orientation between the competitors of our organization. (In the Little League it is known as sportsmanship.) The learning objectives of the mission and mission accomplishment are rewarding when fully understood. Self-improvement through a structured scenario and further improvement of the other players through constructive critique should be a recognized goal. When those parameters are met, let us not continue to joust for honor or in order to deal an excessive dose of chagrin to our teammate.

Gratification can be realized through becoming a good teacher. Imparting good instruction and helping a teammate along should be made more rewarding than "keeping the new guy in his place." Some instructor pilots get a great deal of satisfaction taking a wingman up to a point which enables him to "gun the IP's brains out." The fact that the wingy used some of the IP's knowledge that was worthwhile is gratifying. We should highlight those who appear to have like attitudes in hope that it will spread. Perhaps incentives can be initiated to recognize those individuals.

Flight leaders are the main source of instruction in the wing. They are the nurturers of the "new guy" after an IP has stamped him certified, and the flight leads have tremendous impact of the mind-set of



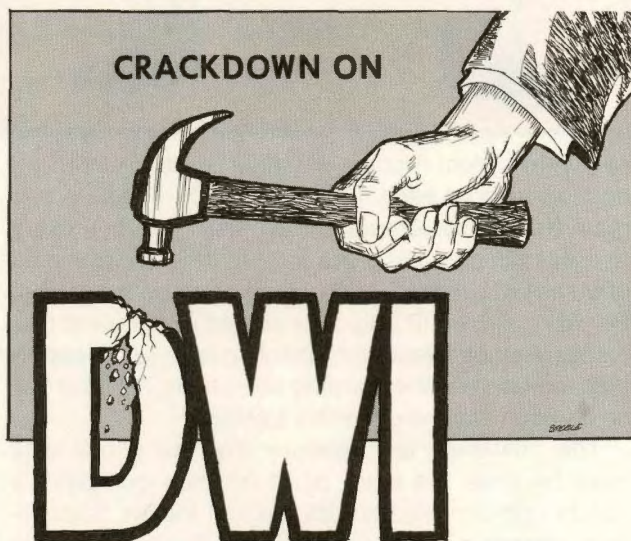
next year's front runners. Positive feedback from supervisors about each individual's progress as a flier may reduce the temptation for that individual to try to prove himself and press too far. This applies to all of us as we progress through all upgrade programs. For example, an IP upgrader should understand that his supervisor placed him there to spread his expertise and channel the learning objectives, not to prove he can gun anyone under his tutelage.

The challenge is to ensure that our pilots, who have become the best, don't let their competitive nature and cockiness press the test too far. Supervisors cannot be in every cockpit. Each man must have been groomed to make the correct and rational decision when the time comes. He must understand that it is considered normal to occasionally "bite the bullet" and that tomorrow is another day. When he swallows a little pride, he should be even prouder because he made a good decision. We all must understand our motivations and recognize and react to our limitations.

DOWN TO EARTH

DWI — America Will No Longer Tolerate It

“A national consensus is emerging. . . the message is clear, and the momentum is building. The American people will no longer tolerate drunk or drugged driving.” That message from Air Force Chief of Staff General Charles Gabriel to senior Air Force commanders reflects the renewed “get tough” policies of the Department of Defense and the Air Force aimed at those who get high and drive.



The Air Force established a tough driving-while-intoxicated program in the mid-1970s which reduced the Air Force DWI death rate from more than 100 per year to less than 50. But statistics show that rate is again on the rise.

Think of it this way: according to a headquarters Air Force letter, statistics show the life expectancy of every age group in America has improved over the

last 75 years—with the exception of one. Young Americans, especially young males between the ages of 15 and 24, have a higher death rate now than 20 years ago. Drunk or drugged driving is a significant contributor.

Or this way: “Drunk driving, not cancer or heart disease, is the leading cause of death in the military,” said Secretary of Defense Caspar Weinberger last November in a memorandum to the secretaries of the Army, Navy and Air Force.

Or especially this way: the chief of safety for TAC said that in 1982, 24 people in TAC died in alcohol-related vehicle accidents and an additional 102 people were injured in other alcohol-related accidents.

In light of those statistics, the “get tough” policy guidance of DOD and Air Force, and a crack-down in civilian communities, TAC is strengthening an already tough campaign against those who drink and drive. TAC security police have announced a goal of a 10-percent increase in DWI apprehensions per year at TAC bases. Police both on patrol and on guard at the gate are getting even more training in identifying drunk drivers and will be even more diligent than before in apprehending them.

And getting caught won't mean just a “slap on the wrist.” TAC staff judge advocates will be pressing for disciplinary action. They'll be encouraging commanders to impose appropriate punishment. Drunk drivers can also expect a one-year revocation of their base driving privileges. And they will risk serious long-term damage to their Air Force careers. Getting caught off-base won't be any better. Most states are enacting tough new DWI laws and prosecutors are seeking maximum punishment. In addition to civilian prosecution, members of the Air Force will face action by the Air Force, even up to involuntary separation from the service.

Through public awareness, education, strict enforcement, and a stiff conviction rate, TAC officials

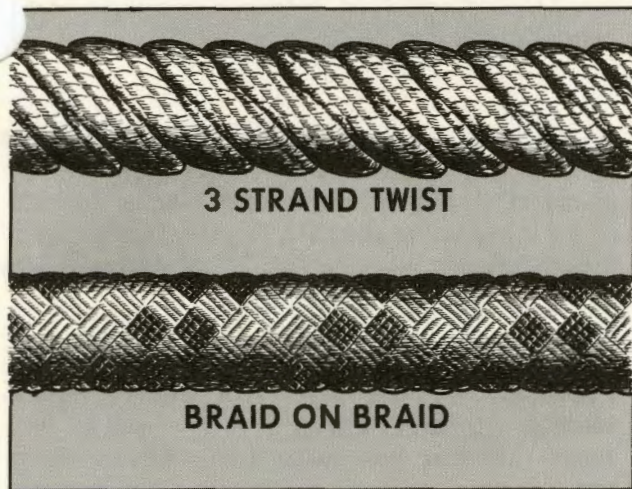


are aiming at one thing—to simply make drinking and driving a socially unacceptable thing to do.

—By SSgt Jim Borup
TAC News Service

Know Your Boat Rope

Nylon rope is good for anchor and dock lines because of its stretch and strength. But nylon stiff-



ens after repeatedly being soaked and dried, and ultraviolet rays and embedded dirt can also weaken it. Washing it occasionally in luke warm fresh water and storing it out of the sun will prolong its life. If it looks fuzzy, it's time to replace it. But don't throw it away—it's good to use as a spare.

Kelvar is the least stretchy rope; it's expensive, and tends to break.

Dacron stretches less than nylon, so it's good for sailboat halyards (tackles used for lowering and hoisting) and sheets (controls the angle of the sail). Dacron is more durable than nylon and doesn't be-

come stiff. But keeping it clean and out of the weather whenever possible will help it last longer.

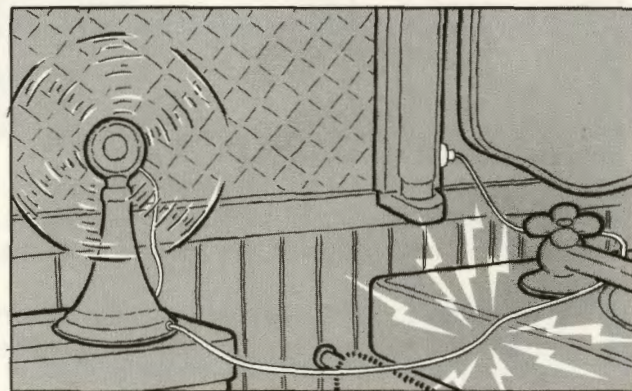
Polypropylene floats so it's less likely to get into the prop. It's good to use for water skiing or towing a dinghy. It stretches too much to use as a dock or anchor line.

All rope is either braided or twisted. Braided rope is stronger, more flexible, and easier on the hands than twist rope. However, braided rope costs more and tends to snag.

Keeping Cool

A portable electric fan can help you breeze through summer heat waves. But be sure your fan has been approved by a testing laboratory, like Underwriters Laboratories, and be sure to use these safe practices:

- Place the fan and cord on a stable, level surface, out of the general traffic pattern.
- Don't use a fan near open flames or where combustibles could be blown toward a heat source, such as near the kitchen stove.
- Fans are out of place in bathrooms or other



DOWN TO EARTH

damp areas. You could get a hefty electrical shock.

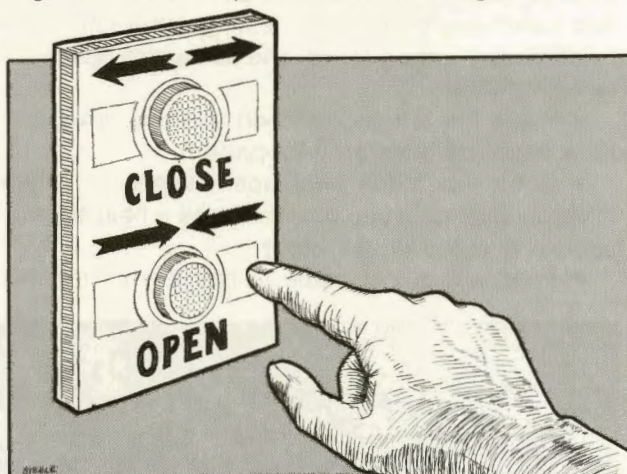
- Don't try to move or start a fan in the dark.
- Watch children closely and make sure they're not playing around or near a running fan.
- Follow the manufacturer's safety and operating instructions.

Insure the fan has an effective guard to prevent fingers from touching the blades.

A Tight Squeeze

A sergeant was attending a canopy rigging class when the instructor asked him to get a high-pressure servicing cart. He started for the cart and instead of using a side door or personnel access door he decided to go between two individually powered sliding hangar doors that were open about a foot. That wasn't wide enough for the sergeant to walk through, so standing between the doors he pushed the "open" button to open one of the doors. The door didn't open, it closed and the sergeant was squeezed between them. He wasn't killed, but he did receive injuries to his chest and internal organs.

Several things were wrong here. The sergeant pushed the wrong button. He should have pushed "close" to move the doors farther apart. The markings on the switch panel were confusing because of



their location on the doors, and arrows showing the direction that the doors will travel weren't marked on the front and back sides of the doors and on the floor.

But why should you have to push a "close" button to open a door? And why stand where you could be crushed if you hit the wrong button? ➤



Thunderstorms. Each year about 200 people are killed by lightning. When a storm strikes, find shelter and make sure you're not the highest object in the area. You don't want to be on a golf course; in a boat; swimming; under isolated trees; near wire fences, overhead wires, or towers; or riding a horse, bike, or farm machine.

Boating Accidents. According to the Coast Guard's latest accident statistics, the single most frequent cause of boating accidents each year is collision, either with another boat or a fixed or floating object. In fact, last year there were 2,374 collisions resulting in 149 deaths and 1,274 injuries.

Tornados. A tornado *watch* is an alert; a tornado *warning* means seek shelter. If you have to seek shelter at home, stay away from windows, doors, and outside walls, and don't stay in a mobile home. Away from home, avoid buildings with wide-span roofs. And if you're caught outside, lie flat in a ditch and protect your head. Don't stay in a car.

Home Escape Ladders. How would your family escape a fire if they were on the second or third floor? Escape ladders, of course. But not all of them make for a quick and easy escape. Look for a ladder with standoffs at every rung. You can't get a good toehold if the escape ladder has none or too few standoffs because the ladder will be flush against the house.

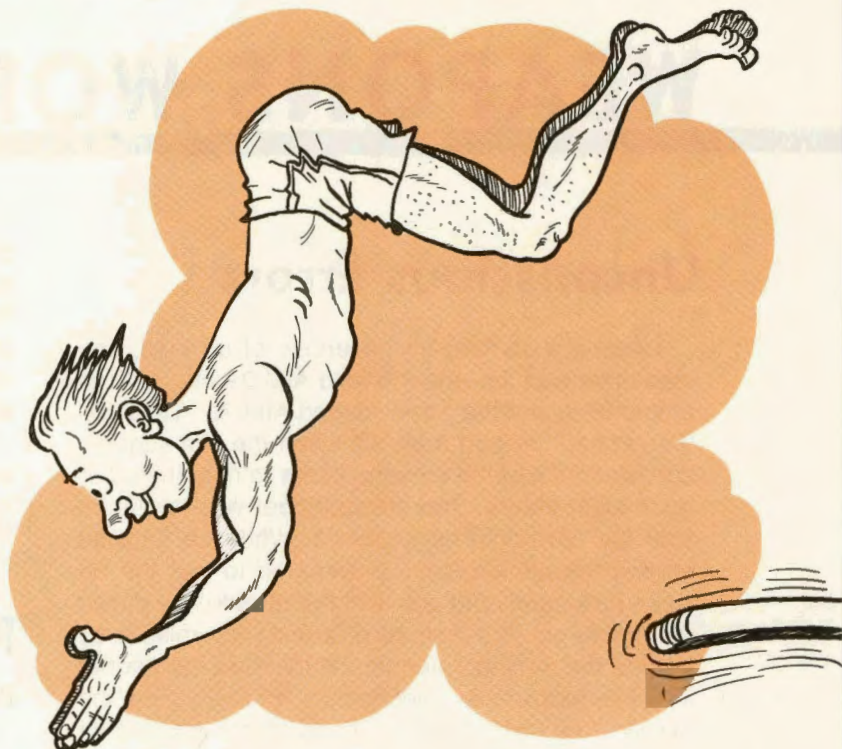
By Marty Diller

DIVING: Don't Risk an Injury

An individual was at a party one evening where he and several others decided to go swimming in an indoor pool. After swimming for awhile, he decided to dive off the side and "torpedo" the length of the pool. But instead of diving into the deep end of the pool, he dove into the shallow end and hit his head on the bottom. He floated to the top and was helped out of the pool. He fractured a vertebra and is now paralyzed from the chest down.

At least 500 people a year are injured diving, and about half of those injuries result in permanent disability. Most injuries are to the neck. Some injuries are just sprains that cause numbness which disappears in a few hours. But the more serious injuries result in irreversible paralysis. You don't have to be moving very fast through the water to receive a serious injury. All it takes is your hands being in the wrong position or slipping, and your head rams into the bottom. When your head hits the bottom, the rest of your body keeps going, compressing the vertebrae. Here's what you can do to make diving safer.

- Use a flat or racing dive style and as soon as your hands hit the water, start steering up. And make a splash. That slows you down after hitting the water.
- Never dive or swim alone. If you receive an injury, whether serious or not, you might not be able to get out of the water on your own. Drowning is permanent; your injury might not be.
- If you help someone with a suspected injury out of the



water, don't bend the person's head back to help him float. Just support the head and neck and keep the nose and mouth clear of water.

- Don't dive into the water after drinking alcohol. You know what happens when you drink and drive, so don't drink and dive.
- Always check out any water before a dive. This means a swimming pool as well as a natural body of water. Get in the water—don't dive in—and see how deep it is and if there is anything dangerous under the water that you might hit.
- Don't count on pool depth markings. The area marked 9 feet

might be a very narrow part of the pool, and most divers tend to overshoot the deep area.

- Never dive into above-ground pools. Chances of hitting the bottom are higher than they are for below-ground pools.
- Check the spring of a diving board before you use it. Too much spring could double the momentum of your dive.
- Keep the bottom of a pool free of algae. Algae is slippery and a diver's arms and hands could slip on it exposing the head for impact.
- Never dive where there's a "No Diving" sign. It's not worth the risk finding out why it's there.

WEAPONS WORDS

Unconscious Errors

During a combat turn exercise of an F-15, one load crew was assigned to load AIM-9s and 20-mm ammo while another crew loaded AIM-7s. The AIM-9 crew had finished their job when the line supervisor asked one of the crewmembers to help the other team load AIM-7s. The crewmember was told to install the cartridges in station 3. When he finished carting the station, he was directed to pull the release lock safety pin and arm the missile. He pulled the safety pin; but instead of arming the missile by turning the arming T-handle, he inserted his ratchet into the lock/unlock mechanism and released the missile. The missile fell, bounced off his leg, and hit the ground.



Except for a bruise on the crewmember's leg, no one was hurt. But the missile didn't fare so well. It suffered \$10,000 worth of damage.

Although he hadn't originally been scheduled for the AIM-7 job, the crewmember was qualified, but he was not very experienced. The pressure of the exer-

cise had generated a high sense of urgency. That urgency, combined with the out-of-the-ordinary work flow, caused a breakdown in his habit pattern. He unconsciously substituted the motion of rotating the release lock with his ratchet for the desired motion of turning the arming T-handle.

The only way we can avoid these *unconscious* errors is to ensure that our *conscious* mind is thinking about what we're doing.

Pass The Word

By 1st Lt Gary L. Hartle
USAFTAWC/TXMG

The safety man pulled on his fatigues for the second time that night. "This just can't be happening; I'm really still asleep and dreaming." The freezing night air and swirl of snow brought shocking realization that the phone call from the command post was no fantasy. Only four hours ago he had been roused from sleep in the same manner.

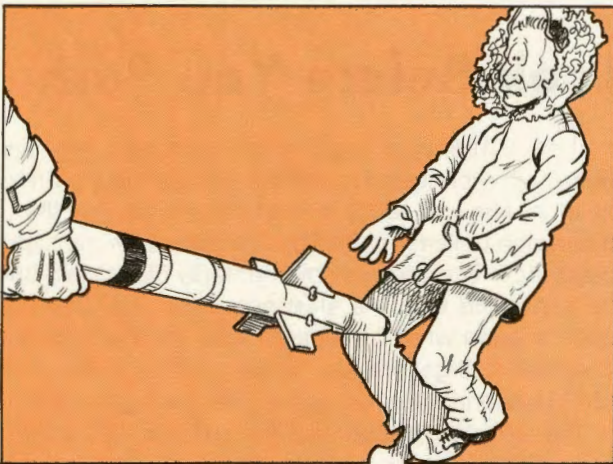
Walking into the line delivery dispatch office, the weapon safety technician studied the same perplexed faces he had earlier interviewed. There sat the squadron commander, obviously suppressing explosive emotions. Next to him was the same night shift supervisor who earlier had cordially greeted him with a wisecrack. This time the silence screamed at him.

He saw the two faces of Line D crewmembers smothered in thick buttoned parkas even though the room was hot. Pressure of the situation forced their necks to retreat within their coats' bulky domain. Into this solemn scene walked the two other crewmembers who earlier had described how they mishandled an AIM-9 missile, rendering it useless. Then



faces showed the stress of being placed on display once again during this seemingly endless night.

On this second incident as in the first one, two men had been dispatched to upload a captive AIM-9 missile from a "Christmas Tree" storage stand to an MHU-12 trailer for delivery to the flight line. A simple task when correctly attempted. Painfully expensive when rushed, and unsupervised. The Sidewinder, like its namesake, does not tolerate mishandling; any drop negates its intended use. The crewmember cradling the guidance and control end of the missile had not attempted to clear away any of the obstructions. Why not just sidestep and guide around them? Cold and hurried, the airman just about begged for Murphy to intervene, and he was not disappointed. A miscalculated step dislodged the airman's grip, and the nose end was suddenly without support. The thick, tooled glass of the radome shattered on impact; the seeker rasped against the floor of the storage structure.



Fear that the description of this incident would be similar to the one recorded earlier was confirmed by the *deja vu* details being related. Safety reports itemize tasks, involvement, training, conditions, actions,

causes, and damage whenever an incident occurs. These two mishaps could have been carbon copies for reporting, except for the time and personnel involved.

The irony of this story is in the narrative on both accident reports. They are identical. No one learned anything.

In the same structure, on the same night, under the same supervisor and exactly the same instructions, the second missile became a victim just three inches from where the first had fallen. As with all accidents, hindsight produces marvelous revelations about steps leading to thin ice. It doesn't take much analysis to decide the first mishap was unfortunate—the second, ridiculous.

Pass the word.

Handle With Care

The F-4E was leading a two-ship. The leader began his takeoff, and Two rolled 10 seconds behind him. As the lead F-4 lifted off, all three external fuel tanks jettisoned. The wingman steered his F-4 to the left edge of the runway to avoid the flames and debris from the exploding tanks. Both airplanes avoided damage and diverted to another airfield.

The jettison of the fuel tanks was due to the external stores emergency release switch—the "panic button"—hanging up on a dent in the switch guard. It would have taken a hard blow or prying on the guard to cause the dent. We don't know when that occurred. But what probably happened in this mishap is that the defective panic button hung up internally on the dent in the switch guard after the aircraft was run through a jettison check. The contact may have been intermittent, allowing for a good stray voltage check. But when the airplane broke ground, the con-

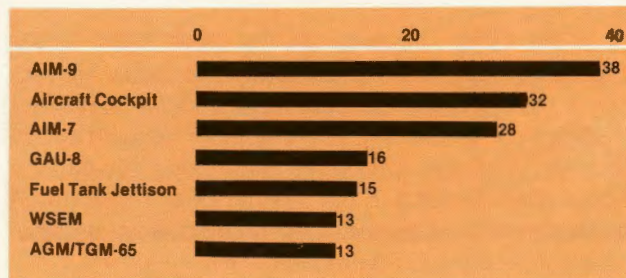
WEAPONS WORDS

tacts were closed. Once the weight was off the gear, the circuit was completed; the tanks jettisoned.

Electrical switches don't take well to manhandling or "brogan fixes." They need to be treated with care. Any dents or damage should attract the attention of workers, supervisors, and aircrew members; and the damage should be investigated. Our wingmen don't need surprises like having to dodge exploding tanks on takeoff.

Missiles Lead Mishaps

Class C Weapons Mishaps

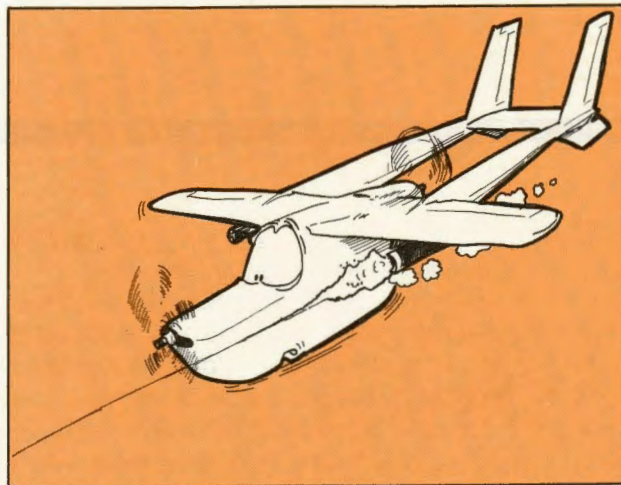


The bar graph shown here indicates the seven most common types of weapons mishaps in TAC in 1982. Notice that four of the seven leaders are missiles. The leading cause of missile incidents is mishandling during manual operations. Since that's the area where we do worst, it seems reasonable that missile handling is also the area in which we can make our greatest progress. Any suggestions?

In The Turn Or On Final

An O-2 was working on an Army range with a ground party getting forward air control training. The O-2 pilot had fired nine white phosphorus rockets at various targets on the range. On this pass the pilot turned on the Master Arm switch as he began turning final. Just then, he received a radio call from the ground party. With the airplane nose slightly above the horizon in the turn, the pilot tried to answer the call by pressing the radio transmit switch. He hit the rocket trigger button instead, and a rocket fired. For-

tunately, it hit harmlessly on government property away from the ground troops.



Hitting the trigger instead of the radio switch is an easy enough error to make in an O-2; the switches are near each other on the left side of the left yoke. The Skymaster wasn't really designed for delivering ordnance, so the human engineering in the switch placement is less than optimum. That's why the directives tell the pilot not to turn on the Master Arm until the airplane is on final approach. As this incident shows, *in the turn to final* is not the same thing as *on final*.

Look Before You Push

The F-105 pilot was in the cockpit doing his before-start checklist items. He signaled to the crew chief that he was ready to start the engine. Just then, clearance delivery called on the radio with his flight clearance. The pilot was momentarily distracted, but he continued with the start sequence. He reached over to push what he thought was the start button. The two 450-gallon fuel tanks and the centerline MER jettisoned. He had pushed the wrong button.

The air start button and the external stores jettison button are somewhat similar and are on the same side of the cockpit. But there are enough differences that if the pilot's mind—and his eyes—had been on what he was doing, he wouldn't have hit the wrong button.

TAC TALLY



CLASS A MISHAPS
AIRCREW FATALITIES
TOTAL EJECTIONS
SUCCESSFUL EJECTIONS

TAC		
APR	THRU APR	
	1983	1982
3	9	12
1	4	8
2	4	11
1	3	9

ANG		
APR	THRU APR	
	1983	1982
1	4	3
0	3	2
1	4	2
1	1	1

AFR		
APR	THRU APR	
	1983	1982
0	0	0
0	0	0
0	0	0
0	0	0

TAC'S TOP 5 thru APRIL '83



TAC FTR/RECCE	
class A mishap-free months	
42	49 TFW
41	355 TFW
29	354 TFW
24	67 TRW
24	363 TFW

TAC AIR DEFENSE	
class A mishap-free months	
123	57 FIS
76	5 FIS
73	48 FIS
32	318 FIS
23	87 FIS

TAC-GAINED FTR/RECCE	
class A mishap-free months	
132	188 TFG (ANG)
124	138 TFG (ANG)
123	917 TFG (AFR)
120	116 TFW (ANG)
110	434 TFW (AFR)

TAC-GAINED AIR DEFENSE	
class A mishap-free months	
110	102 FIW
106	177 FIG
72	125 FIG
55	119 FIG & 142 FIG
42	120 FIG

TAC/GAINED Other Units	
class A mishap-free months	
165	182 TASG (ANG)
149	110 TASG (ANG)
145	USAF TAWC
137	84 FITS
133	105 TASG (ANG)

CLASS A MISHAP COMPARISON RATE

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

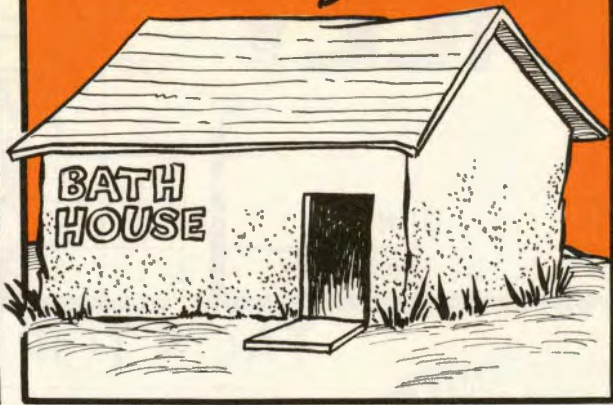
TAC	1983	6.9	5.3	3.4	3.8								
	1982	7.8	5.7	5.9	5.2								
ANG	1983	9.1	7.0	4.4	4.3								
	1982	0.0	2.7	3.2	3.4								
AFR	1983	0.0	0.0	0.0	0.0								
	1982	0.0	0.0	0.0	0.0								

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

AIN'T MUCH THAT BEATS
A NICE COOL SWIM AT TH' END
OF A HOT DAY.



RELAXES TH' OLD BODY AND
GETS YOU READY FER A NITE
ON TH' TOWN.



SURE AIN'T MANY
FOLKS AROUND TODAY?



THAT'S EVEN BETTER, GOT TH'
WHOLE POOL TO MYSELF.



FRUMPI!

